Sustaining Partnerships:

a conference on conservation and sustainability in
UK Overseas Territories,
Crown Dependencies
and other small island communities

Gibraltar
11th to 15th July 2015

Proceedings

edited by Mike Pienkowski & Catherine Wensink
with Sarah Barnsley, Emma Cary & Ann Pienkowski

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Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th June 2015
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In addition to the prime resourcing by HM Government of Gibraltar and UKOTCF, we acknowledge the support from Defra for some of the preparatory work in the previous years, JNCC for support for some of the participating UKOT governmental participants, and Treweek Environmental Consultants for the EIA workshop.

Front & back cover main picture: The Rock emerging from the morning mist. Photo: Mike Pienkowski

Conference participants Photo: Juan Carlos Teuma, Gibraltar Government Press Office

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Editors' Introduction

In these proceedings, we try to capture as much as possible of the valuable information brought together at the conference, both as an *aide memoire* for those present and to make it available to those who were not.

In this first section, we include first the conclusions and recommendations resulting from the conference. These bring together in a structured way many of the discussions from the various sessions, as well as preparatory discussions by widely drawn teams donating time in advance and consultations involving conference participants after the conference. In Appendix 4, these are presented in an alternative form, divided between the target audiences.

Our first section continues by setting the scene in a wider context, including that of policy-making. It comprises the opening speeches, both at the opening event in the Garrison Library and at the start of the first full conference session. These are followed by the keynote lecture by our host, Hon. Dr John Cortes, Minister of Healtth, Environment and Climate Change in HM Government of Gibraltar. As well as introducing us to Gibraltar, this lecture reviewed progress, especially since the previous UKOTCF conference here in 2000, as well as some current issues.

The following sections then address each session of the conference, combining in one place any sessions split in time. Posters are incorporated in the appropriate section where there is one. Other posters are brought together and placed in the sequence at the time of the main poster session (although posters were on display throughout the conference).

For each paper (whether based on a talk or a poster) for which the information was available, we have included an abstract and a main text, supported by illustrations where appropriate and available. In a few cases, lack of availability prevented inclusion of some items. For some items, such as Minister's speeches, we have adopted a simpler format. In some cases, explanatory notes not in the authors' words need to be added; these are generally in italics where this aids clarity.

A large part of each session was deliberately devoted to discussions, to facilitate taking issues forward in an integrated way. Most of these discussions are incorporated in the section on Conclusions and Recommendations. In some cases, notes of discussions are included in the section documents, especially where these address additional points. The meetings of UKOTCF's regional working groups are reported separately in their usual series of records, and also contributed to the Conclusions and Recommendation. Therefore, full reports are not included in these Proceedings.

We include with this group of technical sessions, and slightly out of sequence, the post-conference workshop on Environmental Impact Assessment.

Then we turn to the closing speeches, either at the end of the final main session, after summaries of session recommendations, or at the Closing Conference Dinner. These speeches comprise, first, those by Ministers or other leaders from other UK Overseas Territories or Crown Dependencies who had attended all or part of the conference. Then, we have UKOTCF's thanks presented by the Forum's Chairman, Liz Charter, and host Ministers' closing speeches.

These are followed by the conference's Conclusions and Recommendations, compiled in a process (explained in the section) starting before the conference, running through it and ending in post-conference consultations with participants.

The Proceedings end with several Appendices, which include the final published programme, the list of participants, the feedback received from participants, and the alternative form of the Conclusion and Recommendations noted earlier.

A new innovation at this conference, and one which UKOTCF had worked hard with our HMGoG hosts to make happen, was the first meeting of Environment Ministers or equivalents of UK Overseas Territories and Crown Dependencies. This was held the day after the main conference (see Appendix 5).

Many people have helped in producing these proceedings. We will not the repeat the thanks to all those involved in making the conference happen (see pages 447-448) – but we, of course, stress those. In the editing of the proceedings, we thank additionally all the authors of papers and posters and others supplying additional material. Our thanks for this are not reduced by the fact that we have to say that not all of these followed the instructions for submission of written versions and supporting illustrations! In order to overcome this and to record discussions, we are grateful for the help of Ann Pienkowski in transcribing recordings and processing images, and to Sarah Barnsley,

Emma Cary, Natasha Natasha Bull and Phoebe Carter for taking excellent notes.

Unless indicated otherwise, uncredited photographs of authors are by UKOTCF. Other uncredited photographs in articles were supplied by the authors. Uncredited photographs in the general sections are by the UKOTCF conference team (including Jamie Woodward, Piers Sangan, Ann & Mike Pienkowski, and Catherine Wensink). We are indebted for many photographs (including the conference participants) to Juan Carlos Teuma, from the Gibraltar Government Press Office. We are grateful also to the many other photographers who have made pictures available; these include Andrew Dobson, Mervin Hastings, Bryan Naqqi Manco, Boyd McCleary, and Chris Tydeman.

The conference outputs do not stop with the conference, as these proceedings and many other things show. In this context, we want to thank participants for letting us know about susequent press articles, including those in Bermuda and Isle of Man and St Helena that we know were published. The BBC website carried an article resulting from the conference on St Helena invertebrates. BBC Radio 4's *Costing the Earth* series carried the programme largely recorded at the conference and based on the marine session. We try to recording outputs from the conference or made possible by it (for example, a work experience programme organised with Isabel Peters from St Helena and undertaken by her while in the British Isles before and after the conference). It is valuable, not least when trying to resource future conferences. Therefore, please keep us informed of further ouputs or other consequences.

Although these conferences require a very great deal of work to be successful, we are cheered by the very positive response from participants (see Appendix 3) and we hope to find the resources to continue this series of conferences.

Mike Pienkowski and Catherine Wensink

Opening: Garrison Library

Speakers:
Deputy Chief Minister, The Hon. Dr Joseph Garcia
Minister for Health, the Environment, Energy and Climate Change: The Hon Dr John Cortés MBE MP CBiol CEnv
Dr Mike Pienkowski, Honorary Executive Director, UKOTCF

Minister for Health, the Environment, Energy and Climate Change: The Hon. Dr John Cortés MBE MP CBiol CEnv

Ladies and gentlemen, good evening. And hello to all the old friends I haven't yet bumped into. I'm waving at some of you now. It's really really great to see you here, really wonderful: at all sorts of different levels. The last time I saw some of you here, I certainly had no idea I was going to be doing the job I am doing now. So welcome back. I have no idea what I will be doing the next time you're here, but we'll just have to wait and see.

I'm going to be saying a few more words tomorrow at the opening of the formal part of the conference. So I'm not, other than this very brief welcome, going to say much now, but it gives me great pleasure to welcome and to introduce the Deputy Chief Minister of Gibraltar.

The journey that has brought me to where I am would not have been possible had I not been absolutely convinced that the Government that I was joining, or was going to join after the election, was totally committed to the environment.

Dr Joseph Garcia, who is the Deputy Chief Minister, is a great supporter of everything that I do and my department does. He chairs the Gibraltar Climate Change Task Force and is a great ally to have when one is trying to push the environmental dimension in everything that we do. So it gives me great pleasure to welcome you formally to Gibraltar, and to introduce my colleague, and my boss, the Deputy Chief Minister Dr Joseph Garcia.

Photos in this section by HMGoG: Conference Opening at Garrison Library

Deputy Chief Minister, The Hon. Dr Joseph Garcia

Thank you, John, for that introduction. I think anybody who knows you will know that you have no bosses, other than the environment.

So welcome all of you, distinguished guests, to this conference "Sustaining Partnerships - a conference for conservation and Sustainability in UK's Overseas Territories, Crown Dependences and other island communities."

It gives me pleasure also to welcome the Minister for Economic Development, Joe Bossano, who has just walked into the room. You will be able to talk to him later on this evening.

This, the conference, has been organised by the Department of the Environment and Climate Change of Gibraltar, by the UK Overseas Territories Conservation Forum, and with the support of the Gibraltar Ornithological and Natural History Society. It is an impressive line up, I mean looking through the programme for the conference, which John very kindly passed on to me. It is extremely impressive to see the level, the high level and the high quality of the guests, of the speakers and the list of participants, and certainly it is something which Gibraltar welcomes. We very much value our relationship with the other Overseas Territories. It is something we should cherish. We share many things in common, not just the links with the United Kingdom, but certainly the values and history and traditions. I think that is something which we all share. And we feel very much in Gibraltar that we are part of that wider Overseas Territories family.

And some of you are Crown Dependencies, and some of you are island communities with perhaps not that link with the United Kingdom, but certainly you are all very welcome here in Gibraltar; and I understand that 100 people are taking part in the conference. By our standards that is pretty huge! Gibraltar is a very small place. The population is about 32,000 people in the last census. So to have 100 people coming in is certainly helpful and a real boost to our tourist figures, and our hotel occupancy. Very useful!

I understand the first conference took place here in the year 2000 – indeed I have met some of you already who were here in 2000 for that conference – and the last one took place in Cayman in 2009.

I'd like to say something about what John mentioned, our commitments to the environment and the fact that was one of the reasons why he

stood for election with us. Certainly the reverse also applies. I think having John being our Minister for the Environment has been extremely helpful, extremely useful, and served as an education, certainly to people like me who did not know as much of the environment as we do now.

My own background, for example, is as an historian, and Joe is an economist, so it has been extremely useful to have John with us. I think it is reflected in the policies we have adopted as a government in many areas. There is now an environmental filter in place in relation to all the government policies.

Historically, the Department of the Environment was very much a self-contained department which ran its own show. Now I think it is fair to say that there is an environmental filter across Government policy, and across all Government Departments, and John has been instrumental in achieving that, and in putting it in place, together obviously with the fantastic team at the Department of Environment here in Gibraltar. You see that reflected for example in policies like renewable energy. This is something which you would have thought, with Gibraltar being in the Mediterranean and having so much sunshine, that this was

something that should have been developed much earlier, but it wasn't. And it's taken us to come into office, with John as the Minister for the Environment, to see, for example, solar thermal projects taking place. There are a couple of solar thermal projects now underway here in Gibraltar. They have been immensely successful – not just from the point of view of generating electricity in areas like a sports-hall and in areas like an indoor swimming pool, but also in resource-saving. This is a useful saving that Gibraltar has made, both economically nand environmentally, as a result of that. So thank you, John.

Also in relation to power generation, for example, we are now considering moving from diesel to gas. Gas is a far cleaner source of energy, and again, that is something which we have progressed during this term of office.

But also in relation to our natural environment, one very obvious policy, which was listed in our manifesto and carried out very enthusiastically, is simply tree planting. The number of trees which are being planted all over Gibraltar under the Department for the Environment is extremely impressive

You will have seen, or some of you will get the opportunity to visit hopefully, during your stay here, Commonwealth Park. This is a green area in the centre of town, which used to be a dirty noisy car park but, within 3½ years, we've actually transformed that into an oasis in the centre of our city. And I hope some of you will go along there and visit. It is certainly worthwhile.

Also, in relation to the marine environment, and in relation to the Upper Rock, there are certain measures that we have taken which are there to strengthen and to protect the maritime and terrestrial heritage of the environment in these two areas. It is one thing to have legislation in place – and we have – and another thing is to enforce it. And we have done this. We have employed an environmental enforcement team which is now out at sea and also up in the Upper Rock as well. So again we need to legislate but also we need to act at the same time to make sure that those rules are not broken.

I think, to round up, what I need to do is to first of all thank all of you, and to officially and, on behalf of the Government and people of Gibraltar, to welcome you to Gibraltar, to wish you success in your deliberations. I know the conference is being opened officially tomorrow by the Chief Minister together with John Cortes, so that will be the official opening. My role simply is to welcome you to Gibraltar and to wish you all the very best in your discussions. Thank you very much.

[Applause]

Dr John Cortes:

I'm acting as Master of Ceremonies but, before I hand over to Mike, I must comment that my friend and colleague Joe Bossano walked in just as Joseph Garcia was saying the words "distinguished guests".

I must say that Joe was Chief Minister of Gibraltar for 8 years from 1988, at a crucial time in the development of the environment in Gibraltar. It was under his Chief Ministership that the Nature Protection Act, which pioneered European environmental legislation, was passed, the Botanic Garden was founded and the Gibraltar Ornithological and Natural History Society was given premises from which it took off. Also, the first Minister for the Environment was during Joe's tenure. So I can very well tell you that none of us would be here, and none of what you see around would be the way it is, if it hadn't been for the years that Joe was Chief Minister. And I really need to say that in front of distinguished guests.

[Applause]

Dr Mike Pienkowski, Honorary Executive Director, UK Overseas Territories Conservation Forum

Honourable Deputy Chief Minister Dr Joseph Garcia, Hon Minister for Health, the Environment, Energy & Climate Change Dr John Cortes, Honorable Minister for Economic Development, Joe Bossano, Honourable Minister of Environment from Montserrat Claude Hogan, Chief Executives, Directors, specialists, workers, volunteers, colleagues and friends. and apologies to others whom this simple scientist may have inadvertently omitted.

On behalf of the Council, officers and whole network of UK Overseas Territories Conservation Forum, thank you to HM Government of Gibraltar for hosting this conference and providing the largest contribution of financial support. This is not, of course, in any way to underplay the support of UK's Dept of Environment, Food & Rural Affairs, Defra, in a previous financial year for the part of the early planning stages, and that of JNCC in contributing to the costs of some of the technical participants from some of the UK Overseas Territories government bodies. I want to thank also particularly Dr Jo Treweek, of Treweek Environment Consultants, for large donations of very highly qualified time in respect of EIA workshops – and indeed my colleagues in UKOTCF for absolutely huge amounts of donated time. Thank you all for coming, and to you and all your colleagues at home for all your preparatory efforts.

It is a real pleasure for me personally to be at the opening of this conference in Gibraltar. Apart from the oldest amongst us (and I am trying to avoid looking at anyone in particular), many participants may not know that this series of very productive conferences started in the late 1990s as a collaboration of HMGoG, UKOTCF and GONHS. Although this was not the first UKOT/CD conference to take place, it was the first to be organised. It was well planned over two years to take place as the Calpe 2000 conference *"Linking the Fragments of Paradise."*

During the planning period, UKOTCF had helped Iain Orr, then of FCO (who is here today, now an escapee – sorry, retiree – from FCO – and a Council Member of UKOTCF), organise at short notice a conference in London called *"A Breath of Fresh Air"*.

The *Calpe 2000* conference set the standard for

what turned into a series of working conferences for conservation practitioners in the UK Overseas Territories and Crown Dependencies. At all of these, we have had some involvement from overseas entities of France, the Netherlands and other nations, as well as small independent states. A colleague from the Dutch Caribbean had long been planning to be with us on this occasion, but an urgent local issue caused her to withdraw. We are very pleased to have participants from French overseas entities, as well as from St Lucia and larger nations with an involvement – including what I nearly described as the former UK overseas territory of the United States.

In total, when I last counted, we have 17 territories and the 4 home countries of the UK represented, as well as nine other countries.

The Gibraltar conference in 2000 was followed by Bermuda in 2003, Jersey in 2006 and Cayman in 2009. These have been very productive in, as one participant put it, making good things happen that otherwise wouldn't. I am not going to detail examples here, but these and feedback are analysed in the proceedings of earlier conferences. One of the most frequent questions we received

from territory partners in the long gap since the Cayman conference has been: when is the next UKOTCF conference? Well: here it is.

We had hoped to have a UK Minister at this conference but the short time interval since the relevant ministerial appointments following the UK General Election has prevented this, despite the valiant attempt by officials, whom we thank. The then Defra Minister of the Natural Environment, who participated throughout the Cayman conference, is now in opposition – I don't think that these two things are linked! By a happy coincidence, this former Minister, Huw Irranca-Davies MP has just been elected as the Chair of the House of Commons Environmental Audit Committee. UKOTCF has worked closely with this Committee in the past, and I know this Gibraltar administration has too. Mr Irranca-Davis has asked me to pass to the conference a message, and I am pleased to do this now:

> Dear Mike
>
> It was an honour to address the last UKOT environmental conference in 2009 and it was with regret that I had to decline the invitation to the upcoming conference. I appreciate your understanding of the requirements on my time at this important early stage of re-establishment of the committee.
>
> I do hope that you will convey to the conference audience that I look forward to building the relationship with UKOTCF and helping the committee play its part in ensuring the overseas territories continue to be recognised as a crucial part of the UK's approach to biodiversity, environmental protection and sustainable development.
>
> Great progress has been made, including the designation of a marine protected area around the Pitcairn Islands and the committee will be keen to keep an eye on progress here and towards a Blue Belt around the overseas territories, as well as other matters related to the conservation of UKOTs. On that basis I would be grateful if you could notify the committee team of topics arising from the conference which you believe will be of interest to the EAC, it will be most useful in developing the committee's future programme.
>
> Kind regards,
>
> Huw

[Applause]

We shall obviously respond after the conference to the Minister, based on the conference's discussions.

Throughout this series of conferences, we have tried not just to help progress environmental conservation and sustainable use, but also to learn from our experiences in running conferences ever more efficiently to make use of the generous support and all your valuable time.

I recall that, at the time of the *Calpe* conference, the then Director of the Gibraltar Botanic Garden and General Secretary of GONHS, as well as the lead local conference organiser, a certain Dr John Cortés, told me that he viewed organising that conference as the peak of his career. This was typically modest of John – as I see the voters of Gibraltar, and you Deputy Chief Minister, agreed – so that John has embarked on yet another career.

The primary objective of this conference remains in common with its predecessors: to exchange information and experience on best practice so that we can all be as effective as possible with our limited resources, and to develop joint approaches and projects where this is mutually advantageous. We know that Gibraltar and all territories have good examples – and experiences of addressing challenges – from which the others can benefit in progressing to a sustainable future.

Hence our title, developed around a table last year in the office of Hon Dr John Cortés, and with the approval too of the Hon Chief Minister: *Sustaining Partnerships*.

I thank you for your attention and look forward to the presentations and discussions over coming days.

[Applause]

Opening of conference first session

Hon Dr John Cortés, Minister for Health, Environment, Energy and Climate Change, H.M. Government of Gibraltar

It was unfortunate Her Majesty's Government of the United Kingdom was not able to send a representative to Gibraltar, for whatever reasons they may be – and when it comes to Gibraltar. But the message is what it is all about – and we will make absolutely sure that the conference, meetings of the Ministers on Thursday, and the Government of Gibraltar will listen to the results at the conference and make absolutely sure that the messages get through Her Majesty's Government in the United Kingdom.

I am really looking forward to the next few days. I have made gaps in my diary so that I can be here with you for a lot of the sessions or as many as possible. I am just going to say a bit about Gibraltar. Most is not within my comfort zone of the natural environment, but economics, which is certainly not in my comfort zone. I get on extremely well with the Minister for Economic Development, who was here yesterday evening at the opening ceremony. We differ in that he likes to make money and I like to spend the money that he makes!

Gibraltar's economy is astoundingly sound. This year, we had a budget surplus of £54m, which is tremendous for the size of Gibraltar. Following a £65m surplus last year, we allocated £10m to opening a University, because that is the sort of thing one does. The annual growth of the economy is over 10% per annum and has been right the way through the economic crisis. Gibraltar is third in the world in GDP per capita. We are attracting investment. A few weeks ago, we announced an investment of £1.1 billion in a development on east side of the rock on existing reclaimed land, so no environmental impact to worry about. Despite economic growth, despite an unemployment of 190 which is almost zero unemployment, and we are just next to a community with 30-40% unemployment in Andalucía, despite all that, we are not negatively impacting the environment in any significant way. As Minister for the Environment, I have not had to lose much sleep over what we are doing in developing and in making the strides that we are making economically. I think that is something really significant.

During all this time that we have had this continuing economic growth, we, for example, increased the size of our protected areas. We have changed the Upper Rock Nature Reserve into the Gibraltar Nature Reserve, which now covers most of the non-urban area of Gibraltar. We have declared a Special Protection Area and a Special Area of Conservation, both under EU law, on the Upper Rock. We have legislated marine protection and introduced marine protection regulations on the 1st of January this year. For the first time, we are actually monitoring and enforcing this type

of law. Last week, we published a Command Paper to review the Town Planning Act, which will mean that all Government projects have to go through independent Development & Planning Commission before they get approved.

All these things we are doing; yet we are thriving as an economy, so the environment and the economy are not necessarily in conflict. They can work together, provided you know how to do it, and I think here in Gibraltar we are learning quite fast.

Clearly, in order to be able to advance an environmental agenda we need the support of the people. I have been working, as a lot of you will know, for the Gibraltar Ornithological and Natural History Society, as an NGO, and we have been working very hard for decades now, to gain the support of the people. This is not always easy, when you have monkeys climbing in through your windows and seagulls keeping you awake at night. So these are challenges, but nevertheless we still have the people on the side of the environment. When you do things like change a dirty car park into a brand new grassy public park, people clearly come on your side. The number of people that stop me in the street and say that their lives have been changed by Commonwealth Park, it is the sort of thing that does get the support of the people.

On the subjects we will be discussing during the course of the week, I think they are all particularly relevant to all of the small territories, and Gibraltar is just one example of all the different ones, who have all the different challenges, some very different, but some quite similar. In the session today on implementing biodiversity action plans, we have some experience here, but I think we can improve on this and learn from others.

Sustainable use of terrestrial and marine resources are particularly difficult to manage on small islands and peninsulas such as we are. As some of you know, we have had tremendous controversy when it comes to managing our fishing resources. This is because ours is not just a protected area, but it is a protected area which is also claimed by another country, which does not acknowledge that we own the waters which we are trying to protect. So this adds a tremendous complicated dimension to the question of marine protection.

Renewable energy is something which we are just starting in Gibraltar. It is something we should have been working on many many years ago, but we have only been in government for 3½ years. Already we are seeing the first solar photovoltaic panels feeding into our grid. Already we have signed two Memoranda of Understanding to produce energy from waves and from marine currents, and we are working with pioneering companies to develop this kind of technology to replace the burning of fossil fuels.

Sustainable Development… I have already mentioned the progress we are making with our planning legislation. Our Development and Planning Commission is public; it sits in public. People can come along and make representations. It is an absolutely free vote. The Deputy Chief Minister and I both sit on it and we often vote in separate directions, and that is absolutely fine. I think that people are realizing that this is the way that good governance is done.

Environment education and awareness clearly is something which is very important.

So they are all very relevant subjects. Relevant to us, here in Gibraltar, and relevant, I am sure to everyone here.

This is the type of meeting which is not just a talking shop. We must make sure that we take things away with us and we make things happen. We have to make sure: that we all progress on our way to sustainability and carbon neutrality, which is possible in small territories such as ours; that we develop ways in which we restore and protect natural areas; and that we increase our knowledge of what our natural environment is. We have to take a message to a wider audience and not keep it within ourselves as small territories, not just to Her Majesty's government, but to a wider audience. We should make our small territories real examples of good environmental governance. I look forward to seeing all these things develop in the next few days. Thank you very much for your time this afternoon.

[Applause]

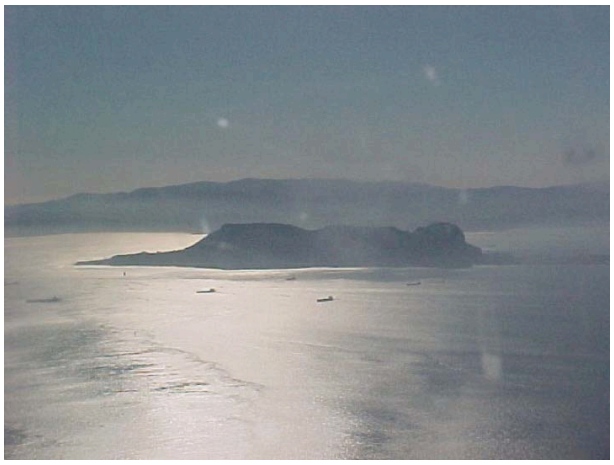
Special lecture

Conservation: the Gibraltar perspective revisited

Hon Dr John Cortés, Minister for Health, Environment, Energy and Climate Change, H.M. Government of Gibraltar

Mike Pienkowski: We have been very pleased how much of the conference that Minister Dr John Cortes has managed to attend, despite other matters of state. We are particularly please that he is back with us this evening. Now, as John will complain about me saying, to a highlight of the conference. In fact a highlight of the previous conference in Gibraltar in 2000 was when John, in a former life, gave a conservation view from a Gibraltar perspective to that conference. I'm afraid I looked up the proceedings, which you can all see on our website. Apparently although there were good relations between GONHS, which John was then heading up, and the then Government, there were some concerns. To quote, "noticeably the environment did not feature in any party's electoral manifesto earlier this year". Now I think that may have changed! So, John, in fact is revisiting a conservation view from a Gibraltar perspective, and we look forward very much to hearing it: Dr John Cortes.

John: Thank you Mike, thank you. Hello again. I always think it is a bad thing to watch the trailer of the movie, because the movie is always a let down, and he has said so many things about this. I do apologise if the trailer was better than the movie! Apologies also for not having been here all day. I really wanted to, but as Mike was saying, I've had to catch up on matters of State, because actually the Chief Minister and Deputy Chief Minister are currently halfway across the Atlantic on their way to the United Nations Committee of 24. This is a very important thing for Gibraltar, so I am currently acting Chief Minister. So if there are any recommendations you wanted done, for the next 48 hours I can make it happen!



Mike asked me to give you an update and to re-visit conservation in Gibraltar. I've actually found some of the slides that I used as cues in that talk. So I'll show you them later, because I think that it's quite interesting to have a look. I know that a lot of you have been saying lots of good things about Gibraltar – and I must say that from an environmental perspective there's a lot more good about Gibraltar now than there was 6 or 9 years ago. But I don't think we should for one moment think that we've done enough, that we've got all the answers, and that all is hunky-dory. I could give you a list of other things that aren't. I just needed to show a little bit of modesty there. I'm looking at my fantastic team and they're shaking their heads, saying no, we're absolutely wonderful. We are – but we've got a lot more to do.

Having said that, what I intend to do today is to take you through a little bit of a journey:

- give you a little bit of history of the natural history of Gibraltar, which is really where I started this other journey,
- and then take you through what I think has made a difference in Gibraltar in the last 3

years since I joined the Government team

- and then show you a few photographs of things that we have been doing and things that I think you might enjoy.

One of the most significant things I think is actually the title; having put the title "Climate Change" into the name of the Department and the name of the Ministry, to me was an achievement in itself, because 3½ years ago nobody really cared about climate change in official circles in Gibraltar. So I think that is most significant.

In case you think that the sea-level is rising even faster than it is, that is sea-fog *[referring to above picture]*; otherwise we would be underwater right now.

Just going back to the UKOTCF Jersey conference in 2006, which is really where I more-or-less based the theme of my talk, this picture just to remind us that some of us do age and some of us do not.

From the left: Charles Perez, Dr Eric Shaw, Dr Mike Pienkowski, Dr John Cortes and the Bailiff of Jersey Sir Philip Bailhache at the opening of UKOTCF's 2006 Jersey Conference Biodiversity That Matters

The Rock of Gibraltar, a mass of Jurassic limestone, very well known through history, and very well known increasingly thanks to the work

of the Gibraltar Museum and others in pre-history. If you just consider that sea-levels during the last glaciation were much lower than they are now, and that to the east of Gibraltar there was a plain that went out a least 3-3½ km, this is probably what the view from the Rock would have been then.

This is the Cota Donana, in Andalusia and one of the key national parks in Europe, the first one that WWF was all about, and this is the type of

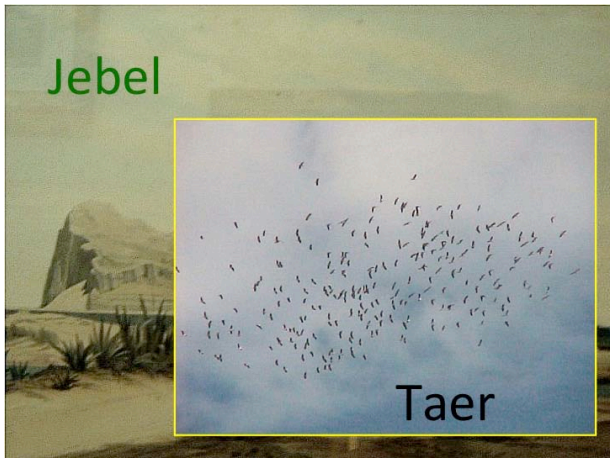
habitat that there would have been on the east side of Gibraltar, with the pine woodland which is also a feature of that. A lot of work done, on fossils, pollen and the archaeological evidence, which shows that this is what it used to look like.

The Rock of Gibraltar was a limestone mass, with lots of nice caves, which attracted birds

and wildlife, and Neanderthals, and then modern humans, who would go out to hunt on this massive plain to the east, and less so to the west. I will show you a little bit of bathymetry later which will show you that in proper perspective. And they would have been chasing after wild boars, which in fact became extinct in Gibraltar as recently as the 1700s.

One of the key things that a lot of people know about Gibraltar is bird migration – and I know that Mike has been off birdwatching on some of his trips here, again that's where I started my interest in nature. It is a key place for migration of birds of prey, as well as seabirds (some of you will have seen shearwaters and Mediterranean gulls the other day), and also for small birds. It's a key crossroads of bird migration.

In fact my theory is – my friends from GONHS and the Department are going to say "he's at it again" – that the name of Gibraltar comes from the birds. Traditionally it is said to come from *Jebel Tarik*, Tarik having been the Moorish chieftain who took Gibraltar in 711. I don't really like to have my homeland named after a warrior.



I'm sorry about that. *Jebel* is a mountain in Arabic, but the word *Taer* means 'bird' in Arabic. I'd much rather think that they came across and it was May, in which case they would seen these

masses of honey buzzards coming in. There would have been many more then than now, coming in across the Strait. So, they said "oh, this is Jebel Taer", the Mountain of Birds. That is what I would like to think my homeland is named after, the birds and not the warring chieftain. A lot of our history is actually military history, and it's very important, and the military still play a very important role in Gibraltar – but I still prefer *Jebel Taer*!

Gibraltar is well known in history, in natural history, and in the history of natural history. Gilbert White in 1711 referred to migration, possibly for the first time in at least semi-scientific writing, from his brother John who was here in Gibraltar. He was one of the priests of the garrison, and he reported "myriads of the swallow kind... bee-birds, hoopoes, oro pendols [golden orioles]... the various sorts of hawks and kites" I think that's a lovely quote which I like to think makes Gibraltar so special: people actually found out about migration from Gibraltar.

Gibraltar in those days would have been much more wooded, and certainly earlier in Neanderthal times. Incidentally, you would have picked up by now I would imagine that we are a UK candidate site for UNESCO World Heritage this coming year. A lot of work has been done, to achieve that. We hope this will became a World Heritage Site before the next 12 months are out.

I've got to put in some of the other old writings, and this is from Portillo, a Spaniard writing before the British came in 1704. Talking about the great abundance of plants and herbs and shrubs and trees in such a small place, something that we still are very proud of, he writes about the damp crags, the caves, heavy soils and sands. He is already talking about the different habitats that there are in such a small place, and I think that, coming from the 1600s, this is a very interesting quote. Just picture the crags looking much as they do now, although much else has changed.

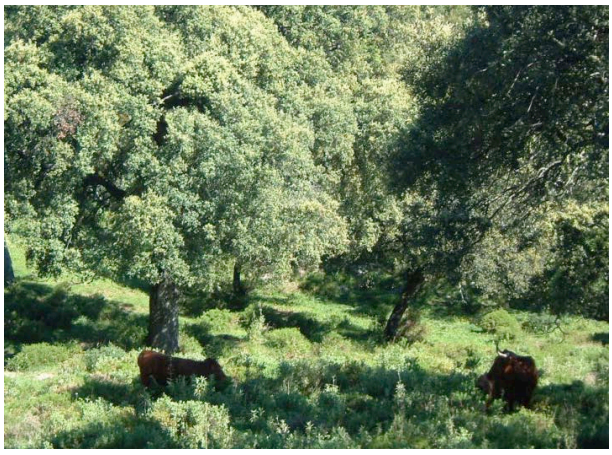
This is an interesting one: "In view of this in 1566, by decree of King Philip II … there came to this City one of his herbalists who marvelled at the diversity of herbs that there were in such a small land." I think that is a lovely little reminder of how rich Gibraltar is, with all its little nooks and

crannies, and that's just to show one of the habitats. And yet again, talking about another habitat which sadly we've lost, the sands, there isn't much left of the sands on the isthmus. The airfield is there now for example. It's much more romantic in the Spanish: "Descending from the Hill you come to the sands where there is another great diversity of herbs which love this place until they reach the sea, where like in mirrors they seem to contemplate their reflection.", I mean, that's the sort of thing, so there are some plants contemplating their

reflection. [laughter]

I spoke about the sandy area. Gibraltar was linked to the mainland by an isthmus. It is still linked by an isthmus, but now we've got the airfield, football ground and housing estates and so on. This is something like the sort of habitat we used to have there.

The impact of man is very important even now – and the whole question of environmental governance is how we govern the impact of man on the environment. Gibraltar has experienced it through time. In 1620, Portillo referred to the amount of livestock. Cattle, pigs, sheep and goats were most abundant. He mentioned also about the extreme abundance of fish. I'll talk about the marine later on in my talk, but already these

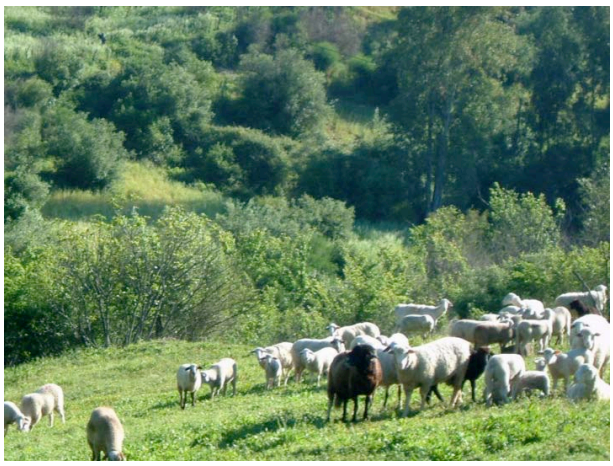


issues are coming up. Livestock is an important issue. This *(above, previous page)* is a picture of a limestone hillside in nearby Spain. Below

is probably what the Upper Rock and the lower areas, particularly where the town is now, would have looked like in the 1600s.: this sort of habitat with trees and open ground.

From just before 1704, this *(above)* is another old print. You can see the town bottom left – in red. In much of the rest, there were fortifications, as you can see. This is obviously an artist's impression, but most of the rest was totally not built upon. Once again, this is a picture that I make in my mind, of the sort of habitat that we would have had in Gibraltar.

Later on, some of the British writers keep going back about how important Gibraltar was for health. They used to come here because there were so many trees, and it was so wonderful to be in the shade of trees. In fact, wood was shipped from Gibraltar to North Africa in Moorish times. This was probably through Gibraltar, rather than from Gibraltar. However, again I'm trying to give you a picture of a fairly heavily wooded hillside, which later got opened up to graze the cattle. And then clearly sheep and goats had a bit of an impact, and gradually we would have lost the tree cover that continued until Gibraltar, in the 1800s, was "entirely barren, there being neither grass nor



shrub, and the ground, covered with sharp, loose stones, … has a disagreeable aspect."

Again, there were many trees prior to 1704 and these remained in 1727 when the regiments "who were encamped to the southwards, had leave to cut some for their firing, which they took in its full latitude and levelled almost the whole." That's a wonderful piece of writing. And, in fact, because Gibraltar was besieged, there was no source of fuel, so the troops would have gone up and removed all the trees. If you look at the species composition of the hillside in Gibraltar,

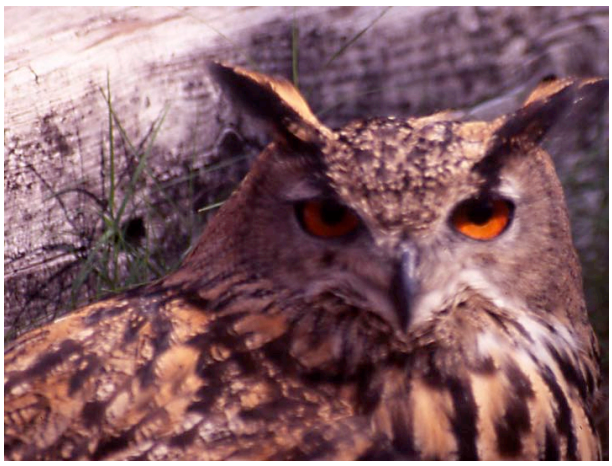
some work that I did many, many years ago as an undergraduate, this shows that all the big trees,

like the oaks and so on with seeds that can't travel back, are no longer there, except one very small patch of small oak at the very top of the Rock. So this is what the Rock would have looked like in the 1800s, fairly bare, hardly any trees in sight.

This is a picture of a similar hillside in Spain which I have just used to show you as a photograph rather than as a painting as the sort of aspect that I think the Rock would have had in those days. Clearly a very different species composition. A writer around about that time had nesting black wheatears which are no longer here, Dartford warblers, and so on. So birds of lower and more open habitat. Clearly, the goats which were then introduced, helped to keep the vegetation low and open and

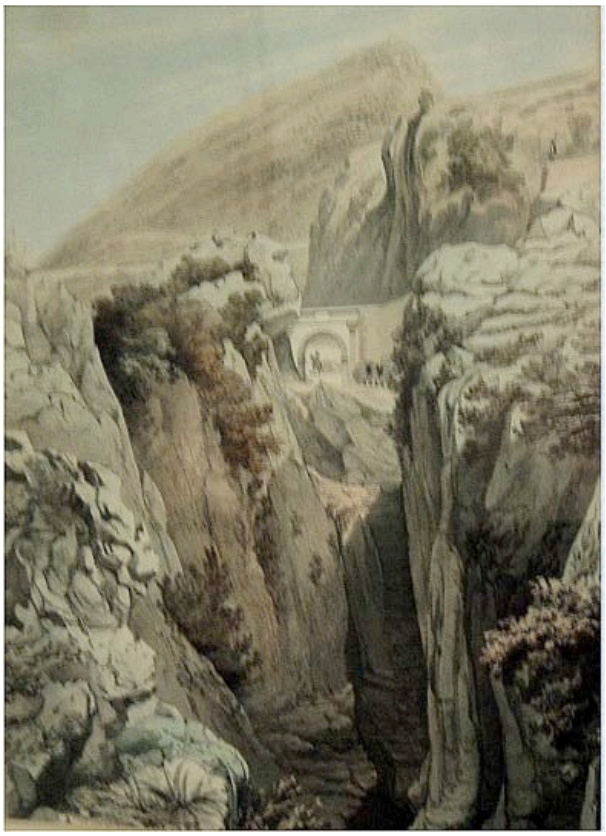
didn't allow it to grow again until the Second World War, when the military built what we knew as the "unclimbable fence" from north to south. This stopped all the locals and all their animals from going further up. Then the habitat started to regenerate towards the maquis which we have now. The goats were removed also from the lower areas a few decades ago.

If we review the birds that we have at the moment, we don't have any large birds of prey nesting. We have 4 or 5 pairs of peregrine falcons, varying from one year to another. Some lesser kestrels nest, kestrels, little owls, and probably eagle owl. But in the 1800s we had at least a pair of osprey, as Saville Grey Ried said in 1871, a pair of Bonelli's eagles, and there were many swallows. Swallows don't nest on Gibraltar any more. I can't really go into all the reasons for this. Egyptian vultures



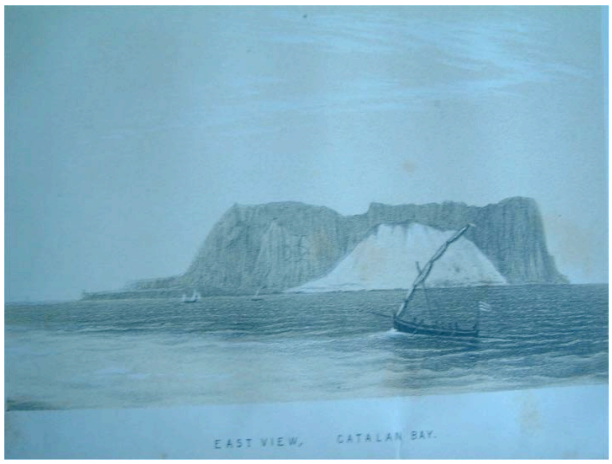
nested, lesser kestrels bred in numbers, probably a few hundred pairs, and rock doves. Now we've got the pigeons, but not the wild rock doves. The eagle owl which disappeared for many years, re-appeared about 10-15 years ago, and there are still eagle owls around. Nesting hasn't been proven in the last few years, but certainly we still have these birds around, and I know in the UK they're not very happy with them, we are very happy to have eagle owls; they love to feed on Gulls, so that helps us. Alpine swifts were always also extremely common. Now there are some small colonies but the blasting that took place disrupted that.

Gibraltar today doesn't look like it used to. There



has been a lot of blasting, quarrying to produce stone for some of the lovely historic walls that we have. The white limestone came from quarries here in Gibraltar. So a lot of the natural cliff habitat

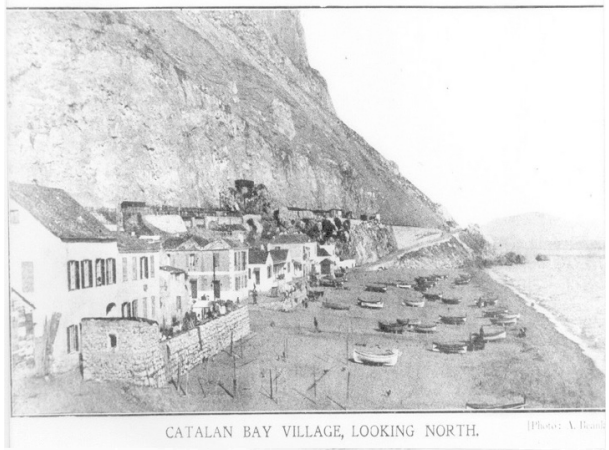
was in fact lost round about the late 1700s and the early 1800s. This is another print of some of the craggy areas. That, in fact, Europa Pass is still there but a lot of the mass on the left hand side is no longer there. Just giving you another perspective, a couple of views of Gibraltar. That headland over there in the centre of the picture has all been quarried away and no longer exists, and in



fact Catlan Bay, which is a popular Bay with beach now is down below. So that is all gone.

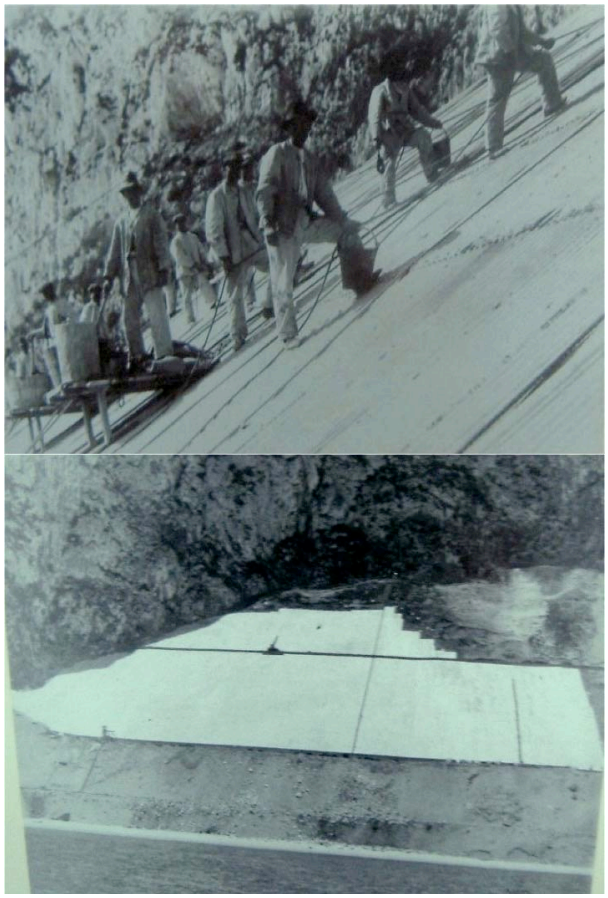
Lots of things that have happened, through the years, where the environment in Gibraltar has changed. This is a particularly interesting one, and it does show how much an impact man can have negatively, and then in restoration positively. Those who went on either the terrestrial or the marine tour will have seen the Great Sand Slopes on the east side of the Rock. As I said before, there were several kilometres of very sandy flat open ground to the east of Gibraltar, so the prevailing

easterly winds in those days would have piled a lot of this sand up against the cliff. Essentially, this is one large sand-dune stabilised by the Rock, so it's been there probably for tens of thousands of years. If you haven't been to the Museum, it's well worth a visit. This is an old model of the Rock. Apologies for the reflection in the glass, but it shows you what the sandslopes looked like.



Looked at from the village of Catlan Bay, in the mid-1800s, you can see already there had been some quarrying to make space for the village.

Here, we can see once again that rather bare sandy slope. There's the Caletta Hotel on those rocks



on the left hand side. So that's just to give you a couple of views of what the stabilised sand dunes looked like.

Then because of the lack of naturally occurring fresh-water in Gibraltar, engineers again in the 1800s, decided that they needed to collect water, so they blasted huge tanks, and they're still in use now, inside the rock. Then they got sheets of corrugated iron and, on a timber frame, they placed these sheets of corrugated iron on the east side covering the whole of the east side of Gibraltar

to collect rainwater and then channel it into huge reservoirs inside the Rock. I remember as a child, when it didn't rain enough, they used to bring tankers on their maiden voyages out from the UK full of water. We had to be very careful in water-use.

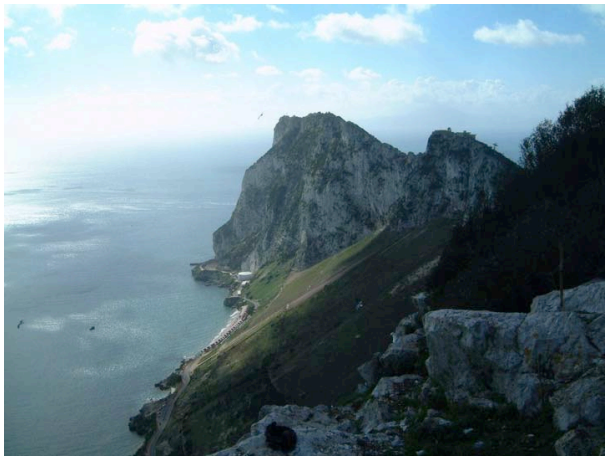
This *(bottom of previous column)* is a photograph of a view which I remember as a child, looking down from the top of the Rock. All those corrugated iron sheets and those channels, which had a gradient so the water would flow naturally into the tanks inside the rock. You can see that patch of water there. That area was used at the time to just dump rubble; that would not be allowed today, I can assure you! In fact, that has since recovered. The sea took it all away.

With time, there was an issue to maintain the catchment; the sheets would corrode and have to be replaced. This was very labour intensive, very expensive, and a huge health and safety risk. I remember sitting at the top of the rock one day watching raptor migration. A huge wind blew up and some of the sheets just whipped up and started flying. They could literally cut you in two. So the decision was taken at the time to remove the corrugated iron sheeting, and you can see some of it removed there.

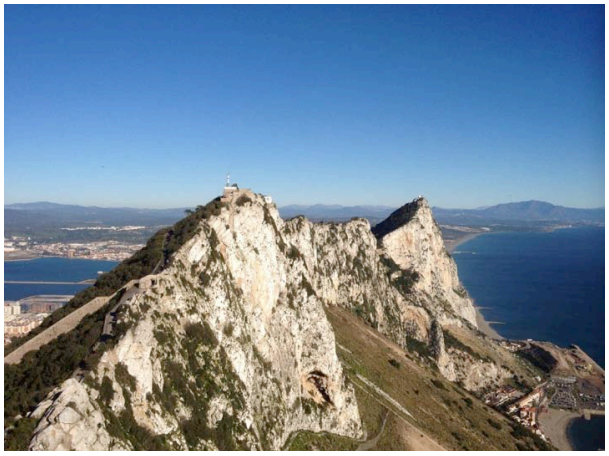
There had been an intention to replace them with introduced species like hottentot fig. Fortunately, GONHS existed and we made representations to the Government of the time. That exotic planting was completely stopped, and the Botanic Gardens were engaged to collect seeds from similar habitats around the area and to sow it. And so now the habitat is restored and you can see it below, at

about 1 or 2 years into it.

Now there's been some succession and it's not as bright and colourful. However, the habitat has been restored essentially.



A little bit of a dark slide, but you can see how now that there is a fairly natural looking slope, and you can see from there as well. So there was a lot of gain there. Some of the plant species that had been lost were targeted and brought back, and they re-established themselves. So, I think that's a very good example of how we can, in fact, recover. It is about that time that the eagle owls and the ravens came back. Whether there was previously more habitat there, I don't really know, but migrants use the area. I saw a black stork there a year or two ago; it just came by and decided to take a rest there. The Slopes are a fair percentage of the surface of Gibraltar, so I think that's a positive thing – and I wasn't even in Government at the time! [laughter]



Progress in natural history, the environment and their governance in Gibraltar

I'm going to go now to stop looking at pretty pictures and talk a little about the progress of the environment and of the governance of the environment and the natural history in Gibraltar. Some of my text slides from UKOTCF's 2006 Jersey conference provide a convenient framework [and key wording from these is in bold italics below].

Resources or resourcefulness .. which do you require in order to advance in nature protection? I looked at ***what we needed resources for***. Remember I was talking as the General Secretary of the Ornithological and Natural History Society. The word "journey" keeps cropping up, but it's a journey that I started with a lot of my friends and some of them are here, and we were talking about how the NGOs could develop in order to increase the influence that they had or would actually have. So we looked at ***organisational development*** aimed at ***protection of nature***, and then trying to use ***resources to improve the environment***.

Funds: what was the purpose that we needed funds for? We really needed to target and be sure that we had the right idea, and the right projects. Then we needed to have the ***people*** and the ***premises***, we needed ***equipment*** and ***vehicles***, and that all helps to increase your ***influence*** because you gain credibility. You know, you've got an address, you drive round with the logo on your car, or even with a car sticker, so all these sorts of things, and then the ***use of the media.*** For instance, the Natural History Society had always used media extremely successfully. In those days, ***websites*** were fairly new, so all those were things that as an NGO we needed to bring together starting virtually from nothing.

Then ***money***, obviously, ***not for the sake of it***, not because you just wanted to have money, ***but targeted and for a purpose***. ***Support***, get the ***public*** on your side, work with ***other organisations***, work with the ***authorities*** and with ***government***, make sure that they came to rely on you, rather than see you as an opponent, and then spread your wings ***internationally***, Birdlife International, Plantlife, the Forum and so on, and

concentrate on increasing your ***membership*** so that you gain popular support.

And ***from these resources***, you gain ***knowledge***; you gain ***support***; then you gain ***protection*** of the environment – which then means ***success***.

At the time, I thought we were getting quite close, and I daresay that the Natural History Society in Gibraltar actually achieved more than people can imagine in getting "environment" to become a household word in Gibraltar. People stopped you in the street, asking you even something as what to do with the aphids on the roses, because they linked you and your colleagues to the environment. So it gave the environment a personality – which in a small community you can do. So I think that's something that's very important.

So these were things that I was thinking about at the time, that I shared with some of you in Jersey, and some of the others who aren't here today. For some of the examples I used at the time, ***representation on committees***, on the heritage committee, on the planning commission (which we were), I'll talk about the Planning Commission in a little while. (I don't want to over-run; I don't have the timer display running though.)

Mike: We wouldn't dare! [laughter]

Consultation, make sure you consult, but make sure you also get consulted and make a fuss when you don't. Make people feel bad that they haven't, and prove to them that they should have done, and then they would have got it right. I'll give you one example now. Some of you may or may not be aware. (Drin [Lutchman] and Chris [Tydeman] [who both conducted the marine resources review for the Government of Gibraltar, commissioned via UKOTCF] know all about it.) The European Union declared a site put forward by Spain, not UK, a protected site, but in the waters of Gibraltar. That happened at the time when the former government had stopped consulting GONHS. And it wouldn't have happened if they had consulted us. They didn't. Spain, the local Spanish government and the British Government were consulted. Spain got away with it and all sorts of hell broke loose, and it's not all settled yet. Unfortunately that's another talk in itself.

So ***getting into the minds***, and then leading to applying for ***EU funds*** which GONHS did successfully, ***OTEP funds*** which we did successfully as well, to produce our biodiversity action plan, and we employed somebody specifically to do that; I think he's in this room. We got EU Interreg funds to go out and do research in ***Morocco***, to gain respect in the scientific community as well, to publish papers, to work with universities – so it's not just conservation but actually working in science, and then applying the science.

Working as part of ***UKOTCF***.

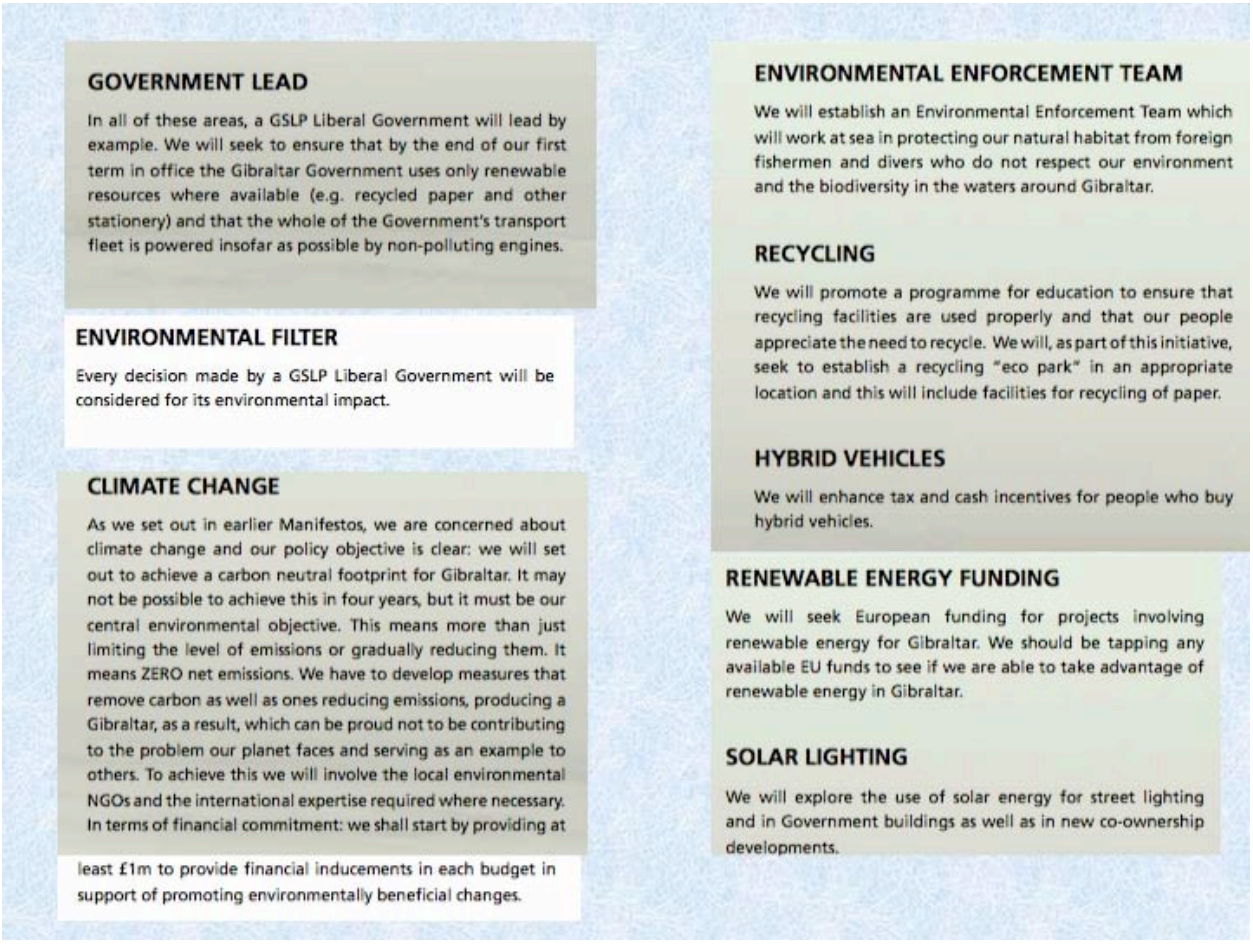
Clearly getting out the ***publications*** and then we produced a ***biodiversity action plan***.

But what about now? I am now a Minister. How I became a Minister, and why I took the decision that I took are something to discuss over a beer! In order to become a member of a political party standing for election – which I more or less decided a month before the election – you need to have the confidence of your colleagues, and you have to be confident that you can make a difference. I think this was helped by the facts that: I was one of the people who had been, with many others, prominent in an NGO; and I was known, and people would realise that I would stand up for something I believed in. I know that a lot of people don't think that politicians do this, but more of us do than you might think. But there we go and we are not all the same. So I had to remove the fear of the environmentalist from my political colleagues. I had to let them realise that what I was doing was for the good of Gibraltar and, if there was something you had to tweak in a project or a decision slightly in favour of the environment, that does not necessarily mean the project would fail – but it actually might mean that it would succeed even more. Then, get the environment to form a core of the manifesto.

So the present Chief Minister (campaigning as leader of the opposition at the time) would repeatedly say during the election campaign: "All my Ministers are Environment Ministers. – I expect them all to have the environment top of their agenda."

We have introduced a green filter on projects. An aggressive green filter, that's what I mean: chase it, if you're not asked; you go and you find it. I learnt that in the NGO, hugely convenient and hugely useful training for a Minister.

Green procurement. We changed our policy, we really upgraded the number of points the tender process would give to environmental friendly companies, with environmentally friendly policies, and using environmentally friendly products. So we have generated a tremendous interest in the green economy. Companies are coming up.



Everybody wants to sell solar panels now. They didn't even think about it previously.

Everybody wants to sell electric cars. We procured them too. The Chief Minister has an electric Tesla, and all official cars are hybrids – they use hardly any fuel.

But to go back to the manifesto issue, above are little excerpts of our election manifesto. In all these areas, Government will lead by example, use only renewable resources where available. We changed to recycled paper on week one, so all paper used by government is now recycled; that was one of the first things we did.

The environmental filter, having a million pounds dedicated to inducements to combat climate change. An environmental enforcement team, which we now have. You couldn't recycle paper in Gibraltar on 9 December 2011 when the elections were held; a year later, our recycling success is so great we can hardly cope, and we have to find other ways of actually dealing with the material.

The people respond if you give them a lead. It is important to keep in touch with the NGO and to remember that they are a crucial part of the team in bringing this forward. I meet regularly with them. Only last week we were talking about how on earth we could save the lesser kestrel.

Another entity, the local NCC, is a small body of 5 scientists who advise me on matters to do with the natural environment. It had been defunct. It hadn't even met for years. I had been a member from the start and it hadn't met once. So now I have re-formed it, and now we meet regularly, and I consult them regularly on every key issue that I do. And when I don't, because I forget, they will remind me – but that's the way I used to do it, so I can't complain!

This is very important, and you have to have the courage to just stand up and be counted. I think you also have to have luck. I mean I was very lucky to have wonderful colleagues in the Botanic Gardens and in GONHS. I am really lucky to have wonderful colleagues in the Department of the Environment; you couldn't find better scientists working in the public service anywhere in the world. But I suppose sometimes, you know, you need to nurture them and support them, and run them off their feet! [laughter]

Then you have got to make sure you keep the support from your colleagues; it's not always easy. But the majority of times they always do that little bit different, do that little bit extra, to make sure that we are protected and that we do what we are meant to do. You've got to have vision, even if

you don't realise that that's what it is – because if you really have vision, you probably don't know it's vision; you just think, you know, that's the way things should be. And then you keep at it.

Let me just, by way of a few examples, talk to you about some of the laws we have passed in the last 3½ years, and I've left some out. The Upper Rock was declared an SPA (Special Protection Area) under the EU Birds Directive – which it hadn't been, surprisingly. And the importance of the EU, the fact that Gibraltar is a part of the EU, for the environment, it's tremendous. This is because we have had to pass environmental laws, whether they were difficult, whether we had the resources or whether we didn't, the important thing is that you have to pass these laws, then it becomes your problem and you deal with it. So sometimes you struggle, sometimes you are stretched, but we have to pass the laws.

We have to keep to emissions targets; we have to keep to our recycling targets; we have to keep to our energy efficiency targets; we have to have a renewable energy action plan. We have no choice; we have deadlines. And, even though the Government of Gibraltar was far behind in time and in the number of EU Directives it had to pass, by the time our first year was up we were completely up to date, more up to date than any European country, in having Directives part of Gibraltar Law. So the EU has been really important and that's a benefit.

So we declared the Upper Rock a Special Protected Area, and we expanded the Upper Rock Nature Reserve to create a Gibraltar Nature Reserve. We introduced regulations. We had created the Botanic Garden, which was just a Botanic Garden by name; now there's an Act and its aims are there, its Law. And it has to remain a Botanic Garden. We passed an Act to make Commonwealth Park also part of the Law of Gibraltar. And we have also laws in these:

- the reduction in duty on electric and hybrid vehicles;
- tax incentives on solar panels;
- tax incentives for increase in energy performance on buildings (as from this year, if your energy performance certificate this year is better than last year's, you get a tax rebate. So we are actually encouraging people, particularly businesses, to improve their energy performance, because they've got something. And if next year it's even better, then they can get it again. So that is actually something which stimulates all these things.);
- tax on plastic bags;
- improvements to the Upper Rock Nature Reserve;
- and the planning process.

I really need to take a few minutes to talk about the planning process. The planning process in Gibraltar used to be, four years ago, chaired by the Minister for Economic Development. There was one other Minister there, as well as mainly civil servants, a representative of the Ministry of Defence, two NGOs: the Gibraltar Heritage Trust which concentrated on built heritage, and the Ornithological and Natural History Society which I represented. They were secret meetings; there was no agenda published; there were no minutes published; and I walked out on a couple of occasions, for all sorts of reasons.

When we came into government, we increased the representation of NGOs by one, by including the Environmental Safety Group, which is another environmental NGO. The Minister no longer chairs; the Town Planner now chairs the Planning Commission. The Chief Technical Officer of the Government is there. The meetings are now held in public. People can go and present their project. And something that couldn't happen before, people can go and sit there and say why they oppose the project. So it's completely open and completely transparent. As I said the other day, the Deputy Chief Minister, who sits with me, and I, often don't vote in the same direction. And it doesn't matter because we are there as individuals. OK, we carry the responsibility of being Government Ministers but we genuinely and openly say what we feel. If a civil servant votes against what people might perceive as the Government's policy, that doesn't matter either. So there's been a huge improvement in planning.

And as from passing later in the year the command paper that I and the Deputy Chief Minister mentioned the other day (presuming that we get elected, because we've got another election to come – I might be sweeping paths in the Botanic Gardens before the end of the year [laughter]), Government projects will actually go through the planning process, and if they are thrown out by the Planning Commission, they won't get done. I think that is hugely important. We still have a thriving economy, and we still have a great democracy.

I'll just throw a few more things in. Commonwealth Park - some of you will have seen

- used to be a car park. It even attracted a little egret there, in the pool in the centre, for a week - people had never ever seen these in their lives. This family is having a look at a Little Egret.

For the macaques, we've carried on working with the stakeholders and the team, now I am responsible as Minister, in getting that forward, and we carry on doing research with the key players from the vet clinic, Natural History Society and others.

We've carried out improvements on the Upper Rock, like providing ponds which they use which they didn't have before, and providing shading for the food, so it doesn't dry up in the summer sun. I'm just going through a few projects as I come to the end.

I think that's a lovely photograph *[below]*. It's not mine. Most of these photographs aren't mine. I have a long list of people to be grateful to for these.

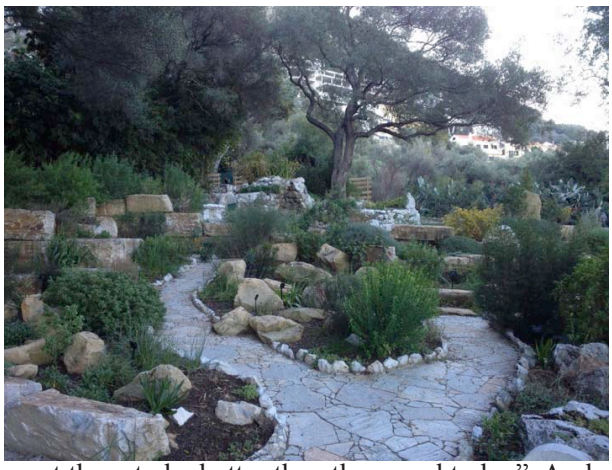
This one *[below, on next page]* isn't mine either, Charlie [laughter] If you want a bird that you associate with the town, the urban landscape, that people love to hear, that people love to see, swifts are it. You saw some this morning as we were taking the conference photograph. Swifts were reducing in numbers, because rooftops were done in a different way. The Planning Commission in fact, when I was sitting there as a GONHS representative, took a view on that all private projects involving roofs where swift nests were to be lost in re-roofing, had to have swift boxes

provided. Now we've gone a step further. Now it's an absolute obligation and now the Government is doing it itself in its own buildings. So we are putting up swift boxes around the place and as a corollary of that we are also putting up bat boxes.

So that is a Government initiative, and now we can clearly say to private developers, look you've got to put it up in your buildings because we're putting it up in ours. The colonies are setting up, the swifts are taking the nests, and we've got lots of

swifts. People love it, and you can talk to people about swifts, and they all welcome it because it's such a wonderful bird to have.

We have carried on investing in the Botanic Gardens. I think it's a hugely important part of Gibraltar, which has continued to improve. Some people come to me and say "I've been to the Alameda Gardens (that's the name of the Gardens) and I'm sorry to say it's looking really good, you know" almost as if I was hoping it would go to rack and ruin because I wasn't running them anymore! But I say "No, that's wonderful. I really



want them to be better than they used to be." And they're really doing excellent work there, not just in the public areas, but particularly with the scientific collection. They really are doing some marvellous work. (One of the things I miss most is my regular trips to Kew, Colin [Clubbe]. I must go there again, and I said that to you the other day.) The Government has been very happy to support the Gardens. And those of you who can, I would recommend to go with Keith [Bensusan] and his team to have a look round the Botanic Gardens; there's lots of things that are happening there, and it's absolutely wonderful.

This is a bellflower, and I just put it in because I was walking down Main Street the other day (actually more than the other day because it

flowers in April-May, so a few weeks – time flies when you are having fun!), and I came across this on one of the historic walls. These historic walls tend to get cleaned by the heritage department, and I didn't want them to remove these flowers because they are beautiful, and they're not that common. So actually I sent a quick email to my colleague,

the Minister for Heritage, and said, with this photo, "look, these are growing on this wall, I know you are going to clean them. Make sure they are not removed". So they weren't removed. And the walls were cleaned. And that's the sort of thing that one can do in a small place when you know the people and you've got a little bit of, I don't

know, cheek. [laughter]

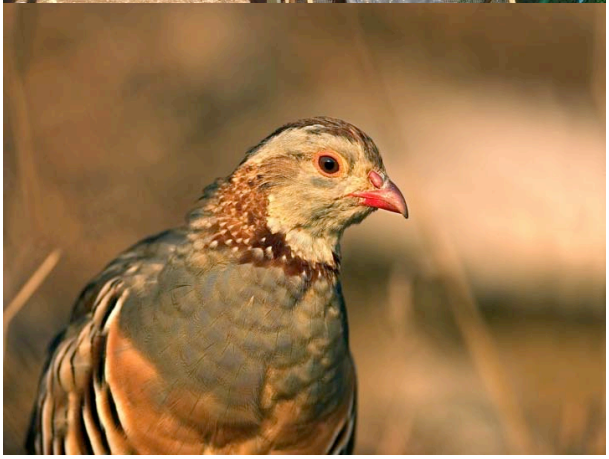
Sadly the Lesser Kestrel isn't faring so well. I don't think that there's anything we can do about it in Gibraltar. I had a meeting with Charlie [Perez] and Keith [Bensusan] from GONHS last week to discuss it. We're going to try and hit at feral pigeons and so on, but I use this as an introduction to something else. This area *[top of next column]* which is a military training area, is a wonderful area for migrant birds. It is part of the Barbary Partridge project, I've got some further news about that in a minute, but it is also the area that Vincent Robba and his team from GONHS use for

bird of prey rehabilitation and captive breeding, and they've really been very successful. This is Vincent with a peregrine, and they're breeding

peregrines every year, training the young, releasing them. We suspect that one actually may be nesting in Seville, because there's a ringed bird there, and they haven't ringed young birds in the area. They have bred lesser kestrels and released Bonelli's eagles and so they do a lot of wonderful work rescuing birds. Gulls, some of you will probably know, do mob birds of prey, force them into the sea or down onto the land, and people will take them to Vincent and his team. They do a wonderful job with rehabilitation, so largely by the NGO, but with Government support now.

Another project that GONHS and the Department of the Environment and Climate Change are working on is the Barbary Partridge, very typical of Gibraltar, most likely introduced but the only partridge that we have here. It's effectively the National Bird of Gibraltar. Numbers were low due to predation, lack of habitat, and all sorts of other things, so we started a programme clearing habitat and dealing with some of the other problems. Then we've started a re-introduction. So Steven Warr went over with one or two people and we brought over eggs and chicks.Some were hatched and released.

Some of these young Barbary Partridges bred in captivity, so we've had more eggs this year, and they've been released. They were all marked, with wing tags or rings, and they're now breeding all over the place. They've taken to the new habitat, and they've paired up with some of the local birds. So we know that it's been successful in that respect. It's a lovely bird and we are going to keep on doing this. We are going to keep on monitoring. It's a good example of as something that GONHS had wanted to do for years, but we never had the resources or perhaps even the political clout. We've now been able to combine resources with the Government to do that.



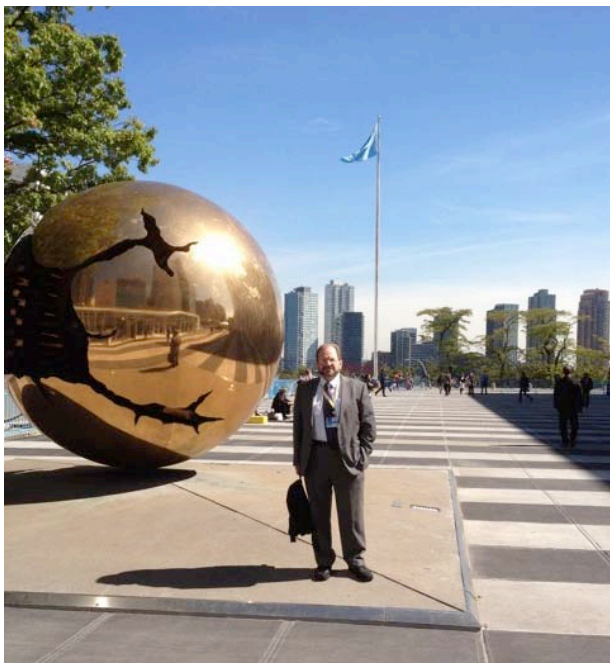
Making the news with the media, and having a presentation with all the stakeholders and the Department and GONHS and presenting it, to the media to get the public on our side.

We've also reached out in other ways. This is a signing ceremony with Blue Shark for marine turbine development.

We've also moved beyond Gibraltar. This is the Chief Minister and myself with Al Gore, who came to Gibraltar and gave a conference. A thousand people attended, and it kick-started the whole thinking about green. Whether you like Al Gore or not, or what he stands for, he's an absolutely brilliant speaker; no-one can deny that, and it did a lot. A lot of people tried to make negative publicity of it, but then we were invited, as a result of that, to Washington to President Obama's inauguration ceremony, which was a wonderful experience – which would be a talk in itself!

So bringing Al Gore for environmental reasons opened up many opportunities. Now we have established trade links with the United States. The American Chamber of Commerce then set up in Gibraltar. They've had two trade missions to Gibraltar, and all sorts of things are happening bringing economic progress to Gibraltar, as a result of spreading our wings.

I'm here at IUCN *[below]* with Daniella Tilbury, who's the Vice-Chancellor of Gibraltar University, whom some of you will have met. I had the privilege of attending the World Climate Change Summit, in New York.



In the next ones *[above & below]*, I'm in New York last year, representing the City of Gibraltar, which was a wonderful experience.

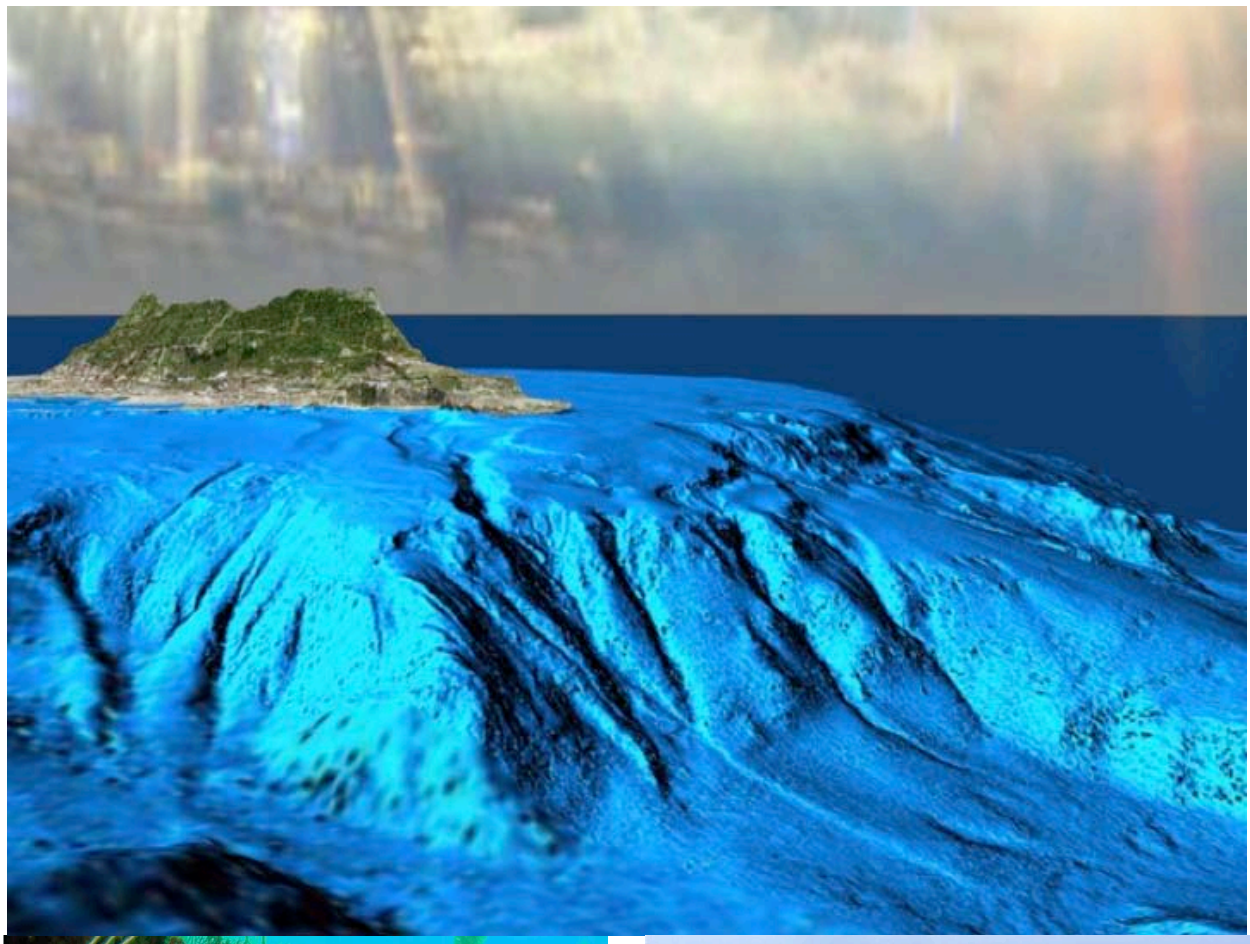
I'm putting a few other international link pictures. I mentioned Morocco; this is with some of my colleagues (again some us don't age, do we?) in some of the work we've done in Morocco, because that's set us in context. Gibraltar, a small territory, could be very insular and maybe not look at the wider context. Here we have Morocco on the other side of the Strait. And we weren't doing anything there so we twinned up and we did this Interreg project.

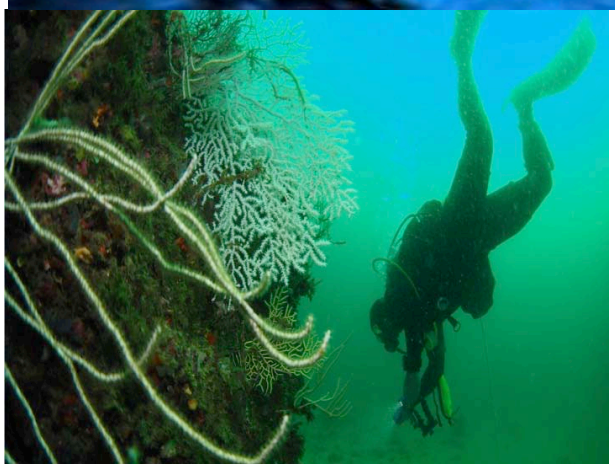
I still keep contact in Spain. Here, apart from me, we have the biologists from the city council of the town just across the Bay, Los Barrios, and we have a former director of Jerez Zoo, one of the main and most conservation minded zoos in Spain. Some people think that this is bizarre, because there is a huge problem with Spain. But it is never at a level of true environmentalists. But, I work very well with colleagues in Spain, and I'm still on the Board of the largest nature reserve in Spain, which is just across the Bay. I'm the Minister for the Environment of Gibraltar and yet I regularly attend meetings with other colleagues. Why not? I'm really really pleased and that's a great thing to do.

I'm going to end up with some marine issues, again something that was started by NGOs. We created a Gibraltar Marine Reserve on the 1st January this year [2015] by enacting the new Marine Reserve regulations.

One of first things that we did is to do a full bathymetric survey of the waters of Gibraltar. This *[top of next page]* is just one slide of many. And you can see the shelf. Just by the sea level being a bit lower, how much land there would be, or there was, around Gibraltar. And what a marvellous habitat that must have been, in those days.

We had declared a nature reserve, we





want to protect our waters, and we didn't even know what our seabed looked like. So, we did a full bathymetric survey.

You will have seen dolphins, those of you who went on the sea. We have whales as well. Fin whales, and sperm whales are regular, as well as pilot whales and others, so it's very rich. A lot of the management work started many many years ago, again something which was done by GONHS and led by Eric [Shaw], who you will have seen. I don't know whether he's here today but he was here yesterday,

Starting by building artificial reefs and, in those days, that's a couple of decades ago, you cleaned it a little bit and then you sank it. Nowadays it's got

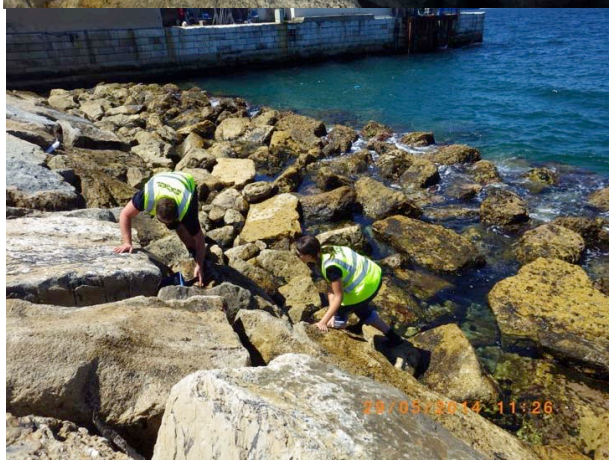
to be very rigorous, absolutely totally clean. You have to keep to the requirements of the Barcelona Convention, although Britain never extended it to Gibraltar. Now, this is interesting, because the other day we were talking about international instruments that the UK would sign to and try to force on the UKOTs. Here is one UKOT wanting

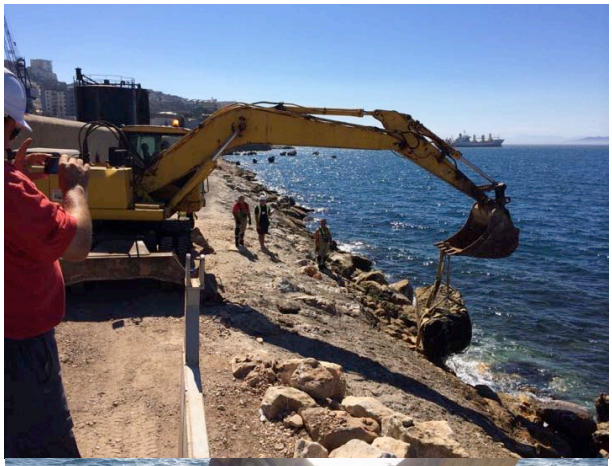
the UK to extend a Convention to it.

Now we've got to be very careful; we've got to make sure we do it right. And we do. We needed to protect this beach. We had to import sand from the Sahara, because Spain wouldn't allow any of the sand to come through the border. Because they said that we were reclaiming, we were going to build out. So, they banned sand and rock coming from Spain. So we had to import the rock from Morocco. The sand is actually quite pinkish because it comes from the former Spanish Sahara – now part of Morocco, otherwise that would have been a problem! [laughter]

What have we done now? We've declared that a protected area. So we've created new habitat, and we've declared it a no-fishing zone. And the fishing people are quite happy about that, because it's new; therefore they're not losing anything. So we have just created another island in the harbour, as part of building a small boat marina, and protecting all the wildlife around it,via the fishing working group. We set this up following the recommendations from the Drin and Chris report. And that's just another view of the beach protection exercise. You see that the arm going out at the top has a kink at the beginning. It was supposed originally to go straight out, but there's a natural reef there. So we sat with the people in the technical services department and said: OK, wonderful, this is going to create new habitat, but don't go over the reef.. So they changed the plans, and they avoided the reef. We've still got a beach, and we kept the reef. So this is the sort of thing that being in the right place at the right time you can make happen.

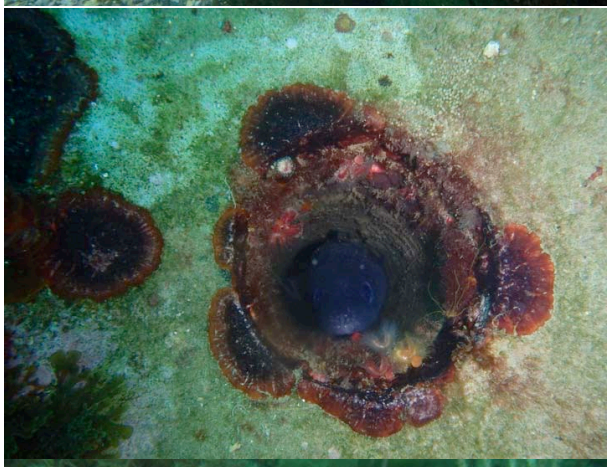
A few other things that we are doing. This is the Mediterranean red limpet which is a protected species at a European level. There has been some reclamation which we needed to do in order to build our new power station. So we had the area surveyed, we counted and measured all the limpets, and identified them all, marked them, and spent quite a bit of money in order to lift every





single rock that had one of those limpets on it, and replace it somewhere where there is no chance any reclamation is ever going to happen. So we completely moved the lot. Here is one of the rocks is going into place.

Then we created an artificial reef using a design we picked up on a Spanish website so they couldn't complain, but they complained anyway. [laughter] This led to 8 hour frontier queues and claims that we were usurping Spanish waters and so on. But it didn't matter, we persevered. Well it did matter because a lot of people suffered a lot, that summer. And it also caused the Government some political concern because there were people saying "Ah, look at these environmentalists having

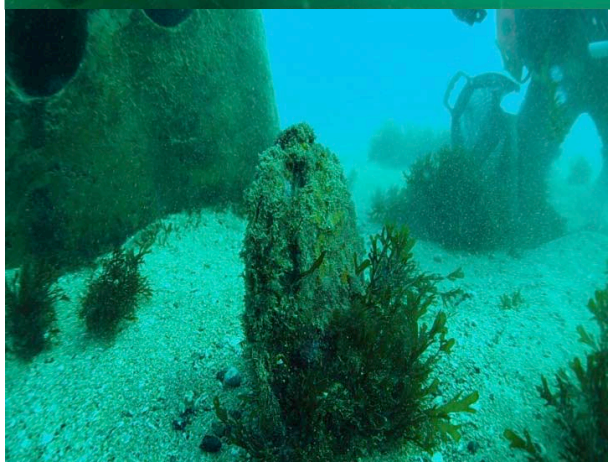


these rocks and taking 4 hours, 8 hours to get to my house in Spain". So there was a little bit of that. But we were right in what we did. We then got a question to the European Commission. The European Commission looked completely at all documents. Because everything goes through EIAs, and we do our own assessments too, the European Commission concluded that we had done everything by the book and there was nothing to be complained about. So complete vindication – and more vindication than that is the fact that it's been colonised by marine life. These are photographs taken in the area, so clearly we did the right thing.

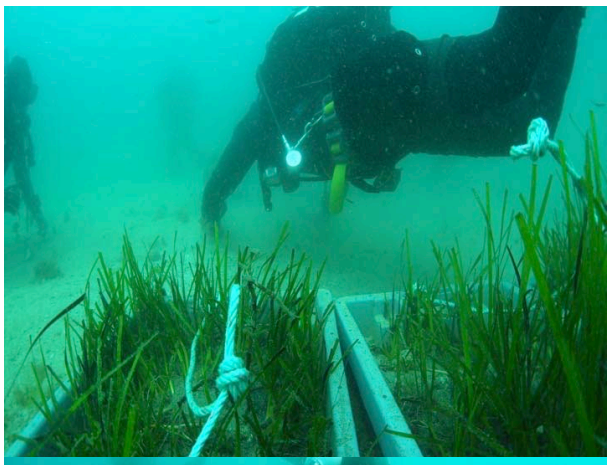
Everybody's forgotten now. If there's a queue at the frontier it's probably because Spain has played a football match and maybe we're supporting the

other team. [laughter]

Another thing that we did was locating these large shells *Pina rudis* and *Pina nobilis*, so they were moved from an area which was going to have turbidity due to some works, and placed them in another area, north of this artificial reef.



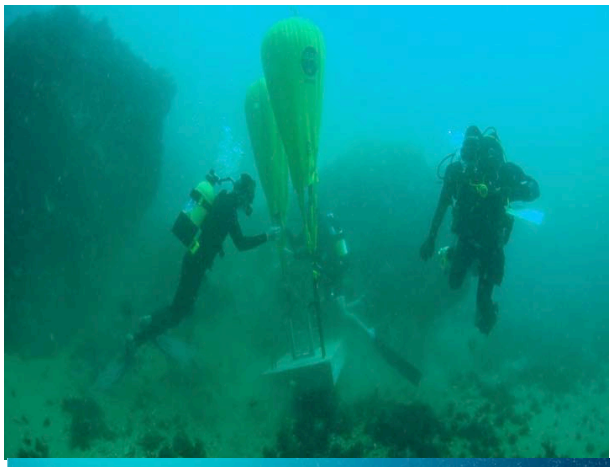
Another thing that we did: we had lost the seagrasses, so we got together with the University of the Algarve, and got them to grow some seagrasses in trays for us, brought them over, planted them, and now we've got seagrasses colonising again. We're keeping them under close surveillance. We don't know whether we'll succeed. It often fails, but so far, and they've been there for 6 weeks, they are still doing well. I'll



prove to you how well they're doing in a minute.

Gibraltar has a very rich marine life, but people usually see it on their plates, and a lot of people

know it, but a lot of people don't. So we wanted to find a way of taking marine life to the home. So we got in touch with an American company, our diving team, together with the Americans came over, and placed this camera on the seabed, and that's the camera there, on the seabed, and this is the sort of image that ..... Can we go on to it now? We are hopefully going to have a live feed from the camera right now. It's just quite dark and late in the day now, and it's a slow connection..... *[live*



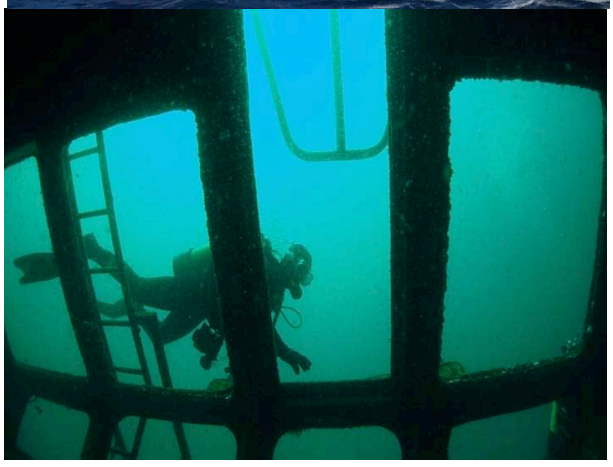
feed seen, from undersea camera] Oh, there you go, that's live. That camera can actually be panned to look at the plot of seagrass, so we can actually monitor how the seagrass is doing on a daily basis from our office. There's often a lot more activity than that. Sometimes there isn't, but it's the first of its kind in Europe. We have another one we're going to set up quite soon.

Thinkinggreen.gov.gi : click on underwater camera and you'll get to it, from anywhere in the world. [Below, at top of next column] is a screenshot from the camera, with fish.

We now have an environmental enforcement team. On a recent occasion there was a ghost net, a net that had been abandoned, and we actually managed to go out, a lot of hard, back-breaking work, and took the net away. We now have the capability of

doing that sort of thing.

At about the same time as installing the camera, we sank a vessel to form part of the artificial reef. I'm going to show you a video taken of the last vessel that was sunk. This had long been a tug in Gibraltar Harbour, and people wanted to throw it away, break it up and sell it. So the Government decided to arrange for its cleaning



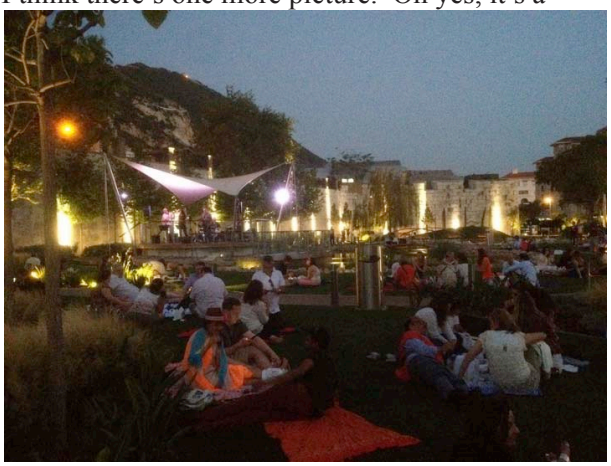
out, and engaged with the Natural History Society, the Helping Hand Trust, and the Department of the Environment, got it all together, and sank it. *[video shown]* I'd like to acknowledge the local videoing company that did that.

There you go, I think that's marvellous. This just

goes to show that, you know, sometimes bringing green areas and nature to the people does work.

Wonderful evenings, wine tasting evenings and so on now take place in Commonwealth Park, which used to be a car park. You could never find space in it either, so why keep a car park you could never find space in.

I think there's one more picture. Oh yes, it's a



lovely photograph isn't it. Absolutely wonderful. A flamingo flying towards Gibraltar.

So I think that's it. I've taken longer than I thought, so do forgive me. I had a lot of things to tell. There's a lot more as well! [laughter] But I thank you for giving me the opportunity to do this. It's a long journey still to go, and lots of challenges ahead, but let this serve as a lesson. If you really want to do it, you can do it.

[Applause]

Session 2: UKOTCF's Wider Caribbean Working Group

Joint Chairmen: Bruce Dinwiddy & Boyd McCleary

Secretary: Ann Pienkowski, with Dace Ground

The discussions at the Wider Caribbean Working Group contributed to the Conclusions and Recommendations, and relevant points are incorporated in that section. Other discussions have been reported in the minutes of the meeting, circulated to participants and other members of WCWG.

From left: Boyd McCleary, Bruce Dinwiddy & Ann Pienkowski

Above and top of next page:WCWG in session

Right: the Bermuda contingent: (from left) Andrew Dobson, Annie Glasspool, Jennifer Gray, Arlene Brock, Dace Ground, Alison Copeland)

Below: A good proportion of the Caribbean contingent: (from left)Stephen Mendes, Andrew Dobson, Nancy Pascoe, Bryan Naqqi Manco, Farah Mukhida, Christina Pineda, Claude Hogan, Susan Zaluski, Lyndon John, Gina Ebanks-Petrie

(These two photos: Andrew Dobson)

Session 3: Field visits

The conference field-trips on the first morning had several purposes. These include: a little recovery time in the fresh air after long travel for most participants; a chance for participants to chat informally before the main sessions, which has been found to make the latter most effective; and a chance to see something of Gibraltar, its environment and some current issues. These included a boat trip to see something of the marine environment, which is very rich in this area, where the Atlantic and the Mediterranean meet in the Straits and Bay of Gibraltar, or a terrestrial tour of the Upper Rock to view some of the re-introduction and restoration work. On the morning after the conference, some of those with afternoon departure flights took the opportunity of either a version of the Upper Rock trip or a walk around the Botanic Gardens, guided by their Director, Dr Keith Bensusan, and his staff.

Getting ready for departure. Photo:Bryan Naqqi Manco

Date with dolphins

The morning weather was a bit of a worry with grey skies and moisture in the air. However, after reassurance from Charlie Perez, General Secretary of the Gibraltar Ornithological and Natural History Society that these were perfect conditions for a boat trip and a tip of that fin whales *Balaenoptera physalus* (the fastest whale and second largest after its close relative, blue whales), we set off for the marina a few minutes away. As there is plenty of things to see along the way down to the marina, including the newly established Commonwealth Park, we packed the delegates in to small buses to ensure that they didn't wander off and miss the boat!

A bus-load of biologists and friends. Photo: Mike Pienkowski

Tony and Angie, of Dolphin Adventures, expertly captained our vessel for the morning, a bright yellow boat filled to capacity. Marine biologist, Rebecca was also on hand to answer any questions. Gibraltar's wildlife obviously knew that an expectant party of conservationists, scientists and general wildlife nuts were there, as pods of common dolphins *Delphinus delphis* and some other species were seen almost immediately and in great numbers all around the boat as we continued in to the Strait. We also had some great views of a number of bird species including a shag *Phalacrocorax aristotelis* (great for those large cameras at the front of the boat).

On watch. Photo: Katie Medcalf

Line of dolphins. Photo: Mike Pienkowski

Dolphin. Photo: Mike Pienkowski

Government of Gibraltar Senior Environment Officer, Stephen Warr, gave an overview of the marine environment and the work which the Government is current doing to protect it. He told us about the newly installed underwater camera, which was already giving some interesting insights in to the underwater world.

Europa Point lighthouse. Photo: Katie Medcalf

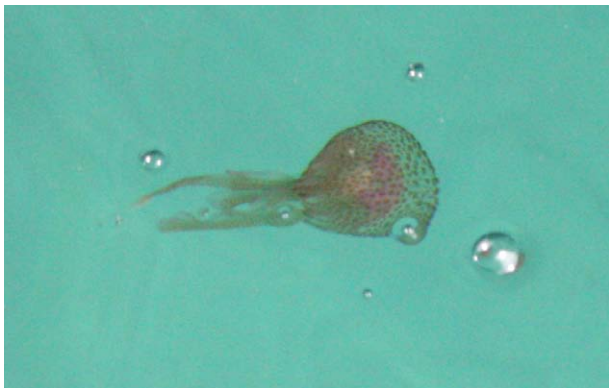
As we had a little longer on the trip, we were able to visit and view the entrance of Gorham's Cave, on the eastern side, from the sea. This is a Tentative World Heritage Site on cultural grounds, with many features of interest to human pre-history, especially in relation to the culture and ecology of Neanderthal Man.

In the turquoise water around the caves we saw

Entrances to the caves. Photo: Mike Pienkowski

In the entrance to the caves. Photo: Bryan Naqqi Manco

juvenile sea-bass and many jellyfish *(Photo: Mike Pienkowski)*. Local reports of juvenile Portuguese



Man O' War being found in abundance off the coast of Gibraltar have led to areas of the shallow waters being sectioned off to protect swimmers from painful stings. Bermudan colleagues told us how the adults are often found in their waters. Perhaps the juveniles leave Gibraltar waters and cross the Atlantic in ocean currents and arrive in Bermuda waters linking two of the UKOTs?

Keith Bensusan, of Gibraltar Ornithological and Natural History Society and Director of the

Stephen Warr explaining matters, with Esther Bertram of Falklands Conservation. Photo: Bryan Naqqi Manco

Old Water catchment. Photo: Mike Pienkowski

Botanic Gardens, (GONHS) talked about the work which is ongoing and the former water catchment area which is now being restored using native plants.

Despite the whales never showing their heads (or tails), the views of the dolphins at the bow of the boat and the Rock wrapped in mist, surrounded by bright blue sky made up for it. All disembarked the boat with huge grins, although our youngest sailor, 18 month old Dylan, who had dropped his favourite cuddly toy in the middle of the Strait, left the boat feeling very upset and even the pink dolphin he was offered just wouldn't do!

Rockin' around the Rock

Although botanically, July is not the best time to visit Gibraltar, delegates were treated to a personal tour of the Rock with Dr Liesl Mesilio Torres, Chief Executive Officer of the Department of Environment (DoE) in Gibraltar, and Charlie Perez from GONHS. Liesl has a background in Environmental Science and Geochemistry. She gave an overview of activities, which are currently being undertaken as part of the Upper Rock Management Plan.

Liesl Torres guides the terrestrial tour.
Photo: Michele Sanchez & Martin Hamilton

Gibraltar is the only place on mainland Europe where the barbary partridge *Alectoris barbara* is

The Rock emerging from the morning mist. Photo: Mike Pienkowski

Barbary partridge on the Rock. Photo: Andrew Dobson

found and where it is illegal to hunt them. Many consider it to be the National bird. Threats to the partridge include feral cats, disease transmitted by chickens and loss of habitat. The DoE and GONHS are working together to help the partridges survive locally by clearing plants and shrubs in areas of the Upper Rock Nature Reserve as well as educating the public.

View from the Upper Rock.
Photo: Catherine Wensink,UKOTCF

A presentation by Eric Shaw and Bryan Ritchie at the Apes' Den about the ongoing refurbishment of the feeding and foraging areas for the famous macaques was given. The Barbary macaque population in Gibraltar is the only wild monkey

Barbary macaques on the Rock. Photo: GONHS

population in Europe. They are descended from North African populations and have become synonymous with Gibraltar. The DoE and local non-government organisation, the Helping Hand Trust, are working hard to ensure that they behave as naturally as possible. Feeding is strictly prohibited and signs can be seen all over Gibraltar warning locals and tourists.

St. Michael's Cave was the next stop, although it was to be the venue for the closing dinner (see pages 447-453), it is so spectacular that it is definitely work more than one visit. It is a very large cave with stalactites and stalagmites, dating back millions of years. This cave, once a temporary hospital during the Second World War, is now a tourist attraction and a natural auditorium used for many events.

The old northern defences of Gibraltar, known as the Upper Galleries were a chance to see the man made tunnels that defended Gibraltar during the Great Siege 1779-1783.

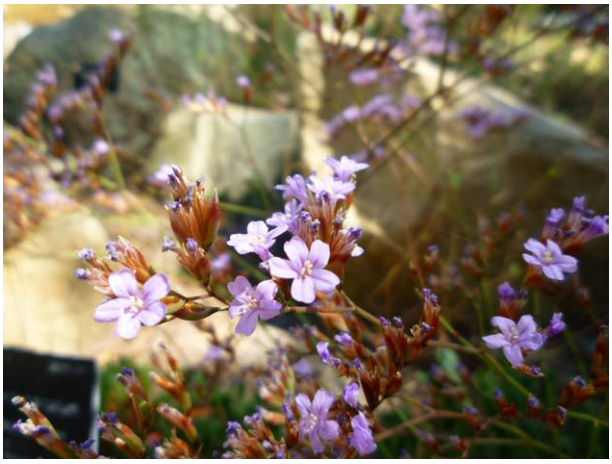
(Above) Gallery construction memorial sign; (top of next column) in the tunnels; gun, overlooking the approaches from the north. Photos: Mike Pienkowski

Views of the Moorish Castle and Old Town Calpe are pretty spectacular from here.

The final stop on the tour was a walk around Europa Point. The natural landscaping using endemic plants such as sea lavender and the spectacular views across the Strait to Morocco allow some relative tranquility compared to the bustling Main Street in Gibraltar.

The lighthouse was built in the mid 1800's and is now used as a radio transmitter. It is the only lighthouse outside the mainland UK, for which Trinity House (a UK authority under Royal Charter which maintains lighthouses) is responsible.

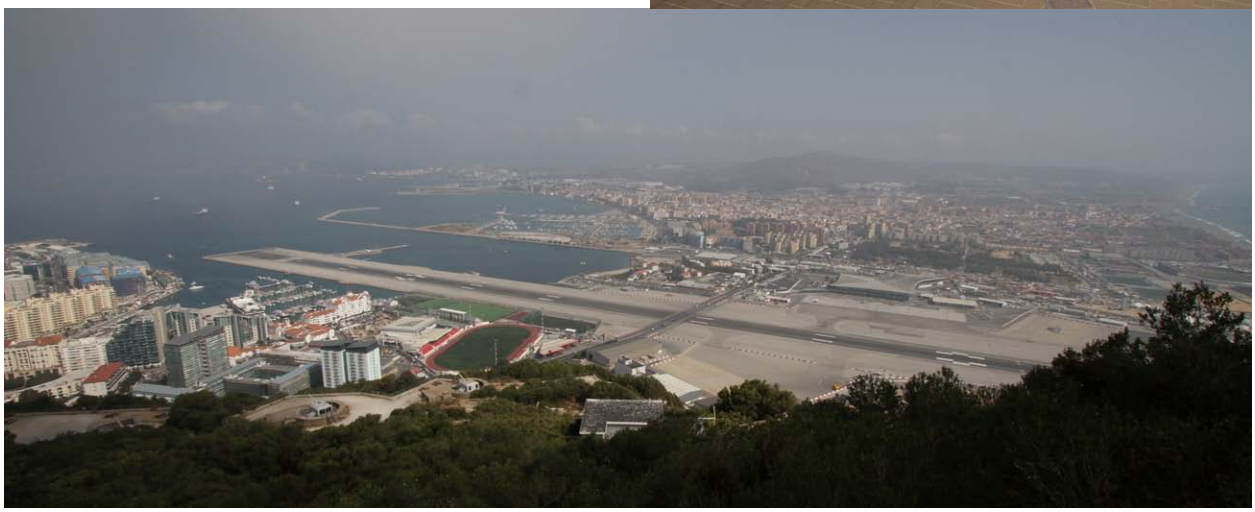
As an example of Gibraltar's religious tolerance and integration, two large places of worship remain here side-by-side. The Ibrahim-al-Ibrahim Mosque,



Sea lavender. Photo: Catherine Wensink, UKOTCF

a gift from King Fahd of Saudi Arabia taking two years to build at a cost of around £5million, contains a school, library and lecture hall. The Shrine of Our Lady of Europe was built after 1462, when the Spanish recaptured Gibraltar from the Moors.

A popular tourist site is the Sikorski Memorial (*below; Photo: Mike Pienkowski*). This commemorates the 1943 Gibraltar B-24 crash 4 July 1943, which caused the death of General Wladyslaw Sikorski, the commander-in-chief of the Polish Armed Forces and Prime Minister of



View northwards from the tunnels: over the isthmus, now with the runway and the main highway crossing it, to the terminal and the frontier just beyond. Photo: Mike Pienkowski

Below: views on the tour of the Botanic Garden. Photos: Bryan Naqqi Manco

the Polish Government-in-exile. Fifteen other people also died in the crash, with only the pilot, Eduard Prchal, surviving. Those with a mind for conspiracy theories would be interested in those surrounding the nature of the crash and his death. Since 2008, the Polish Institute of National Rememberance has been investigating the accident.

Tour of Botanic Garden

At the end of a very full conference, delegates were offered the chance to look around the Gibraltar Botanic Gardens. Many of the conference participants are involved with their own botanic gardens in the territories, and so learning a bit about what they are doing in Gibraltar was an added bonus – especially after being indoors for several days.

The Gardens grow plants from all over the world, including some from some of the UKOTs, for example St Helena. However, it specialises in species from Mediterranean and arid habitats. The collections are documented and managed for scientific and conservation purposes. It also keeps *ex situ* collections of some of Gibraltar's flora, and has reintroduced these to areas around the Rock. The Gibraltar Ornithological and Natural History Society office, which also has an interesting collection of invertebrate specimens, is situated here and works closely with the Garden on conservation projects. Recently, this included the rediscovery and subsequent propagation of the endemic Gibraltar campion *Silene tomentosa*.

Above: Dr Keith Bensusan shows the tour some of the GONHS/Botanic Garden collections. Photo: Bryan Naqqi Manco

Session 4: Implementing biodiversity action plans in the context of Environment Charters, Aichi Targets etc, and including environmental monitoring

Chairing & facilitating team: Liz Charter (Isle of Man), Mike Pienkowski (UKOTCF), Catherine Wensink (UKOTCF) & Lyndon John (St Lucia)

Introduction to session: projects in the territories within the international conservation framework – Liz Charter (Isle of Man Government)
An overview of progress in implementing the Environment Charters and moving towards the Aichi Targets – Sarah Barnsley, Emma Cary, Mike Pienkowski & Catherine Wensink (UKOTCF)
Rodent eradication on South Georgia: global-scale conservation is within the reach of small NGOs – Tony Martin (South Georgia Heritage Trust)
Mapping invasive Japanese knotweed in Jersey, Channel Islands – Tim Liddiard (States of Jersey)
Current and planned invasive species removal exercises – Lyndon John & Jonathan Hall (The Royal Society for the Protection of Birds, RSPB)
Terrestrial Ecosystems of the Falklands: a Climate Change Risk Assessment – Rebecca Upson & Colin Clubbe (Royal Botanic Gardens, Kew)
Why do we Red List? – Jeremy Harris (St Helena National Trust)
Using GIS and remote sensing to aid conservation monitoring – Katie Medcalf (Environment Systems), Tony Gent and Thomas Starnes (Amphibian & Reptile Conservation)
OT Biodiversity Data Access Project – Tara Pelembe & Steve Wilkinson (Joint Nature Conservation Committee)
Conserving plant diversity and establishing ecosystem based approaches to the management of forest ecosystems in the British Virgin Islands – Nancy Woodfield Pascoe, Martin Hamilton, Natasha Harrigan, Keith Grant, Ronald Massicott, Denville Hodge, Colin Clubbe, Sara Barrios, Tom Heller, Jean Linsky, Marcella Corcoran (National Parks Trust of the Virgin Islands and Royal Botanic Gardens, Kew)
Boraginaceae *Varronia rupicola*: conserving a threatened species endemic to the Caribbean – Martin A. Hamilton, Omar Monsegur, Jose Sustache, Jeanine Velez, Nancy Woodfield Pascoe, Natasha Harrigan, Jean Linsky, Marcella Corcoran, Sara Barrios, Tom Heller, Colin Clubbe, Kelly Bradley and Michele Sanchez (Royal Botanic Gardens, Kew)

Chairing & facilitating team (from left): Liz Charter, Mike Pienkowski, Catherine Wensink & Lyndon John

Caicos Pine Recovery Project: an overview – Michele Dani Sanchez[1], Paul Green[1], Sarah Barlow[1], Marcella Corcoran[1], Laura Martinez-Suz[1], Susana Baena[1], Justin Moat[1], Bryan N Manco[2], Judnel Blaise[2], Christopher Malumphy[3] and Martin A Hamilton[1] ([1] Royal Botanic Gardens Kew, [2] TCI Department of Environment and Maritime Affairs (DEMA), [3] Food and Environment Research Agency (FERA))
Species monitoring through a combination of predictive mapping and ground-truthing – Tony Gent, Thomas Starnes (Amphibian & Reptile Conservation) & Katie Medcalf (Environment Systems)
Akrotiri Marsh Restoration: a flagship wetland in the Cyprus SBAs funded by Darwin Plus – Melpo Apostolidou (BirdLife Cyprus)
Discussion

Introduction to session: Conservation action within an international and UK framework

Liz Charter (Isle of Man Government)

Liz Charter

Charter, E. 2015. Introduction to session: Conservation action within an international and UK framework pp 55-62 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

This paper is an introduction to the session on implementing Biodiversity Action Plans in the context of the Environmental Charters, Aichi Targets, and other international conventions. This paper explains these national and international policy drivers, emphasising the value of Biodiversity Action Planning, and ties the various session contributions to these high level objectives. This should help explore how these processes at various levels can help progress conservation.

The Environmental Audit Committee report, "Sustainability in the UK Overseas Territories" was published in 2014. It made strong recommendations for better monitoring, targeted funding, accountability, transparency and good governance. A central recommendation was that the UK needs to extend the Convention on Biological Diversity (CBD) to all its territories (inhabited and uninhabited). We welcome the extension since then to South Georgia & the South Sandwich Islands, and the moves to extend this and other conventions to other territories. In this session we consider how the Forum and its partners can play a role in implementing this recommendation.

What is the point in going through the CBD process… when time is short and finances even scarcer? I believe we can use the CBD/Aichi as the brand label to help sell conservation projects and programmes to both policy makers and funders.

The Isle of Man finally achieved extension of the CBD in 2012. The Manx experience will be shared, both in this summary and in the workshop later in the conference, and suggestions made on how the process can be made easier. There are considerable benefits to governments and NGOs in being tied into the CBD.

Although development and economic imperatives are driving decision-making, Conventions can reinforce the relationship between biodiversity conservation and sustainable development. We have the tools to achieve this, not just the CBD and Environmental Charters, but also other environmental conventions (such as the Ramsar Convention on Wetlands). They all provide the framework for biodiversity conservation.

If embracing the CBD were to be the ambition of the remaining territories, the question remains as to how we help them to do this.

Liz Charter MCIEEM, Principal Biodiversity Officer, Department of Environment, Food and Agriculture, Isle of Man Government liz@iom.com

As Principal Biodiversity Officer for the Isle of Man Government I have become very familiar with parts of this framework, the Multilateral Environmental Conventions (MEAs). Ever since I arrived on the Island in 1998 the question of whether we should request that the CBD be extended to us has been on the agenda. The implications of the various other agreements we are signed up to have been an underlying theme. European legislation has been marginal (as the Isle of Man is outside EU) and Environmental Charters were not required for Crown Dependencies. However they have been recognised as a potentially useful model for the relationship between the Island Government and the UK authorities, although different authorities from those involved in Overseas Territories.

The framework is made up of

- Convention on Biological Diversity (Aichi goals and targets)
- Ramsar Convention on Wetlands
- Convention on Migratory Species (Bonn) and its many agreements, including the Agreement on the Conservation of Albatrosses and Petrels
- Convention on International Trade in Endangered Species (CITES)
- European agreements (eg Aarhus Convention on access to information, public participation in decision making and access to justice in environmental matters).
- Regional Agreements (eg. Cartagena Convention for the Protection and Development of the Marine Environment in the Wider Caribbean Region)
- Environmental Charters (arising from the 1999 white paper *Partnership for Progress and Prosperity. Britain and the Overseas Territories*)
- Environmental Audit Committee (EAC) Report *Sustainability in the Overseas Territories* (Published January 8th 2014).

Dominating the framework is the Convention on Biological Diversity and its 2020 Aichi goals and targets. There are now 7 UK Overseas Territories and Crown Dependencies signed up to this agreement (see table of MEAS and Territories). In 2013 the Environmental Audit Committee took evidence from a wide variety of people and organisations including some at this conference. I have selected some of the key recommendations, starting with those relating to funding.

The EAC recognised that adequate funding is critical to effective nature conservation. Paragraph 39: "Investing to prevent biodiversity loss in the UKOTs is a direct and cost effective contribution to meeting the UK's international commitments under the CBD." UKOTs are home to at least 517 globally threatened species. The RSPB has called for a more than 10-fold increase in funding (currently round £3m available through Darwin Plus). They estimate this is less than £9,000 per globally threatened species.

The EAC identified 4 funding sources which could be further developed and increased.

- Darwin Plus requires a further step change in funding (Defra action)
- EU LIFE + should be extended to Overseas Territories (Foreign and Commonwealth Office -FCO to lobby Europe)
- EU BEST pilot funding should be built on and made permanent (FCO to lobby Europe)
- Heritage Lottery Funding to be extended to the OTs and OT projects given equal status in assessments (Department of Culture Media and Sport -DCMS action).

There was a recommendation in relation to Environmental Charters, 27: "***Defra must restate its commitment to Environment Charters and use them to deliver its CBD commitments in the UKOTs.***"

The strength of these Charters has been their recognition of the need to address this apparent contradiction. Responsibility for the environment is delegated to the territories and yet the ultimate responsibility for biodiversity in all of the UK and its territories rests with the UK as the Contracting Party to MEAs. The 1999 White Paper *Partnership for progress and prosperity*, identified the need for a new partnership between territory governments and the UK Government. In the area of the natural environment these were laid out in Environmental Charters, signed by both parties (mainly in 2001). These Charters had three sections, guiding principles, the commitments of the UK Government and the commitments of the Territories Governments. There is an example in Annex 1.

The EAC in 2013 recognised the slow progress in extending of the CBD to territories. St Helena, Jersey, British Virgin Islands, Cayman Islands and Gibraltar were included in the original deposition in 1992. The Isle of Man was the next territory to which the CBD was extended in 2012. We in the

Isle of Man understand the obstacles to progress is embracing the CBD. It is a difficult exercise fraught with contradictions. The necessity to identify the explicit obligations when each clause of the Convention is set about with provisos is just one: "Each Contracting Party shall, as far as possible and as appropriate:……" This is why the more specific goals and targets of Aichi are welcome. However, as DEFRA advises, these "are global targets and do not apply to each Party individually. How each Party chooses to contribute towards meeting the Targets is therefore a matter for it to determine in accordance with its own systems and taking into account its own circumstances. For example coastal states are likely to be able to make a much more significant contribution to the achievement of the coastal and marine component of Target 11; and some Parties will be able to make a more significant contribution than others to achieving (for example) the forestry component of Target 5."

EAC paragraph 19 . "T***he UK must fulfil its core environmental obligations to the UN under the CBD in order to maintain its international reputation as an environmentally responsible nation state.***"

Correspondingly Territories can enhance their international reputations as environmentally responsible administrations through the extension of the CBD.

"The FCO must agree a timetable to extend ratification of the CBD with all inhabited UKOTs where this has not yet taken place (and immediately extend ratification of the CBD to all uninhabited UKOTs)."

This is expressed in rather blunt language and not the normal tactful approach of Government departments. What was meant was "explore with and encourage territories to develop a joint timetable". While the UK can dictate to the territories it choses to be much more diplomatic than this!

It is important to read the Government's response to the EAC report, which can be found on the same UK Parliament website. This clearly states that there is "no intention of imposing on the Territories obligations that they are ill-equipped to fulfil." UK government role is to encourage, provide technical assistance and build capacity.

There has been recent progress in extending the CBD to UKOTs. On March 27th 2014, the UK government announced that the CBD had been extended to South Georgia and the South Sandwich Islands.

How do the Environmental Charter commitments compare with the Aichi targets? It is possible to draw rough parallels between the points in the Charters and the 4 goals and 20 Aichi targets. This has been tabulated by UKOTCF and is presented in the next paper.

The Aichi goals and targets are for achievement by 2020, and already half the decade has passed. Where does this leave territories signing up to and developing biodiversity strategies and action plans now? I will be discussing this and DEFRA's advice at our "sign up" workshop on Tuesday.

Here are the goals for reference.

Aichi Goals

A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society

B: Reduce the direct pressures on biodiversity and promote sustainable use

C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity

D: Enhance the benefits to all from biodiversity and ecosystem services

E: Enhance implementation through participatory planning, knowledge management and capacity building

This presentation introduces the framework within which the papers on implementing BAPs and the conference as a whole can be viewed.

Many of the papers which follow address Aichi target 9 (invasive alien species) as well as 19 and 15.

- Rescuing and restoring South Georgia ecosystems by eradication of introduced rats (Tony Martin, South Georgia Heritage Trust)
- Mapping invasive species (Tim Liddiard, States of Jersey)
- Current and planned invasive species removal exercises (Lyndon John and Jonathan Hall, RSPB)
- Caicos pine recovery project – an overview – a poster

Target 9

"By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place

to manage pathways to prevent their introduction and establishment. "

Target 19

"By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied."

Target 15

"By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification."

This Aichi target is reflected in **Environmental Charter Guiding Principle 7** (Control or eradicate invasive species) as well as **Ramsar Strategy 1.9** Invasive alien species (under the Goal for Wise Use); "Encourage Contracting Parties to develop a national inventory of invasive alien species that currently and/or potentially impact the ecological character of wetlands, especially Ramsar sites,… develop guidance and promote procedures and actions to prevent, control or eradicate such species in wetland systems."

Later in the conference we also have paper on reindeer removal from South Georgia.

EAC paragraph 31 recommended enhanced monitoring, proposing "A comprehensive research programme to catalogue OT biodiversity." Of course, the cataloguing is only a starting point as most of the papers in this conference bear witness.

Another aspect of this session is information gathering and management.

- Assessing the potential impacts of climate change on native flora of the Falkland Islands (Colin Clubbe, RBG)
- Invertebrate red-listing on St Helena (Jeremy Harris, St Helena NT)
- Monitoring by remote sensing GIS (Katie Medcalf, Environment Systems, Tony Gent and Thomas Starnes, ARC) and POSTER
- OT Biodiversity Data Access Project (Tara Palembe, JNCC)
- Management of forest ecosystems in BVI. POSTER (Nancy Woodfield Pascoe et al, National Parks Trust of VI and RBG)
- Akrotiri Marsh Restoration. POSTER (Melpo Apolostolidou, Birdlife Cyprus)
- Conserving *Varronia rupicola*, a threatened species endemic to the Caribbean. POSTER(Martin Hamilton et al, RBG)

These papers meet Aichi Target 19.

Target 19

"By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied."

Target 15 (restoration): see above

Target 12

"By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained."

Guiding Principle 10

"To study and celebrate our environmental heritage…"

So, for those territories which are contemplating requesting that the CBD be extended, what are the benefits? Participation in the CBD will;

1. establish or confirm an international reputation as an environmentally responsible territory. Increasingly the environmental governance is being bracketed with the social and financial responsibility, within corporations as well as governments.
2. give a framework within which to operate – CBD requires a Biodiversity Strategy and Action Plan (BSAP). I operated according to a plan in my head when establishing the Wildlife and Conservation Office on the Isle of Man. This plan needs to be in the public domain, available to be discussed with partners rather than addressed piecemeal.
3. provide momentum when political will is uncertain. Every territory is subject to changes in politicians and civil servants, restructuring and in the last 5 years financial tightening. It is helpful to refer back to the biodiversity policies which have been agreed in the Strategy
4. enable all to understand the specific biodiversity commitment of a territory and if

necessary hold governments to account. There is no doubt that it is a tool for NGOs and Civil Society to press for action or point to failure to follow policies.

5. assist in obtaining funding by branding projects by their achievement of Aichi targets. Meeting Aichi targets is going to be increasingly valuable in a supporting case for projects, a way of branding the project as relevant to meeting CBD, ie internationally agreed, objectives.

The Isle of Man experience

So how was the Isle of Man's road to Rio? The answer is pretty long and windy. Along the way, the Island has learnt lessons, some of which could be of value to other places. Lesson 1: it can be a slow process. There was a particular meeting which marks the point at which direction was identified and assistance forthcoming. The Crown Dependencies were invited to a meeting at a Defra office in Whitehall on Thursday 29th August 2002. The invitation from the Constitutional Policy Division of the Lord Chancellor's Office was addressed to the Isle of Man's Chief Secretary, and is a beautiful example of the classical way of communicating between governments, sadly no more!

Sir,

I have the honour, by direction of the Lord Chancellor, to refer to previous correspondence concerning the UN Convention on Biological Diversity, which rests with our letter of 30 July 2002.

I am to say that the meeting to discuss the Biological Diversity Convention and other environmental matters will be held at 11 am on Thursday 29 August at the Lord Chancellor's Department, Southside, 105 Victoria Street, London.

I am to ask if Liz Charter will still be attending on behalf of the Isle of Man Government.

I am to enclose a copy of the draft agenda and to enquire if there are any items the Isle of Man Government would wish to be added.

I have the honour to be, Sir

Your obedient servant

Jennifer Schofield

Before my recruitment, in the 1990s, when there was no full time biodiversity officer in the Department of Agriculture, Fisheries Forestry, as it was then, there had been various attempts to cost the extension of the CBD. But in August 2002, at this Whitehall meeting, Louise Vall of Defra suggested we use the CBD assessment forms and seek the help of the World Conservation Monitoring Centre. Alastair Taylor was duly contracted by WCMC and proved an excellent ally in this process. He objectively gathered evidence of our progress in biodiversity conservation and wrote a report with 10 recommendations. This "article by article" assessment provided the basis of our submission to DEFRA for CBD extension. That document was produced in 2006. Following this, we held a public consultation in 2010 on the CBD, producing a document to explain what the Convention is about and what it would mean to the Island. This was well received and the Minister agreed in early 2011 that we would make the first informal request to Defra to have our assessment evaluated. By this time, there was a supplement to cover the work done since 2006. Defra passed this to JNCC who replied saying they thought it was a good document. Then the UK Government was approached formally through the official channels. Later in 2011, Defra had produced a new proforma for us to complete. I am embarrassed to say we declined as after all this work we just wanted to get the job finished! In spring 2012, we heard that the CBD had been extended to us, as from August 2012.

By this time, we were already well on the way to drafting our first biodiversity strategy (with a drafting sub-group of the Manx Nature Conservation Forum, assisted by Dr Bob Brown who lead the process in Northern Ireland, and sectoral working groups). This was consulted on in autumn of 2013. It was due to go to Tynwald in spring 2014 but a change of Minister delayed this process. We are now on track to take the strategy to Tynwald in the autumn! There is still a Delivery Plan of priority actions to write.

MEA Sign up Workshop

The main points are:

a) the process of CBD sign up can be lengthy (Isle of Man) of short (South Georgia and South Sandwich Islands),

b) some consultation is normally required even if few inhabitants,

c) Civil society plays an important role in generating support for the move, and this will

assist in convincing governments (UKOTCF to assist by putting together benefits of CBD participation)

d) No need to embrace the Nagoya protocol yet if not required although Cayman has very good example of its positive use

e) Those signed up to Ramsar were reminded that Ramsar Information Sheets for Ramsar Sites need reviewing every 6 years and there is a new template

f) CBD has a valuable resource in the NBSAP Forum (www.nbsapforum.net).

g) Assistance has been offered by UKOTCF, Isle of Man Government, JNCC and RSPB to territories with progressing any MEA work.

h) The frameworks for MEA work vary, most have Environmental Charters but Montserrat, for example, also has the St George's Framework.

i) Progress in delivering the Environmental Charters is progress towards meeting CBD's Aichi goals and targets.

j) It was suggested that all projects should be badged with the appropriate Aichi target(s) to assist in gaining support and funding.

In October 2012, I assisted in a JNCC organised a workshop in Guernsey and assisted Rebecca Kinnesley of Guernsey with a generic guide for small islands on the implications of signing up to the convention on biological diversity, adding a checklist in its annex 3.

DEFRA has indicated that it has changed its views on what is required, and the generic code is likely to be adapted to reflect this. Once complete, this should be a valuable document to small islands in relation to making progress on CBD targets and goals.

The role of the Forum

In 2004, the UKOTCF undertook a valuable review of designated and potential Ramsar sites in the UKOTs and CDs. Eleven new Wetlands of International Importance were (or are being) designated in the UKOTs/CDs during or since this review, and it is still referred to. There is a role for the Forum in the process of evaluating progress and identifying next steps.

The UKOTCF exists to

- promote the coordinated conservation of the diverse and increasingly threatened plant and animal species and natural habitats of the UK Territories Overseas.

It aims to do this

- by providing assistance in the form of expertise, information and liaison between non-governmental organisations and governments, both in the UK and in the Territories themselves.

Its role in this respect might include

- Help making the case for the strategic approach in the territories and in UK
- Help with the process of having conventions extended
- Lobbying for funding availability and appropriate targeting
- Communication with HMG
- Help with project proposals and grant applications
- Assess progress on the Environmental Charters and Aichi targets.

Conclusions

- There is value both to the territories and the UK government in extending the CBD ratification to the remaining Overseas Territories and Crown Dependencies, while recognizing that this is a choice for the territories.
- The Environmental Charters are part of the existing framework and are a valuable basis for partnership between UK and territory governments. They make the link between the contracting party and the devolved responsibility for environment to governments of the territories. It expresses reciprocity.
- The Charters can be used more effectively to support progress towards CBD sign up.
- The Forum can play a significant role in assisting both territories and UK government in maintaining progress.

Annex 1. Environment Charter guiding principles, commitments of the UK Government and the commitments of the Territory Government, example for the Virgin Islands

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Environment Charter

BRITISH VIRGIN ISLANDS

Guiding Principles

For the UK government, for the government of the British Virgin Islands and for the people of the British Virgin Islands.

1. To recognise that all people need a healthy environment for their well-being and livelihoods and that all can help to conserve and sustain it.
2. To use our natural resources wisely, being fair to present and future generations.
3. To identify environmental opportunities, costs and risks in all policies and strategies.
4. To seek expert advice and consult openly with interested parties on decisions affecting the environment.
5. To aim for solutions which benefit both the environment and development.
6. To contribute towards the protection and improvement of the global environment.
7. To safeguard and restore native species, habitats and landscape features, and control or eradicate invasive species.
8. To encourage activities and technologies that benefit the environment.
9. To control pollution, with the polluter paying for prevention or remedies.
10. To study and celebrate our environmental heritage as a treasure to share with our children.

Ralph T. O'Neal
BRITISH VIRGIN ISLANDS
26 September 2001

Valerie Amos
UNITED KINGDOM
26 September 2001

Commitments

The government of the UK will:

1 Help build capacity to support and implement integrated environmental management which is consistent with the British Virgin Islands' own plans for sustainable development.

2 Assist the British Virgin Islands in reviewing and updating environmental legislation.

3 Facilitate the extension of the UK's ratification of Multilateral Environmental Agreements of benefit to the British Virgin Islands and which the British Virgin Islands has the capacity to implement.

4 Keep the British Virgin Islands informed regarding new developments in relevant Multilateral Environmental Agreements and invite the British Virgin Islands to participate where appropriate in the UK's delegation to international environmental negotiations and conferences.

5 Help the British Virgin Islands to ensure it has the legislation, institutional capacity and mechanisms it needs to meet international obligations.

6 Promote better cooperation and the sharing of experience and expertise between the British Virgin Islands, other Overseas Territories and small island states and communities which face similar environmental problems.

7 Use UK, regional and local expertise to give advice and improve knowledge of technical and scientific issues. This includes regular consultation with interested non-governmental organisations and networks.

8 Use the existing Environment Fund for the Overseas Territories, and promote access to other sources of public funding, for projects of lasting benefit to the British Virgin Islands' environment.

9 Help the British Virgin Islands identify further funding partners for environmental projects, such as donors, the private sector or non-governmental organisations.

10 Recognise the diversity of the challenges facing Overseas Territories in very different socio-economic and geographical situations.

11 Abide by the principles set out in the Rio Declaration on Environment and Development (See Annex 2) and work towards meeting International Development Targets on the environment (See Annex 3).

The government of the British Virgin Islands will:

1 Bring together government departments, representatives of local industry and commerce, environment and heritage organisations, the Governor's office, individual environmental champions and other community representatives in a forum to formulate a detailed strategy for action. (See Annex 1).

2 Ensure the protection and restoration of key habitats, species and landscape features through legislation and appropriate management structures and mechanisms, including a protected areas policy, and attempt the control and eradication of invasive species.

3 Ensure that environmental considerations are integrated within social and economic planning processes; promote sustainable patterns of production and consumption within the territory.

4 Ensure that environmental impact assessments are undertaken before approving major projects and while developing our growth management strategy.

5 Commit to open and consultative decision-making on developments and plans which may affect the environment; ensure that environmental impact assessments include consultation with stakeholders.

6 Implement effectively obligations under the Multilateral Environmental Agreements already extended to the British Virgin Islands and work towards the extension of other relevant agreements.

7 Review the range, quality and availability of baseline data for natural resources and biodiversity.

8 Ensure that legislation and policies reflect the principle that the polluter should pay for prevention or remedies; establish effective monitoring and enforcement mechanisms.

9 Encourage teaching within schools to promote the value of our local environment (natural and built) and to explain its role within the regional and global environment.

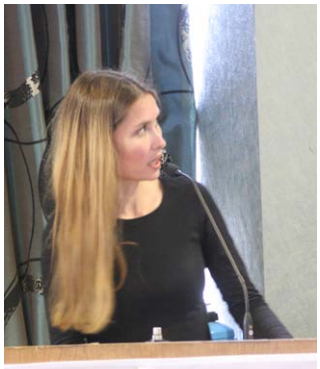
10 Promote publications that spread awareness of the special features of the environment in the British Virgin Islands; promote within the British Virgin Islands the guiding principles set out above.

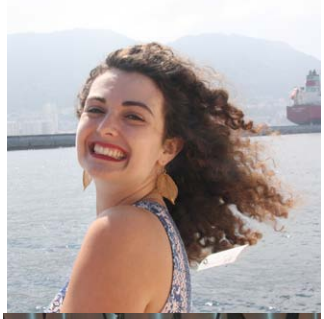
11 Abide by the principles set out in the Rio Declaration on Environment and Development (See Annex 2) and work towards meeting International Development Targets on the environment (See Annex 3).

An overview of progress in implementing the Environment Charters and moving towards the Aichi Targets

Sarah Barnsley, Emma Cary, Mike Pienkowski & Catherine Wensink (UKOTCF)

Barnsley, S., Cary, E., Pienkowski, M. & Wensink C. 2015. An overview of progress in implementing the Environment Charters and moving towards the Aichi Targets pp 63-66 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org





From top: Catherine Wensink, Emma Cary, Sarah Barnsley, Mike Pienkowski

The Environment Charters arose from the 1999 UK White Paper on Overseas Territories, and address the challenge that UK Government is accountable internationally for multilateral environmental agreements, but responsibility for legislating for these commitments and for implementing the measures is devolved to territory governments. The Environment Charters summarise key points from these international agreements which apply to the territories and list commitments entered into by the territory and supporting ones that UK Government entered into. Most UKOTs signed these agreements with UK Government in September 2001. A few UKOTs and the Crown Dependencies either do not have an Environment Charter or else have one entered into by a different process. Nevertheless, because they summarise existing commitments, the features in the Charters essentially apply to all UKOTs and CDs.

Around the time of the previous two UKOTCF-organised conferences, both the UK Government and Territories asked UKOTCF (which had been involved in facilitating the development and use of the Charters but is not a party to them) to collate information on the implementation of the Charter commitments (whether or not done explicitly relating to the Charters). These collations were published on www.ukotcf.org and remain available. The conferences proved useful as a way of checking and adding to the contents of the collation while many relevant people were gathered together, before producing the final version.

UKOTCF is updating the collation in the period before, during and after this conference. We are trying to make several improvements to the process. First, in order to reduce the work requested of territories, UKOTCF personnel are starting by gathering as much information as possible from existing sources, rather than by questionnaire. Second, we are trying to simplify the final summaries. Third (and we hope not in conflict with the second!), we will try to relate the results to the Aichi Targets as well as to the Environment Charters. (The Aichi Targets – an attempt to put target measures on the commitments of several international conventions – were agreed by the parties since the previous UKOTCF conference.)

UKOTCF will aim to circulate an early draft before the conference, so that participants and others can comment at that stage. We will also try to discuss this with territory personnel in the margins of the conference. All this is intended to be as pain-free a way as possible to produce an update of the situation soon after the conference.

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Photos: Dr Mike Pienkowski

As I have a had a sneaky look at most of the Powerpoints in advance, I can say that the Environment Charters and Aichi Targets feature throughout most if not all of them. This highlights their importance to all of us, and I am pleased to say that some of those that originally developed the Charters are with us here in Gibraltar and can provide fascinating insights which a quick search on Google will not be able to tell you!

Colleagues in the Dutch OTs have commented that the UK Environment Charters are still really important documents which they do not have and which are unlikely to be developed there due to the joint efforts needed to develop something like the Charters.

I will skip really quickly through some of the key events of the past 15 years so that we can get back to where we are now:

- 1999: UK Government White Paper
- 2001: Charters signed by UK and UKOT Governments
- 2002-2006: Strategies developed for TCI & St Helena (UKOTCF facilitating) integrating conservation into economy and social activity continued in the UK Government "mainstreaming" projects (2012 onwards)
- 2004-2005: UK & UKOT Governments asked UKOTCF to collate progress in meeting Charters
- 2009: UK Government publishes UK Overseas Territories Biodiversity Strategy
- In 2010, the Strategic Plan for Biodiversity 2011-2020, and its 20 Aichi Biodiversity Targets, was agreed under the auspices of Convention on Biological Diversity but relating also to other conventions. While reporting on progress in meeting these targets is necessary, equally, practitioners in UKOTs made clear the value of the Environment Charters too.
- In 2012, the UK Government publishes White Paper; although Environment featured strongly it made no reference to the Charters;
- The Biodiversity Strategy review in 2013, this followed a one-day meeting attended by UKOT governments, UK Government and UK based NGOs at Kew.
- In 2014, EAC stated that: The 2012 White Paper claimed to build on the achievements of the 1999 White Paper, but it contained no references to Environment Charters. They recommended that: "Defra must restate its commitment to Environment Charters and use them to deliver its CBD commitments in the UKOTs." This seemed to be a good way to tie them both together.
- At the request of EAC and with the MPs' participation, UKOTCF organised a meeting in London on the day of the launch, which involved also UKOT personnel on Skype.
- In 2014, the UK Government submitted its 5th report to the CBD, which included reports from those UKOTs and Crown Dependencies



Photos: Stewart McPherson, Bryan Naqqi Manco, Catherine Wensink

included at the time. These were: British Virgin Islands, Cayman, Gibraltar, St Helena, Ascension and Tristan da Cunha, Isle of Man and Jersey.

During the run up to several other conferences in this series (Jersey 2006 and Cayman 2009) UKOTCF reviewed progress in meeting the Charters. As many of you will know, we have attempted to start another review in the run up to Gibraltar but including the Aichi targets as well.

After some initial attempt to match the Charters to Aichi we found that this was much easier to map the Aichi targets to the Charters and in doing so we ended up with something like the Table, an example of part of which is illustrated at the bottom of the page. Again, many participants will already have seen versions of this and, indeed, helped fill them in.

In addition, this exercise has presented an opportunity to identify some of the gaps in needs in order to meet the commitments and targets. Other sessions in this conference, including the MEA and EIA workshops will also attempt to address some of these points.

Sarah Barnsley and Emma Cary conducted the initial desk review between January and July 2015. We created tables for all the UK Overseas Territories and Crown Dependencies without prejudice or any assumption made towards those that have not signed up to the CBD or the Environment Charters (but may have equivalents).

We wanted to avoid putting extra loads on our busy colleagues in territories. Therefore, the forms were initially populated by reviewing information already supplied by colleagues from the territories, in earlier surveys, publications, UKOTCF working groups etc. Obviously, we needed to check with territory colleagues the accuracy of our initial collation. Therefore, our voluntary researchers have now begun a period of consultation on the results they have collected. Many of you will have been contacted already. Others will be during this conference, which also provides opportunities for follow up on earlier discussions.

Inevitably there will be gaps and errors – especially in the priorities to be addressed – and we hope that some of you will be able to fill them while you are here or soon after. We will continue the consultations and updating after the conference, with a view to reporting early in the new year.

Some things are already clear. Since the 2009 review, there have been some excellent moves towards meeting the Environment Charter Commitments and, without dwelling on the bad stuff (which I really shouldn't do in one of the opening lectures!), here are some of the highlights.

Environment Charter Commitments by UKOT Governments	**Aichi Biodiversity Targets** (matched to nearest equivalent Env Ch commitment)	**Summary of progress and the present state**	**Still to do to meet commitments and other local needs**
2. Ensure the protection and restoration of key habitats, species and landscape features through legislation and appropriate management structures and mechanisms, including a protected areas policy, and attempt the control and eradication of invasive species.	5. By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced. (Relates also to EC4)		
2	9. By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.		
2	11. By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well		

Some major achievements in meeting Environment Charters and Aichi Targets

- Ascension's Biodiversity Action Plan
- Cayman's Conservation Law
- South Georgia restoration through rat and reindeer eradication
- Isle of Man fisheries management and protected areas
- Gibraltar's new fisheries regulations
- Pitcairn's proposed Marine Protected Area
- Red-listing for threatened plants and invertebrates

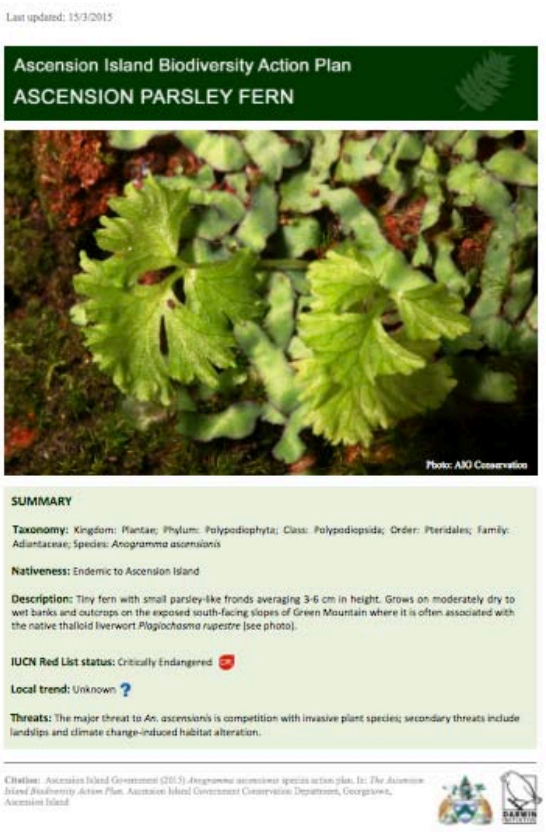
I do not mean to leave anyone out, and we will be able to list more fully in the project's final report, doubtless including many initiatives that we will hear about through the course of the week. This could run to pages and pages!

Some of the gaps identified include (but are not limited to):

- Sign-ups to Multilateral Environmental Agreements;
- Creation of further protected areas including designating Ramsar sites;
- Need for legislation and regulations, and their implementation;
- Resources to increase capacity;

Thank you for your attention, and especially for the help you have already given and that you will be giving in this exercise. The results will of course be made available on www.ukotcf.org.

Meanwhile, we hope you enjoy the rest of the conference .


Last updated: 15/3/2015

Ascension Island Biodiversity Action Plan

ASCENSION PARSLEY FERN

Photo: AIG Conservation

SUMMARY

Taxonomy: Kingdom: Plantae; Phylum: Polypodiophyta; Class: Polypodiopsida; Order: Pteridales; Family: Adiantaceae; Species: *Anogramma ascensionis*

Nativeness: Endemic to Ascension Island

Description: Tiny fern with small parsley-like fronds averaging 3-6 cm in height. Grows on moderately dry to wet banks and outcrops on the exposed south-facing slopes of Green Mountain where it is often associated with the native thalloid liverwort *Plagiochasma rupestre* (see photo).

IUCN Red List status: Critically Endangered

Local trend: Unknown

Threats: The major threat to *An. ascensionis* is competition with invasive plant species; secondary threats include landslips and climate change-induced habitat alteration.

Photos: Ascension Conservation Department; Tony Martin, SGHT (Rat Bait, South Georgia)

Rodent eradication on South Georgia: global-scale conservation is within the reach of small NGOs

A.R.Martin (University of Dundee and South Georgia Heritage Trust)

Tony Martin

Martin, A.R. 2015. Rodent eradication on South Georgia: global-scale conservation is within the reach of small NGOs. pp 67-70 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

Rodents are among the most damaging of all animals introduced by humans to vulnerable island ecosystems, and consequently have been the target of many eradication attempts. As the size of islands successfully freed of rodents increased from hectares to square kilometres, even huge, remote islands like Campbell (113 sq km) and Macquarie (128 sq km) have been tackled, but only Governments are normally prepared to accept the risk and cost of such challenging field operations. Against this background, the decision, almost a decade ago, of a small Scottish charity to eradicate rats from South Georgia, an island 33 times larger than any previously tackled, was bold and ambitious. The South Georgia Heritage Trust (SGHT) had no previous experience of eradications, but a determination to find the resources and expertise to prevail. In partnership with the University of Dundee, and after assembling an international team of fieldworkers and buying helicopters, SGHT's project commenced fieldwork in 2011 following several years of planning and preparation. Sub-Antarctic South Georgia is riven by glaciers which form impenetrable barriers to rodents, so the operation could crucially be divided into three phases, each separated by two years to allow time to raise money for the next field season and to improve techniques by learning from experience. The final area of land was treated in late March 2015. A survey in three years will determine if the operation has been successful, but encouragement is provided by the fact that the Phase 1 area (128 km^2) now appears to be free of rodents. The conclusion of the South Georgia baiting work demonstrates that even large-scale pest eradications are within the capability of NGOs with vision and determination. This offers real hope for hundreds of island ecosystems damaged by invasive species worldwide.

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The human world is belatedly realising that our transportation of living organisms from where they evolved to somewhere new can have catastrophic consequences. The cost of introducing alien organisms can often be measured in terms of money - sometimes eye-watering amounts of money - but also in terms of something more permanent - the extinction of other, native organisms. The list of species lost to alien invasions is long, and of course the impact of aliens is especially profound on islands, where many animals and plants evolved precisely because of the lack of competitors, predators and parasites normally found on larger land masses.

By the time a problem caused by an invasive alien species (IAS) has been identified, the invader is normally well-established and widespread. Removal is usually not then possible, by virtue of financial cost, lack of practical means of eradication, lack of will to do the work or even a resistance to the eradication itself on the part of some people. Even when eradication would be widely welcomed and a means is available, the cost and complexity of the necessary operation is often such that only governments and a handful of the very largest charitable trusts and foundations worldwide will consider carrying them out. The fact that so few governments are willing and able to undertake this role means that most invasive species will remain in place for a very long time,


The project's three helicopters being transported on the British Antarctic Survey's ship Ernest Shackleton *(left) and reassembled on South Georgia (right)*

no matter the irreversible damage they cause. Meanwhile, more species are lost forever, more habitats are rendered inhospitable and, incredibly, more IAS are being introduced to more places, making the problem even worse than it was.

In such a depressing landscape, it is heartening that a fightback has started and is rapidly growing, with hundreds of IAS eradication operations having been carried out over recent decades. Early pioneering work on islands or land areas of a few hectares proved that invasive species really could be entirely removed, and the scale of ambition has increased year on year as lessons have been learned, confidence has increased, and the ecological benefits of success have become more widely recognised.

Although many different native organisms have benefited from the eradication of IAS, much of the publicity, effort and money has focussed on operations that are intended to save island-dwelling birds from introduced predators. Though arguably no more deserving than amphibians, mammals, reptiles, insects or plants, birds tend to capture the public imagination and generate interest in, and support for, 'doing something' about their future. Such backing is vital, not least because of the financial cost involved in any significant eradication operation. Decision makers, whether in the public or private domain, usually need to see evidence of widespread support before committing the very substantial monies required to eradicate a pest species, especially when there are strong competing pressures for the money to be spent on other things more widely perceived to be deserving of the funds.

The cost of any large scale eradication operation is normally measured in the millions of pounds/dollars. This has meant that large-scale eradications were only attempted on islands within a very few countries with enlightened governments (e.g. New Zealand and Australia) or those selected for priority consideration by the world's largest environmental charities and foundations (e.g. RSPB and Galapagos Conservancy).

Until now, that is. The subject of my presentation is an eradication operation on a vast scale, and one that was conceived, organised and funded by a small UK charity. As such, the South Georgia Habitat Restoration Project, costing £7.5m over four seasons of fieldwork (three baiting and one survey) involving the eradication of rodents from more than 1000 square kilometres of sub-Antarctic wilderness, breaks the mould. With primary fieldwork completed in March 2015, and with an impeccable safety record and no budget overspend, this project demonstrates that globally important conservation work need not be the preserve of governments and only the largest charities.

The South Georgia Heritage Trust (SGHT) was formed in 2005, with just seven trustees who had a keen interest in the future of the 170km long sub-Antarctic island - an Overseas Territory of the UK. In 2007, and with no experience of such work, the trustees made a decision to raise the money necessary to eradicate rodents from South Georgia - rodents that had been introduced by sealers and whalers after the island's discovery by Capt. Cook in 1775. In the nearly 2½ centuries since then, brown rats had eaten their way through countless millions of birds, eliminated burrow-nesting seabirds from much of the main island and banished the endemic pipit to small offshore islands. The dream was to remove every rodent and allow South Georgia's native wildlife to reclaim the vast areas of the best habitat from which it had been banished; in effect, rolling back two centuries of damage unwittingly caused by Man. On an island the size of South Georgia, and where rodents could occur from sea-level up to the

Helicopter carrying bait distribution hopper over camp (left) and hopper being re-filled (right)

margins of permanent ice at elevations of over a thousand metres, the only possible way to achieve the goal was by using helicopters to spread toxic bait pellets sparsely over every piece of land where rats and mice could feasibly live. To leave even one pregnant female, or a male and a female, alive anywhere on this vast island could result in failure.

After an unsuccessful attempt to outsource the management of the project, SGHT eventually took the remarkable step of managing the operation in-house, setting up a Steering Committee and appointing a Project Director in collaboration with the University of Dundee. This hugely ambitious leap into uncharted waters grew to be overwhelmingly the Trust's major occupation, resulting in the recruitment of fund-raising and fieldwork staff and the purchase and management of a fleet of three helicopters.

With no membership to provide support, the raising of the necessary funds was a huge challenge. Ten percent was secured from the UK Government's DEFRA, including two successful bids for Darwin Initiative and Darwin Plus support, but 90% was (and is still being) raised from private individuals, charitable trusts and foundations, and business. A sister US organisation - the Friends of South Georgia Island (FOSGI) - was set up during the project and has contributed a substantial proportion of the total. We have learned that people are often keen to support a habitat restoration project - to help reverse the damage caused by humans and to get rid of a pest species almost universally disliked. The money is out there; the key is to find potential donors and to have a well-researched, well-organised project which they judge to have a good chance of success and make good use of their donations.

South Georgia is so large that it would have been impossible to treat the whole island in one season, given that the bait would have to be spread outwith the summer period in order to reduce as far as possible the exposure of birds to the toxic bait. Many species are migratory, and would leave the island before baiting took place if the operation was delayed until autumn. If South Georgia had the same characteristics as the other islands that had been treated for rodents, the operation would not have been possible - rodents from untreated land would have moved into the cleared area between seasons. But South Georgia is not like any other rodent-infested island. It is riven by glaciers that terminate in the sea - glaciers that form an impenetrable barrier to rodents and effectively transform South Georgia into an island of islands. Although the glaciers are retreating at a remarkable rate due to global climate change, there remained an opportunity to carry out the eradication work over several seasons, secure in the knowledge that a cleared area would not be re-invaded between seasons. The decision was made to do the work over three expeditions, each separated by two years to allow evaluation of the work and time for fund-raising.

A trial field operation was mounted in 2011, when an area of land amounting to 128 km^2 was spread with rodenticide bait. Although only 12½% of South Georgia's rodent-infested land, this Phase 1 target was equal in size to the largest island previously treated for rodents - Australia's Macquarie island. Monitoring over the following 12 months demonstrated that the baiting methodology seemed to have been effective, and that non-target mortality (the accidental but sadly unavoidable poisoning of birds) was sustainable and recoverable. Consequently, the decision was made to proceed with Phase 2 in 2013, this time aiming to cover a monumental 580 km^2. This ambitious task was almost thwarted by long spells of diabolical weather, but eventually, after many months on the island and in severe sub-zero temperatures, the final load of bait was spread

Helicopter over König Glacier (left) and approaching Iris Bay (right)

successfully. Two years later, in January 2015, Team Rat returned to South Georgia in order to bait the southern portion of the island - an area of 360 km^2 - and, on 23 March 2015, the job was completed. The task of placing at least one bait pellet (a fatal dose) into the path of every single rodent on the island had taken three seasons, 1000 flying hours, 300 tonnes of bait, 900 drums of aviation fuel, 13 person years in the field and a total spend of some £7m.

It is too early to know whether the eradication effort has succeeded. The signs are good, and the 2011 Phase 1 area has been declared rodent-free, but we must wait a further two years before carrying out a comprehensive survey to check whether the land treated in 2013 and 2015 is similarly free of rats and mice. However, we can already conclude that the methodology was fundamentally sound, that SGHT has carried out an operation as competently as any larger organisation could have done, and that the project to date has been very cost-effective compared to its predecessors elsewhere. One advantage of a small NGO is that it is not beset by layers of bureaucracy; its operations can be lean and mean!

The successful conclusion of baiting fieldwork on South Georgia earlier this year was of course a milestone for the island and its wildlife. But perhaps the most important legacy of this project on a broader scale will not be the operation itself, but the manner in which it was conceived and carried out, hopefully providing encouragement and inspiration for others. South Georgia demonstrates that even the very largest of alien eradication operations can be undertaken by small charities with the vision and determination to make a significant difference in their own part of the world. Currently the rate of loss of native wildlife from islands due to alien introductions exceeds the rate at which those aliens are being removed. More native species will disappear unless eradication capacity is increased, but governments and large NGOs are simply unable to tackle more than a small fraction of the islands needing help. The rest of us can and must do more to prevent further extinctions and restore fragile island ecosystems to their original glory.

Mapping invasive Japanese knotweed in Jersey, Channel Islands

Tim Liddiard (States of Jersey)

Tim Liddiard

Liddiard, T. 2015. Mapping invasive Japanese knotweed in Jersey, Channel Islands. pp 71-74 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

In response to local environmental degradation/impacts and the requirements as set out in various Multi-Lateral Environmental Agreements to address the impact of Invasive non-native species, Jersey has started a project using citizen science techniques with the Islands population.

Due to our lack of an invasive species strategy, the lack of co-ordination in the past in recording locations and efforts to control individual species resulted in a rather haphazard approach resulting in a complicated paper trail of databases, spreadsheets.

For several years we have been assigning our knowledge on Japanese knotweed *Fallopia japonica* locations to planning applications being screened in an attempt to limit its dispersal caused by developments.

In 2013, the Environment Department initiated a project to gather data on the locations of Japanese knotweed. This plant was selected as a good target species due to its relative ease in identification, its high profile and the threat it poses to Jersey's infrastructure and biodiversity. By downloading a phone app designed by Plant Tracker (http://planttracker.naturelocator.org/), people in Jersey have been engaged via the media and on our website (www.gov.je) and asked to photograph then email any sightings of this plant to the plant tracker website. These sightings are then downloaded by DoE from the plant tracker website and the locations, together with any information are recorded on a GIS layer. They are then ground truthed by staff (and by a local company who have applied for funding through an Agri-environment scheme). All records have been verified and added to historic records held at the Environment Department which has led to an increase in records from 50 to 120.

After the records have been verified the project aims to assign criteria to all patches of Japanese knotweed including proximity to water courses and roadsides, which will in turn prioritise their management, identify land ownership details and calculate the known infested area and costs of control.

This has been a very successful way of gaining information about the plant's occurrence in the wild, and the Department have been working with plant tracker to add Pampas grass *Cortedaria selloana* to the list of plants on the plant tracker website as we are very concerned about the current spread of this plant, but have very few records of its occurrence. We expect to develop a database on *C. selloana* and aim to manage this species in a similar way.

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Japanese knotweed

Jersey sits in the Bay of St Malo, just 19 miles (30.5 km) from the French coast and 85 miles (137 km) south of the English coast. Jersey is the biggest of the Channel Islands. It is made up of 12 parishes and has a population of 99,000. Jersey is only 5 miles (8 km) long and 9 miles (14.5 km) wide.

Jersey's southerly location and sheltered position in the Bay of St Malo mean that we have a generally temperate climate that is often warmer, with more sunshine hours, than you might experience in the other British Isles.

In recent years, the problem of alien species affecting Jersey has increased substantially, with common garden plants such as pampas grass *Cortedaria selloana* starting to produce viable seed and becoming established in new areas, and the arrival in Jersey of pest species such as the oak processionary moth *Thaumetopoea processionae* and the gypsy moth *Lymantria dispar*, both capable of significant damage to tree species through defoliation and, in the case of the oak processionary moth, also a significant risk to human health. These species have all had an economic impact upon the Island as resources are necessarily diverted into dealing with the problem.

Japanese knotweed is a tall, vigorously growing, perennial plant which originates from Japan and was brought to Europe as an ornamental and fodder plant in the early 19th century. Now regarded by some as the most invasive plant in Britain, and by the World Conservation Union as one of the world's 100 worst invasive species, Japanese knotweed can colonize most habitats and it has become widely established throughout the British Isles, capable of smothering entire areas and dominating all other plant life. Over £100m is spent annually on Japanese knotweed control in the UK

Currently the States of Jersey deals with invasive species, including disease organisms, in various ways, through a number of laws, administered by differing departments (these Laws include the Plant Health (Jersey) Law 2003, Waste Management (Jersey) Law 2005, Weeds (Jersey) Law 1961, Conservation of Wildlife (Jersey) Law 2000 and Disease of Animals (Importation of Miscellaneous Goods) (Jersey) Order 1958).

A co-ordinated Strategy unifying the above Laws to deal with problem species is scheduled for completion but various pressures on resources have resulted in the project's priority being lowered.

Japanese knotweed location points on aerial image

It was first recorded in Jersey before 1915, and it has since appeared in many areas around the Island.

Climate change, changing gardening fashions (e.g. the current demand for ornamental grasses), the increased popularity, and ease of keeping, of exotic pets, changing crops and the increase in areas from which plants and plant products are imported will all play a part in the increasing problem of invasive species.

Education is a key strategy for all those involved in land management, including States Departments, gardeners and the general public who may harbour these species on private land. For importers of plant material and animals, such as nurseries, garden centres and pet shops, as well as pet keepers, a raised awareness of the problems will assist in reducing the harm caused and in reducing future threats.

There are many ways in which foreign species can arrive in Jersey. Our geographical location, and the Island's diverse semi-natural habitats and its economic and social structure, requiring a transient population and a large proportion of goods to be imported, provide many opportunities for species to become established here, intentionally and accidentally. Food-stuffs and plant material arrive here from globally diverse destinations, winds can carry insects and plant propogules from the continent, tourism and industry bring people from various countries and the trade in garden plants and exotic pets is vigorous.

In an effort to control the spread of non-native invasive plant species in the Island, a project was started in 2013 which combines the harnessing of public knowledge and mobile technology in order to better understand the risk being posed by one plant which is already known to be a major threat.

The Biological Records Centre (BRC), established in 1964, is a national focus in the UK for terrestrial and freshwater species recording. BRC works closely with the voluntary recording community, principally through support of national recording schemes and societies. BRC is supported by the Joint Nature Conservation Committee and the Centre for Ecology & Hydrology.

BRC supports recording using mobile apps. They will make it easier for more people to join in. By using GPS, camera, clock, and mobile network, we expect to see more records that are more accurate.

The I Record website is a Biological Records Centre project that allows anyone, anywhere in the UK, to submit records of any species. Records are checked by a panel of experts and made available to local record centres and national schemes and societies, as well as contributing to the research of BRC.

The ability to make records using mobile technology is provided via the PlantTracker app.

By downloading the Plant Tracker app, people in Jersey have been engaged via the media and asked to record any sightings of this plant. A variety of quality assurances are put in place, including automated checks by I Record, the host website. These sightings are then received by us in Jersey for verification and added to historic records held at the Environment Department.

This negates the problem of data quality which was considered to be a major issue. The ease of plant identification will probably be a limiting factor as the project evolves. A point to note is that the verifier needs to be able to confirm a record from photos, which on occasion are not very clear. Pampas grass has, in recent years, become more vigorous and can now be found seeding in most coastal and inland habitats. After working with PlantTracker we requested the inclusion of pampas grass on their website as it is not yet considered as a problem in mainland Britain.

A total of 239 public Japanese knotweed records have so far been received, some of which replicated the 126 historic records already held, but also added a number of new locations for the plant.

The Jersey Department of the Environment has liaised with the Great Britain non-native species secretariat who are interested in Jersey being an early warning system for potential invasives in mainland Britain.

The need for assessing a priority to each patch has been highlighted and the Countryside Enhancement Scheme, Jersey's agri-environment scheme, has helped fund a local consultant to survey each patch over the summer 2015 to assess each individual patch following set criteria being prepared by the Environment Department.

In the absence of individual patch assessment, the records can still be used to inform planning applications and targets requirements and conditions to be placed on planning permits at properties where Japanese knotweed is known to be found.

Meetings are currently taking place between the Natural Environment Team and the Agricultural Inspectorate to identify any existing legislation or policy which could easily amended so that the onus of control can be placed with the landowner and not local Government.

Private landowners are often surprised to hear that there is no statutory requirement to deal with knotweed infestations, especially when on their neighbour's property.

In our experience, any Japanese knotweed found on public land is relatively simple to control and does not have a major impact on the rangers work schedule, but it would have if they were to deal with the problem Island-wide. Local spread is likely to be caused by roadside cutting or soil movement. For this reason we are keen to provide alternatives and are exploring offering either incentives or a legal requirement for landowners to deal with any Japanese knotweed found on their land.

Current and planned invasive species removal exercises

Lyndon John & Jonathan Hall (The Royal Society for the Protection of Birds (RSPB))

Lyndon John

Jonathan Hall

John, L. & Hall, J. 2015. Current and planned invasive species removal exercises. pp 75-76 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

Invasive Alien Species (IAS) have been identified as one of the leading threats to global biodiversity recognized under the Convention on Biological Diversity (Article 8(h)). The impacts of IAS have been particularly significant for small islands globally, including those of the Caribbean UK Overseas Territories (UKOTs). Therefore, efforts at IAS control or eradication have become mainstream conservation management options. In the study "Prioritizing islands for the eradication of invasive vertebrates in the United Kingdom overseas territories" (Dawson. J. *et.al*, 2014), the authors devised an approach that seeks to decide which islands have the highest priority for eradication as this is of strategic importance to determining the allocation of limited resources to achieve maximum conservation benefit. The study examined eradication feasibility and distinguishes between the potential and realistic conservation value of an eradication. They identified the top 25 priority islands for invasive species eradication that together would benefit extant populations of 155 native species, including 45 globally threatened species. The five most valuable islands included the two World Heritage islands Gough (South Atlantic) and Henderson (South Pacific) that feature unique seabird colonies, and Anegada, Little Cayman, and Guana Island in the Caribbean that feature a unique reptile fauna. The RSPB is currently leading work aiming towards the restoration of Gough and Henderson Islands via aerial eradication of their introduced mouse and rat populations. Other Caribbean UKOTs recognised in the study are offshore islands and cays of Anguilla, British Virgin Islands and Turks & Caicos Islands.

Conserving Species and Sites of International Importance by the Eradication of Invasive Alien Species in the Caribbean UK Overseas Territories is a three-year project funded by the BEST Instrument[A]. This project was designed to develop capacity in the Caribbean UKOTs to manage invasive species that are impacting on key biodiversity sites and endangered species. The work is led by the RSPB in partnership with organisations from five Caribbean Territories: National Parks Trust of the Virgin Islands BVINPT, Jost Van Dyke Preservation Society JVDPS, Anguilla National Trust ANT, Department of the Environment in the Ministry of Agriculture, Land, Housing & the Environment, Montserrat (DOE), Turks and Caicos National Trust (TCNT), National Trust for the Cayman Islands (NTCI). Additional technical support is provided by Animal and Plant Health Agency (APHA) based in the UK. Activities undertaken under the project include assessment and feasibility studies for eradication or control of IAS. In the Turks and Caicos Islands, rodents and cats have been identified as a problem for the critically endangered rock iguanas on Little Water Cay. In the Cayman Islands where the common iguana has become invasive the project sought to: 1) provide a recommended methodology for the detection of iguanas and the trapping, removal or culling of iguanas; and 2) provide a technical document to local partners to improve biosecurity to reduce the risk of introduction of common iguanas to Cayman Brac and Little Cayman from Grand Cayman. Eradication exercises have been undertaken in the British Virgin Islands on Little Tobago, Great Tobago, and Green Cay where goats threaten the habitat of nesting seabirds. In Montserrat, feral livestock control in the Centre Hills Forest Reserve has been undertaken in partnership with the DOE and camera traps are deployed into the Centre Hills to track movement of feral livestock.

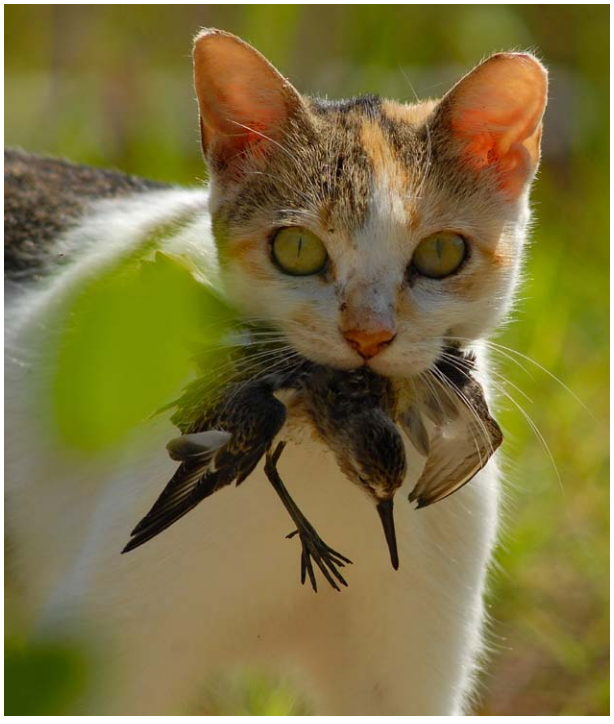
[A] The voluntary scheme for Biodiversity and Ecosystem Services in Territories of the EU Outermost Regions and Overseas Countries and Territories (BEST Initiative). BEST seeks to promote the conservation of biodiversity and the sustainable use of ecosystem services including ecosystem-based approaches to climate change adaptation and mitigation in the EU outermost regions and overseas countries and territories.

Lyndon John, Caribbean Invasive Species Project Coordinator, RSPB, Sunbilt, Castries, Saint Lucia, West Indies. Lyndon.John@rspb.org.uk

Common green iguana © Lyndon John

Common green iguanas, Cayman Island © Y J Millet

Masked booby, Dog Island, Anguilla © Lyndon John



Feral cat with semipalmated sandpiper
© Alistair Homer

(The authors have opted to publish this extended abstract, rather than a full paper,)

Terrestrial Ecosystems of the Falklands – a Climate Change Risk Assessment

Rebecca Upson[1], Jim McAdam[2] and Colin Clubbe[1] ([1]Royal Botanic Gardens Kew; [2]Agri Food and Biosciences Institute and Queens University of Belfast)

Colin Clubbe

Upson, R., McAdam, J. & Clubbe, C. 2015. Terrestrial Ecosystems of the Falklands – a Climate Change Risk Assessment. pp 77-82 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

The Falkland Islands are predicted to experience an up to 2.2°C rise in mean annual temperature over the coming century, greater than four times the rate of warming experienced in the last 100 years. In order to conserve effectively native plants, the habitats they form and the services they provide in the face of this changing climate, the current project carried out a climate change risk assessment for the terrestrial environment of the Falkland Islands, focusing on plants and soils and the services they provide. We highlight the results of targeted research, such as species distribution modelling and soil carbon estimation, which have fed directly into the climate change risk assessment. The results of this risk assessment will be presented and their planned use, in providing the basis of a National Climate Change Action Plan, discussed.

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Introduction

The TEFRA project - "Terrestrial Ecosystems of the Falklands – a climate change risk assessment" is a collaborative project between the Royal Botanic Gardens Kew, the UK Falkland Islands Trust, Falkland Islands Government, Falklands Conservation and the Falkland Islands Department of Natural Resources (Kew 2015). The project is funded by the European Union under the BEST Initiative (BEST 2015) and runs until the end of 2016.

This paper provides an overview of the main phases of the project – targeted research, risk assessment and action plan – and provides examples of results generated so far. The overarching aim of the project is to assess the potential impacts of climate change on the terrestrial environment of the Falkland Islands, based on our current level of knowledge. We then aim to assess if and how we can mitigate against these potential impacts.

Climate change is one of the major challenges facing the world (Millennium Ecosystem Assessment 2005; IPCC 2014). It places an additional stress on ecosystems at a time when many are already under pressure. Island floras are particularly vulnerable to the impacts of climate change (Thomas *et al.* 2004; Bramwell, 2011; Maclean & Wilson 2011) and therefore understanding the likely responses is an urgent, if challenging, scientific problem.

This project was planned on the basis of weather data and appropriate regional climate models now being available for the first climate predictions for the Falkland Islands to be produced.

Given that plants and soils form the basis of all habitats and the basis of livestock farming, the main land-use across the Falklands, our project focuses on the impacts of climate change on these elements of terrestrial ecosystems.

Figure 1 presents a schematic overview of the project. The starting point was to facilitate climate

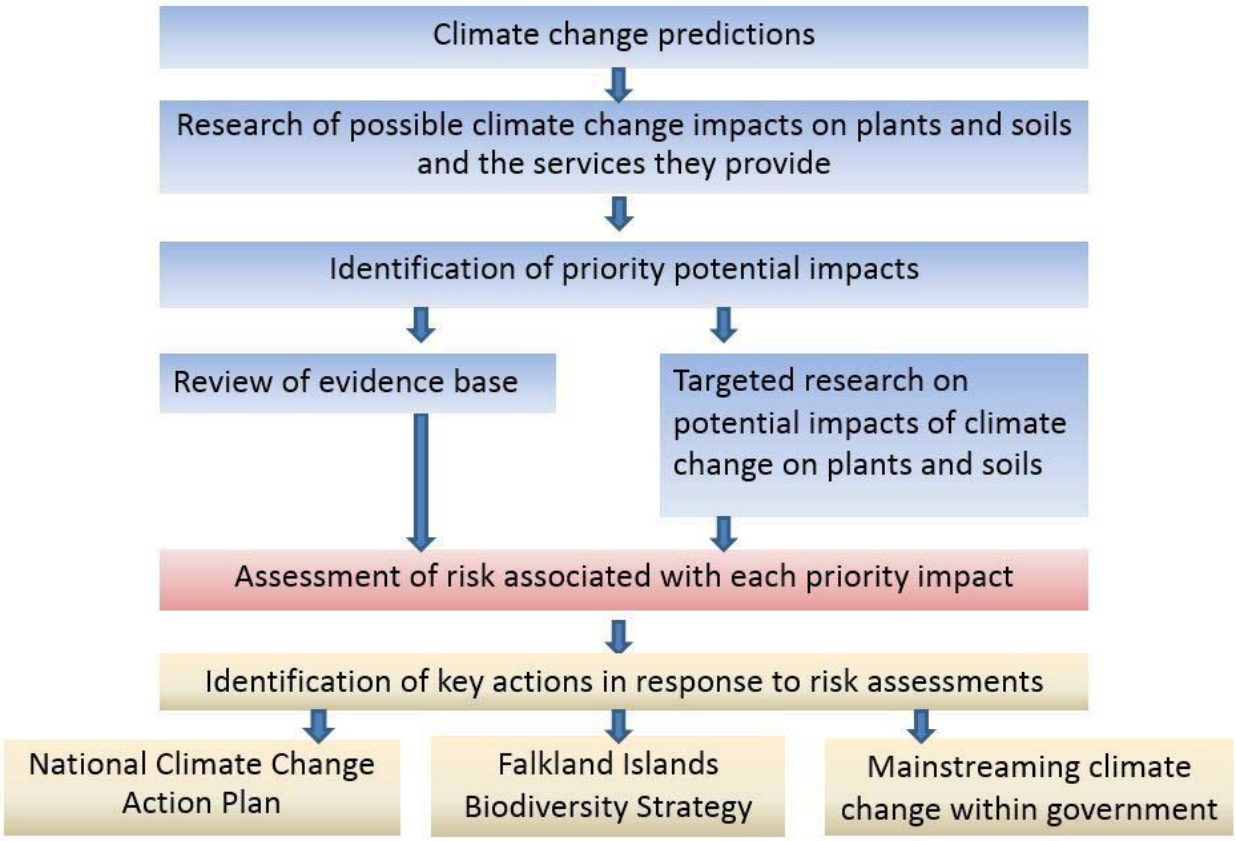

Figure 1. Schematic overview of the project

change predictions to be undertaken by the Climate Change Research Unit at the University of East Anglia. With these predictions, we were then able to research possible climate change impacts on the plants and soils of the Falklands and the services they provide. With this list produced, we then organised a workshop in the Falkland Islands to identify which of the possible climate change impacts are the highest priority locally. From this priority list we assessed which it was possible for us to address within the scope of the current project – either through our own targeted research or by literature review or a combination. This allowed us to produce a qualitative assessment of the risks associated with each priority impact – this assessment has now been sent out for final review, and so this is the stage we are currently at. The next phase is to build on our initial consultations, based on the first review of the risk assessment, to identify key actions that can begin to address the main risks identified. Alongside this we are identifying the best ways of embedding these identified actions into policy.

The methodology adopted was based upon, and adapted from, the 2012 UK Climate Change Risk Assessment process (UK Government 2012) and in particular the technical report for the Biodiversity and Ecosystem Services Sector (Brown *et al.* 2012).

Potential Impacts of Climate Change

The team at the Climate Change Research Unit at UEA used available regional climate models alongside local weather data spanning the last century, to predict climate change trends across the Falkland Islands. An increase in mean annual temperature of up to 2.2 degrees by 2100 (Figure 2) is predicted – this is a dramatic increase on the last century which has seen an increase of 0.5 degrees in the mean annual temperature (Lister & Jones 2014; Jones *et al.* 2013).

In contrast, no change is predicted in the mean annual precipitation, although predictions for rainfall are inherently more difficult (Figure 2). It is likely that the pattern of rainfall across the year will be impacted if not the total annual precipitation. For example the last century of weather records indicate a significant increase in summer sunshine which suggests increased drought periods during this time (Lister & Jones 2014; Jones *et al.* 2013).

There are many potential impacts of climate change on the land of the Falkland Islands. We therefore organised a workshop in May 2014 to find out which are the highest priority locally in the Falkland Islands. In producing a score for each potential impact, we asked workshop

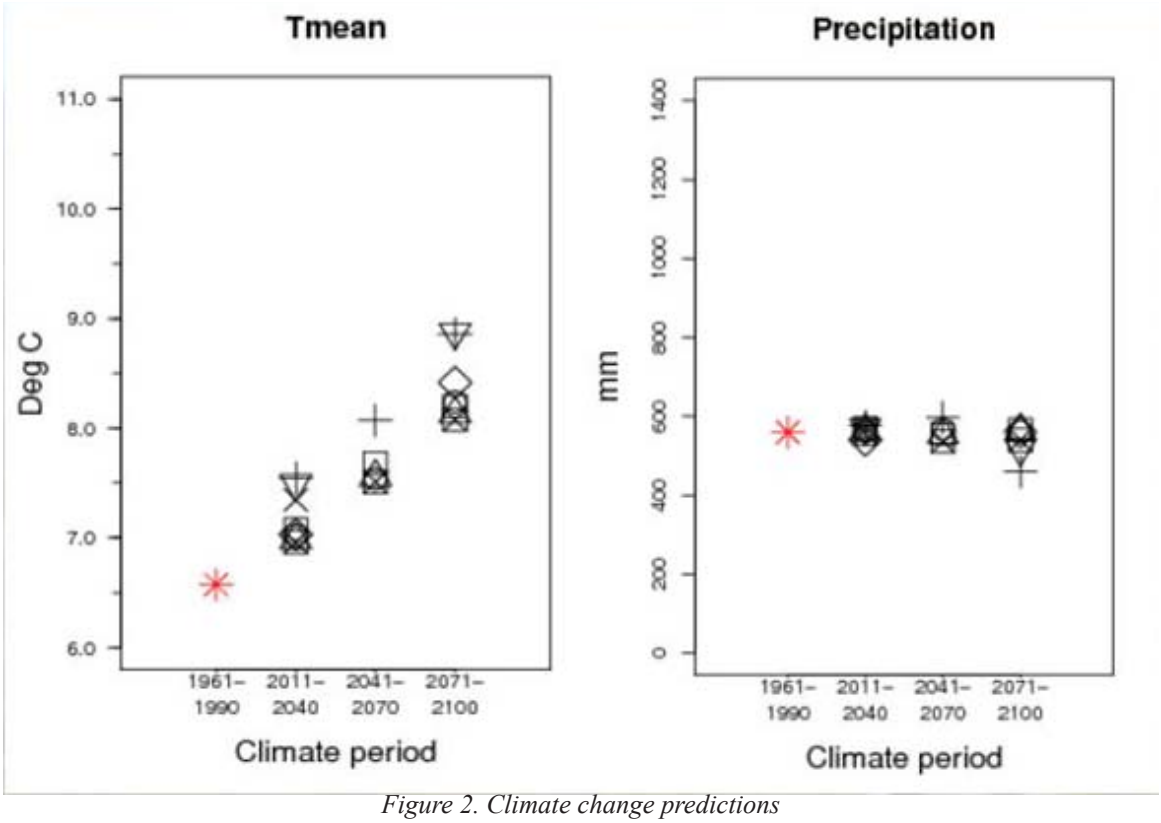

Figure 2. Climate change predictions

participants to consider the potential loss or gain of biodiversity for any given impact, the potential effect on the health and functioning of terrestrial habitats and also to consider how urgent it is to address a particular impact.

We are focusing on five potential impacts of climate change, identified as within the top ten priorities locally. We have carried out targeted research as well as referring to external expert opinion and the scientific literature available and carrying out reviews of this.

The priority climate change impacts for the flora of the Falkland Islands were identified as the potential for:

- Increased soil moisture deficits and erosion – according to local observations, 7-15 cm of soil are lost annually in some areas of the Falkland Islands already; worryingly an increase in soil moisture deficits caused by increased temperature has the potential to increase this rate
- Changes in the level of invasiveness of introduced plant species and potential changes to the array of plant pests and diseases that can establish
- Changes in the distribution of the native flora
- Habitat disturbance by an increase in the frequency of high intensity weather events – we focus on the possibility of increased wildfire occurrence
- Changes in soil carbon content.

This paper will highlight several interesting findings related to two of these: changes in the distribution of native flora; and changes in the level of invasiveness of introduced plant species.

Changes in the Distribution of Native Flora

The main approach we took to investigate potential impacts of climate change on the distribution of the native flora was to carry out species distribution modelling (Figure 3). Our starting point was the species presence data and associated environmental data – including the mapped climate scenarios as well as a range of relevant non-climate variables. We used these data to investigate the relationships between each species' distribution and its environment – this included assessing species response curves to different variables and also investigating the importance of each variable to model predictions. For each species, we selected those models that best predict the current distribution and combined them into an ensemble model to provide a consensus forecast and better predict both the area of suitable environmental space under present day climatic conditions and also under future scenarios. We used the predictive species distribution modelling package called BIOMOD2 than runs through R software (R 2015).

One of our target species is the cushion plant *Azorella selago* Hook.f. (Figure 4). This species is

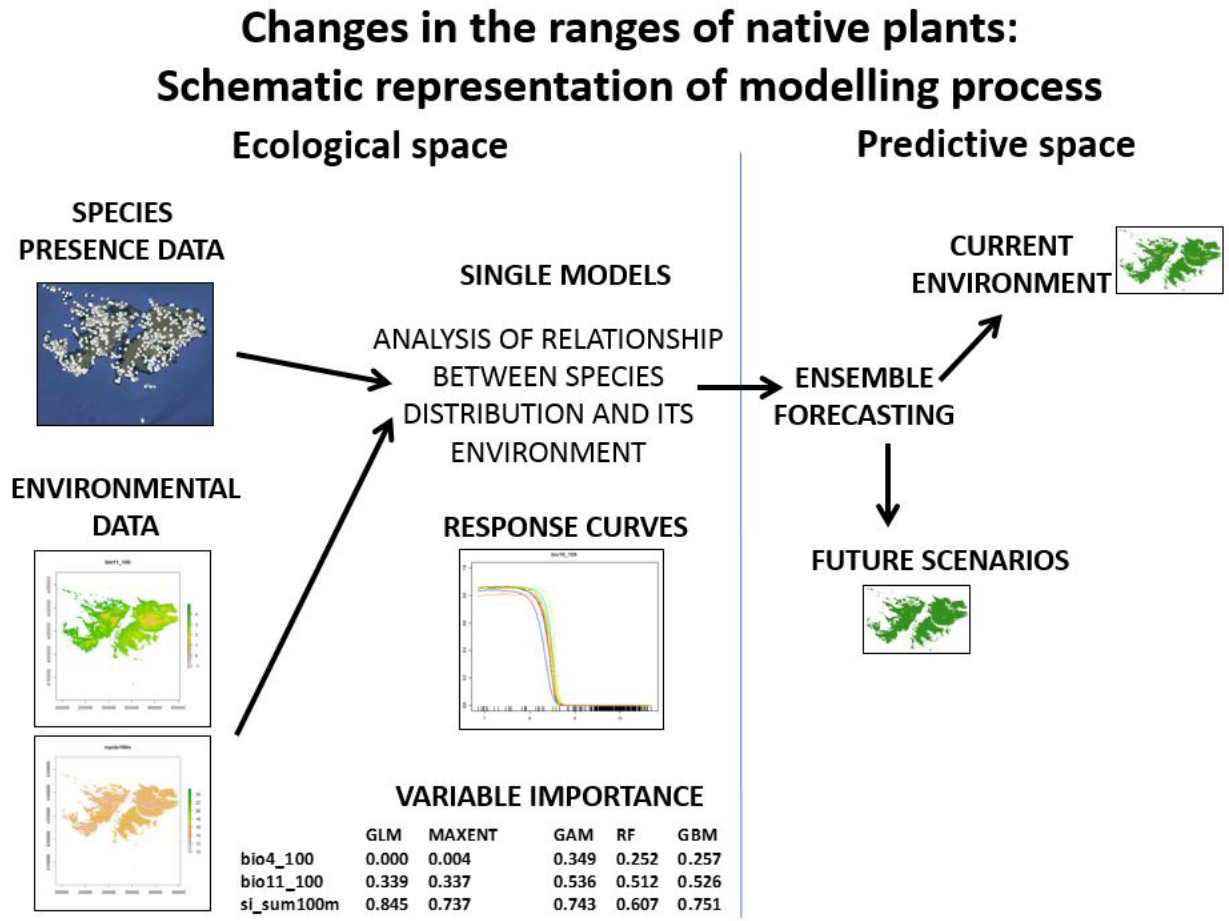

Figure 3. Species distribution modelling

restricted to upland areas and is found in cushion heath such the upper slopes of Mt Usbourne on East Falkland (Figure 5). Beyond the Falkland Islands, it occurs in the sub-Antarctic and at the very southernmost part of South America in alpine regions.

We produced a habitat suitability map for this species showing which areas are predicted to be environmentally suitable for *Azorella selago* under today's climate and this encompasses all of its known populations. We then produced a mean presence-absence map, based on our five regional climate ensemble model predictions for 2071-2100. Our results predict huge decreases in the amount of suitable environmental space for this upland species with the majority of areas currently suitable being lost by 2080. The results show that the decline is almost completely through range contraction rather than range shift. This is in line with our expectations as this species effectively has nowhere to go as warming occurs.

Overall, our modelling work demonstrates for the first time that predicted temperature increases for the next century are likely to have significant negative impacts on the flora of the Falkland Islands. Our research indicates predicted range

Figure 4. Azorella selago *habit*

Fig 5. Upland Cushion Heath Habitat

contractions for those species restricted to upland areas of the Falkland Islands and so acts as a persuasive case for better monitoring, management and protection of upland areas. Potential refugia areas for upland species have been identified. However, in the long term we found that none of these overlap with sites currently known to support populations of *Azorella selago*.

There is a group of species restricted to the milder west of the archipelago that are predicted to be amongst those species that could benefit from a warmer climate.

Overall the variations in the magnitude of predicted range changes indicate that climate change will alter the structure of Falkland plant communities as different species within a given community are predicted to react in different ways.

Invasive Species

Isolated islands with restricted floras such as the Falklands are highly vulnerable to the impacts of non-native organisms (Kiehn 2011).

One of the case studies we considered in light of climate change was that of the invasive shrub *Berberis microphylla* G.Forst., known locally as calafate (Figure 6). This is a species native to Chile and Argentina and it is still in the process of expanding its range in the Falkland Islands. We have produced a map showing all the known localities for this species, along with predictions for the potential spread over the next 70-year period based on spread rates between 1944 and 2009 at one farm on East Falkland.

The locations where it occurs are largely a result of spread from planted individuals – so we felt it more appropriate to model its potential spread based on its distribution in the native range. We established a collaboration with a researcher in Chile, Patricio Pliscoff, who is based at the Universidad de Chile in Santiago, and obtained botanical records for *B. microphylla* from three different herbaria within Chile, This has given us reasonable coverage across the latitudinal, if not longitudinal, range of this species. Applying the ensemble distribution model developed for Chile to the Falkland Islands shows that we can expect the majority of the Falkland Islands to hold a suitable climate for calafate. At present, higher altitude areas are at less risk from invasion but this is likely to change under the warming predicted.

Figure 6. Invasive Berberis microphylla *habit*

This study offers a further warning that calafate is a species that urgently needs eradication before it becomes even more of a problem in the future.

Climate Change Risk Assessment

We have now carried out a qualitative assessment of the risk associated with each priority climate change impact, based on the available evidence. These assessments have allowed us to provide summary statements for each potential climate change impact which will then be reviewed by the Falkland Islands Government. This review process has already begun with a summary of potential climate change impacts on biodiversity having been fed into the May 2015 Falkland Islands Biodiversity Strategy Review. The follow-up on this is currently underway.

The final phase of the project is to work collaboratively with the Falkland Islands Government to identify what actions should be taken to address the priority impacts, bearing in mind those that pose the greatest identifiable risks.

In addition to feeding into the Biodiversity Strategy review, this may take the form of a separate Action Plan document alongside strategies to mainstream climate change within national policy decision-making

Why is this important?

- To make the best use of limited resources that are available
- To build in resilience and resistance to climate change

Conclusions and Wider Implications

This approach to developing a climate change risk assessment is proving to be a valuable one for the Falklands Islands Government and has helped to stimulate debate about climate change, its potential impacts at a local scale and some of the

measures that can be adopted to mitigate against those impacts. We feel it has wider applications to other island ecosystems and to other UK Overseas Territories in particular. We highlight a few points that have helped contribute to the success of the project so far:

- The need for good quality biodiversity data for decision making (an excellent plant dataset in this case) – emphasising the need for regular survey and on-going monitoring (this has implications for capacity building)
- The importance of wide consultations across all sectors (in this case: Government; NGO, Farmers/land owners; research community – both local and international; wider society) to develop locally-agreed and owned priorities
- The importance of integrating evidence and outcomes into existing Government planning systems and commitments (in this case the development of a 'National Climate Change Action Plan' where the biodiversity elements will be integrated into the Falkland Islands Biodiversity Strategy review process whilst non-biodiversity elements will be taken on by the relevant sector so that climate change impacts are mainstreamed across all sectors)
- This approach enables better implementation of existing national and international commitments (in the case of the Falklands contributing to the progress of Environment Charters and in the spirit of the CBD which the Falklands Government is actively considering extending but is evaluating the cost implications).

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Why do we Red List?

Jeremy Harris (St Helena National Trust)

Jeremy Harris

Harris, J.. 2015. Why do we Red List?. pp 83-87 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

The *IUCN Red List of Threatened Species*™ is the global standard for assessing extinction risk to species. Over the past 50 years, it has grown from a fairly modest sampling of species to a giant database holding information on many complete taxonomic groups. The *IUCN Red List* shows trends of decline, and captures threats and conservation actions. By doing so, it drives conservation action, political attention, and perhaps most importantly funding, towards those areas that need it most. In recent years, the *Red List* has been a key tool in identifying for countries, international conventions, and funders the key areas in need of investment – examples include the loss of amphibian diversity due to a fatal fungal infection, the loss of coral as a result of ocean acidification, and the great threat to biodiversity in Asia from a variety of pressures.

Using examples of recent invertebrate and plant Red Listing on St Helena, we will take a brief look at the emerging evidence in our territory. We can then begin to make the case that the unique nature of the biodiversity on our islands, and the severe threats faced, merit a far greater level of international attention. The IUCN Red List will help demonstrate that, as the stewards of the vast majority of UK's biodiversity, the Overseas Territories have a crucial role to play in saving that which is most threatened.

Jeremy Harris, Director, St Helena National Trust. director@shnt.org.uk

Hello everybody and many thanks to the conference organisers for the opportunity to be here to talk about the work we are doing on St Helena to get our endemic species – and in particular our invertebrates – on to the IUCN Red List of Threatened Species, and why we are doing it.

Given the time constraints, I am not going to take any time really explaining the IUCN Red List, although I did work for five years for one of the key bodies responsible for its production and so am happy to take questions on it after this brief talk or if you grab me during the conference.

I will, for the sake of brevity, assume that you are all clued up on the central authoritative role this resource plays in global species conservation and particularly its significance as a reference point for directing expenditure by governments and others on conservation. I will come back to this a little later when I mention the Convention on Biological Diversity –the CBD – and the Aichi targets.

In 2014, the RSPB released a report that took stock of the species across the UK's Island Territories – they brought together all known records from the last 300 years and what they found was in some ways alarming but in others highlighted a huge opportunity for those of us working in these places. The full report is available online.

The take home message from the report – for those big-picture people among you – was that the UK overseas territories contain 94% of the unique British species and 85% of the Critically Endangered species that the UK is responsible for. These percentages will have been creeping up

significantly with work we have been doing on St Helena, but I'll get to that in a bit.

Other interesting nuggets of information include the fact that St Helena has the most known unique species (502, sorry – I had to mention that), although Bermuda (who come a distant second with 321) were shaming us in the number that they had listed on the IUCN Red List (32 to our 26 – and Tristan deserve a special mention for their 26).

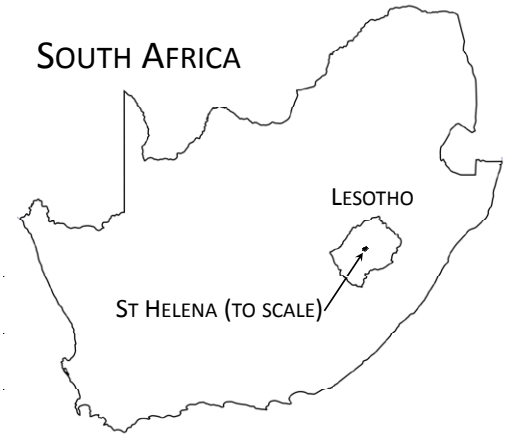
Unless Bermuda have been pushing on with their Red Listing since the RSPB report last year, then I suspect we have now pulled ahead – but perhaps we wouldn't have if we had the beaches that Bermuda does… that must be pretty distracting.

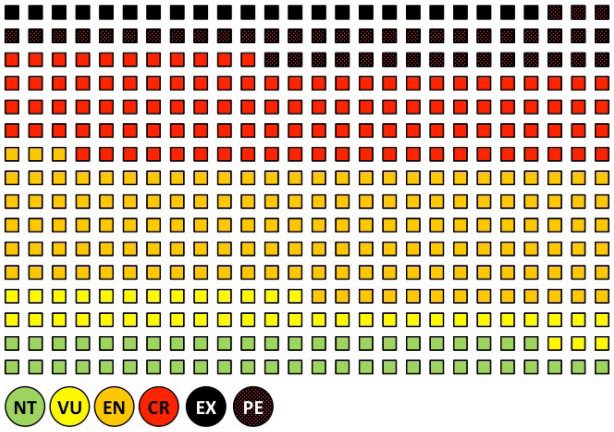
So, with that, let me bring you up to speed on what we have been doing recently. As a part of the Darwin and Bug Life funded project known as the 'Bugs on the Brink' project, we were required to submit some species assessments to the IUCN Red List. The Project Manager David Pryce took to Red Listing like a duck to water. For those that don't know David, he is one of the most impressive curators of data that I have ever come across – and I have worked for the Species Survival Commission, a network of more than 8000 data-obsessed individuals. Unfortunately, he's not able to be with us here as he is in Belgium photographing unique St Helena specimens in a museum somewhere for his next project on St Helena.

David set about mining his extensive existing data with the intention of compiling and submitting accounts for all 416 endemic invertebrate species on St Helena. Not a small task, as those of you that have worked with the Red List will know. In an attempt to hold him back from working his way into an early grave (cause of death: data poisoning), we agreed to break up the assessments into taxonomic groups and prioritize them. As of right now, 15 accounts have been submitted to the Red List and a further 90 or so have been prepared and are almost ready for submission.

Based on the pretty dramatic results when preparing these 105 accounts, I asked David to take a preliminary look at the complete picture. What he discovered has given us a lot to think about. I'd like to emphasize that what I am about to talk about is yet to be published formally and is therefore a best guess with a fairly high degree of certainty. No one has spoken publicly about this before so what you're about to hear is a UKOTCF Conference exclusive! Pens at the ready…

Let me first try and put the size of St Helena into some context – we have around 123 square kilometres of land area. If you were to take the outline of South Africa, then within that take the outline of the small self-contained country of Lesotho, St Helena would fit into it like this.

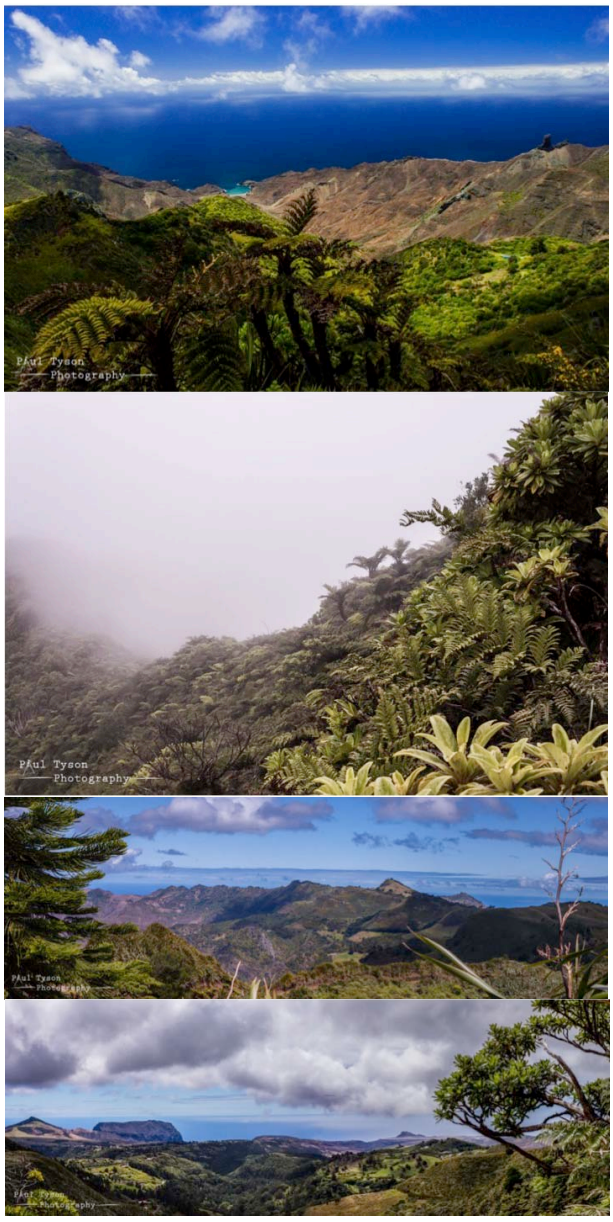




Here is a slide showing 416 little boxes. Trust me – that's how many there are. 16 rows of 26. Feel free to stop counting them. Our best guess is that 49 endemic St Helena invertebrates are likely to come out as Near Threatened, 42 as Vulnerable, 146 as Endangered, 156 as Critically Endangered, and 23 are known to be Extinct. As many as 44 of the CR group may well be extinct – we just don't know yet but no one has seen them since the 1960s.

So in percentages then, at first pass, close to 83% of St Helena's endemic invertebrates are likely to fall within the Threatened categories of the IUCN Red List (that's the 'Vulnerable', 'Endangered', and 'Critically Endangered' categories). The greatest numbers – 156 – fall within the most threatened 'Critically Endangered' category.

While there is no question that all of this is pretty dramatic, the most alarming discovery was yet to come. St Helena is a remarkable patchwork of different habitat types – desert to cloud forest and many more in-between. The island rises to 823 metres above sea-level at the central ridge with multiple deep gullies formed where water



has carved its way back to the sea. When it comes to invertebrates, the distribution of our endemic species is what causes concern. There are two areas that are of particular interest – the first, Prosperous Bay Plain, is an arid area that now has an airport built on it. I'm not here to comment on the impact this has had – and neither am I qualified to. My colleague from SHG, Isabel Peters, will be giving more information to those that are interested in her talk.

The second area is what we call 'the Peaks' – various high, isolated, and fragmented pieces of cloud forest, cabbage tree and fern thicket. This is where, when it comes to invertebrates anyway, our central drama is played out. It seems that 119 of our 416 endemic invertebrates – or 26% – are entirely limited to this habitat. That's 26% of our endemic invertebrates living on approximately 0.5 square kilometres! I don't know for sure just yet, but I think that might mean that St Helena has the most biodiverse half square kilometre of anywhere on the planet.

So why does all this matter to the pragmatist? The politician, economist, or average Joe going about his day? Perhaps it doesn't really, and I'm sure that all of you in the room have come up against the 'so what' argument at some point or other. This is where the IUCN Red List comes in.

Honestly, it all gets a little complicated since there have been multiple instruments in the last decades that set out the basic principles and obligations of countries if they are to achieve 'sustainable development'. I'm not going to pretend I understand many of these – I don't. I can drop the terms – the Rio Summit, the Framework Convention on Climate Change, Various COPs, Rio +20 – but I can see many of you already glazing over.

The point though is this: in 2010, the UK as one of the signatories to the Convention on Biological Diversity (the CBD) adopted a 'Strategic Plan for Biodiversity 2011-2020' which contained 20 targets called the 'Aichi Targets'. The important point here is that the UK Government has committed to an agreed plan to halt biodiversity loss.

Naturally there are a number of agreed ways to measure progress against the Aichi Targets and one of the dominant measures is the IUCN Red List. The Red List is relevant to measuring progress on at least 15 of these 20 targets. 15!

I don't know about you, but on St Helena we often feel a little disconnected from the wider world. That's the point of this conference as I understand it – to help us feel connected to each other. On St Helena, things happen at their own pace. I've lived for the past year without a mobile phone, without a bank card, without internet at home… If I want an apple, the first thing I need to know is when the ship last called. You get the picture.

The IUCN Red List gives all of us here the opportunity to plug into the much bigger global conservation engine. If the overseas territories get together and list all of the endemic species that we're responsible for, it will send a very clear message that, if the UK government is to meet the commitments they have made, a very sensible place indeed for them to start is with those of us at this conference.

So to answer the 'so what?' question I mentioned before, it's always going to be a little difficult working with that kind of attitude but I find that

saying something along the lines of "because 193 countries, including your one, have agreed it's important and committed to spending millions of tax pounds on doing something about it" can help drive the message home.

And if that fails – you could always try "because they look cool".

Near Threatened blushing snail Succinea sanctaehelenae *Photo: Roger Key*

Near Threatened St Helenian bicoloured tineid Opogona bicolor *Photo: David Pryce*

Near Threatened St Helenian ant spider Myrmarachne isolata *Photo: Roger Key*

Endangered (subject to confirmation) vulturine leafhopper Nehela vulturina *Photo: Liza Fowler*

Endangered (published) shadowy chafer Mellissius adumbratus *Photo: David Pryce*

Near Threatened (subject to confirmation) Decelle's leafhopper Atlantocella decellei *Photo: David Pryce*

Endangered (subject to confirmation) Leleup's darkling beetle Tarphiophasis leleupi *Photo: David Pryce*

Critically Endangered (subject to confirmation) fine stained glass leafhopper Artgaterma multisignata *Photo: Roger Key*

Endangered (subject to confirmation) cabbage tree sedge moth Glyphipteryx semilunaris *Photo: Mikko Paajanen*

Critically Endangered Edith's leafhopper Chlorita edithae *(first since 1875) Photo: Lourens Malan*

Critically endangered (subject to confirmation) spiky yellow woodlouse Pseudolaureola atlantica *(world population of only 90) Photo: Liza Fowler*

Endangered (subject to confirmation) Flagstaff lace-hopper Helenolius dividens *(possible new subspecies) Photo: David Pryce*

Using GIS and remote sensing to aid conservation monitoring

Katie Medcalf (Environment Systems), Tony Gent and Thomas Starnes (Amphibian & Reptile Conservation)

From top: Katie Medcalf, Tony Gent

Medcalf, K., Gent, A. & Starnes, T. 2015. Using GIS and remote sensing to aid conservation monitoring. pp 88-1000 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

Developments in remote sensing offer new opportunities for making evaluations of the environment. This is particularly true for our overseas territories where study areas are remote or inaccessible, or large areas need to be covered. The different uses of imagery analysis allow a wealth of information about our environment to be collected at excellent value for money. Such analyses include assessments of habitat composition and vegetation structure which can be used with further GIS modelling to show species suitability and help deliver conservation goals.

The presentation begins by demonstrating how object-based analysis (OBIA) and high and ultra-high resolution imagery can be used together with targeted field work effort to produce a range of different types of environmental maps. This includes maps on the terrestrial habitats of Anguilla, based on the structural components of the vegetation. A brief explanation of how this type of technology can be used to look at change over time, showing differences in vegetation cover of the island since 1984 is given. Some of the newer satellites produce imagery with wavelength that can 'see' into shallow water, and we discuss how this can be used to map marine features such as shallow water bathymetry, and basic shallow water marine habitat maps. Initial findings from an MPhil study on using these techniques to identify soil types on the island are also presented. The last brief case study will show how OBIA can be used to monitor nesting birds using landscape photography in a hard to reach off-shore islands. In each of these snap-shot case studies, the importance of understanding the environment and using targeted field work is demonstrated.

Such environmental data, together with physiographic and climatic information, can be used also to help understand the distribution of animal species through different modelling approaches. In essence, the relationship of actual species 'presence' records with environmental parameters can provide both a better understanding of the factors that determine how a species uses it habitat (i.e. 'inferential' analysis') and also allow the potential range of a species to be predicted via mapping ('predictive' studies'). Modelling can allow assessments of the probability of a species' presence in any area, which is particularly valuable for filling-in gaps in distribution maps, aid an understanding of how populations disperse through corridors and help target conservation activities. As well as providing an understanding of the current conservation status of a species, these approaches can also provide a valuable tool for understanding whether this status can be considered favourable. The European Union's Habitats Directive (1992) provides a good framework for such assessments identifying four parameters for evaluation, namely: population dynamics, range, habitat and future prospects. GIS and modelling allows these assessments at different spatial scales.

ARC has trialled this approach for herpetofauna species. The talk will show some of the outputs and identify some of the strengths and limitations. It will also highlight the fact that despite the considerable utility of such work it needs to be complimented by fieldwork.

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Introduction

Many of the overseas territories are small island communities. They are facing pressure from a changing climate, growing populations and economic development (Pearse & Berends 2007). In order to face these challenges whilst preserving biodiversity and making the most of the natural assets, good data are needed on habitats and species in the terrestrial and marine environment. These data can be used to show how the environment supplies functions vital to the life and culture of the islands, which can help ensure that the significant habitats and the species they support will be valued and protected (Pearse & Berends 2007).

Two new and developing techniques provide increasingly useable solutions to help give good data on the environment and the species it supports. These are:

- recent and ongoing developments in the world of remote sensing
- advances in GIS and predictive modelling.

This paper considers both of these developments. Part 1 outlines the advances in remote sensing that are leading to the ability to map terrestrial and shallow water marine habitats and interpret wildlife photography in a new way. The second part of the paper considers how to describe and evaluate the conservation status of species to understand how current management is affecting the conservation ambitions for that species and how changes can be measured and monitored using GIS and habitat suitability models with accompanying field work.

Part 1: Recent and ongoing development in remote sensing

Background

Developments in remote sensing offer new opportunities for making evaluations of the environment. This is particularly true for our overseas territories, where study areas are often remote or inaccessible or large areas need to be covered, which would be difficult and costly by traditional field work methods. The different uses of imagery analysis allow a wealth of information about our environment to be collected. Such analyses include assessments of habitat composition and vegetation structure, which can be used with targeted field surveys and further GIS modelling to show species suitability and help deliver conservation goals.

Remote sensing refers to any information gathered at a distance. It includes the use of satellite imagery and aerial photography, as well as imagery gathered from the newly emerging use of Remotely Piloted Aerial Systems (RPAS), often called drones. Finally, fixed camera recording can use the same analysis techniques to yield data from imagery.

Optical remote sensing uses images gathered either from satellites or airborne platforms to understand the surface of the earth. These techniques have been used for many years with manual interpretation of true colour, e.g. red / green / blue (RGB) aerial photography. The satellite imagery available records information at different wavelengths to those visible to the naked eye. These include the Near Infra-Red (NIR) bands and the Shortwave Infrared Bands (SWIR). These bands are particularly useful for land-cover mapping as they have a strong relationship to the vegetation productivity and wetness. Figure 1 shows the reflectance curve for vegetation. The x axis shows the electromagnetic spectrum with the Blue, Green, Red visible part of the spectrum and then the longer wavelengths into the NIR and SWIR.

The NIR signal is particularly useful for recording vegetation types, as it strength is related to the leaf structure. Unlike green light, which is reflected from the top surface of the leaf, and red

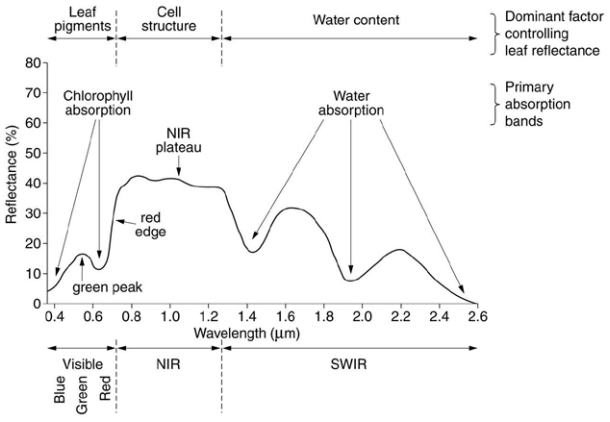

Figure 1. The reflectance curve for vegetation.

and blue light, which is absorbed and used in photosynthesis, NIR light passes through the top surface for the leaf but is generally reflected from the lower surface. Therefore, the more fleshy and productive the leaves, the higher the NIR signal. Within the SWIR bands, the signal is influenced by the water content of the vegetation and the soil and, therefore, can be useful for separating wet habitats, such as mangrove, from those with similar species but on a drier soil type.

One of the most significant breakthroughs in allowing the analysis of data is the use of Object Based Image Analysis (OBIA). Objects are created through a process called segmentation, which separates the image into blocks of similar colour, texture and a specified size threshold. Creation of objects before analysis allows other data about the objects to be used in the analysis, such as its location, slope, aspect, soil type, as well as the spectral values (Figure 2). Segmentation can also be used on standard photography: Figure 3 shows a normal landscape photograph of a large mumuration of starlings segmented to count 11544 starlings objects.

Remote sensing has recently been used in a project to produce a terrestrial habitat map for Anguilla (Figure 4) and its offshore cays, looking at selected plant community groups which can be readily separated by canopy differences. This habitat mapping used field studies undertaken by the Government of Anguilla and earth observation classification (Medcalf & Cameron 2013).

Plants of different species are visually different in all wavelength regions, especially those beyond the visible spectrum. The rule base allows the separation of objects based upon these differences and variation of features such as:

- Moisture content
- Surface roughness (manifested as shade)

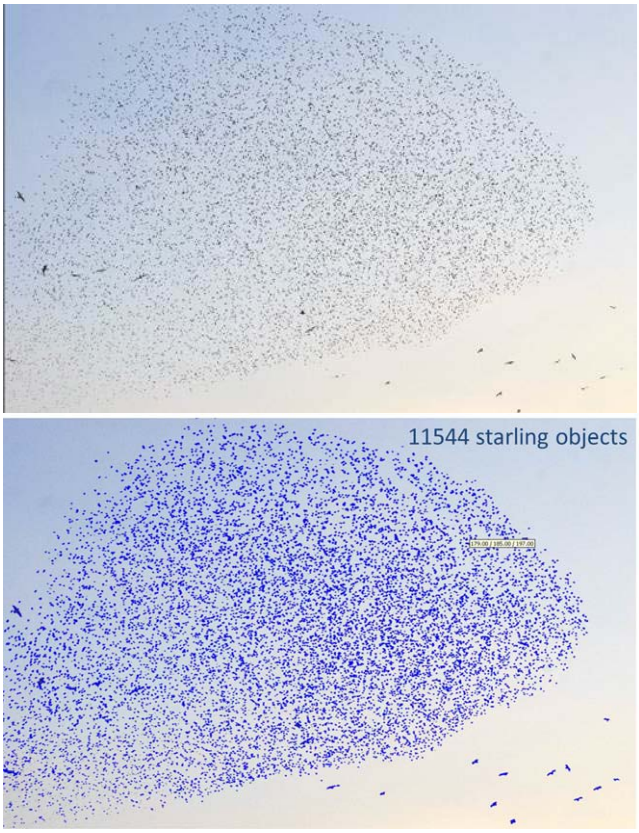

Figure 3. Large murmuration of starlings analysed using OBIA to give 11544 starling objects. Image A (above) shows the RGB photograph. Image B (lower) the starling objects output from eCognition

- Productivity
- Proportions of live and dead material
- Amount of woody material (i.e., biomass)

A large stack of data was gathered, which included: Landform data derived from Lidar, giving a DTM, slope and aspect layers; an urban and roads layer created during this work; RGB aerial photography, SPOT and WorldView-2 Satellite imagery. This imagery and derived contextual data was loaded into eCoginition and a rule base was developed using segmentation and classification of the objects produced to give the first iteration of the habitat

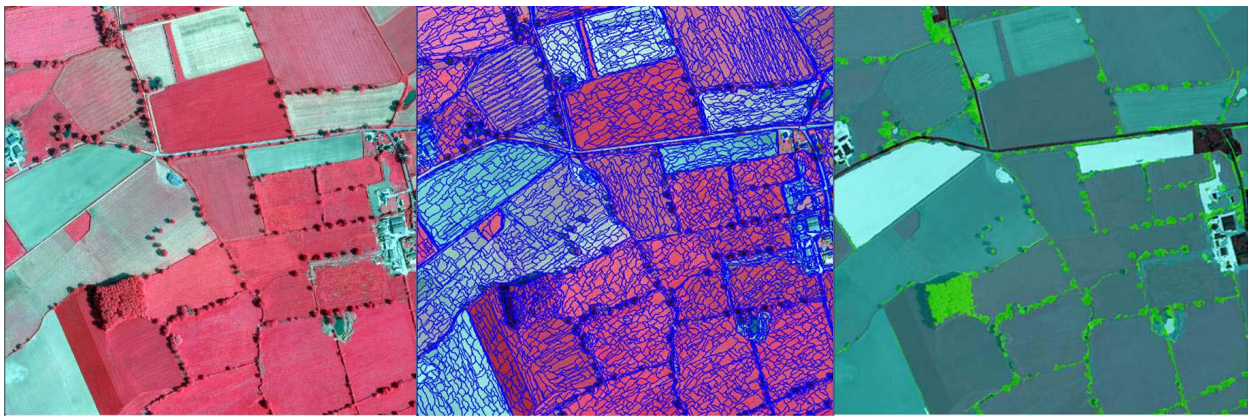

Figure 2. The process of segmentation: picture A (left) shows a colour infrared aerial photograph of some fields in the UK, in image B (centre) the initial segmentation is shown, image C (right) shows those segments which have the spectral characteristics of tress and hedges.

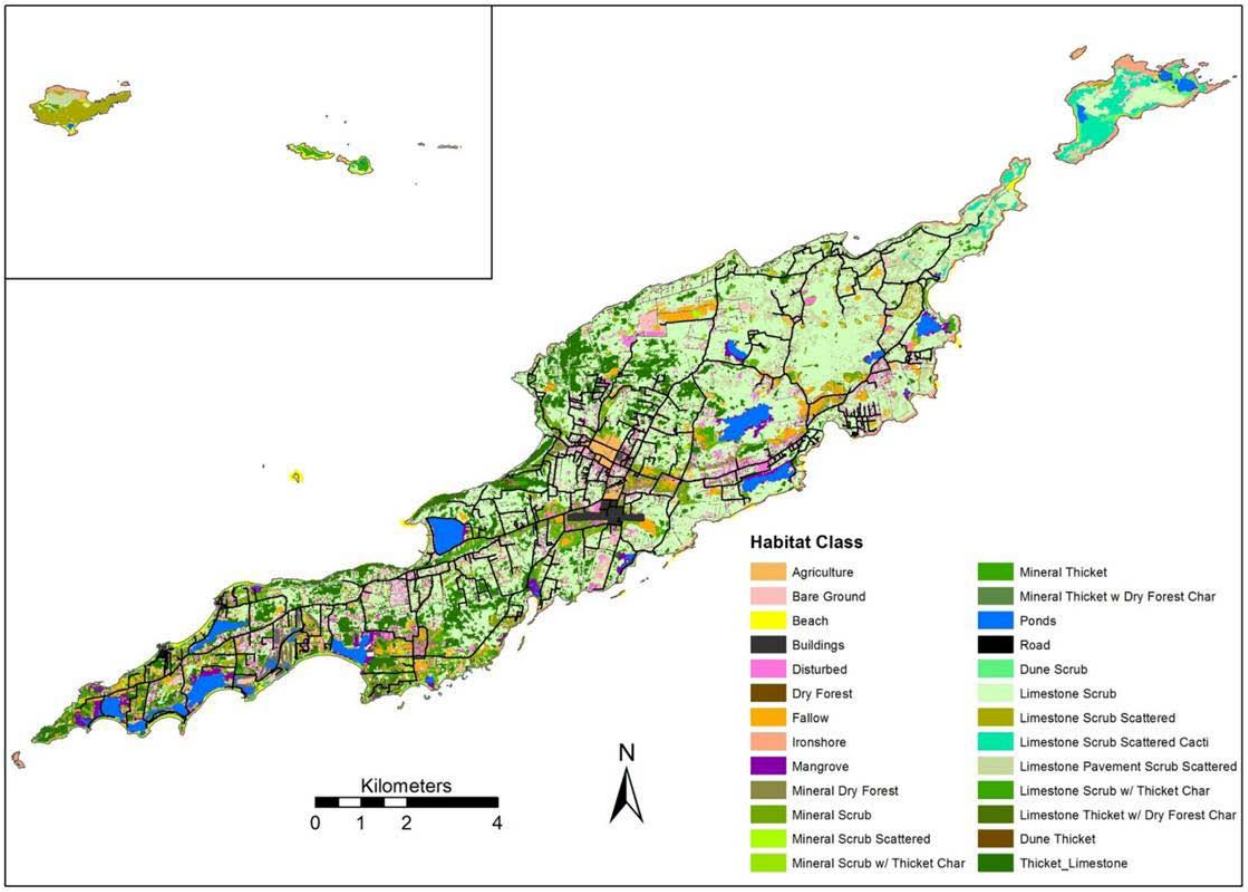

Figure 4. Terrestrial habitat map of Anguilla

map. The classification produced was validated during a field visit. This fieldwork analysis had two main purposes; the first was to check the initial remote sensing classification and the second to collect data to allow enhancements of the rule base. A further enhancement of the rule base was carried out to provide the final classification. In order to understand the accuracy of the map, it was assessed against 265 field work points that had been previously collected from vegetation transects by the Government of Anguilla. Most classes match the field work at over 80% accuracy. The errors were not randomly distributed; they tend to form in specific circumstances, for example:

- Shaded areas on steep slopes, where the spectral signature differs.
- Where the habitat has a different appearance because of an added species, for example *Mimosa* plants invading a scattered scrub area may cause it to appear differently from above; changes in soil type can also cause the spectral signal to change enough to fall outside the rule parameter.
- Because of management/anthropogenic influence (e.g. accidental burn), habitats can have an unusual phenotypic appearance
- Misclassification of habitats along ecotones or within mosaics.

Because the results are not randomly distributed, it is possible to plan field work and manual aerial photography interpretation to correct the errors for a final map.

Having such a detailed habitat map available has allowed the government of Anguilla to include information about significant areas in a number of cases for policy review, including showing the value of the green economy and working out the contribution to the islands ecosystem services as part of the National Ecosystem Assessment. Further use of the map is discussed in the second half of this paper.

Another use of optical remote sensing has been demonstrated by another project in Anguilla, where earth observation was used to produce a marine habitat map of the Anguilla archipelago looking at the primary benthic classes and deriving a bathymetric dataset Figure 5. The marine resources on the island comprise white sandy beaches, clear and warm waters and extensive natural reef systems. For the past eight years the tourism industry, attracted by these features, has fuelled the socio-economic development in the country, contributing to over 70% of the Gross Domestic Product.

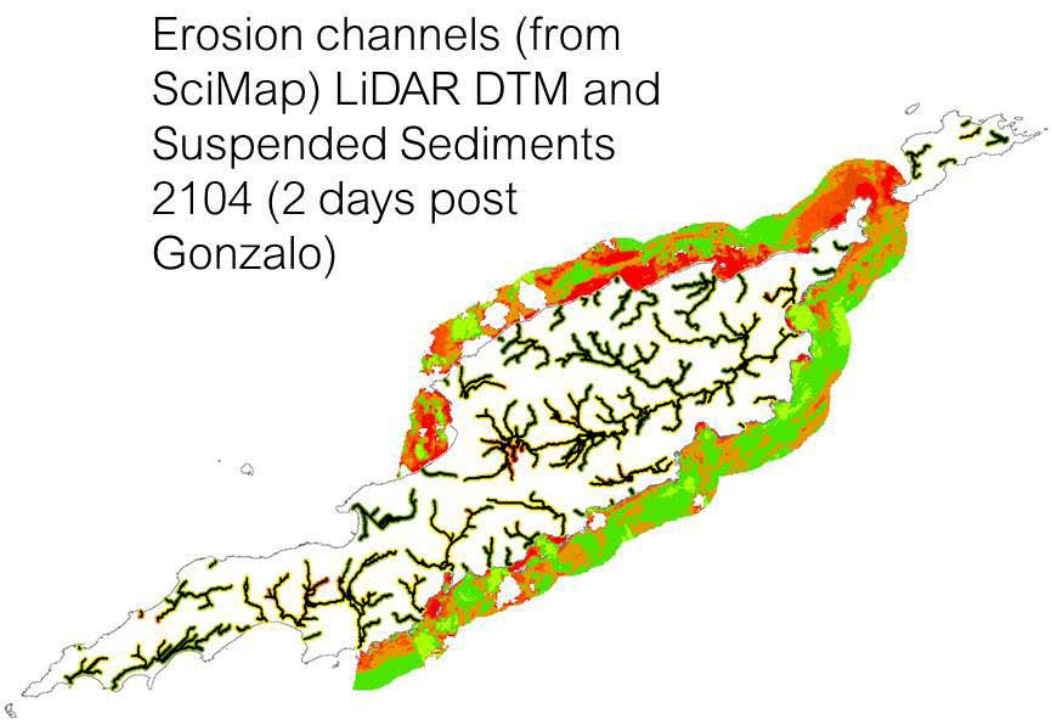

Figure 5. Bathymetric map of Anguilla

Building on the knowledge of the electromagnetic spectrum explained for the terrestrial environment, light behaves differently when passing through a column of water with the amount reflected becoming weaker with increasing depth. Different wavelengths of visible light penetrate water to varying depths; higher wavelengths (i.e. NIR and SWIR) attenuate rapidly, whilst blue light penetrates the water column to a greater depth. New advances in satellite technology have introduced a very low, coastal blue band. This band is absorbed the least by water, and can therefore penetrate the water column to around 15m depth. Field data was obtained from a marine-based survey from 1995 (Government of Anguilla 2011) and modelled from dive transects into a GIS dataset. Additionally, a rapid visual assessment via snorkel of the marine benthic environments and more detailed SCUBA transects were carried out in May 2013, by Newcastle University. These provided estimates of the percentage of sand, algae and coral cover, with the SCUBA transects offering depth information and benthic cover down to species level. A further survey conducted in February 2014 by the DoE together with the Department of Fisheries & Marine Resources provided a further dataset with depth information.

The image stack used in the development of the marine rule base for the Anguillan archipelago includes:

- WorldView-2 satellite imagery
- Shallow water depth
- Fetch, used as a proxy for wave action
- Topographical layers derived from the bathymetry

The imagery and derived contextual data were loaded into eCognition and a rule base was developed using segmentation and classification of the objects, based on ecological knowledge; this resulted in the marine habitat map.

As light behaves differently, both on and within the water column, it is necessary to reduce the impact this may have on the imagery before entering the stack. Sun glint is a specular reflection of light directly from the sun towards the sensor and can sometimes be so high that it is impossible to retrieve any meaningful data. The exponential decay of light intensity with increasing depth can result in considerable confusion, so that the spectra of sand at a depth of 2m may have the same signature as vegetation at lower depths. To compensate for these affects, correction techniques following an extensive desk study were applied.

Relative bathymetry was determined using a natural log band ratio method, to linearise the spectral decay as a function of depth using the coastal blue and green bands; this takes advantage of the spectral decay of green before blue within the water column. The techniques used are robust and repeatable; they can be used to monitor change and input into further analysis of ecosystem features such as the monitoring of shallow sand loss. The data created during this work can be

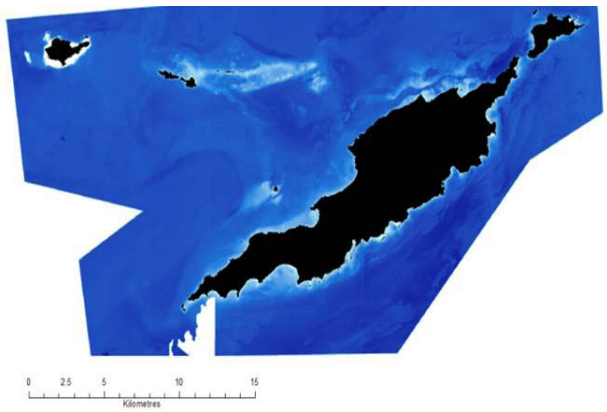

Figure 6. Erosion channels (from SciMap) LiDAR DTM and Suspended Sediments 2104 (2 days post-Gonzalo)

used as a basis for sustainable decision making in Anguilla's planning processes by the DFMR (Department of Fisheries and Marine Resources) and all relevant natural resource management agencies.

During the marine analysis of Anguilla, a method for detecting Total Suspended Solids (TSS) using EO techniques was used to create a map of where sediment burden in the water column was higher; this is based on the work by Ouillon *et al*. (2008) and utilises the Red Edge spectral region. One of the biggest advantages of remote sensing is that imagery is available from the mid 1980s. Taking imagery from 1984, we were able to approximate the suspended sediment burden in the water and compare it with the 2012 survey (This was an approximation, as the 1984 data were not as robust as current spectral data). In addition, a Landsat 8 image was available from 2 days post-Hurricane Gonzalo. Running the SciMap (Durham University 2015) model across the island showed the drainage channels, where rainfall in extreme events was likely to run. There is a strong visual correlation between the two features, which could indicate some of the areas where sedimentation form the land is contributing sediment to the sea; this can smother coral and decrease reef health with knock on effects to fisheries resources and coastal protection (Bellwood *et al.* 2004; Wilkinson 2008) (see Figure 6).

Landsat scenes can also be analysed to show the growth in urban development over time, as shown in Figure 7 where those areas shown in brown have been developed since 1984. This sort of image is very useful when considering environmental scenarios, as business as usual could be considered as a similar amount of development in the next 30 years as was seen in the past; that would result in a significant area of Anguilla being developed.

Turning to standard photography, Figure 8 shows how using a camera with a telescope to take overlapping photographs of the top of Boatswain bird island off Ascension Island allows a seamless image to be created using Agisoft PhotoScan

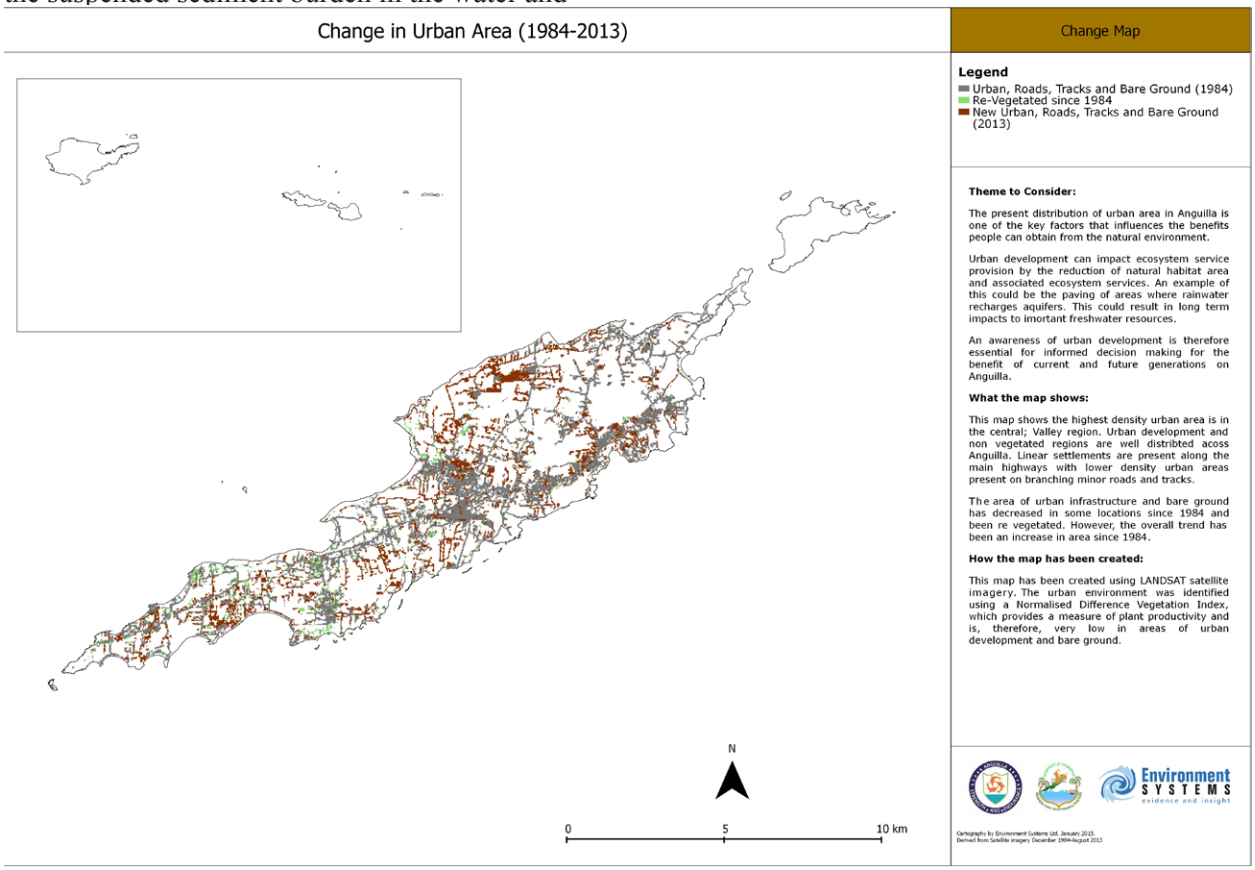

Figure 7. Showing change in urban area in Anguilla since 1984 following Landsat analysis.

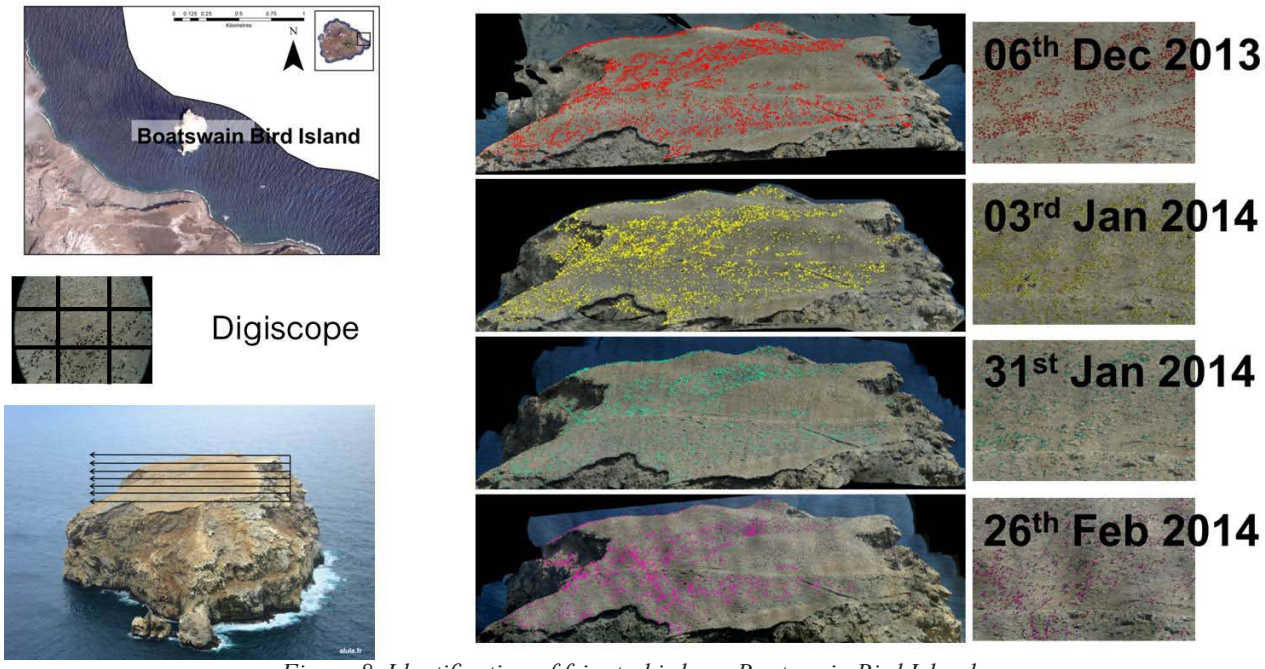

Figure 8. Identification of frigate-birds on Boatswain Bird Island

(Agisoft 2015). This was then analysed in eCognition to identify objects that were classified as frigate-birds. Ascension Island Conservation Department is analysing the resultant files to record where birds are found in the same location month to month; these are likely to be nesting individuals. This will allow be the most complete picture of the population dynamics of the frigate-birds on Boatswain Bird Island.

Part 1: Describing and evaluating the conservation status of species

The evidence base needed for species conservation

While much conservation can be achieved simply though safeguarding and managing habitats, the value of this to the conservation of particular species is not always known or predictable. Similarly, the significance of any changes might not be understood by the land managers. Being clear about both the current status of a species and what a 'desired' or 'target status' might look like, even if it just a 'direction of travel' (e.g. 'increase'/ 'maintain levels'), can assist conservation action and guide the development of monitoring programmes.

To do this, it is necessary to have information about the species and, for appropriate monitoring and surveillance, data that aids both articulation of conservation ambitions and allows changes to be measured. We have found that the approach provided in the European Union's Habitats Directive (1992) sets a valuable framework for describing and evaluating the conservation status of species and for determining when this level is favourable. This approach looks at four key parameters:

- Range
- Population
- Habitat
- Future prospects

Developing appropriate metrics for each of these to provide appropriate measures to help land managers and scientists is a key consideration.

Using remote sensing data to support species conservation and status assessments

Skilled field naturalists are able to assess how good a habitat is for particular species based on experience: their assessments are made on habitats types, topography and knowledge of the local climate. These assessments will also be nuanced by understanding subtle variations, including soil type, the structure of the vegetation and specific nature of micro-habitats. Ecologists undertake a similar evaluation, but 'the other way round'. They draw together data associated with field observations and evaluate statistically the key features affecting the way in which a species uses its habitat. Species Distribution Modelling (SDM) provides an equivalent approach using computers – allowing the relationship between species occurrence (and sometimes species

absence) and environmental variables to infer the most significant factors influencing a distribution (inferential modelling) and also to determine those areas where the species is most likely to be found (predictive mapping). These analyses will be affected by the volume, accuracy and quality of the data used to feed them. With increasing precision in recording locational data (sighting data at sub-ten-metre precision), and corresponding high quality and accessible environmental data, such analyses should become increasingly more useful and more widely used. These models can help limit *a priori* assumptions and bias, but do risk drawing invalid conclusions unless assessed with appropriate ecological understanding provided by specialists. In turn, models can be continuously improved by factoring in parameters based on expert knowledge, with statistical validation offering the potential for increasingly accurate and valid understanding of species distributions.

Remote sensing data offer particular potential for allowing accurate, detailed information to be collected over large and even inaccessible areas. Modelling and GIS analysis enable ecological assessments to be made over areas where traditional field methods would struggle – perhaps through difficult terrain or though lack of human resources. They allow also the integration of data from a number of studies where sufficient accuracy is recorded. This may mean that analyses can use a large combined data-set – perhaps much greater than could be gained through a single study – or, conversely, allow generalised conclusion to be drawn from small samples provided due caution is applied and any limitations reported transparently.

Developing models for herpetofauna in the UK

Our interest in modelling was largely driven by the need for better and more accessible data on species, and in particular those that have a wide geographic distribution and where fieldwork alone would be too expensive to provide a sufficient level of understanding. In particular the need was identified for better information about great crested newts *Triturus cristatus* (Figure 9), a widespread species that has received full protection under both UK and European legislation largely as a result of the massive declines reported in recent history (Beebee 1975; Swan & Oldham 1992). Directing positive conservation actions and targeting funding regimes have suffered through lack of data, while (and with higher political resonance) the presence of this species in areas where

Figure 9. Great crested newt Triturus cristatus
© Fred Holmes

there are development proposals has resulted in considerable delay through the need for survey and appropriate mitigation/ compensation schemes being developed and implemented. There has been significant survey effort, though it is estimated that we probably know of around 5,000 occupied ponds while estimates of actual numbers range from a conservative 18,000 up to 100,000. In either case it is likely that we don't know definitively where the majority of newts are.

We have explored a number of approaches, including developing a method that allowed assessments at 1km^2 level that defined the 'ecological limits' of the species and 'removed' squares that did not match these (*i.e.* 'Removal modelling' by Wilkinson *et al.* (2011) – see Figure 10); methods that use presence-only modelling such as MaxEnt (Phillips *et al.* 2004, 2006), (see Figures 11a and 11b) and, more recently, more elaborate modelling approaches using 'presence and absence' data (*e.g.* Generalised Linear Modelling, (Venables & Ripley 1994)) were explored. These methods have allowed predictive distribution maps to be created, including analysis of population connectivity, targeting of conservation work and measurement of impacts (*e.g.* from development). Work is currently underway to evaluate these different approaches and assess their inferential and predictive power.

Work in the UK Overseas Territories and Crown Dependencies

The UKOTs and Crown Dependencies are of considerable importance herpetologically, with over 125 native species, compared to just 13 in the UK (Edgar 2010; Churchyard *et al.* 2014), an example of which is the Anguillan bank anole (Figure 12). They are also often small, and vulnerable to a range of pressures. Remote sensing

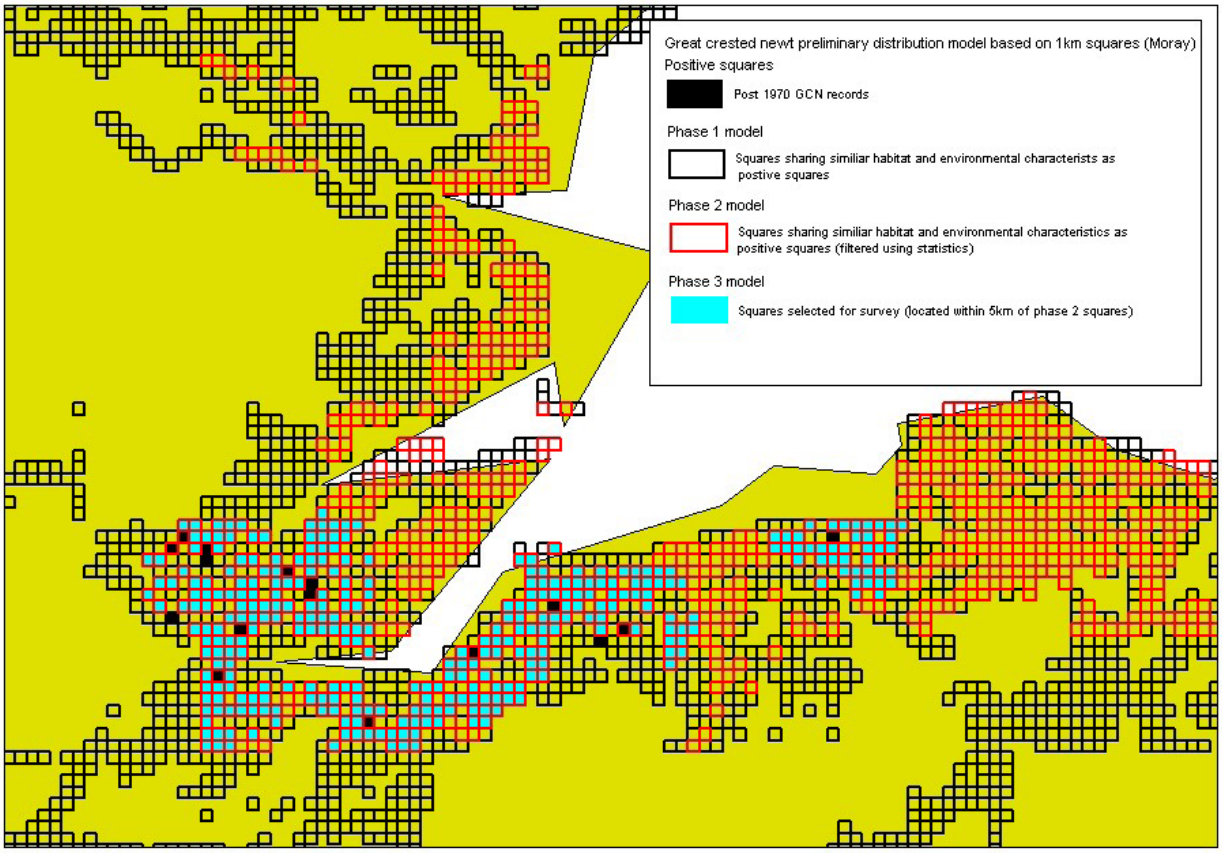

Figure 10 (above). Predicted distribution of T. cristatus *in Central Scotland through 'removal modelling' at 1km² level*

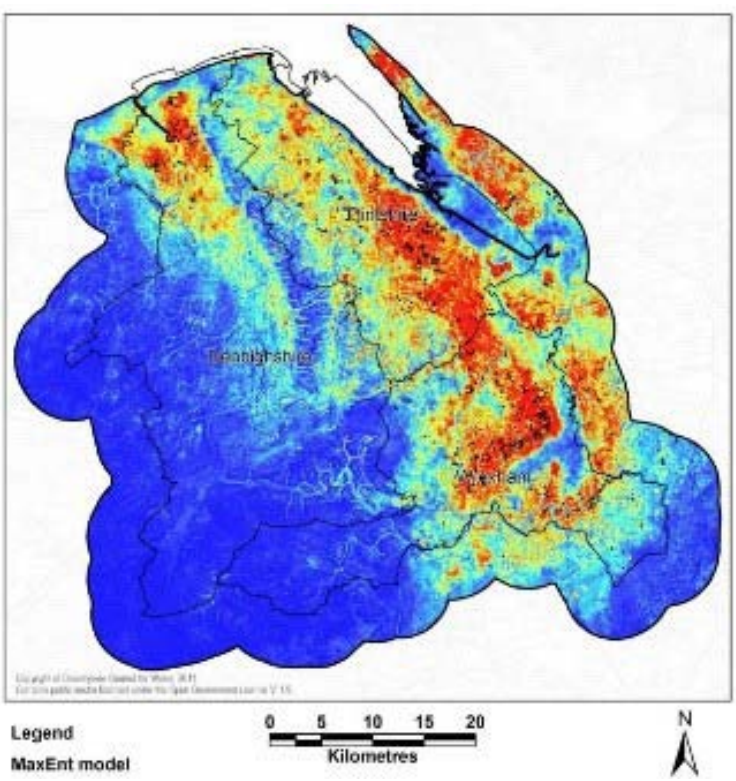

Figure 11a (above). Probability of occurrence of T. cristatus *in N.E. Wales using MaxEnt modelling*

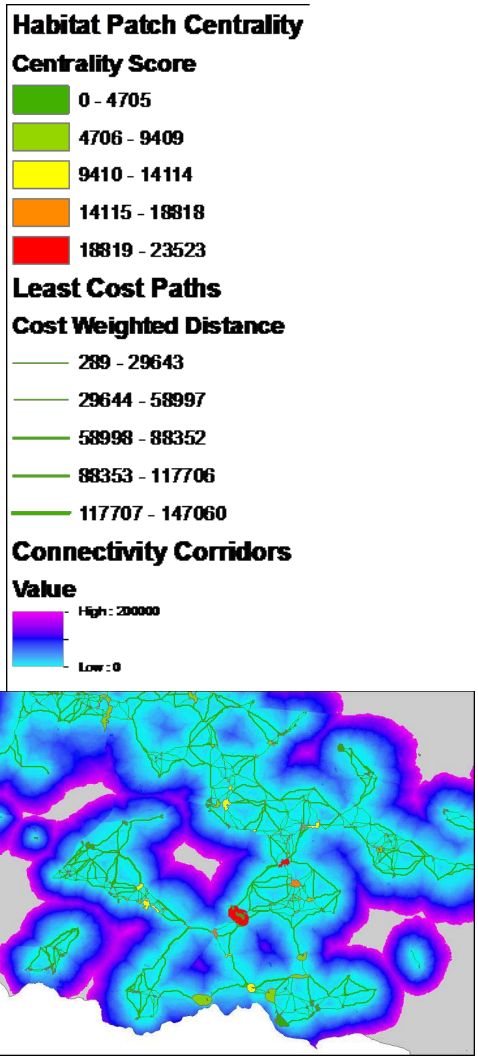

Figure 11b. (right). Modelled connectivity of habitat for T. cristatus *in SE. England using MaxEnt*

Figure 12. Anguillan band anole Anolis ginivinus
© David Greenwell

Island dwarf gecko *Sphaerodactylus sputator* Sparrman 1784

Anguilla Bank ameiva *Ameiva plei* Duméril & Bibron 1839

Anguilla Bank anole *Anolis gingivinus* Cope 1864

Anguilla Bank racer *Alsophis rijersmai* Cope 1869

Big-scaled least gecko *Sphaerodactylus macrolepis* Günther,1859

Turnip-tailed gecko *Thecadactylus rapicauda* Houttuyn 1782

Neotropical skink *Spondylurus* Fitzinger 1826.

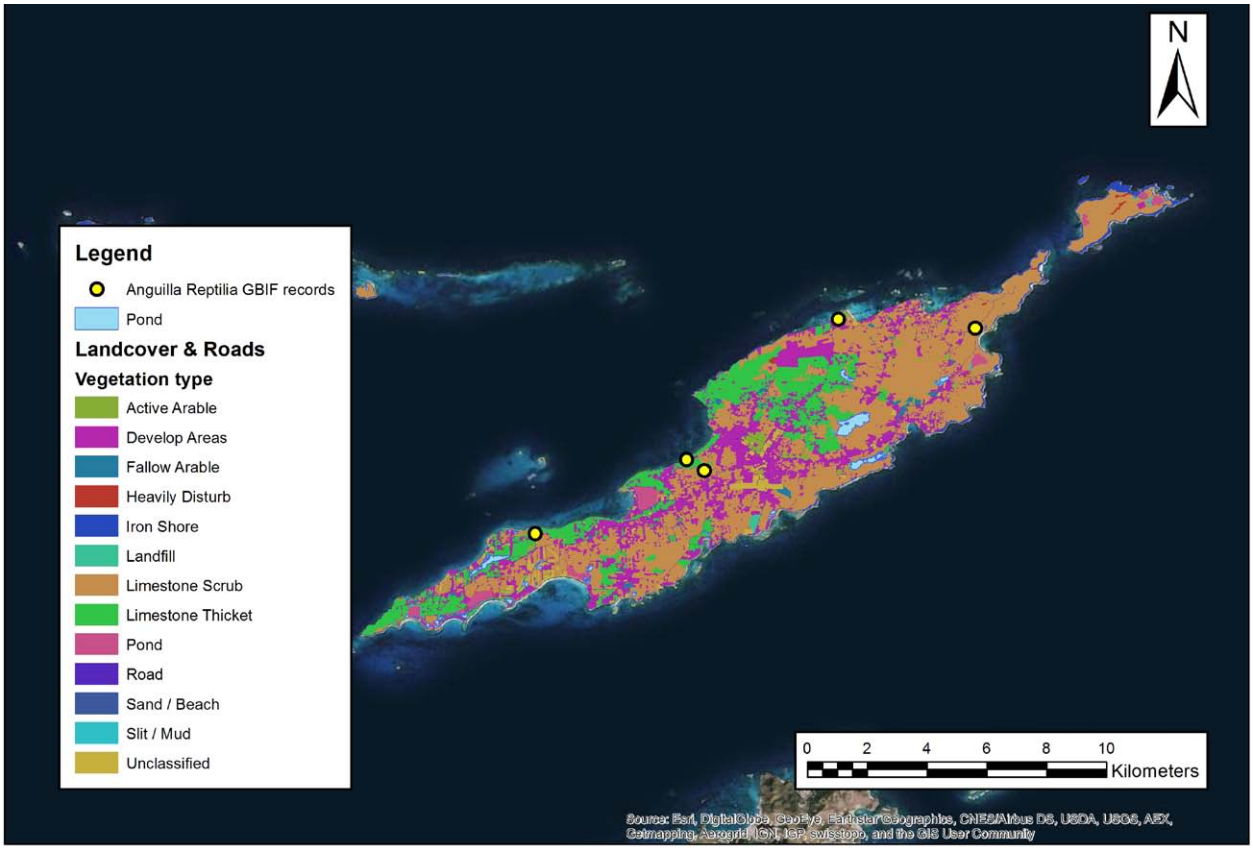

Figure 13. Landform types in Anguilla (Environment Systems and Dept of Environment, Government of Anguilla)

projects offer considerable potential for providing rapid, up-to-date assessments of herpetofauna habitat status that complement existing survey programmes in the UKOTs. With a view to illustrating this approach, using environmental and remote sensing data provided by Environment Systems and Dept of Environment, Government of Anguilla (see Figure 13), we modelled potential reptile distribution in Anguilla, using herpetofauna data publicly available on Global Biodiversity Information Facility (GBIF); a few additional data were obtained from geo-spatially referenced photographs on Flickr; however they were not used in this analysis. We used MaxEnt (which allows modelling from presence-only data) based on five spatially unique points. The data relate to six species and one genus:

A minimum of five species presence points are needed; the predictive map of 'reptile habitat' shows the five points on which the analysis is based and is provided in Figure 14.

All of these data come from University of Kansas Biodiversity Institute Herpetology Collection (University of Kansas Biodiversity Institute 2015).

Although there are seven georeferenced reptile taxa in this dataset, there are only five unique locations, hence five presence points on the map. While they appear to be at a spatial precision of 1 metre, this may not be the case (and hence need to be utilised with caution).

While this model is based on only a very small amount of available species data and these are

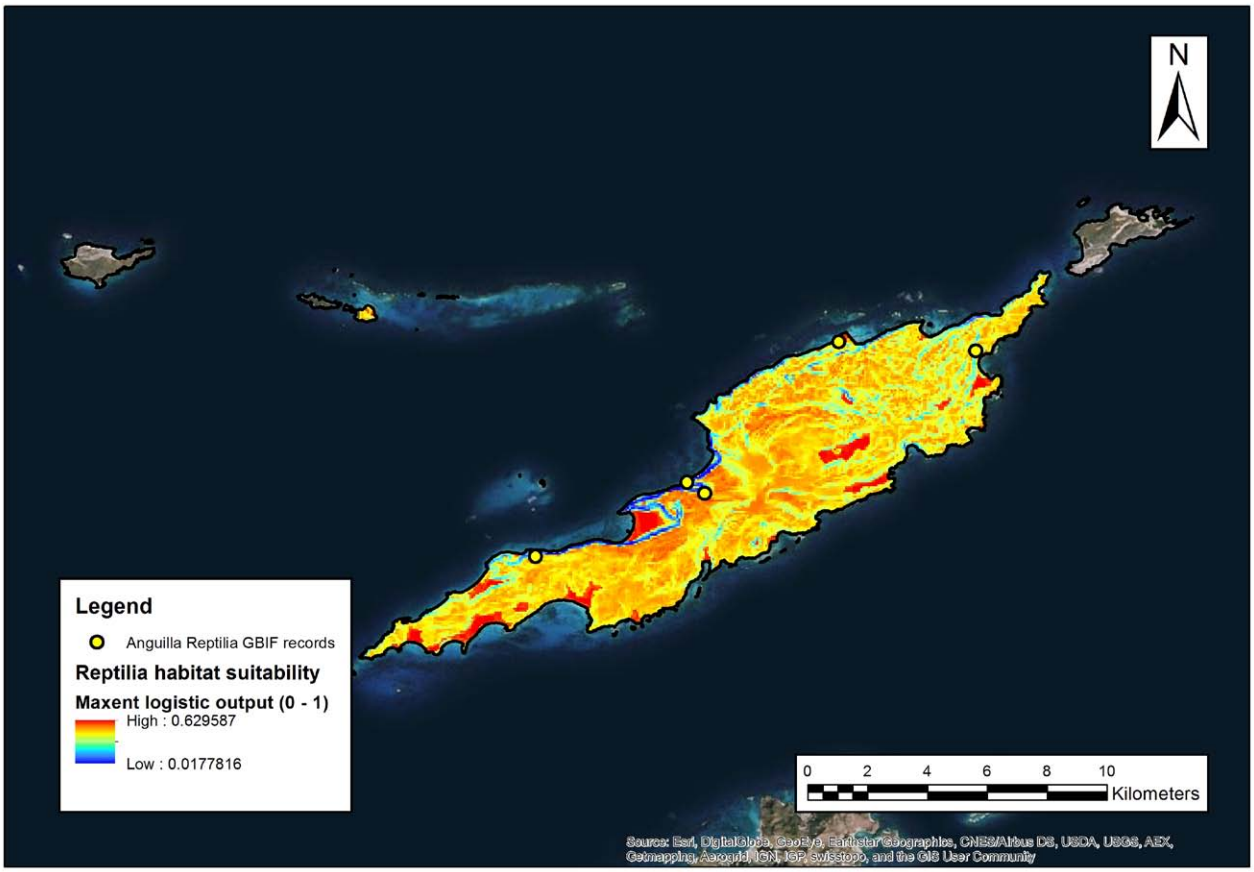

Figure 14. Predictive map of reptile habitat in Anguilla derived via MaxEnt, showing location of records acquired from GBIF

from ecologically very different species of lizard, the output has some biological relevance as the taxa belong to the same class (Reptilia). The models indicate the apparent influence of elevation on the occurrence of reptiles (in fact, the species data we have represent only low lying land occurrences) (Figure 15). We would not wish to rely on such a limited data-set for drawing any conclusions about the status or habitat uses of these species. However, the output does provide an illustration of the potential for this application and could assist with targeting survey work.

We recommend further exploring the potential for such approaches with a view to developing equivalent methodologies for other taxa.

Importance of ground-truthing and continuing survey

Models can only be as good as the data on which they are built – and may not be able to take account of important ecological factors. The models we have developed have been based primarily on climatic, environmental and habitat variables; e.g. rainfall, temperature, soil types and pond densities. Remote sensing data (*e.g.* via LiDAR) has provided more detailed vegetation/ habitat information (including vegetation structure). However, we have not included information that may have a significant impact on a species occurrence. For example, in the case of great crested newts, the presence of fish or waterfowl can have a strong negative impact

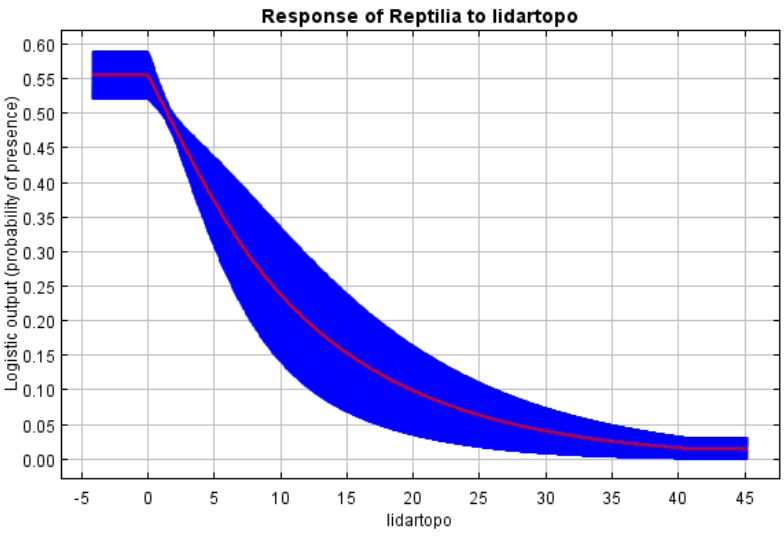

Figure 15. The influence of altitude provided by LIDAR; the model is strongly influenced by lower elevation, with coastal location of most of the species records.

on newt presence. This may have some adverse consequences for modelling, *e.g.* where high pond density is a positive influence on newts, high density ponds can also encourage the persistence of fish (and in some cases are themselves fish-farms) which is a highly negative factor affecting newt distribution. As well as meaning that models may sometimes suggest that a species should be present when it is not (false presence), inclusion of 'absence' data can in some cases skew the model to drawing incorrect conclusions about how pond density influences newt presence. Other similar factors could include the presence of competitor or predator species, disease or assessments of areas from which a species has been lost (*e.g.* due to wild fire) and is physically unable to recolonize despite the suitable condition of habitat, perhaps due to the isolation of the site or through presence of natural or manmade impermeable barriers (such as rivers, roads).

Therefore, modelling should not be considered a substitute for survey and, indeed, any model development should devise an appropriate programme of ground-truthing to validate its outputs. Thus we see modelling not as a competitive method to field survey but as a complementary process.

Opportunities: communications and wider public involvement

Modelling and GIS outputs can be both visually attractive and easily understood, and so potentially relevant to a wide audience. Therefore they provide effective communication tools for informing a wide range of people about species status, and a good platform for communicating conservation needs and guiding policy decisions. They can provide a very simple visual output to support citizen science projects, and use basic information to contribute to sophisticated analyses. We feel there is a particular value in developing such approaches to assist specialist volunteer programmes – including scientific 'ecotourism' catering for dedicated enthusiasts keen to develop new skills, learn more about their interest and gain new (scientific) experiences. While learning the modelling and mapping techniques provides a new (exportable) skill, the outputs will greatly enhance the value of and provide rapid feedback to field surveys. Such an educational programme could provide a sustainable basis for assisting with long term surveillance and monitoring programmes.

Conclusion

Understanding the environment is important for meeting biodiversity priorities and for the wider economy, and in particular in communities under pressure from a changing climate and rapid urban development in association with a growing economy and increasing population. As well as working towards biodiversity goals, the understanding of ecosystem function will help conserve the many important features important to the economy of a community sustained through biodiversity.

Remote sensing and ecological modelling for habitats and species have the potential to significantly aid the understanding of the functioning of the environment in the Overseas Territories. They can provide an important component of the 'tool box' of survey techniques, supporting both the design and interpretation of surveys. The wide range of maps that can be produced, including vegetation, species distribution and surface elevation models provide valuable tools for policy makers and for explaining the importance of the environment to a wider audience. They also provide a valuable means for monitoring and demonstrating environmental change and the impacts of land-use decisions.

Recommendations to further the implementation of Environmental Charters and Aichi targets

We advocate that work on implementing the Environmental Charters is supported through a programme that further develops remote sensing across the UKOTs. The wide range of potential applications of such data means that funding may be available via a number of different 'end-users', making this a more affordable and cost-effective exercise. Such applications include:

- Habitat and environmental mapping, underpinning our understanding of the environment
- Remote sensing as a cost effective way of making the most of field work to produce maps for policy making and monitoring
- Modelling for species' habitat suitability, which is also a very useful technique in targeting field effort and can provide economic benefits in eco-tourism as well as helping reach and maintain biodiversity goals and targets

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OT Biodiversity Data Access Project

Tara Pelembe & Steve Wilkinson (Joint Nature Conservation Committee)

Tara Pelembe

Pelembe, T. & Wilkinson, S. 2015. OT Biodiversity Data Access Project. p 101 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

We are all aware that there are a lot of UKOT biodiversity data gaps. However, there are also a lot of UKOT data that have been generated over a number of years and that sit in a wide range of organisations, in a wide range of formats, and are not accessible to those who need them for decision-making or who could make good use of it for research.

In an attempt to provide better access to these data, and to minimise the risk of this scenario continuing in the foreseeable future, JNCC has created a UKOT biodiversity data access project Under the project, JNCC is working with a wide number of UK organisations to attempt to mobilise the UKOT data they hold by making it accessible through existing data-sharing platforms. Parallel and complementary initiatives are being undertaken with the UKOTs to strengthen UKOT-based data management systems where this is required, and to share best practice between islands.

The project is making good progress, and there has been strong support for the principle. The first 'active' step is a focus on standardisation of meta-data and non-spatial species data. This talk provides an overview of the concept and the project, and gives an update on the consultations and support that have been galvanised to date, with a view to including those who are not already involved. In addition the action required to support the initiative, opportunities and next steps with be outlined.

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(The author has opted not to supply a full version of the paper.)

Conserving plant diversity and establishing ecosystem based approaches to the management of forest ecosystems in the British Virgin Islands

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Nancy Woodfield Pascoe

Pascoe, N.W., Hamilton, M., Harrigan, N., Grant, K., Massicott, M., Hodge, D., Clubbe, C., Barrios, S., Heller, T., Linsky, J. & Corcoran, M. 2015. Conserving plant diversity and establishing ecosystem based approaches to the management of forest ecosystems in the British Virgin Islands. pp 102-104 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

The British Virgin Islands' (BVI) vegetation habitats have been mapped using geographic information systems (GIS) in order to create a base map that will be used to identify gaps within the protected area network that the National Parks Trust of the Virgin Islands (NPTVI) manages. A team consisting of staff from NPTVI and project partners at the Royal Botanic Gardens Kew (Kew) assessed and mapped the distribution of endangered and endemic plant species using geographic information systems (GIS), in order to identify plant areas which may require special protection. The use of GIS in this process is critical to enable the NPTVI to provide guidance to the Town and Country Planning Department during the development planning process. The management of forests throughout the BVI was assessed through a stakeholder consultation process and the conservation role of the JR O'Neal Botanic Gardens is being strengthened as more threatened native species are incorporated into the collections as a result of the field work that is being undertaken.

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Discussion

This project was implemented across the Territory of the BVI, which is located in the Eastern Caribbean. The project team visited over 90% of the islands in the BVI in order to ground-truth the vegetation habitat and to search for threatened species of interest. There were major gaps in botanical information across the BVI, as previous Darwin-funded projects in the BVI had focused on specific sites on Virgin Gorda and Anegada, with little modern information known about the status of threatened plant species across the BVI as a whole. Historic records derived from herbarium vouchers at Kew assisted in guiding the project team to likely areas where threatened species were previously reported. These gaps in botanical information also meant that the last version of the British Virgin Islands Protected Areas System Plan 2007-2017 did not take into consideration or include areas with plant species of interest, and instead was more focused on the expansion of the marine protected area network. This project has since identified additional areas that could be proposed as new protected areas.

NPTVI manage twenty terrestrial sites and there was very limited information on plant diversity within these areas. One of the goals of this project was to create plant lists for select national

Natasha Harrigan, JR O'Neal Botanic Garden Terrestrial Warden, collecting a herbarium voucher at Dead Chest National Park Photo: NPTVI

park sites, in order to guide better conservation management and provide more information for interpretation of national park sites.

The NPTVI is a member of the BVI Government National GIS (Geographic Information Systems) and is responsible for maintaining data-layers relevant to the environment. There was not an existing digital vegetation base-map available for use, other than a satellite-based GIS vegetation layer of the BVI completed by the University of Colorado in 2000, which was never ground-truthed. This project sought to ground-truth this existing map to evaluate its level of accuracy, so that it could be used with confidence as a base-map in the National GIS, which is a major source of information in the development planning process, of which NPTVI participates as a committee member of the Pre-Planning committee under the Town and Country Planning Department.

The British Virgin Islands are a small island developing state with great development pressure and limited land area, on steep slopes that are relatively undisturbed at present. The timing of this project is critical as there are increasing numbers of large-scale development applications being submitted to the Town and Country Planning Department in areas that have been previously undisturbed. Before the landscape of these sites is altered, it is essential to know what plant species exist and the quality of the vegetation habitat, so that recommendations can be put in place to reduce the amount of biodiversity loss and habitat destruction. These challenges are relevant to all stakeholders, from the conservation managers such as NPTVI and Kew who conduct the research and document the biodiversity, to private landowners whose land might contain plant species of interest, some of which might be critically endangered, and to Government Departments who must manage land use and who require more information on the natural habitats and their relative value ecologically in order to make informed decisions on whether development applications should be approved.

The revision of the Protected Areas System Plan is still ongoing as there were so many new botanical findings realised through this project across the Territory that more research on key areas is required to narrow down the sites that should be proposed protected areas and which could remain privately owned, but with recommendations for development restrictions. NPTVI and Kew will continue to survey the likely habitats where threatened plant species may be found and then develop a GIS map with proposed boundaries of new sites for protection that can then be discussed with stakeholders within the Government, private landowners and the wider community.

Results

The field research was successful in producing a report on the phenology of 21 key threatened plant species, which exceeded the proposed project target of 15 threatened species. This information was previously unknown, so a major change is that the NPTVI staff can now target seed collection activities to the correct time of year, saving valuable time and staff resources and result in more seed collections of threatened plant species. Further monitoring of these key species is required as more observations are needed to ensure that the phenological report is an accurate portrayal of the flowering and fruiting behaviour and was not the result of climatic conditions in specific time periods.

Collections were made of herbarium voucher specimens and live collections. The proposed project target of 200 herbarium voucher specimens was exceeded as a total of 435 were collected, of which 225 are still pending assessment at Kew ith

Machaonia woodburyana - *a critically endangered plant found only in the British and US Virgin Islands Photo: NPTVI*

the remaining 210 vouchers being processed and incorporated into the Kew collections. This activity represents a change as many of these species had not been collected as herbarium specimens from the BVI previously and are currently being stored at Kew until such time in the near future when a small herbarium can be established at the JR O'Neal Botanic Gardens, and duplicates can be repatriated to the BVI for NPTVI staff and the wider public to use as a reference collection.

The proposed project target of 100 living collections was exceeded, with 110 new accessions into the Joseph Reynold O'Neal Botanic Gardens. This resulted also in the further development of a new threatened plant species collection created at the Botanic Gardens, featuring Virgin Island and Puerto Rico Bank endemics such as *Croton fishlockii*, *Malpighia woodburyana*, *Eugenia sessiliflora*, *Bastardiopsis eggersii*.and *Varronia rupicola*.

Flora inventories were conducted at eleven national parks, including Great Tobago, Gorda Peak, Copper Mine, Fallen Jerusalem, The Baths, Devil's Bay, Spring Bay, Little Fort, Prickly Pear, Shark Bay, Tortola and Cam Bay, Great Camanoe. This represents new information for NPTVI which will inform conservation management at these sites, in terms of the positioning of visitor trails, content for interpretation materials and long term park planning. No comprehensive flora inventories had been conducted within these specific national park sites prior to this Darwin plus project

Kew's species and specimens database was updated using the information collected during field activities, representing new botanical information that will be made freely available to a global audience as a direct result of this Darwin Plus project. Students, researchers and interested members of the public will now have access to herbarium voucher specimens specifically of BVI species.

The complete development of a draft management plan for forest ecosystems was not possible, but key actions in the management planning process were taken, such as an analysis of stresses and threats to forest habitats based upon stakeholder input. Stakeholders were engaged in ecosystem-based management planning exercises for forest ecosystems, but the project team realised through this process that there is much more information needed to inform a forestry management plan and that expertise did not reside within the NPTVI or Kew partners, and will require engagement with new partners in the adjacent US Virgin Islands and Puerto Rico, who have recently undergone a similar forest inventory and monitoring system through the International Institute of Tropical Forestry, which has a satellite office in Puerto Rico. Contact was made with the foresters responsible for this work and future collaboration is anticipated as the forest resources in the BVI are an important part of the entire Puerto Rico Bank ecosystem and are currently an unknown entity to our US partners. During this Darwin Plus project, NPTVI staff visited botanist Gary Ray in the US Virgin Islands in February 2015 to begin this cross territory engagement.

This botanical work will continue as a new Darwin Plus project DPLUS 030, "Building systems and capacity to monitor and conserve BVI's flora" began in April 2015, with Kew as the lead partner and the inclusion of colleagues from the nearby island of Puerto Rico, so that there is greater collaboration on the research and monitoring of Puerto Rican Bank threatened species.

Boraginaceae *Varronia rupicola* – conserving a threatened species endemic to the Caribbean

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Martin Hamilton with Varronia rupicola *on Anegada (Photo: RBG Kew)*

Hamilton, M.A., Monsegur, O., Sustache, J., Velez, J., Pascoe, N.W., Harrigan, N., Linsky, J., Corcoran, M., Barrios, S., Heller, T., Clubbe, C., Bradley, K. & Sanchez, M. 2015. Boraginaceae *Varronia rupicola* – conserving a threatened species endemic to the Caribbean. pp 105-107 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

Varronia rupicola is a Critically Endangered shrub in the Boraginaceae family endemic to the Puerto Rican Bank in the Caribbean. The species has a very restricted range of distribution as it is only found in isolated areas of western Puerto Rico (PR), southern Vieques and the low-lying island of Anegada in the British Virgin Islands. Very little is known about the species in the wild, its phenology, pollinators, seed dispersal or its habitat requirements. There are no known investigations into its genetics, pollination syndrome, or micro-morphology. This poster reports on research into the species taxonomic placement, biogeography and genetic diversity of wild populations as well as on-going conservation measures.

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Introduction

Varronia, in the family Boraginaceae, is a New World genus of plants with approximately 100 species. *Varronia* are usually multi-stemmed, woody shrubs with mostly serrate leaf margins and condensed inflorescences (de Stapf 2010). Based on ITS1 sequence data and morphological characters, *Varronia* is separate from *Cordia* (Gottschling *et al.* 2005) and recognised as a distinct genus.

The Puerto Rican Bank is a biogeographical unit comprising three countries. Puerto Rico and the US Virgin Islands are both territories of the United States. The British Virgin Islands are one of the UK Overseas Territories. The three political units and separate funding streams have often meant that baseline survey and species conservation initiatives have been isolated to individual countries with little or no exchange of information. According to Acevedo and Strong (2012), nine species of *Varronia* are native to the Puerto Rican Bank, one of which, *Varronia rupicola*, is endemic and a further two species, *Varronia bellonis* and *Varronia wagnerorum*, are endemic to Puerto Rico.

Varronia rupicola is a Critically Endangered species endemic to the Puerto Rican Bank (Clubbe *et al.* 2003). The species has a very restricted range of distribution as it has been found only in isolated areas of western Puerto Rico (PR), southern Vieques and the low-lying island of Anegada in the British Virgin Islands (Hamilton *et al.* 2015). Very little is known about the species in the wild, its phenology, pollinators, seed dispersal or its habitat

requirements. There are no known investigations into its cytology, phylo- or conservation genetics, pollination syndrome, or micro-morphology. Historically, *V. rupicola*, *V. lima* (from Puerto Rico and Hispaniola) and *V. bahamensis* (Bahamas archipelago) have been confused in the field and reported with overlapping distribution. The current collaborations between the authors aims to resolve the species taxonomic placement and determine the biogeography and genetic diversity of the population to develop conservation management strategies for the species across its distribution.

Material and Methods

Satellite imagery from Google Earth and existing observation and voucher data was used to plan fieldwork which was carried out in 2012, 2013 and 2014 by the authors across the Puerto Rican Bank. Data were recorded using a handheld computer with built-in GPS running ArcPad 10 software © (2012 ESRI Inc.) to visualize digitised spatial features of the survey areas, record presence or absence of the species and record GPS coordinates for samples and points. Data collected were then transferred to Brahms (Botanical Research and Herbarium Management System) 7.4 Software © (1985-2015 University of Oxford) for further processing and export to other packages.

Data gathered were checked for accuracy in Google Earth and supplemental mapping was undertaken based on image interpretation. Maps were produced showing the locations of DNA samples collected, observations made of the species and the areas that require further survey following habitat assessment.

Over 1000 points for *Varronia rupicola* presence/absence were recorded during fieldwork and used to refine survey areas. A total of 464 individual DNA samples were collected (380 wild collected, 84 from *ex-situ* collections) and several morphological and ecological parameters were recorded.

Results

Imagery available in Google Earth was used to assess land use change in southwest Puerto Rico and habitat loss for *V. rupicola* since 1993. Field assessment was undertaken and areas of potential suitable habitat were digitised using an eye altitude of 3.5km. Maps were produced for areas with extant plants recorded during surveys by the authors.

Across the habitat of the extant plants, several areas have experienced land-use change or suffered degradation. For example, between 1993 and 2012, the area around the Ponce Prison in the municipalities of Ponce and Peñuelas saw a loss of 103 hectares of potential suitable habitat for *V. rupicola*. The main driver of this loss was residential housing development followed by quarrying and infrastructure development. Even within protected areas, *V. rupicola* has been impacted by development and maintenance activities.

During our collaborative activities, the authors have observed many threats to the species long-term survival. For example, a previously unrecorded, and non-native insect pest, *Pinnaspis strachani*, was found to be attacking *V. rupicola* on Anegada.

Conclusions and Further Research

Varronia rupicola is extant in Puerto Rico, Vieques and Anegada on limestone substrates. The species faces many threats, including habitat loss, invasive species (attack and competition) and sea-level rise (specifically on Anegada). The US Fish and Wildlife Service (USFWS) listed the species as 'Threatened' (2014b) under the Endangered Species Act and designated critical habitat for the species in U.S. territory (US Fish and Wildlife Service 2014a).

Current research is focusing on the phylogenetic placement, population genetics and ecology of *V. rupicola*. The latter is being undertaken using camera trapping and environmental data collection across the species range.

Collaborative research between Kew and Fort Worth Zoo hopes to understand the relationship between the Critically Endangered Anegada rock iguana *Cyclura pinguis* and *Varronia rupicola*. Initial results indicate that there is a positive relationship between the species on Anegada.

Further research will include a pollination study and restoration trials. Active conservation efforts include seed banking, establishment of ex-situ collections (Kew, Puerto Rico and BVI) and inter-situ populations (USFWS Cabo Rojo National Wildlife Refuge).

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Caicos Pine Recovery Project – an overview

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Michele Dani Sanchez (Photo: RBG Kew)

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The Caicos pine *Pinus caribaea* var. *bahamensis* is endemic to the Turks and Caicos Islands (TCI) and the Bahamas, where it is the dominant species in the pine forest ecosystem. Pine forests in TCI cover only 13km^2 and have been under severe threat of extinction in the past decade. A severe infestation by the non-native and pine-specific pine tortoise scale insect *Toumeyella parvicornis* has killed the majority of pines in TCI devastating the local pineyards. High level of scale insect infestation in all pine populations, low number of individuals and threats from sea-level rise in these low-lying islands, called for urgent action to save the Caicos pine, which is an IUCN red listed species (Vulnerable). The Caicos Pine Recovery Project (CPRP) was launched in 2008 and, since then, much has been accomplished, e.g. *ex-situ* pine collections at the TCI CPRP nursery and the Millennium Seed Bank (MSB) in the UK, establishment and monitoring of permanent and restoration plots in the pine forests, pine forest mapping, population genetics data, insect identifications, prescribed fires and local capacity building. In the present phase, funded by the Darwin Initiative and the John Ellerman Foundation, the project is focusing efforts on multi-disciplinary research by experts from the Royal Botanic Gardens Kew (UK) in genetics, mycology, chemical interactions, restoration ecology, seed physiology, horticulture and biogeography to deliver a scientifically underpinned emergency restoration protocol to guide the management and restoration needed to save the Caicos pine forests, enhancing the species resilience to invasive species and climate change.

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The Turks and Caicos Islands (TCI) are a UK Overseas Territory in the Caribbean region, located in the south-eastern end of the Bahaman (also known as Lucayan) archipelago. The country's national tree and only native pine tree is the Caicos pine *Pinus caribaea* var. *bahamensis*, also called the Caribbean pine. This endemic pine is a keystone species in the pine forest ecosystem of the Bahamas and TCI. The Bahamian islands of Abaco, Andros, Grand Bahama and New Providence have large expanses of pine forests covering c. 2,118 km^2. However, in TCI, pine forests occurs only in a small area (13 km^2) of the islands of Middle Caicos, North Caicos and Pine Cay, where they are highly threatened (Sanchez 2012.)

Signs of genetic differences and isolation by distance between Bahamas and TCI pine populations (Sanchez *et al.* 2014), in addition to regional morphological variations and ecological differences (Sanchez 2012), contribute to the importance of conserving and rescuing the TCI

pine forests from the edge of extinction. In TCI during the past decade, pine forests have been under severe attack by the non-native pine tortoise scale insect *Toumeyella parvicornis*, resulting in the death of the majority of the Caicos pine trees and severe levels of infestation (Malumphy *et al.* 2012; Green 2011). This accidentally introduced scale insect, which is univoltine in its native habitats of the Nearctic regions from Mexico to Canada, is pine-specific and seems to have adapted to many life cycles a year (multivoltine) in the hotter Neotropical Caribbean climate; thus its high numbers and devastating effect to the pine forests in TCI (Malumphy *et al.* 2012). As a consequence of the differences and threats observed, *Pinus caribaea* var. *bahamensis* was assessed as Vulnerable in the IUCN Red List (Sanchez, Hamilton & Farjon 2013).

The Caicos pine regional differences, small and rapidly declining population sizes and high levels of threat in the Caicos Islands required urgent local action to prevent taxon extinction and irreversible loss of the pine forest ecosystem and its ecological services, reduction of biodiversity levels and loss of locally adapted trees and genetic diversity. The Caicos Pine Recovery Project (CPRP) was established in 2008 as a response to this need and with the main aim of researching the Caicos pine and the pine forests in TCI and working together to protect and safeguard this taxon and its habitat for the future. It has been a long-term collaboration between the Royal Botanic Gardens, Kew (Kew) in the UK and the Department of Environment and Maritime Affairs (DEMA) in TCI, as well as many other local and international partners. The CPRP was initially funded by the TCI government and subsequently by the UK Government OTEP (2010-2013) and Darwin Plus (2014-2016) funding schemes with additional funds from the John Ellermann Foundation (2014-2016). The current project 'Caicos pine forests: mitigation for climate change and invasive species' is led by M. Hamilton from Kew with local project management by B. N. Manco from DEMA. A CPRP working group including, amongst others researchers from Kew, DEMA, the UK Fera Science Ltd. (Fera), the United States Forest Service, Sewanee - the University of the South, Tennessee and the Bahamas National Trust, has also been created and maintained throughout the project.

In the past 7 years, an ex-situ pine collection has been established in TCI with trees rescued from the wild and grown from locally sourced seed to provide material for germination and cultivation protocols, trees for seed collection and re-introduction, and material for research and educational purposes. Currently there are 561 Caicos pine seedlings and saplings growing in the project nursery on North Caicos and another 128 trees growing in the pine seed orchard at the same site. Pine germination and cultivation protocols have been produced at Kew and shared with TCI partners, who are now trained in horticultural skills and able to run the nursery and produce new plants for conservation work. More than 200 Caicos pines produced in the nursery have been planted out on the pine forest restoration sites established on Pine Cay (Hudson 2012) since 2012, with very high survival rates. The Pine Cay Homeowners Association and the Meridian Club on Pine Cay have been very supportive of the project from the beginning. Seeds have also been collected by DEMA's staff and safely stored for purposes of conservation of genetic diversity and future uses at Kew's Millennium Seed Bank (MSB) in the UK. Research on seed longevity is currently being carried out at the MSB to assess seed storage behaviour for the taxon and guide future seed collection and storage.

An early research element of the project involved the establishment in 2010 of nine Permanent Monitoring Plots (Earle-Mundil 2010) on the three islands with pine forests (Pine Cay, Middle Caicos and North Caicos) to observe the effect of removal of broadleaf vegetation and soap sprays on the pine tortoise scale infestation levels, tree health and seedling recruitment. Data are recorded annually and have shown that pine trees benefited from broadleaf removal and soap sprays, as expected (Mark 2012). Caicos pines are adapted to fire (Miller 2005), having a thick and flaky bark (Farjon & Styles 1997). Natural fires in the wet season reduce broadleaf vegetation, increasing gaps and light levels for new pine seeds to germinate, promoting forest regeneration. Two successful prescribed fires have now been carried out on Middle Caicos pine forests in TCI as part of forest management, with expertise from USA fire bosses and fire ecologist from the US Forest Service, Eglin Air Force Base and Sewanee University of the South. The area burned in 2012 is now showing signs of good regeneration with healthy saplings, some resistant to the scale insects. It is very important that potential pests in TCI are identified to avoid the dangers of habitat decline and further loss of biodiversity. The CPRP has been relied on FERA's expert entomologist to identify invertebrates and advice on potential future risks, but TCI's biosecurity is of utmost

importance to prevent another catastrophic infestation such as this observed with the pine tortoise scale insect.

The current Darwin Plus project is focused on researching the resilience of the Caicos pine to invasive pests and climate change to deliver a restoration strategy protocol to guide the future conservation and restoration of the Caicos pine forests. Therefore, Kew researchers are studying healthy and infested trees in TCI to investigate the triggers of resilience and gathering data on habitat mapping, environmental and ecological variables.

Initial research of chemical volatiles from Caicos pine in TCI has already shown some variation in the chemistry of healthy and unhealthy trees and identified main monoterpenes which can be linked to the tree's resistance to pest attacks (Green *et al.* 2015). The adaptation of pines to poor soils and drought is highly dependent on their symbiotic association to ectomycorrhizal (ECM) fungi, which help the trees to obtain supplemental water and nutrients (Smith & Read 2008). DNA sequencing is being used to identify the ECM fungi associated to the roots of the Caicos pine and other ECM plants in TCI. Apart from generalist fungi, truffle-forming fungi of the genus *Rhizopogon* - specific to pine - seem to be dominant in these ecosystems. In areas that no longer have pines, the selection of zones where there is ECM inoculum in the soil could facilitate the adaptation and survival of pine seedlings as part of a future restoration strategy. Another important research focus is examining the correlations between water stress and tree health by measuring biological variables relating to scale infestation, tree size and reproductive output, as fresh water lenses will most likely be negatively affected by current predictions of sea-level rise for the region (IPCC 2013). Further, annual census data, begun in 2010, are being used to parameterise a Population Viability Analysis (PVA) to model future population viability under varying environmental scenarios and thus inform the future restoration strategy.

Population and conservation genetics research is also undertaken to evaluate the remaining Caicos pine genetic diversity in the wild and in the *ex-situ* collection in TCI against baseline data (Sanchez *et al.* 2014), as well as genotyping resistant trees. These data are being used to identify specific trees or areas for future seed collection and help build up a genetically representative *ex-situ* collection for future re-introduction; thus maximising the resilience of the Caicos pine to climate change and pests. Forest mapping was initially done using satellite imagery, and more recently unmanned aerial vehicles (UAV) or drones have been used to produce models of the current pine forest distribution, estimate levels of forest decline or regeneration throughout the area and indicate possible sites for re-introduction. Additional data on reproductive biology, *i.e.* cone production and seed set, seed germination, infestation levels and some morphological parameters were also gathered for a population viability analysis to feed into the restoration strategy.

The CPRP has also been working in building local capacity through training and practical experience to enable local DEMA staff to collect scientific data, monitor levels of infestation, identify pests and manage the pine forest and the *ex-situ* collection. Exchanging knowledge with the local community and sharing information through schools workshops, media, tours and community meetings have also been a priority throughout the CPRP lifetime. New interpretive panels about the Caicos pine and the project have been installed in Pine Cay and Middle Caicos pine forests, Kew settlement in North Caicos and at the National Environmental Centre (NEC) in Providenciales, the latter also featuring a small exhibition area. Additionally, a new CPRP interpretive trail has been laid out in Middle Caicos pine forest, with planned opening to the public by the end of the year. This exchange of knowledge, multidisciplinary and practical nature of the project, support from the local community, dedication of MSc students, Kew and DEMA staff, UK and international partners and volunteers, continuity of funding and key project members have all been essential to success of the project.

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Species monitoring through a combination of predictive mapping and ground-truthing

Tony Gent, Thomas Starnes (Amphibian & Reptile Conservation)

& Katie Medcalf (Environment Systems)

Katie Medcalf & Tony Gent

Gent, A., Starnes, T. & Medcalf, K. 2015. Species monitoring through a combination of predictive mapping and ground-truthing. p 112 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

Observations of species accompanied by accurate spatial location data not only allow the position of that record to be mapped but also allow it to be tied to a wide range of spatially explicit environmental data. These environmental data-sets cover a wide range of parameters, including vegetation, soils, geology, climate, topography and can include historic data as well as modelled predictions about future conditions. Analysis of the relationship between species observations and environmental variables can allow an improved understanding of the ecology of the species and an enhanced knowledge of their habitat needs and can also allow predictions to be made about the occurrence of the species beyond the distribution of recent records.

Both the quality and availability of environmental data are increasing, greatly aided by improvements in technology and investment in remote sensing, and we are seeing improvements in Geographic Information Systems (GIS) capabilities and research that is improving both the inferential and predictive power of modelling. However, there still remains a significant need for field-based research both to provide data for models and to test their predictions. Models are only as good as the data on which they are based, requiring sufficient recent data on species' locations, ideally including both 'presence' and 'absence' data with high levels of spatial precision. Field work is therefore needed to collect and maintain this data set. Even with good data, modelling can draw spurious conclusions, may not include all factors (such as the presence of competitor or predatory species or losses through disease or in-breeding, etc). Therefore 'reality checking' is needed and models will need ground-truthing to make sure they work and also to track the fate of a species within its habitat.

We believe it is the combination of both field work and remote sensing data that provides the future for species status monitoring – allowing expedient analysis and cost-effective deployment of resources. We also advocate that this combination can provide a valuable stimulus of volunteer involvement, especially for those looking for a rounded 'scientific experience'. Undoubtedly there is huge satisfaction on seeing animals in their natural habitats. GIS and modelling aids the analysis and understanding of the broader context in which species survive and thrive. It also provides a powerful framework for developing scientific enquiry.

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Akrotiri Marsh Restoration: a flagship wetland in the Cyprus SBAs funded by Darwin Plus

Melpo Apostolidou (BirdLife Cyprus)

Melpo Apostolidou

Apostolidou, M. 2015. Akrotiri Marsh Restoration: a flagship wetland in the Cyprus SBAs funded by Darwin Plus. pp 113-116 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

Akrotiri Marsh (also known as Fassouri Marsh) is part of the Akrotiri wetland complex. It is a Ramsar site, an Important Bird Area (IBA) and a Special Protection Area (SPA), equivalent to the EU designation, according to the mirror law (26/2007) in the Cyprus Sovereign Base Areas (SBAs). The marsh, which covers an area of around 150 hectares, has been unmanaged for the last 20 years, resulting in overexpansion of reeds and consequent loss of bird and plant diversity. To restore the area and its biodiversity, BirdLife Cyprus as a lead partner in collaboration with the SBAs Administration (SBAA), the Akrotiri Environmental Education Centre and RSPB (BirdLife partner in the UK) are implementing a conservation project, funded by the Darwin Initiative through UK Government funding (Darwin Plus, the Overseas Territories Environment and Climate Fund). The project's duration is 2 years, between April 2015 and March 2017.

The project will deliver an ecosystem-based conservation project in combination with public engagement actions. Through habitat modification and water management, the project will create a mosaic of habitats and increase species diversity for threatened species such as the spur-winged lapwing, the black-winged stilt and ferruginous duck. Opening up the reedbed will provide also increased opportunities for grazing livestock, a traditional activity at the site, contributing to longer-term reed management. There will also be enhanced facilities for birdwatching tourism and opportunities for handicraft production. Baseline studies, including for the native killifish, birds and flora, will provide useful indicators to monitor change and project impact.

The project will significantly assist the SBAA in its goal to improve wetland management. The project also aims to provide increased economic opportunities for local people through the promotion of traditional practices like livestock grazing and basketry, acting as a model project for future work. Also, increased visitation by birdwatchers and other interest groups, like school groups experiencing innovating educational activities, is expected to bring more benefits for the local village.

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Introduction

Akrotiri Marsh (also known as Fassouri Marsh) is part of the Akrotiri wetland complex. The complex is a Ramsar site, an Important Bird Area (IBA) and the equivalent of a Special Protection Area (SPA) of the EU Birds Directive, according to the mirror law (26/2007) in the Cyprus Sovereign Base Areas (SBAs). The marsh, which covers an area of around 150 hectares, has been largely unmanaged for the last 20 years resulting in overexpansion of reeds (*Arundo donax* and mainly *Phragmites australis*) and consequent loss of bird and plant diversity. To restore the area and its biodiversity BirdLife Cyprus as a lead partner, and in collaboration with the SBAs Administration (SBAA), the Akrotiri Environmental Education Centre and the RSPB (BirdLife partner in the UK) are implementing a conservation project.

Little bittern Ixobrychus minutus *is a rare breeder in Cyprus and Akrotiri marsh is possibly one of the best sites island wide for this breeding species. © Michael Gore*

Ferruginous duck Aythya nyroca *is a species of global conservation concern, and Akrotiri Marsh is one of the few sites where the species has been recorded nesting in Cyprus. Management actions are expected to benefit the species. © Stavros Christodoulides*

The 2-year project (April 2015 to March 2017) is funded by the Darwin Initiative through UK Government funding (Darwin Plus, the Overseas Territories Environment and Climate Fund).

Project aim

The project's primary aim is to restore Akrotiri Marsh to a mosaic of habitats leading to restoration of species diversity. Through targeted project actions the aim is also to provide increased socio-economic opportunities for local villagers.

Project actions

The project will deliver ecosystem-based conservation actions in combination with public engagement actions.

A combination of landscaping works, water management actions and management of vegetation with grazing animals aims at habitat modification to create a mosaic of habitats and increase species diversity while improving conditions for priority breeding species such as the spur-winged lapwing *Vanellus spinosus*, the black-winged stilt *Himantopus himantopus* and the ferruginous duck *Aythya nyroca*. Opening up the reedbed will also provide more space for grazing and therefore increased opportunities for livestock keeping, a traditional activity at the site. Grazing is a key management action that will also contribute to longer term reed management.

The spur-winged lapwing Vanellus spinosus*, which is an Annex I species of the EU Birds Directive [2009/147/EC], has been recorded nesting on site. Disturbance is an inhibiting factor for the breeding of this species. © Dave Nye*

The project will produce a series of baseline studies: a topographical survey, a productivity study and population assessment for key breeding birds and a study on native killifish *Aphanius fasciatus*. The baseline studies will assist in monitoring change and project impact. During project implementation, key variables will be monitored, *i.e.* water quality, bird and plant species richness and abundance. To ensure the sustainable long-term management of the site, a water management regime and a site management plan with clear objectives will be prepared.

To engage the local community and to spread the message for nature conservation to a wider audience, the project foresees the creation of enhanced facilities for birdwatching tourism, i.e. observation tower, walkway for visitors and information material. Opportunities for traditional handicraft production will also be enhanced and promoted to support the local community.

The open area, ideal for grazing and many plant and bird species, has shrunk significantly over the last 20 years, due mainly to the expansion of reeds Phragmites australis. *The project foresees landscaping and water management works that will increase the habitat diversity on site. © Melpo Apostolidou*

In recent years, grazing animals on the site have been reduced, allowing the expansion of reeds. The project will use grazing as a tool for habitat management and will promote grazing to local farmers through the purchase of the Cyprus breed of cattle. © Melpo Apostolidou

Summary of breeding population data for IBA qualifying wetland species at Akrotiri IBA

Species	Cyprus breeding population (2013 estimate)	Breeding population at Akrotiri IBA (2013 estimate)
Ferruginous duck *Aythya nyroca*	1-6 breeding pairs	1-5 breeding pairs Akrotiri wetlands complex: recorded breeding only at Akrotiri marsh, Zakaki pond and Bishop's pool. 1st confirmed Cyprus breeding record was in 2005 at Akrotiri marsh.
Spur-winged lapwing *Vanellus spinosus*	40-60 breeding pairs	1-4 breeding pairs Akrotiri wetlands, with Akrotiri marsh being one of the best sites for the species
Black-winged stilt *Himantopus himantopus*	50-200 breeding pairs	2-55 breeding pairs Akrotiri wetlands – numbers vary widely according to suitability of water levels

Expected results

The project will significantly assist the SBAA in its goal to achieve sustainable wetland management and set an example for the future management of other wetlands in the Akrotiri complex. The project aims also to provide increased economic opportunities for local people through the promotion and preservation of traditional practices like livestock grazing and basketry, acting as a model project for future work. Also, increased visitation by birdwatchers and other interest groups, like school groups experiencing innovative educational activities, is expected to bring more benefits for the local village.

Discussion

Much of the discussion addressed the conclusions and recommendations. If such items are adequately reported in the Conclusions and Recommendations section later in these proceedings, they are generally not repeated here. Instead, this section draws out some other aspects for which amplification may be useful, on of the discussions and ideas put forward for consideration.

International agreements

- With so much technical language around MEAs, how do we make it meaningful for people on the ground and how do we hold governments to account?
- How do territories which are non-signatories justify to governments the need to sign up?

Because the language of agreements is so obscure, often people are not aware that some of the things they are doing are fulfilling commitments as well. Gradually forming a bank of evidence is important, and is also useful if looking for funding.

Biodiversity Strategic Action Plans (BSAPs) are a good way of measuring progress on implementation of *e.g.* Aichi targets, as well as highlighting gaps.

A matrix showing accomplishments of the Cayman Islands under different agreements was created. This helped at ministerial level as there was not necessarily a good understanding of the requirements and the process of MEAs.

Could the Forum fulfil the role of painting a picture of MEAs, by creating a document that puts them into layman terms with examples of Territories that have succeeded? This would be a good teaching tool for Territories to deliver to *e.g.* Ministry

Invasive species

- Should we be tapping into the private sector for funding, especially for attractive projects such as eradicating giant mice?

The use of structured thematic discussions – *e.g.* invasive species – was identified as a useful addition to Working Group meetings as this would encourage a longer term perspective. Perhaps the Forum could integrate this into their workings more widely.

Sharing experiences, expertise and resources as NGOs can lead to significant cost-savings when undertaking projects, and projects can be completed more efficiently and more cheaply than if undertaken by government. The key is talking about common objectives, incentives and ideas amongst organisations.

The costs for the rat eradication in South Georgia seems staggering but, if communities have the desire to do something similar, then there is the potential for cost-saving and working together to reduce costs. For example, using the same helicopters and crew for further attempts to eradicate rats on Henderson.

Biodiversity data

Motivation of people who collect the data needs to be looked at as a means of exploring the possibility of obtaining free data.

Encouraging people in the field to upload their data on to open access sites is all well and good, but often researchers do not have enough time to do this. Organising a collective effort to achieve this would be better – perhaps through the Forum?

Data collection in a more informal context should not be discounted, *i.e.* in between periods of formal fieldwork, what about what is seen on a day-to-day basis?

The Isle of Man looked at the UK Indicators but decided this was not a good model for small places. Perhaps a set of indicators is needed. There had been some work on biodiversity indicators across OCTs. JNCC could provide some information on this.

Must not discount the private sector as a source of data - there is a lot of information in the private sector that they may be willing to share.

Quality assurance around data needs to be considered. There need to be guidelines around data handling and collection to create standards and controls for researchers.

Crown Dependency: absence of data on common species is a problem, *e.g.* rats, a particular problem with lack of data on small mammals. How to monitor data these data on limited staff resources is also difficult. The appropriateness of data collection is also problematic – more guidelines need to be put out for people collecting the data, detailing what is required it make it useful for practitioners.

The integrated biodiversity assessment tool is an initiative by UNEP WCMC, Conservation

International, BirdLife International and others, a one-stop shop for biodiversity data with a global scope

There are considerations when uploading data to a public forum, such as being careful with geographic and location information for newly discovered/described species or those which could see a commercial benefit (*e.g.* exotic pet trade).

Capacity and resources use

The Forum exists to link and exchange information across Territories, and adjusts its involvements according to Territories' needs.

Guernsey/Jersey Biological Record Centre has created a unified policy on release of data for certain species that are deemed at potential risk of inappropriate commercial exploitation. This ensures that data on these species will not be released to the public forum.

Need to concentrate on actions as well as data – this is the key to conservation ultimately.

Has the Forum given thought to Strategic Goal A of Aichi Targets Target 2, and how we can get governments to engage? National accountability is something that this group (the Forum) specifically can help with as there is nobody leading on this. Showing the value of our biodiversity and natural capital in our national accounts, for example, would be very valuable, but there is no discussion being had on these points. The Territories need discussion and attention of these points since they are Aichi Targets and 2020 is only 5 years away. The Forum is key to promoting this and encouraging the discussion, particularly with the UK Parliament's Environmental Audit Committee.

Session 4: Posters not related to a particular topic session

Those posters relating to one of the conference main themes are incorporated in that section. Other posters are included. This section is placed in the sequence at the time of the main poster session (although posters were on display throughout the conference).

The South Atlantic Environmental Research Institute (SAERI) Maria Taylor (South Atlantic Environmental Research Institute (SAERI))
Campaigning against illegal bird trapping in Cyprus Tassos Shialis (BirdLife Cyprus)
6 of UKOTCF's set of 18 posters (other 12 in meeting room) UKOTCF
Living Islands: Environmental and Heritage Tourism, a sustainable economic tool for island communities? Roland Gauvain (Manager, Alderney Wildlife Trust) & Victor Brownlees (CEO, States of Alderney)
The Department of Conservation Services: Who We Are & What We Do Alison Copeland & Drew Pettit (Department of Conservation Services, Bermuda)
Human heritage and the natural environment: interactions and opportunities Pat Reynolds (Heritage People CIC)
Falklands Conservation Esther Bertram (Falklands Conservation)
Off the Grid Research Community Maya Doolub (Guardian Integrators)
Incl. St Helena (Isabel Peters)
Work of Gibraltar Dept of Environment Sera Fromow
JNCC Overseas Territories Programme Tara Pelembe
RSPB UK Overseas Territories Programme Jonathan Hall

Setting up the poster room

The South Atlantic Environmental Research Institute (SAERI)

Maria Taylor (South Atlantic Environmental Research Institute (SAERI))

Taylor, M. 2015. The South Atlantic Environmental Research Institute (SAERI). p 120 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

The South Atlantic Environmental Research Institute (SAERI) is an academic organisation based in the Falkland Islands, conducting research in the South Atlantic from the tropics down to the ice in Antarctica. SAERI's remit encompasses environmental research in a variety of disciplines including; marine and terrestrial biology and ecology, oceanography, geology and geomorphology, climatology and upper atmosphere sciences and geographic information systems. It aims to:

- Coordinate and increase the volume and impact of environmental scientific research in the South Atlantic by establishing world class research platforms in each of the UK South Atlantic Overseas Territories.
- Enhance, encourage and promote existing local research activities that will strengthen environmental protection, progress economic development and support policy formulation in the South Atlantic.
- Further develop capacity to conduct environmental research and management, both nationally and internationally.
- Increase international awareness of and involvement in environmental research in the South Atlantic.
- Increase the UK South Atlantic Overseas Territories ability to leverage international funding and commercial contracts.

SAERI currently has eight full time members of staff and four PhD students working on a range of projects and has strong collaborations with the other South Atlantic overseas territories including, Ascension Island, St Helena, Tristan da Cunha and South Georgia & South Sandwich Islands. In the three years since its inception, SAERI has already established strong international collaborations and attracted a number of research grants to increase the output and capacity of environmental science being done across the entire South Atlantic Overseas Territories.

Maria Taylor, Ecologist - BEST III project, South Atlantic Environmental Research Institute - SAERI mtaylor@env.institute.ac.fk

Above: Sea cushion; Left: Orca. Photos: Dr Judith Brown

Campaigning against illegal bird trapping in Cyprus

Tassos Shialis and Natalie Stylianou (BirdLife Cyprus)

Shialis, T. & Stylianou, N. 2015. Campaigning against illegal bird trapping in Cyprus. pp 121-126 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

The campaign against illegal bird trapping is one of the key activities of BirdLife Cyprus, as illegal trapping constitutes a persistent phenomenon on the island of Cyprus and poses a serious conservation problem for migratory species along the Africa – Eurasia flyway. The campaign started in 2002, with help from RSPB, and it is separated in three categories: systematic monitoring, awareness-raising and lobbying.

The methods used in Cyprus for bird trapping are limesticks, mist-nets and calling devices. These methods are illegal by both national and EU law because of their non-selective nature and the large-scale killing they contribute to. Field data have shown that at least 152 bird species are affected, of which 78 are threatened. BirdLife Cyprus estimated that 2.5 million birds were killed in 2014 from these methods in Cyprus. The trapped birds are sold as an expensive 'delicacy' known as ambelopoulia by law-breaking restaurants or for domestic consumption, turning this illegal activity into a profitable business of the order of 15 million euros per year (Game Service position paper 2010).

The current situation with illegal trapping of birds is out of control both in the Republic of Cyprus (RoC) and the Eastern Sovereign Base Area (ESBA). Within the RoC, the use of limesticks is widespread and the law-breaking restaurants serving ambelopoulia are found almost entirely in the Republic. As for the ESBA, it has turned into a hard core mist-netting hotspot, where large areas of acacias (*Acacia saligna*) have been planted and managed solely for the purpose of bird-trapping with mist-nets. In the last few years, trapping with mist-nets has increased dramatically within the ESBA. The latest autumn 2014 report of BirdLife Cyprus showed an increase of 199% for autumn 2014 in comparison to 2002, highlighting the industrial scale of trapping that takes place in the ESBA.

Unfortunately the general public still considers this a socially acceptable 'traditional' practice and has the false impression of small-scale trapping with limesticks, whereas the reality is that it has become a demand and supply activity with organised trappers making illegally thousands of euros every year.

It is evident that illegal bird-trapping is a complex problem requiring an array of solutions in order to be addressed. For this reason, BirdLife Cyprus led the initiative in 2013 to develop a national Strategic Action Plan (StAP) to tackle illegal bird-trapping in Cyprus (with funding from the MAVA Foundation). The development of a common and joint strategy to tackle this multi-faceted problem was discussed in detail with all key stakeholders, including enforcement agencies and environmental NGOs. The key actions identified and highlighted in the StAP document include: enforcement, courts, policy, awareness-raising, habitat-management, economic consequence, and monitoring & coordination. Sadly, adoption of this StAP document has been slow and pending since May 2014, mainly due to the lack of political will from the Republic of Cyprus Government. BirdLife Cyprus is intending to make progress in 2015 on the StAP implementation with the stakeholders that have adopted this strategy, including the SBA Administration.

Figure 1. Set mist-net set for illegal bird trapping ©BirdLife Cyprus

Figure 2. Cyprus scops owl Otus scops cyprius*, endemic subspecies, trapped in a set mist-net ©BirdLife Cyprus*

Introduction

The campaign against illegal bird-trapping is one of the key activities of BirdLife Cyprus, as illegal trapping constitutes a persistent phenomenon on the island of Cyprus and poses a serious conservation problem for migratory species along the Africa-Eurasia flyway. The campaign started in 2002, with help from RSPB, and is separated in three categories: systematic monitoring, lobbying and awareness-raising actions.

The methods used for illegal trapping are mist-nets (a method originally intended for bird-ringing and scientific research, used for an illegal purpose, see Figures 1 and 2) and limesticks (see Figure 3). Limesticks are usually made from pomegranate branches covered in a glue-like substance derived from the fruit of the Syrian plum-tree and are placed in bushes and trees which are pruned specifically for this purpose (see Figure 4). In order to multiply the catch trappers nowadays use illegal calling devices to lure birds into the traps.

These methods are illegal by both national and EU law because of their non-selective nature and the large-scale killing they contribute to. Bird-trapping in Cyprus has been illegal since 1974, when legislation on hunting was introduced with Cypriot Law 39/74 and non-selective methods (mist-nets, limesticks and other traps) were prohibited. In 1988 Cyprus ratified the 1979 Bern Convention on the Conservation of European Wildlife and Natural Habitats, adopting a long list of birds as protected, including the blackcap *Sylvia atricapilla* (blackcaps are the main target species of illegal trapping in Cyprus). When Cyprus joined the EU, the Birds Directive was transposed into Cyprus Law, prohibiting anew the use of non-selective methods including mist nets, limesticks and calling devices, as well as the possession of trapping equipment, trapped birds and the trading and eating of trapped birds.

Historically, trapped birds – mostly blackcaps – were a food supplement for the mostly poor island inhabitants living off the land. The practice of bird trapping in Cyprus has been recorded in historical documents from the Middle Ages and even earlier times. However, trapping as practiced in

Figure 3. Red backed shrike Lanius collurio *trapped on limestick ©BirdLife Cyprus*

Figure 4. Limesticks set in a tree for bird trapping ©BirdLife Cyprus

Cyprus today bears no relation to the 'traditional' or historical situation, and the threats faced by migratory birds today are many more than in the past.

Nowadays, bird-trapping in Cyprus is widespread and extensive, contributing to the large scale killing of hundreds of thousands of migratory and wintering birds. This illegal activity has become a profitable business which is controlled to a large extent by the 'big' trappers who are also involved in organised crime. Field data have shown that at least 152 bird species are affected, of which 78 are threatened. BirdLife Cyprus estimated that over 2 million birds were killed in autumn 2014 by these methods in Cyprus (BirdLife Cyprus, March 2015). Autumn is the main trapping period in Cyprus. However, trapping also takes place during spring and winter seasons. The trapped birds are sold as an expensive 'delicacy' known as *ambelopoulia* ('ambelopoulia' refers to approximately 30 different species, which includes the blackcap) by law-breaking restaurants or for domestic consumption, turning this illegal activity into a profitable business of the order of 15 million euros per year (Game and Fauna Service 17/3/2010).

Systematic monitoring

A systematic, continuous surveillance programme regarding illegal bird-trapping in Cyprus was developed and implemented by BirdLife Cyprus and the RSPB, in consultation with the Cyprus Game & Fauna Service and the British Sovereign Base Area (SBA) police at the start of the programme in autumn 2002. The programme applies the 'Bird Trapping Monitoring Protocol' that was developed and has given BirdLife Cyprus the longest record of field data and the ability to deduce reliable long-term trends and to have an overview of the bird trapping situation in Cyprus. BirdLife Cyprus is one of the few environmental organisations that has a systematic monitoring programme for an illegal bird killing activity along the Africa-Eurasia flyway. Figure 5 shows the map where bird-trapping takes place in Cyprus; monitoring is concentrated in the two main areas (numbered 1 and 2) where extensive trapping takes place, due to limited resources:

1. Kokkinochoria area (Eastern Larnaca/ Famagusta area) – this area also includes the Dhekelia Eastern Sovereign Base (ESBA) area), and
2. Ayios Theodoros and Maroni area (Western Larnaca).

The monitoring is undertaken by visiting a random selection of sample squares (1 km^2) within the survey area (total survey area covers 406 km^2) during daytime hours, with a focus on detecting

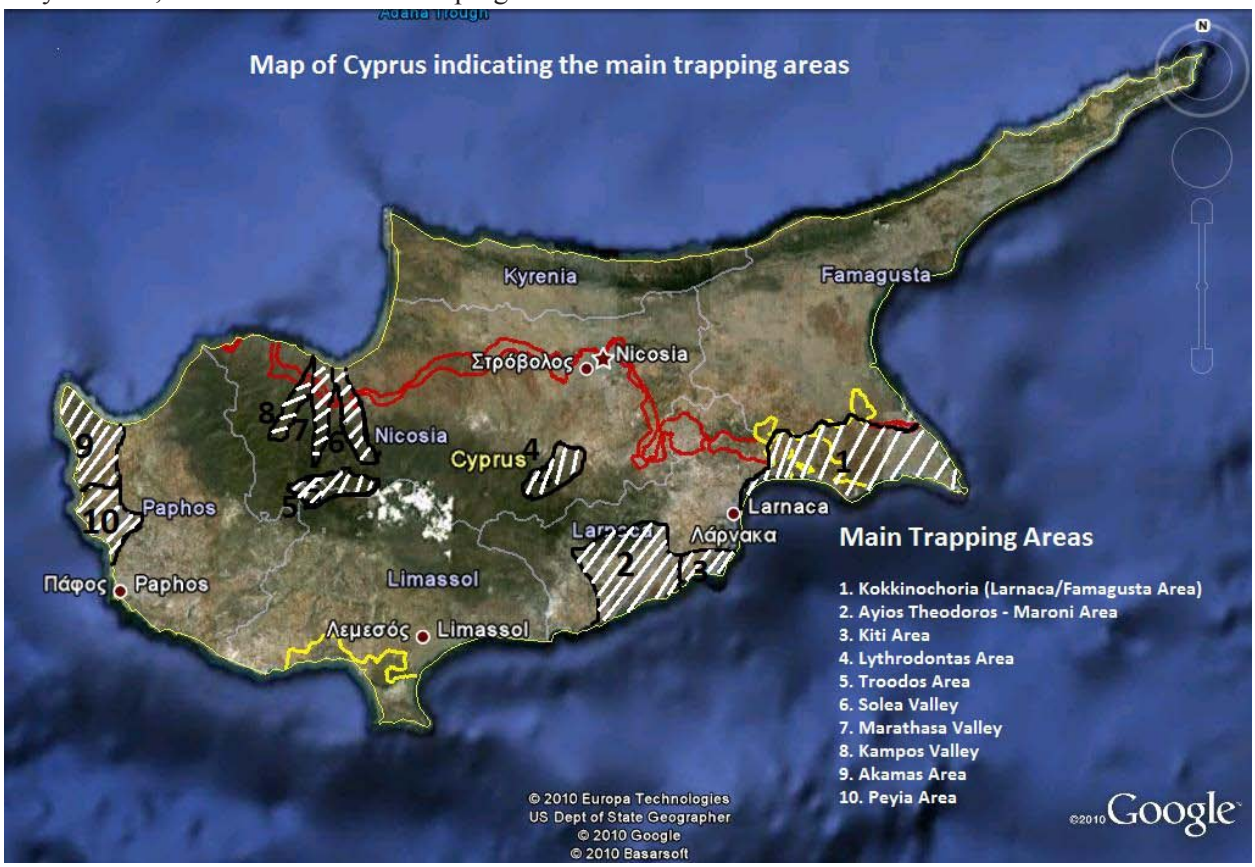

Figure 5. Map of Cyprus showing the main trapping areas – survey area includes no 1 and 2 trapping areas.

mist netting activity, while limesticks are also recorded if detected. The number of squares is stratified to ensure a representative coverage of areas under ESBA administration and the Republic of Cyprus. The project is undertaken in close co-operation with the competent authorities of the Republic of Cyprus (the Game & Fauna Service and the Cyprus Police Anti-poaching unit) and the SBA Police. When trapping paraphernalia is found, the relevant enforcement authorities are informed. It should be noted that the BirdLife Cyprus observers never confront suspected trappers and never remove trapping paraphernalia. BirdLife Cyprus would like to thank the RSPB for supporting the project financially since the beginning, and NABU (partner of BirdLife International in Germany) and the Heinz Sielmann Stiftung Foundation for their financial support from 2013 onwards.

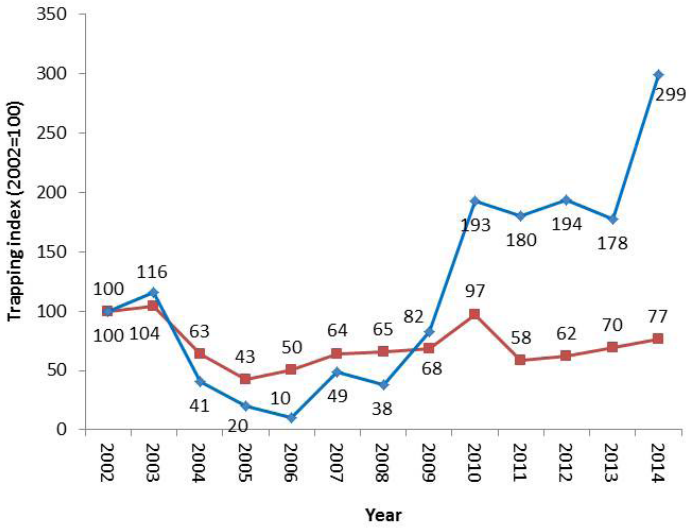

Figure 7. Trends in trapping activity for mist-netting within the Republic of Cyprus (RoC - red) and within the UK Dhekelia Sovereign Base Area (SBA - blue) (BirdLife Cyprus, March 2015).

Autumn 2014 trapping report

The autumn 2014 trapping report (BirdLife Cyprus, March 2015) shows a dramatic situation of illegal trapping taking place at record levels. The analysis of the survey data showed that 16km of net-rides were active during the autumn season of 2014 within the survey area. More than 6,000 limesticks were reported from enforcement agencies and other NGOs, underlining the extensive and industrial use of mist-nests and limesticks taking place. With these trapping levels, BirdLife Cyprus estimated that over 2 million birds could have been killed across the whole of Cyprus in autumn 2014.

Illegal trapping of birds is out of control both in the Republic of Cyprus (RoC) and the Eastern Sovereign Base Areas (SBA). Within the RoC the use of limesticks is widespread and the law breaking restaurants serving *ambelopoulia* are found almost entirely in the Republic. As for the Eastern SBA, it has turned into a hard-core mist-netting hotspot, where large areas of acacias (*Acacia saligna*) have been planted and managed solely for the purpose of bird-trapping with mist nets (see Figure 6). In the last few years trapping with mist-nets has increased dramatically within the ESBA. The latest autumn 2014 report of BirdLife Cyprus showed an increase of 199% for autumn 2014 in comparison to 2002, highlighting the industrial scale of trapping that takes place in the Eastern SBA (see Figure 7).

Figure 6. Acacia saligna *has been planted and managed solely for the purpose of bird trapping with mist-nets*

Lobbying - Strategic Action Plan (StAP) for tackling illegal bird-trapping in Cyprus

It is evident that illegal bird-trapping has become a persistent and complex problem requiring an array of solutions in order to be addressed. For this reason, BirdLife Cyprus led the initiative in 2013 to develop a national Strategic Action Plan (StAP) to tackle illegal bird trapping in Cyprus (with funding from the MAVA Foundation – see Figure 8). The development of a common and joint strategy to tackle this multi-faceted problem was discussed in detail with all key stakeholders, including enforcement agencies and environmental NGOs, and the following key elements were identified to be included in the strategy: enforcement, courts, policy, awareness raising, habitat management, economic aspects and monitoring & coordination.

A Final StAP document for adoption was sent to all key stakeholders (enforcement agencies,

Figure 8. Workshop on 24th April 2013 for the development of a Strategic Action Plan (StAP) to tackle illegal bird trapping © BirdLife Cyprus

environmental NGOs etc) since April 2014, and most of the stakeholders adopted it, including the UK Sovereign Base Areas Administration. A major obstacle has been the lack of political support from the Cyprus Government, which has impeded any progress for this initiative. On the contrary, the Council of Ministers of the Republic of Cyprus has approved a catastrophic StAP on the 13th May 2015, by including the possibility of legalising hunting of blackcaps with the use of a derogation (Article 9 of the Birds Directive), without any prior consultation with any of the stakeholders which participated in this initiative. Lobbying from the environmental NGOs in Cyprus is now focused on the withdrawal of this derogation that has been included unilaterally in the approved strategic plan by the Council of Ministers of the Republic of Cyprus, and to approve the StAP that was discussed and agreed by all the stakeholders during the 2013-2014 consultation.

Awareness-raising

Sadly, the general public still considers illegal bird trapping a socially acceptable 'traditional' practice and does not consider it a serious problem, with false impressions about the extent, scale and impact of this practice. Public awareness is key to solving this issue and to make the general public realise that it has become an illegal demand and supply activity with huge tax free profits being made from organised trappers. In addition, according to a study done by an environmental NGO, *Terra Cypria*, the losses in revenue due to the bad reputation created from trapping range between 40 to 100 million euros every year (*Terra Cypria*, May 2011).

The awareness-raising element of the anti-trapping campaign includes the development and dissemination of information material (leaflets, stickers), advertising (newspaper, online, highway billboards, radio spots), promotion in social media (Facebook, Twitter), organisation of social events and presentations at targeted groups (schools, local communities). With regards to schools (see Figure 9), BirdLife Cyprus has developed an educational package (presentation, animation film and bird migration board game) and is targeting the schools in the areas of Larnaca and Famagusta that are trapping hotspots, in an effort to stop the recruitment of future trappers and poachers, as well as schools in the city of Nicosia in an effort to reconnect city children to nature.

BirdLife Cyprus is a registered, non-governmental, not for profit organisation (NGO) that dedicates itself to the conservation of wild birds and their habitats in Cyprus. It was formed in 2003 through the merger of the two Cyprus Ornithological Societies and now has offices in Strakka, Nicosia comprised by professional staff. www.birdlifecyprus.org/.

Figure 9. Children playing the board game after a presentation at a primary school. ©BirdLife Cyprus

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BirdLife Cyprus, March 2015. Update on illegal bird trapping activity in Cyprus - Covering the autumn 2014 findings of BirdLife Cyprus' continuing monitoring programme for illegal bird trapping in Cyprus and providing an overview of the latest developments regarding the problem. http://www.birdlifecyprus.org/upload/Trapping%20Reports/Autumn2014TrappingReport.pdf.

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Set of display boards

UK Overseas Territories Conservation Forum

UKOTCF 2015. Set of display boards. p 127 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

One board for each of most UKOTs, and three as cross-territory introductions. These boards can be viewed at www.ukotcf.org/territories/index.htm

Living Islands: Environmental and Heritage Tourism, a sustainable economic tool for island communities?

Roland Gauvain (Manager, Alderney Wildlife Trust) & Victor Brownlees (CEO, States of Alderney)

Roland Gauvain

Victor Brownlees

Gauvain, R. & Brownlees, V. 2015. *Living Islands*: Environmental and Heritage Tourism, a sustainable economic tool for island communities? pp 128-131 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

The *Living Islands* Project is a joint undertaking by the Royal Society of Wildlife Trusts, the Alderney Wildlife Trust and the States of Alderney, working in partnership with the island's heritage organisation (the Alderney Society), and was created as a mechanism by which local government and the Wildlife Trusts could explore the scope and sustainability of using existing interest in heritage and natural history related tourism. From this point the project aimed to create a strong economic impetus for government and island community better to protect, and potentially develop, the island's key ecological and historic resources for their long-term value to the island's economy and the quality of life experienced by both visitors and islanders. The project looked to utilise the existing organisational structures and resources of government and non-governmental organisations to deliver its aims and, in doing so, strengthen the ties between the organisations and create a multiplier effect through mutual co-operative working.

This poster will look at the lessons learned from the project, and the future developments it has led to within the Alderney context, with a view to potential case study value of the project for the wider CDs and UKOTs.

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Alderney LIVING ISLANDS

ALDERNEY wildlife TRUST

STATES OF ALDERNEY

THE ALDERNEY SOCIETY 1966

This 2-year Heritage and Natural History Tourism project is attempting to link the island's heritage historic and wildlife resources with Alderney's tourism effort in a sustainable effort manner between government and NGOs.

Partners

States of Alderney – Core Funder (funded £10,000 Research Development Assessment, £50,000 over 2 years *Living Islands* and a further £10,000 towards project development costs): Aim to develop previously under-developed aspects of Alderney's resource, both physical and economic (*i.e.* tourism), with a view to developing a unique selling point for the Island's tourism/ marketing strategy and developing closer working links with NGOs in the sector.

Royal Society of Wildlife Trusts (RSWT) – Core funder (£50,000 over 2 years Strategic

Puffins on Burhou © AWT Ltd (Photographer Bill Black)

Development Fund): Aim to develop stronger links between the island Trusts and wider movement by exploring the development of Wildlife Tourism and joint working practices with local government in order to deliver movement wide local sustainability.

Alderney Wildlife Trust (AWT) - Key Partner and project originator (in excess of 5,000hrs of staff and volunteer support commitment): Aim to establish a clear link between Alderney's natural environment and the island's long term economic sustainability and in doing so develop closer links with government with a view to developing the AWT's commercial viability (*i.e.* service provision).

Alderney Society (AS) – Key Partner (in excess of 2,000hrs staff and volunteer support): To Aim to secure the future of several key historic sites and to develop closer links with government.

Research Base

Core to the project was an understanding of the existing tourism market and its value when considered in the light of the island's natural and heritage resource. A Research Development Assessment (RDA) was undertaken in 2013 by Yorkshire Wildlife Trust and Leeds Metropolitan University.

The RDA utilised both visitor questionnaires and an assessment of established metrics, such as airport and harbour passenger figures, to establish the existing market value of these forms of tourism to Alderney. The results were surprisingly strong and helped to strengthen the argument for Government involvement in the project and also created greater interest from the resident community Tables 1 & 2).

The RDA confirmed worrying trends such as the declining number of visitors and the reduction

Visitor type	Number of visitor days (leisure visitors only)	Total spend	% linked to wildlife	Value of wildlife tourism
Day visitors	7,213	£ 355,754	25%	£ 88,938
Overnight tourists	66,531	£ 10,196,399	25%	£ 2,549,100
Total	**73,744**	**£ 10,552,153**		**£ 2,638,038**

Table 1. Estimated contribution of wildlife tourism to Alderney

Visitor type	Number of visitor days (leisure visitors only)	Total spend	% linked to heritage	Value of heritage tourism
Day visitors	7,213	£ 355,754	18%	£ 64,036
Overnight tourists	66,531	£ 10,196,399	18%	£ 1,835,352
Total	**73,744**	**£ 10,552,153**		**£ 1,899,388**

Table 2. Estimated contribution of heritage tourism to Alderney

Mode	2006	2007	2008	2009	2010	2011	2012	7 year average		Estimated arrivals
Ferry	7,313	4,241	4,306	3,665	3,587	3,160	3,357	4,233	**pax**	**4,233**
Crew	22,640	15,826	28,450	30,105	29,380	26,680	19,620	24,672	**nights**	**8,224**
Other sea	309	42	4,458	3,016	2,342	2,806	2,989	2,280	**pax**	**2,280**
Air	37,442	39,877	38,202	36,870	34,351	34,422	31,847	36,144	pax	**36,144**

Table 3. Passenger numbers air and sea extracted from airline and harbour records (extract Alderney RDA 2013)

(Above and right) The development of key sites, such as the Cambridge Battery Fort, have been crucial not only to visitor interest but also in engaging the local population in the project. A wide variety of volunteer groups was engaged with the practical work of the project, and existing effort and staff from Government departments were also involved, even volunteering their effort out of hours.

in available beds accross all sectors (Table 3). However, it also helped to clarify the lack of existing metrics which could be used to assess the tourist market on Alderney and helped to set measures by which the project's success could reasonably be assessed.

Principal Achievements

- Significantly raised Alderney's profile across the Channel Islands, south coast of England and Normandy/Brittany and also achieved good national coverage overall. This has primarily been achieved through:
  - Direct contact with press (travel and general) and heritage/wildlife tour companies who manage their own marketing.
  - Social media (Facebook & Twitter) and website
  - Word of mouth from satisfied visitors
  - Television; particular success was achieved with French Television and in coverage for the commemoration of the island's Evacuation during WWII
  - Joint working on media coverage with partners to put out a brand image when dealing with diverse fringe publicity, *i.e.* heavy media coverage for new seabird tagging project co-ordinated with Visit Alderney and *Living Islands* to gain added benefit.
- Has helped to begin the process of better describing key aspects of Alderney's natural and heritage resource (*i.e.* defining specific sites and buildings) and their value to the

Good coverage in UK and French press

Collaborative working ensured increased TV coverage: BBC Natural History Unit.

island in the mind of the project partners and the island community

- Posed questions to politicians as to the value and role tourism should play in the island's economic and development strategy
- Has significantly strengthened relationship between the project partners on island, most especially the States of Alderney and the AWT
- Developed new visitor opportunities through wildlife and heritage tour companies
- Improvement of the resource, and access to the resource, *e.g.* 2 significant historic sites preserved and opened to the public
- Started the process of joint management planning between the States of Alderney and AWT on countryside access, areas of common access and wildflower significance etc.

The problems we have encountered

- Scope of the project too broad and the partnership roles lacked definition, leading to confusion at times. This was especially important given the diversity of the partners involved and gave rise to points of friction.
- In an attempt to deal with issues and problems generated by the broad partnerships involved, and with a mind to the creation of an 'equal' footing between partners, the project ran into the pitfall issue of structural over-engineering. This in turn created a lack of flexibility which caused complications for the project team.
- Goals too wide and all-encompassing; this has led to a number of goals being removed at the first year review.
- The development of measures through which to assess not only the *Living Islands* project but broader tourism impacts on the island. Whilst simple measures have been successfully established, little progress has been achieved on metrics such as airport-user statistics. This has been largely due to transport providers' inflexibility and resource constraints but will be a primary concern to address in 2016.

Living Islands Into the Future

It can be argued that the complexity and scope of the *Living Islands* project went well beyond what was first envisaged. The ensuing problems, though limiting certain aspects of the proposed work, did not however prevent the project having a significant net benefit to the project partners.

On island tourism numbers in the niche markets have apparently increased (figures currently under assessment as part of project conclusion). Visitor satisfaction has improved when measured from 2013-15, and there has been a real increase in understanding of the value of the *Living Islands* resource amongst the island's resident population.

Responding to this success, the States of Alderney has agreed to adopt formally the project to become a mainstay of its tourism and marketing programme 2016/17 with the on-island partners continuing to grow their support.

The outcomes of the project will also be incorporated into a case-study in the development of wildlife tourism and inter-government/NGO relationships for use by the Island Wildlife Trust's across the British Isles.

Developing infra-structure to allow for the Living Islands *'experience' was vital.*

The Department of Conservation Services: Who We Are & What We Do

Alison Copeland & Drew Pettit (Department of Conservation Services, Bermuda)

Copeland, A. & Pettit, D. 2015. The Department of Conservation Services: Who We Are & What We Do. pp 132-133 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

The Department of Conservation Services (DCS) was created in 2002 following the division of the former Department of Agriculture and Fisheries. At present, the Department is within the Ministry of Health, Seniors and the Environment. The Department is responsible for managing the Bermuda Government's field ecology programmes, the Bermuda Aquarium, Museum and Zoo (BAMZ), government nature reserves and maritime cultural heritage (shipwrecks). The Department of Conservation Services is unique within the Bermuda Government as it works in a dynamic collaboration using Government, NGO and volunteer resources to carry out its mandate. That mandate includes research, education, advocacy and restoration of threatened habitats and species.

The major components of the Department are the Ecology Section (16 employees) and the Bermuda Aquarium, Museum and Zoo (29 staff). The AZA-accredited Bermuda Aquarium, Museum and Zoo is one of Bermuda's top tourist attractions and one of its finest environmental education facilities. Additionally the Natural History Museum and library act as a repository for biodiversity data, including physical specimens, multimedia and publications. BAMZ has two support charities, the Bermuda Zoological Society and the Atlantic Conservation Partnership, which deliver high-quality environmental education and visitor outreach programmes, and provide vital fund-raising and volunteer support.

The Ecology Section of DCS is charged with managing the Government nature reserve system and historic shipwreck sites. DCS staff provide consultations on planning matters related to the marine and terrestrial environment, marine heritage and arable land. The ecology section manages a number of invasive species control programmes and protected species recovery programmes, which are supported by in-house services such as GIS mapping and wildlife rehabilitation. DCS provides oversight and enforcement of several pieces of legislation, particularly the Protected Species Act 2003, Historic Wrecks Act 2001 and Protection of Birds Act 1975.

Alison Copeland, Biodiversity Officer, Dept of Conservation Services, Government of Bermuda aicopeland@gov.bm

Mission Statement

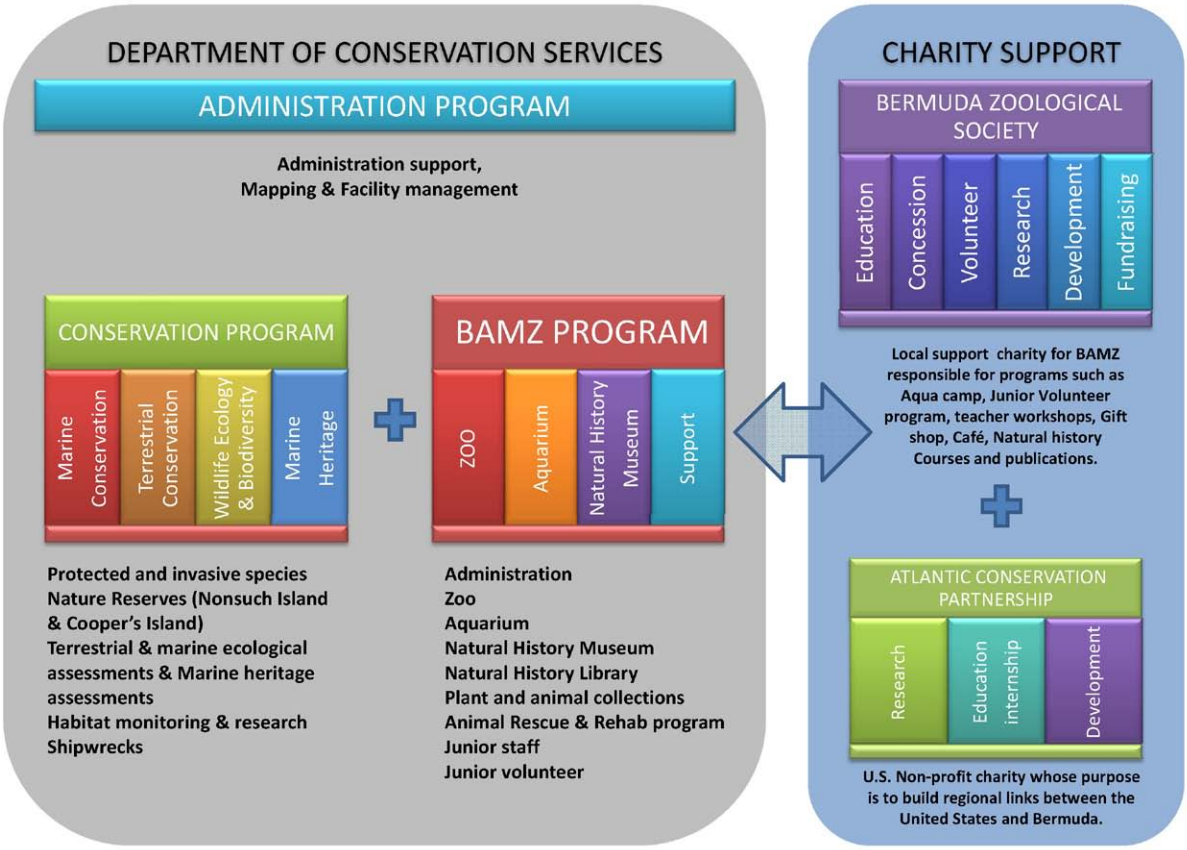
To conserve and promote Bermuda's Natural and Marine Heritage through research, education, advocacy and restoration.

Purpose

The primary purpose of the Department of Conservation Services is to conserve Bermuda's ecosystems, its plants, animals and their critical habitat.

The Department is responsible for managing the Government's field ecology programmes, the Bermuda Aquarium, Museum & Zoo (BAMZ), Government nature reserves and underwater cultural heritage (shipwrecks).

The mandate of the Department can be broken into the following functions, that being to research,



educate and advocate for the preservation of Bermuda's biodiversity, management of invasive species and underwater heritage while working to restore threatened habitats.

Biodiversity (or biological diversity)

Refers to the variety of life. It includes all the millions of animal, plant and microbial species on Earth, and includes the diversity found between individuals of the same species (their genetic diversity), as well as the diversity between different species and of habitats and larger eco-systems of which they are all a part.

Protecting Bermuda's Biodiversity

Bermuda's efforts to preserve its unique ecology are guided by the Bermuda Biodiversity Action Plan (BAP). Developed in 2003, the BAP is a blue-print to guide the island's efforts to preserve threatened species and habitats through research, monitoring, education and restoration..

For information on the Bermuda Biodiversity Action Plan or to find out more about Bermuda's interesting species and habitats, visit www.conservation.bm

Human heritage and the natural environment: interactions and opportunities

Pat Reynolds (Heritage People CIC)

Reynolds, P. 2015. Human heritage and the natural environment: interactions and opportunities. pp 134-137 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

This poster explores the interactions between human heritage and the natural environment, and the opportunities to enhance the sustainability of both through integrated management.

Human heritage covers diverse areas:

- below ground archaeology;
- above ground archaeology, including buildings and monuments;
- landscape archaeology;
- objects;
- archives (including video, sound and visual archives);
- languages and dialects;
- stories and jokes;
- songs, music, dance and other performances;
- rituals and festive events and other social practices (including food and drink);
- knowledge and practices concerning nature and the universe; and
- craft skills.

These areas of heritage are often interlinked – a historic building may, for example, be the focus of a festive event involving music on historic instruments which are maintained using traditional craft skills. The poster argues that the histories and environments of the UK Overseas Territories have lead to patterns of heritage which would benefit from an integrated management approach, which would particularly address the sustainability of intangible cultural heritage (the lower part of the list above – heritage which exists in people, rather than things). The relationships between heritage and environment and other areas, including tourism and health are also noted.

The poster explores the potential for collaboration and co-operation between the UKOT bodies with an interest in heritage.

The poster concludes with introducing the work of Heritage People, a newly established Community Interest Company which seeks to support governments and NGOs wishing to improve understanding of heritage and/or heritage management. Heritage People CIC is particularly interested in supporting partners from UK Overseas Territories. This includes ways to meet the information needs of those involved with managing heritage as governments, NGOs or individuals. Heritage People and UKOTCF are in touch to explore coordinating help to territories.

Heritage People CIC contact details:
info@heritagepeople.co.uk, +44 1904 541411

Human heritage and the environment are closely intertwined. There are opportunities to enhance the sustainability of both through integrated management.

What is human heritage?

Some answers -

- below ground archaeology: *Figure 1 (Wessex Archaeology)*

- above ground archaeology, including buildings and monuments: *Figure 2 (All 'cc' and unattributed images Attribution-Non-Commercial-ShareAlike 4.0 International: CC BY-NC-SA 4.0)*

- landscape archaeology: *Figure 3*

- objects: *Figure 4*

- archives (including video, sound, oral history and visual archives): *Figure 5*

- languages and dialects: *Figure 6 (cc Shirozazan)*

- stories and jokes: *Figure 7 on next page (cc Melanie Holtsman)*

- songs, music, dance and other performances: *Figure 8 (cc Jtrant)*

- rituals and festive events and other social practices (including food and drink): *Figure 9*

- knowledge and practices concerning nature and the universe: *Figure 10 in next column (permission Nuttunbaffin.com)* ; and

- craft skills: *Figure 11.*

These areas of heritage are often interlinked – a historic building may, for example, be the focus of a festive event involving music on historic instruments which are maintained using traditional craft skills.

Human heritage is inseparable from its environment because material and immaterial culture are produced by humans living in an environment or environments. Human heritage in the UK Overseas Territories is as diverse as the landscapes and seascapes of the UKOT, but heritage here shares some common features:

- Expert knowledge of the local terrain and waters have been key for survival
- Rooted in close connection to local environmental resources for building materials, foods, crafts, etc – often a continuing connection (or until fairly recently)
- Lack of economic resources and natural disasters have resulted in communities with a rich intangible heritage, and less reliance on

material culture for identity

- Local isolation/Global integration: – island communities with common heritage of globalisation, colonisation, migration, and often of slavery.

The poster argues that the histories and environments of the UK Overseas Territories have led to patterns of heritage which would benefit from an integrated management approach, which would particularly address the sustainability of intangible cultural heritage (the lower part of the list above – heritage which exists in people, rather than things).

Secondary benefits from human heritage include:

Health – dance, food production as activity, etc.

Health – eating fresh local produce, traditional medicines, complimentary therapies

Health – community support, identity, self worth, respect

Economic – use of resources which would otherwise need import, or not be exploited

Economic – added value for tourists focussed on environment or heritage, deepening experience, 'bad weather' options, etc.

What is integrated heritage management?

An integrated heritage management plan, which acknowledges and builds upon the linkages between environment and human heritage, and additional linkages to economy and health could be more sustainable than traditional management

- more economically sustainable
- more socially sustainable
- more environmentally sustainable.

Integrated nature of government in many Overseas Territories, and integrated nature of NGOs with responsibility for environment and human heritage in many Overseas Territories could make integrated heritage management easier to plan and to implement.

Heritage People CIC and UKOTCF are exploring ways of coordinating help to territories. Collaborations and cooperation could include skill sharing, resource sharing, common procurement, programmes and projects, Heritage People, a newly established Community Interest Company which seeks to support governments and NGOs wishing to improve understanding of heritage and/or heritage management. Heritage People CIC is particularly interested in supporting partners from UK Overseas Territories. This includes ways to meet the information needs of those involved with managing heritage as governments, NGOs or individuals.

Falklands Conservation

Esther Bertram (Falklands Conservation)

Bertram, E. 2015. Falklands Conservation. p 138 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

Falklands Conservation is an NGO that works in partnership with the local community to take action to conserve land and seascapes for future generations. We work to achieve this through advocacy and providing advice to government on a range of industry activities occurring on the islands, such as the developing hydrocarbons industry and through supporting the implementation of the Falkland Islands Biodiversity Strategy, through research and planning. In addition we undertake outreach activities with our youth group and with local volunteers to carry out practical conservation such as replanting native tussac grass, essential for wildlife.

Esther Bertram, CEO, Falklands Conservation
CEO@conservation.org.fk

Off the Grid Research Community

Maya Doolub (Guardian Integrators)

Doolub, M. 2015. Off the Grid Research Community. p 139 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

About Guardian Integrators

Guardian Integrators (GI) is a for-profit organisation working to address climate change issues through market-based solutions. GI develops and implements a sustainable solutions-based programme dedicated to reducing island dependency on imports, particularly energy and food, and developing opportunities for economic growth on island. GI brings together expertise from around the world, forming a team of individuals who have worked with a number of organisations as part of the critical drive to demonstrate both the necessity for a response to climate change, and the economic opportunity that this presents.

About Guardian Integrators Off the Grid Communities

GI is a sustainability solutions programme focussed on creating Off the Grid Communities on islands.

The GI programme seeks to:

I. Develop a platform of commercial opportunities within the tourism sector by bringing together local expertise and talent with regional and global initiatives, focussing on eco-tourism, marine tourism, agri-tourism and cultural tourism

II. Integrate utilities and infrastructure in order to maximise efficiency of systems and technologies, resulting in reduced capital and operational costs and demonstrating a high performance 'utility and infrastructure ecosystem'

III. Demonstrate that sustainability solutions are profitable and present key economic opportunities on island, enhancing local job markets and skills

About Guardian Off the Grid Research Communities

GI are working to establish Off the Grid Research Communities which are:

- Self-funded, capital independent
- Inclusive of island and regional culture and fishing heritage
- Dedicated to protecting, restoring and managing island 'ecosystem services'
- Aligned with the objectives of regional and global oceans research organisations, presenting excellent opportunity for collaboration
- Designed to provide on the job training for local communities
- Demonstrate that sustainability solutions are profitable and present key economic opportunities on islands, enhancing local job markets and skills

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Work of Gibraltar Department of Environment

Anon. 2015. Work of Gibraltar Department of Environment. p 140 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

A series of posters and video material on the Department's work

JNCC Overseas Territories Programme

Pelembe, T. 2015. JNCC Overseas Territories Programme. p 141 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

(This poster-set was withdrawn at the start of the conference.)

RSPB UK Overseas Territories Programme

Anon. 2015. RSPB UK Overseas Territories Programme. p 142 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

A series of posters on the RSPB's work

The poster room overflows at refreshment break time before the field-trips.

Session 6: UKOTCF's Southern Oceans Working Group

Chairman: Nigel Haywood

Joint Secretaries: Sarah Barnsley & Tim Earl

The discussions at the Southern Oceans Working Group contributed to the Conclusions and Recommendations, and relevant points are incorporated in that section. Other discussions have been reported in the minutes of the meeting, circulated to participants and other members of SOWG.

From left: Tim Earl, Nigel Haywood, Sarah Barnsley

Above and next page:SOWG in session

Session 7: Conservation and Sustainable Use of Terrestrial Resources

Chairing & facilitating team: Kathleen McNary Wood (Turks & Caicos Islands), Esther Bertram (Falkland Islands), Farah Mukhida (Anguilla)

Environmental Sustainability: through the application of economic valuations – Ms Sharmer Fleming (Government of Anguilla, Department of Environment)
A New Framework for the Conservation of Species and Habitats in the Cayman Islands – Gina Ebanks-Petrie (Cayman Islands Department of Environment)
Attempts to achieve Management of protected Areas to Support Sustainable Economies - and discovering the realities of managing an EU funded project in a small Caribbean territory – Nancy Woodfield Pascoe (National Parks Trust of the Virgin Islands)
Ecosystem effects of eradicating invasive species – Jennifer Lee (Government of South Georgia & the South Sandwich Islands)
Establishing Stakeholders as Conservation Stewards – Amy Avenant, Katharine Hart, (Department of Environment & Maritime Affairs) and Kathleen Wood (SWA Ltd, Turks & Caicos Islands; UKOTCF) [This presentation will also link terrestrial & marine, the latter topic being mainly in the following session, after lunch.]
The Governor Laffan's Fern Recovery Project Alison Copeland[1],Margaret From[2] & Kimberly Burch[3] ([1] Department of Conservation Services, Bermuda; [2] Rare plant research lab, Omaha's Henry Doorly Zoo, USA; [3] Department of Environmental Protection, Bermuda)
Rediscovery of the Bermuda Land Snail *Poecilozonites bermudensis* Mark Outerbridge (Department of Conservation Services, Bermuda)
Attempts to achieve Management of protected Areas to Support Sustainable Economies - and discovering the realities of managing an EU funded project in a small Caribbean territory Nancy Woodfield Pascoe (National Parks Trust of the Virgin Islands)
Golden, spikey and blushing – Conserving the invertebrate of the UKOTs Vicky Kindemba (Buglife)

From left: Kathleen McNary Wood, Esther Bertram, Farah Mukhida

Environmental Sustainability: through the application of economic valuations

Ms Sharmer Fleming (Government of Anguilla, Department of Environment)

Fleming, S. 2015. Environmental Sustainability: through the application of economic valuations. pp 146-151 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

Small Island Developing States (SIDS) are faced with limited resources for environmental and economic prosperity. Therefore, to achieve sustainable development effectively, there must be a distinct balance between development and the wise use of the island's natural capital. Achieving this requires mainstreaming the natural environment in the decision-making process, and the implementation of a National Development Plan (NDP) with priority consideration given to the environment and its services.

The Government of Anguilla has begun the process towards achieving sustainable development. This was started with the execution of a Greening Economy Workshop. The resulting report and a cadre of other projects (Tourism Value of Ecosystems in Anguilla, Valuation of Ecosystem Services in Anguilla and the production of Valuation Maps of Ecosystems and Ecosystem Services) have formed the foundation towards achieving sustainable development. These too are encapsulated in the Anguilla National Ecosystem Assessment (ANEA) Project which aims to develop a framework for the NDP.

There are key steps to conducting economic valuations. In relation to Anguilla, these have been done using a series of methodological approaches that are applicable to SIDS. However, key to this process is the involvement of stakeholders. The use of economic valuation tools such as: the Choice Experiment - Willingness to Pay Approach, as well as Geographical Information Systems and Remote Sensing, which are equally important in illustrating the economic status of key ecosystems. By applying these methodologies, Anguilla is progressing towards understanding the monetary and non-monetary value of the natural environment, in terms of the key ecosystems and their services. The knowledge gained and information compiled thus far are crucial for the National Development Plan and advancement in environmental conservation.

Key Words: Sustainable Development; National Development Plan; Natural Capital; Economic Valuations; Ecosystems; Ecosystem Services

Ms Sharmer Fleming, Co-ordinator Environment & Sustainable Development, Anguilla Department of Environment Sharmer.fleming@gov.ai

Introduction

Small Island Developing States (SIDS) such as Anguilla are heavily reliant on their natural resources for societal well-being and economic prosperity. However, there is a delicate balance between environmental conservation and degradation within these islands. This is due to their smallness, fragile environs and limited resources to allow for economic diversification and development. The interconnectivity of the island's ecosystems and their fragility to external shocks further places them in a peculiar position, whereby developmental decisions often results in some degree of environmental degradation.

As articulated by van Buekering *et al.* (2007), the application of monetary values to environmental and social impacts increases the chances for their effects to be considered in the decision-making process. This paper reports on the ecosystem valuation study conducted in the Caribbean

Figure 1. Image of Anguilla. Source: Department of Environment, 2014

UKOT Anguilla, titled 'The Tourism Value of Nature in Anguilla and the impact of beach erosion'. It serves to inform the other UKOTs on the methodology used, results discovered and lessons learnt, while illustrating the usefulness of economic valuations to alleviate environmental degradation and promote environmental sustainability.

Rationale for Conducting Ecosystem Economic Valuation

Anguilla is the most northerly of the Eastern Caribbean islands. It is of small size (35 square miles), under-developed and fairly isolated. Surrounded by 75km of coast, the island can be considered to be coastal in its entirety. It has very few land-based natural resources, but a breath-taking landscape and distinctive natural assets (Figure 1). These key resources have resulted in the development of a renowned tourist industry in Anguilla, an industry which is now the mainstay of the economy.

However, coastal erosion is a growing concern in Anguilla (Figure 2). The need to restore the once vibrant coral reef ecosystems, implement coastal management plans (coastal setbacks) and enforce proper land-use practices have been discussed relentlessly. Despite this, pre-emptive actions by the decision-makers are in the infancy stage. In fact, development still continues without thorough consideration being given to environmental conservation. This is a typical example of an environmental degradation for fiscal gains.

The degradation of ecosystem services and biodiversity has increased tremendously in recent times. The fact that SIDS are profoundly dependent on their ecosystems and are commonly regarded as biodiversity 'hotspots' is a cause for apprehension. This has been recognised by the United Kingdom Government, which has dedicated resources through the Joint Nature Conservation Committee (JNCC) to work with each of the UKOT Governments. The project managed by JNCC aimed to develop an understanding of the economic value of the natural environment in the UKOTs, the threats and options available for the management of those threats, and to enable environmental issues to be integrated in strategic decisions.

CANARI was contracted to conduct the assessment in Anguilla. A key finding of that assessment was that there is a poor weighting given to environmental issues than to fiscal issues in decision-making in Anguilla. The final report concluded also that the importance of the

Figure 2. Beach erosion impact on Upper Shoal Bay East Beach: 2002 (left) compared with 2015 (right). Sources: N. Envoy (2002); Department of Environment (2015)

success of actions is strongly dependent on a change in commitment of key policy-makers to give conservation of the natural environment a high priority in decision making (CANARI 2013).

Methodology

There are a number of methods that can be used to conduct an ecosystem economic valuation. For the purpose the study conducted, the choice experiment (modelling) was used.

Logical Framework

The approach used was quite similar to the methodology developed by Waite *et al.* (2014) for conducting the coastal ecosystem valuation to inform decision making in the Caribbean. It comprised of three distinct stages; scoping, analysis and outreach and use of results.

1. Scoping

This component established the context for conducting the ecosystem economic valuation study. The policy question was identified, all relevant studies were reviewed and the target group and key decision makers were recognised.

> ***Policy Question:*** What is the value of Anguilla's beaches to the Tourist Industry?
>
> ***Target Audiences:*** Six beaches were strategically selected for this study. The tourist visiting those beaches was the target audience.
>
> ***Informing Decision Makers:*** Prior to conducting the study, the consultants delivered a formal presentation on ecosystems economic valuation work done in Bonaire. Through this means, the consultants deliberated on the effectiveness of economic valuations and the applicability to Anguilla.

2. Analysis

At this stage, the scenarios were developed and the most suitable valuation method was selected. The data were collected, analysed and reported in a clear manner. The appropriate decision support tools were developed and applied. In addition, the changes in the specific ecosystem service were analysed.

a. Evaluation Method

Economic valuations are regarded as anthropocentric because human use and enjoyment of environmental services determines their economic value. In this instance, the economic value can be measured by the amount of money an individual is willing to pay for a good or service. Due to this, the choice experiment (modelling) evaluation method was used.

Choice experiments allow one to elicit the preferences for goods and services by studying the choices made by the respondents in the survey. As it pertains to the environment, the choice experiment presents a description of a hypothetical scenario concerning the management of a resource to the respondent. The respondent is given a number of choice sets (Figure 3) related to the different management scenarios. Each choice set contains alternatives which are described by unique combinations of attributes at different levels.

b. Analyse of changes in ecosystem services

As an addendum to the study, an analysis of the beach changes that have occurred during the period 2003 to 2013 was completed, to put into perspective the dynamic nature the beaches used in the study. This was important because, although ecosystem economic valuations are useful, they are not sufficient for coherent and consistent choices for the environment. Hence, other supporting evidence is essential.

c. Collect and analyse data

Questionnaires through one-on-one interviews were conducted with tourist visiting the beach. The tourist was firstly asked specific questions to determine their eligibility to participate in the survey. A number of choice-cards were developed and used in the survey. Using a Statistical Package, the data was configured to determine the respondents' Willingness to Pay.

3. Outreach and Use of Results

In this component, the results are synthesised and developed. The findings are communicated to the decision-makers. The study and the results were shared also with the community.

As it relates to the study, the final report was delivered to the decision-makers. A formal presentation explaining the results was given to the

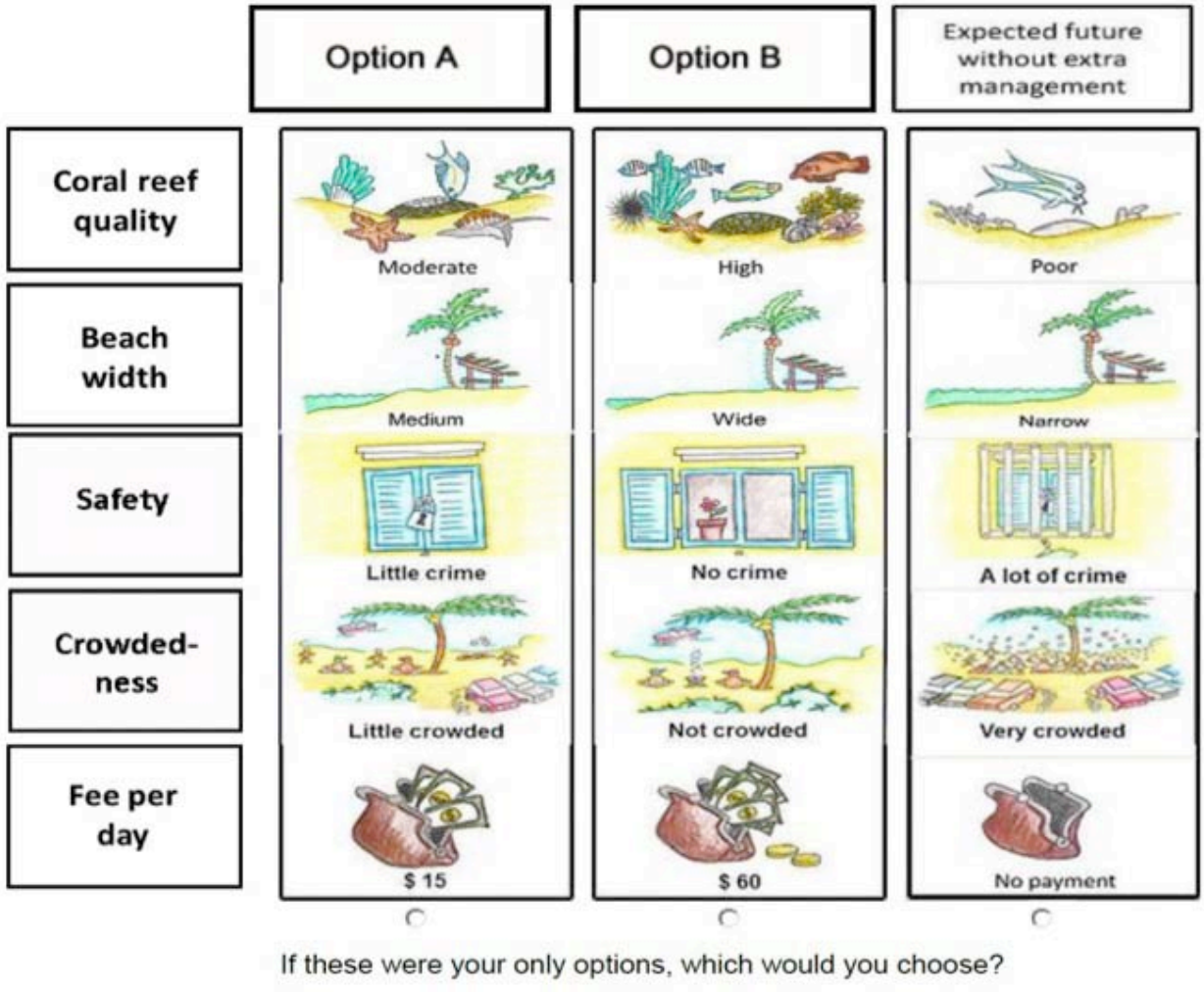

Figure 3. An example of the choice card developed and used in the survey. Source: extracted from Tieskens et al. *(2014)*

stakeholders in the tourism sector and decision-makers. To further expound on the results gathered, the values were incorporated in maps using GIS.

The incorporation of valuation data into a centralised GIS database is important, as it allows the decision-makers to access readily the information in a defined manner. These maps are also communicative tools through which the message can be dispersed to stakeholders, policy-makers and the community at large. Figure 4 presents an example of a map developed with valuation data.

The study included also a section which described the various management options available to cope with beach/coastal erosion. The cost for the hard and soft engineering types was calculated and presented. This allowed the readers to be able to envision the cost that is compensated by services freely provided by the marine/coastal ecosystems such as coral reefs.

Key Results

The study revealed the following results:

- People were willing to pay so that the beaches could remain in good condition.
- The beaches were considered to be highly valuable to the tourist. Hence, they contribute largely to Anguilla's economy.
- A percentage of the respondents thought it was Government's responsibility to conserve Anguilla's beaches.

Lessons Learnt and Recommendations

There were a number of vital lessons learnt while undertaking the valuation study.

1. Economic valuations are essential in building cases for environmental conservation/ protection, but it are useable only if they can be delivered clearly to the audiences. Furthermore, they cannot be used as the sole

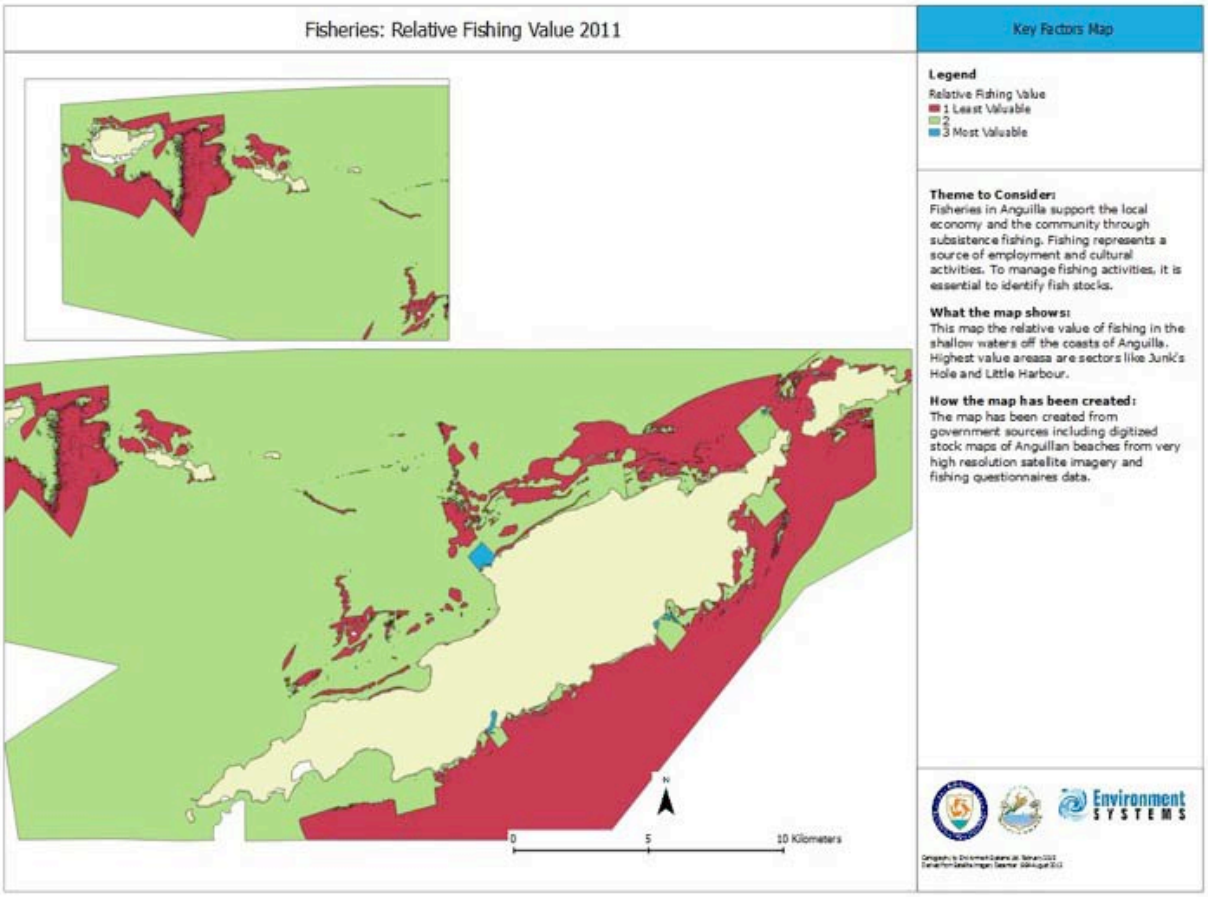

Figure 4. The relative fishing value in 2011 in respect to the coral reefs.
Source: Environment Systems, 2014

argument. There must be other supporting evidence to justify the cases further.

2. It is important to ensure that the appropriate data are available readily to support the economic evaluation. Although this report is based mainly on the valuation of the selected beaches in Anguilla, the vitality of historical data was recognised from the infancy stages.
3. Spatial and temporal scales must be taken into account. This is because the value of an ecosystem service or good can vary according to the people using that service or good. The study done in Anguilla focused on the visiting tourists only. Consequently, there is a need to conduct the same or similar survey with the local people to develop a more impactful outlook for the beaches in Anguilla.
4. Choice modelling involves complex data analysis and therefore can be very costly. As highlighted in van Beukering *et al.* 2007, choice modelling should therefore be used only when the necessary expertise and budget are available. In the case of Anguilla, VU University, Netherlands, was contracted to conduct this work. It is important ensure that adequate resources are available when conducting an ecosystem valuation study.
5. It would have been useful if the actual cost for some of the real estate on the coastline of the beaches studied was readily available. This would have provided additional support to the monetary worth of the said beaches, in the sense that when coastal property is left vacant how it devalues the beach or *vice versa*.
6. A monetary value cannot be attached to everything. Hence, there are non-monetary values that must also be factored in. It is most suitable to apply the monetary value to things which are tangible. In the case of this study, it was applied to an ecosystem (beaches) in which a value could have been easily attached.
7. Stakeholders should be involved throughout the valuation. Developing an understanding of the value of ecosystems and their services is critical to influence effective environmental management. This level of understanding by the stakeholders can advocate impactful change by the decision and policy makers.

Conclusion

Economic valuations have come a very long way since the 1960s. The publication of 'Valuing the Environment in Small Islands' toolkit provides a clear and very relevant document on the conditions and experiences in SIDS. The publication by the World Resources Institute is also an important source. The data generated from economic valuations are useful because they put into perspective the economic loss when ecosystems and their services are not taken into account in the decision making process.

As documented by CANARI (2013), there is a poorer weighting given to environmental issues than to fiscal issues in decision-making in Anguilla. By conducting the ecosystem valuation study for selected beaches in Anguilla, the case towards mainstreaming the environment in the decision-making process was advanced. It is hoped that the policy and decision makers alike will be more environmentally conscious about decisions made, if Anguilla is to truly achieve environmental sustainability.

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National Conservation Law: A New Framework for the Conservation of Species and Habitats in the Cayman Islands

Gina Ebanks-Petrie (Cayman Islands Department of Environment)

Ebanks-Petrie, G. 2015. National Conservation Law: A New Framework for the Conservation of Species and Habitats in the Cayman Islands. pp 152-159 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

The Cayman Islands Government passed the much-anticipated National Conservation Law in December 2013. This presentation summarises how the new law impacts the conservation of species and habitats in the Islands, with emphasis on the role of species Conservation Plans and the protected areas and environmental assessment provisions of the law. Additionally, lessons learned are shared and some key strategies used in the process followed to get the law passed, including public consultation and engagement of NGOs and government agencies, are highlighted. Steps involved in the continuing implementation of the law, including the appointment and operation of the National Conservation Council, are also discussed.

Gina Ebanks-Petrie, Cayman Islands Department of Environment. www.doe.ky

Central Mangrove Wetlands

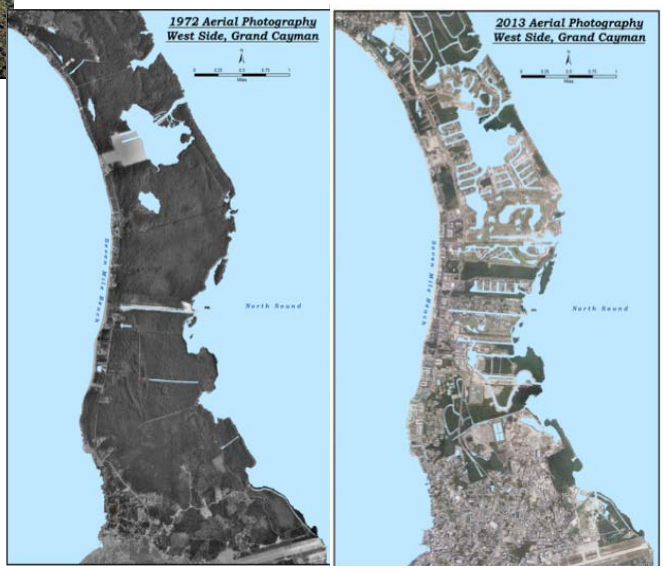
Until December 2013, the legal framework for conservation of habitats and species in the Cayman Islands was based on the Marine Conservation Law (passed in 1978) and the Animals Law (passed in 1976).

The new National Conservation Law, passed in December 2013, has a commencement clause and it requires each section to be commenced. I will discuss later which sections have been commenced to date.

Since that time, the Cayman Islands resident population has almost tripled, and the number of people visiting our islands has more than quadrupled. These laws were simply not adequate and did not provide the means to address current development pressures and issues (see below).

Why did we need a new law?

- Aspirations contained in the Constitution and commitments contained in the BoR;
- Current legal framework for conservation is outdated and inadequate:



The transformation from mainly natural to mainly unnatural environments, West Side, Cayman, 1972-2013


– No legal protection for any native or endemic plants;

– No legal protection for most of our endemic animal species (only birds and iguanas)

– No legal framework for EIA and no means of "operationalising" concepts of sustainable development

– Many loopholes in existing laws

– No enforcement powers conferred on CO's

- MEA Commitments

– A country that manages growth and maintains prosperity, while protecting its social and natural environment.

– A country that respects, protects and defends its environment and natural resources as the basis of its existence.

Protection of the environment

18.—(1) Government shall, in all its decisions, have due regard to the need to foster and protect an environment that is not harmful to the health or well-being of present and future generations, while promoting justifiable economic and social development.

(2) To this end government should adopt reasonable legislative and other measures to protect the heritage and wildlife and the land and sea biodiversity of the Cayman Islands that—

(a) limit pollution and ecological degradation;

(b) promote conservation and biodiversity; and

(c) secure ecologically sustainable development and use of natural resources.

Main Provisions

- Marine and terrestrial protected areas designation;
- Protected species schedule;
- National Conservation Council;
- Obligation on all entities to consult on environmental issues before approving plans or projects (includes mechanism for EIA);
- Recognition of Conservation Officers and provision of powers;
- Set out duties and functions of the NCC and DoE;
- Mechanism for management of the Environmental Protection Fund (EPF).


What are the Protected Areas provisions in the NCL?

- Only Crown land may be designated as a Protected Area or buffer zone (Section 6) so private land recommended to be designated as either will need to be acquired at fair market value;
- Council recommends establishment of protected areas based on prescribed criteria (Section 7);
- Extensive public consultation prior to designation prescribed in law (Section 8);
- Law requires Cabinet Approval to establish protected areas (Sect 6);
- Law provides for Cabinet to make Regulations governing the establishment of protected areas (Section 44 a & l).

Private land owners can enter into agreements with Government to establish Conservation Areas

There was concern expressed that privately owned land would be taken away for the creation of protected areas. While this was never the intent of the legislation, the law was redrafted to make it abundantly clear that only Crown land may be designated as a protected area. Privately owned land in areas recommended for protection first has to be acquired under a negotiated purchase process at fair market value (*N.B.* always the intention and the driving force for establishment of EPF). There are no compulsory purchase provisions in the law.

Species Protection

Protected Species Schedule and Species Conservation Plans

The Red List of the Flora of the Cayman Islands 2006 – an assessment of the conservation status of plants and trees following IUCN international guidelines – ranks 46% of the Cayman Islands' native flora as threatened with local extinction. There is currently NO legal means of protecting any of the plant species that occur in Cayman.

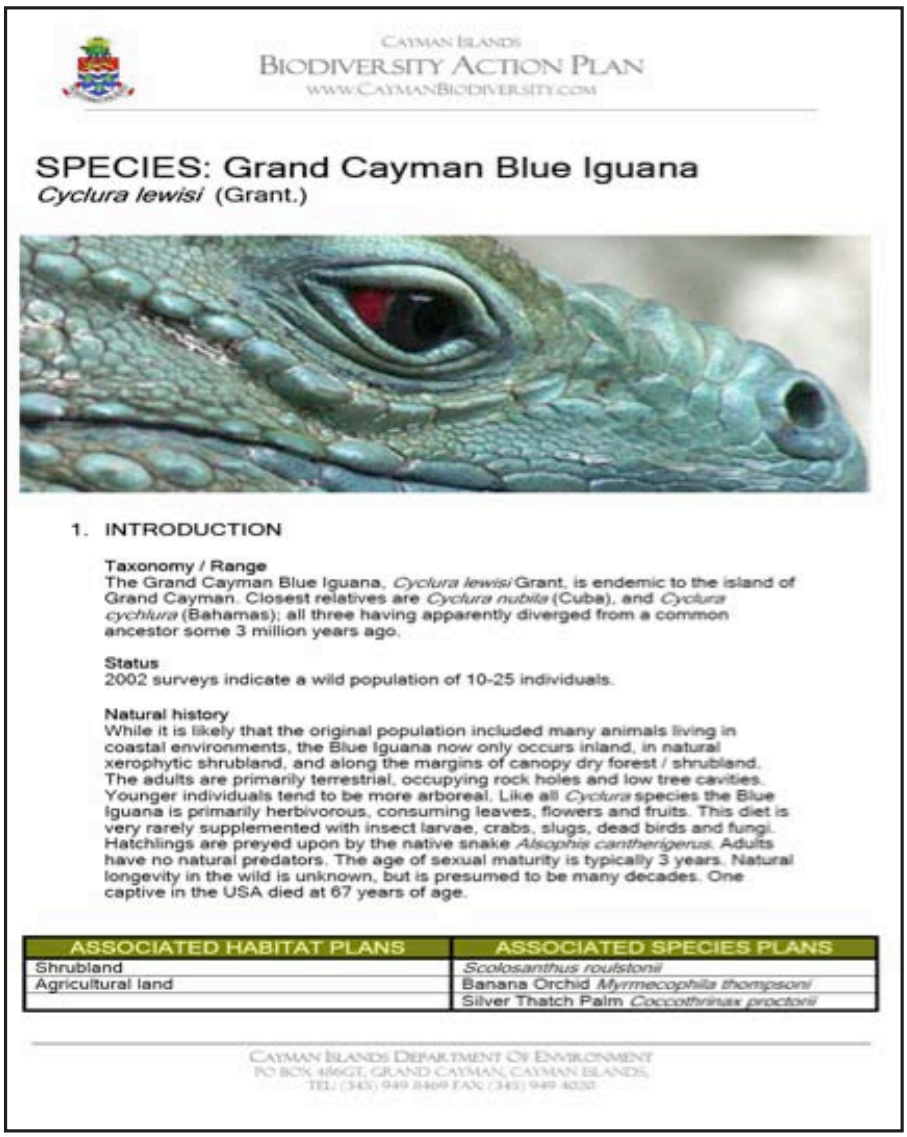
Despite there being numerous endemic species and sub-species of animals, only iguanas (and this includes the invasive green iguana because of legislation is so old that it makes no reference to which species of iguana is protected) and non-domestic birds have any protection locally.

Species listed on the Schedule are either:

- endangered under IUCN Red List criteria;

- endemic to the Islands (i.e. found only in the Cayman Islands);
- or already subject to protection obligations under environmental treaties to which Cayman is a party.

Part 1 listed species are those species which either already have full protection under existing Cayman Islands legislation (Animals Law or Marine Conservation Law) or have been assessed regionally or locally as being in need of full protection to ensure their continued survival. Part 2 listed species are those that may be hunted or collected except where regulations or a conservation plan (CP) would otherwise dictate. The whole point of Part 2 is to prevent animals from becoming Part 1-listed through employing conservation management tools.



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SPECIES: Grand Cayman Blue Iguana
Cyclura lewisi (Grant.)

1. INTRODUCTION

Taxonomy / Range
The Grand Cayman Blue Iguana, *Cyclura lewisi* Grant, is endemic to the island of Grand Cayman. Closest relatives are *Cyclura nubila* (Cuba), and *Cyclura cychlura* (Bahamas); all three having apparently diverged from a common ancestor some 3 million years ago.

Status
2002 surveys indicate a wild population of 10-25 individuals.

Natural history
While it is likely that the original population included many animals living in coastal environments, the Blue Iguana now only occurs inland, in natural xerophytic shrubland, and along the margins of canopy dry forest / shrubland. The adults are primarily terrestrial, occupying rock holes and low tree cavities. Younger individuals tend to be more arboreal. Like all *Cyclura* species the Blue Iguana is primarily herbivorous, consuming leaves, flowers and fruits. This diet is very rarely supplemented with insect larvae, crabs, slugs, dead birds and fungi. Hatchlings are preyed upon by the native snake *Alsophis cantherigerus*. Adults have no natural predators. The age of sexual maturity is typically 3 years. Natural longevity in the wild is unknown, but is presumed to be many decades. One captive in the USA died at 67 years of age.

ASSOCIATED HABITAT PLANS	ASSOCIATED SPECIES PLANS
Shrubland	*Scolosanthus roulstonii*
Agricultural land	Banana Orchid *Myrmecophila thompsonii*
	Silver Thatch Palm *Coccothrinax proctorii*

CAYMAN ISLANDS DEPARTMENT OF ENVIRONMENT
PO BOX 486GT, GRAND CAYMAN, CAYMAN ISLANDS.
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Species endemic to Cayman, by virtue of the small size of their populations and restricted range, are vulnerable to extinction by events such as major hurricanes or a disease epidemic. Actions specified under CPs for flora may include Millennium Seed Bank Project at Wakehurst Place (RBG Kew); the Blue Iguana Recovery Plan involves sending animals representative of the genetic diversity of the population to overseas zoos and institutions under breeding loan agreements.

Species can be recommended for inclusion and deletion by any person or agency who must provide the necessary information.

Law requires Council to develop and implement Conservation Plans for listed species; Public consultation and Cabinet approval required prior to adoption of plan.

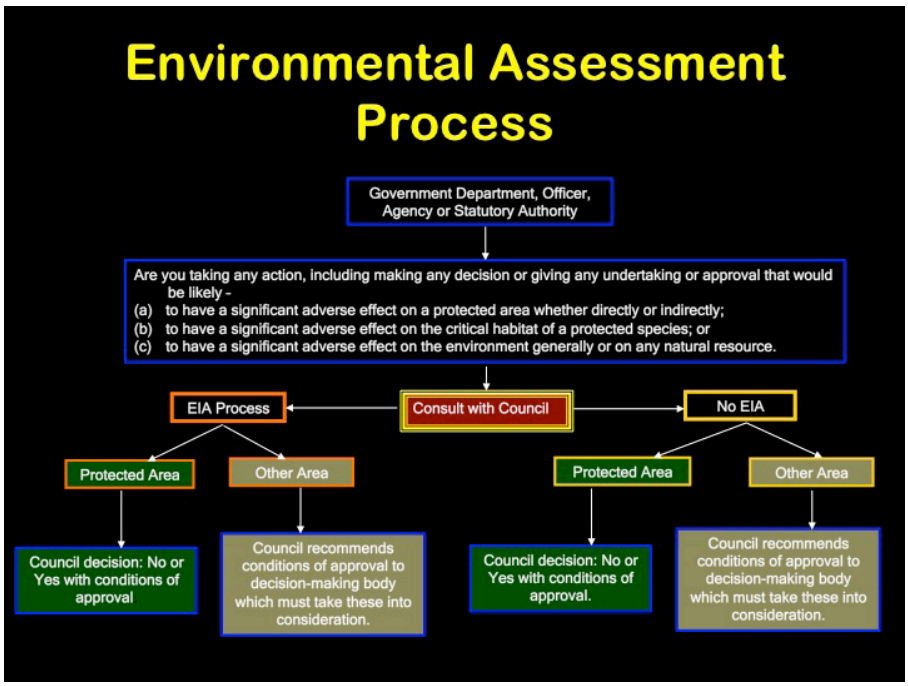
CPs will be species-specific – for example we already have a plan for the blue iguana that was developed collaboratively by DOE, NT, DoA, IUCN Iguana Specialist Group and Durrell. Reviewed every 5 years. Some CPs may at this stage be only about ensuring best practice; others may establish limits to take and closed seasons.

A new Amemdment requires public consultation process prior to Council adopting plans, and all plans will have to be submitted to Cabinet for approval prior to them being adopted.

Proposed activities may take place in accordance with the CP. For example, for silver thatch, it is permitted to retain a certain percentage of individuals present on property. Law provides for Council to exempt individuals from provisions of law through issuing permits. So a permit will be required only if someone wanted to exceed what was specified under the CP.

Environmental Assessment Process

Obligation to consult has been placed on government agencies (not individuals) to minimise impact of legislation on individuals. Environmental issues have been deprioritised for so long that



National Conservation Law's National Conservation Council

Made up of 13 members:

- Chair – appointed by Cabinet
- Director – DoE
- Deputy Director – Research
- Director of Agriculture
- Director of Planning
- National Trust Representative
- 7 persons appointed by Cabinet (district representation and technical/ scientific expertise).

this obligation has led to a surprising amount of "drama" from agencies such as DoP and DoA. This includes: projects requiring planning permission, projects requiring coastal works permission, project authorised by any other law, policies, plans, proposals.

Law requires consultation (EA) process to take place in accordance with Regulations passed by Cabinet. The process adopted is one agreed by public/private sector committee during the 2002 Development Plan review, which was updated to reflect involvement of Council and ensure compatibility with NCL .

A detailed process flowchart has been developed (below right) which will take the form of Regulations made by Cabinet. This includes detailed steps for the selection of consultants for comprehensive EIAs hired by the proponent but approved by an Environmental Assessment Board (EAB) appointed by the National Conservation Council. The proponent shall incur the costs associated with an EIA.

The EAB, together with the proponent and consultant, determine the scope of the EIA. The scope shall include the "No Project" option and address the country's need for the proposed development, where applicable.

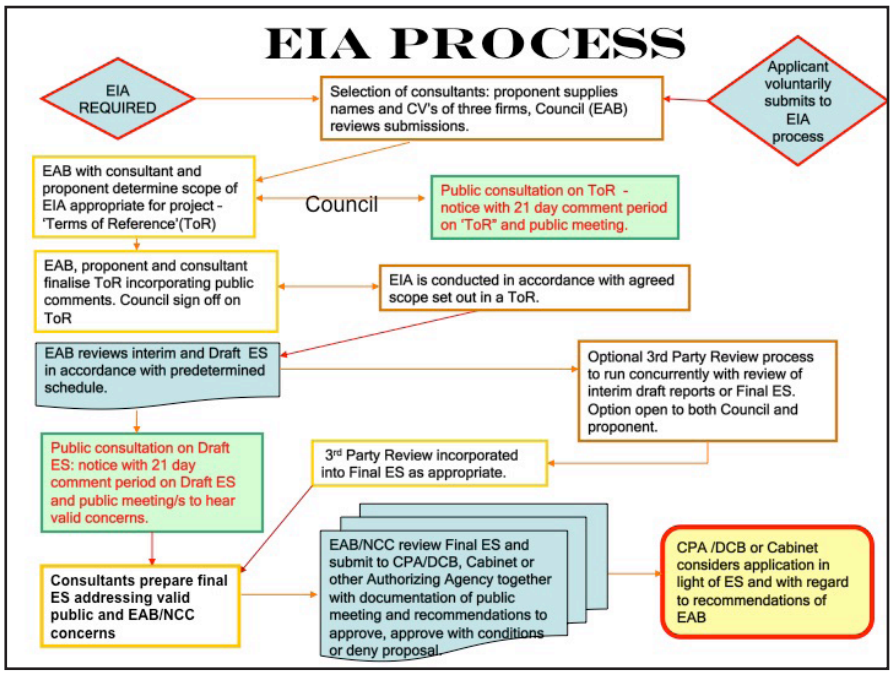
Council's autonomy

Section 49 provides for Cabinet to give written Directives to the Council from time to time: the Governor in Cabinet [*i.e.* the Government] may from time to time give to the Council in writing such general directions as appear to the Governor in Cabinet to be necessary in the public interest and the Council shall act in accordance with such directions.

Council's Functions

include:

- Managing and making recommendations on use of EPF;



- Promoting the biological diversity and the conservation and sustainable use of the natural resources of the islands;
- Recommending and maintaining protected areas and Conservation Areas;
- Conserving, maintaining and restoring populations and critical habitat of protected species;
- Providing guidance to all entities for the integration of environmental concerns in their decision-making processes.

Current Status and Priorities

Commenced:

- Parts 1&2 – Administration
- Part 3 – Protected Areas
- Part 4 – Protected Species & Schedules
- Part 6 – Penalties & Enforcement.

To be commenced by end of year:

- Parts 5 – Permits & Licences, and
- Part 7 – General (obligation to consult, EIA and EPF)

The old conservation framework provided for a fair amount of protection of marine resources, including the creation of Marine Parks. In fact the Cayman Islands were one of the first Caribbean countries to establish marine parks in 1986. Since then, additional species protection measures have been put in place (upper map right). However, as mentioned before, the Animals Law provided only minimal protection for landbased resources.

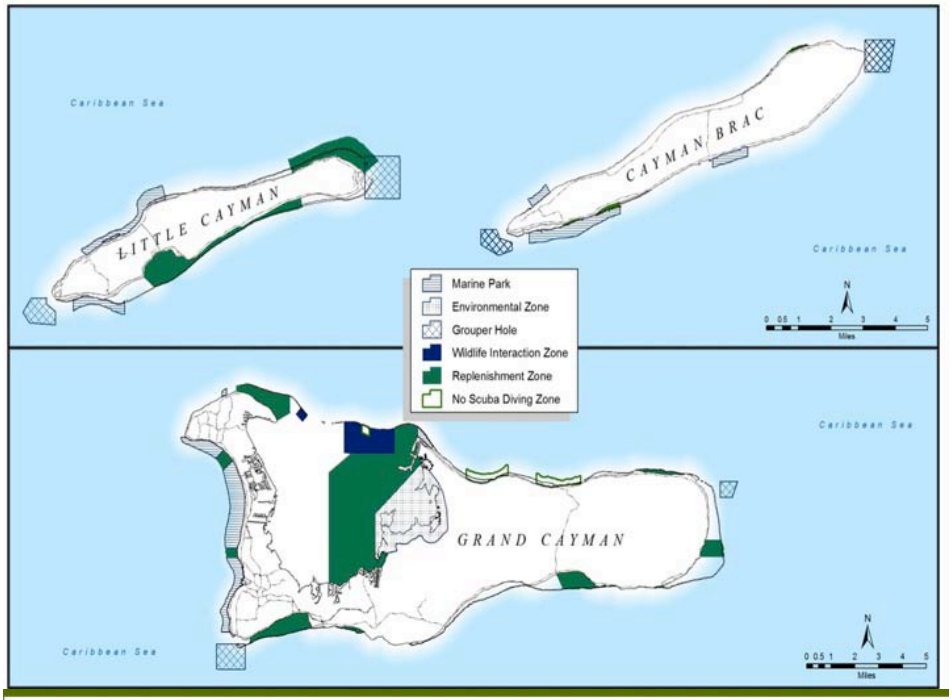
The lower map shows the final draft proposals which incorporate feedback and discussion acquired during public consultation.

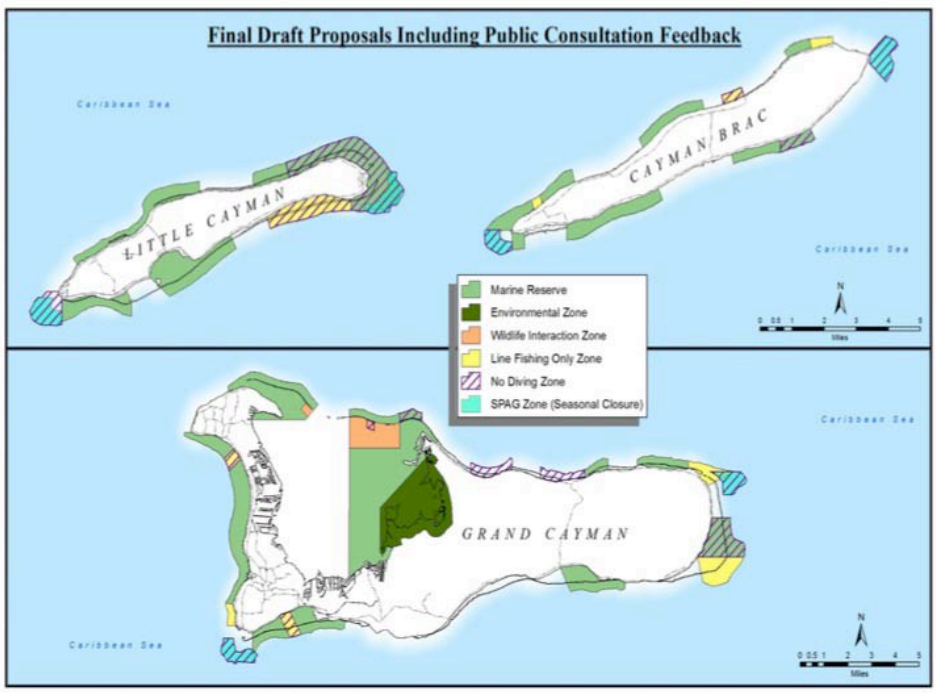
(We are in on-going discussions with East End, and Cayman Brac, facilitating optimal Marine Park designation for each community, which we hope to finalise shortly).

Consultations

On the next page is a snap shot of what the consultation looked like.

We spoke with all districts on all Islands, the Marine Conservation Board, DOE staff, various interested individuals, the Land and Sea Coop and the Angling Club, the CITA Board, the Ministers





Association, and the Cayman Islands Seafarers Association.

Aims:

1. To acquire feedback on all three Islands on carefully designed proposals for an enhanced system of Marine Parks for the Cayman Islands;
2. Carefully consider feedback to inform amendments to the proposals, such that an optimum design is submitted to Cabinet herein, based on both sound scientific research and public opinion.

- Meetings held: 29 public- and focus group meetings (all Islands).
- Permanent consultation display at DOE offices
- Staffed open exhibition displays in each district throughout the day prior to evening presentation by DOE Director
- Regular press activity: 10 CITN items, 19 press items, and 4 radio call-ins
- Much discussion: All feedback documented in detail and reviewed individually.

Consultation received extensive feedback on possible enhancements of Marine Parks in order to preserve the marine environment for continued fishing and tourism use

Of the 29 public and focus-group meetings and 588 written responses received, 203 written responses contained specific comments which were individually closely reviewed, and changes made where possible.

Further discussions regarding the specifics of marine park designation with DOE were facilitated (photos top of next column) for the districts of East End (Mr Arden Mclean, MLA, and Ms Delmira Bodden, Community Officer), North Side (Mr

Ezzard Miller, MLA) and Cayman Brac (Mr Moses Kirkconnell, MLA). These were initiated by the communities and supported by the Department of Environment.

Current Protected Areas Planning

Exercise facilitated by The Nature Conservancy and involving NT and DoE: using habitat maps (setting goals for protection of various habitat types) and locking in current land protected for conservation purposes (CIG and NT) – see maps on next page. Developing a risk layer (development pressure, gazetted roads etc).

What's next?

- Implementation of Consultation requirement;
- EIA Regulations;
- Licencing directives and guidelines;
- Processes for accessing and monitoring the use of the EPF

GOAL: Full commencement of NCL by December 2015.

Consultation requirement – guidance notes to help entities comply with the law were drafted by the DoE and have been approved by the Council;

EIA Regulations are currently with legal drafting;

DoE is working with NCC on licencing directives and guidelines;

Processes for accessing and monitoring the use of the EPF.

Lessons learned

Don't wait until the political climate is right or ideal – you have to have the information on species and habitats and you have to have thought through and even trialed processes

Make everything count – keep the big picture in mind (*e.g.* when someone asks you to chair a committee)

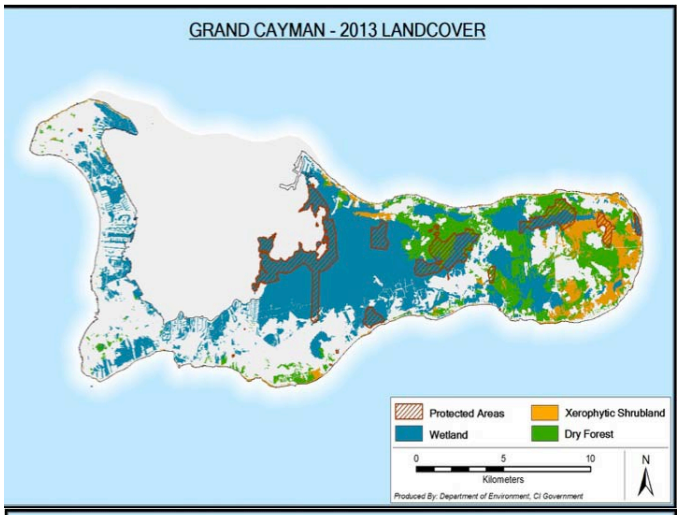
Working with a 13-member council is not easy but it could well be worth it.

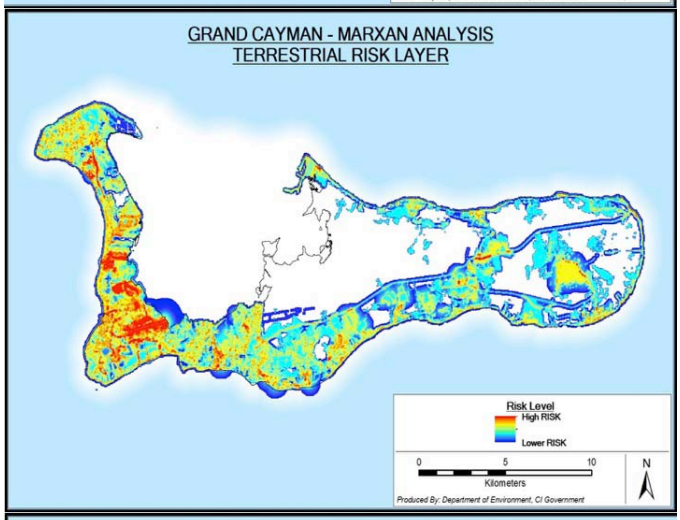
Public consultation is hard work but necessary – particularly in small communities like ours.

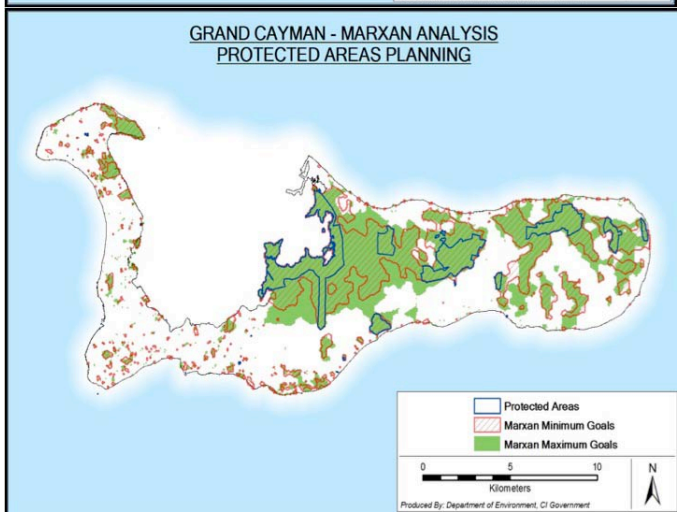
Consistency and integrity are essential and pay off in the long run – do not be tempted to capitulate if you know it's wrong or not in the best interest of the country in the long term.

A copy of the Cayman Islands National Conservation Law can be found at : www.doe.ky/laws/national-conservation-law/

"*Unless someone like you, cares a whole awful lot. Nothing is going to get better, it's simply not.*" — The Lorax, Dr Seuss, 1971







Attempts to achieve Management of Protected Areas to Support Sustainable Economies - and discovering the realities of managing an EU-funded project in a small Caribbean territory

Nancy Pascoe[1], Lynda Varlack[1], Joseph Smith Abbott[1], Bernicia Herbert[1], Ronald Massicott[1], Ethlyn Gibbs-Williams[2], Christina McTaggart Pineda[3], Mike Pienkowski[4], Ann Pienkowski[4] ([1]National Parks Trust of the Virgin Islands, [2]Turks & Caicos National Trust, [3]Cayman Islands National Trust, [4]UK Overseas Territories Conservation Forum)

Pascoe, N.W.. , Varlack, L.. Smith Abbott, J., Herbert, B., Massicott, R., Gibbs-Williams, E., Pineda, C.M., Pienkowski, M. & Pienkowski, A. 2015. Attempts to achieve Management of Protected Areas to Support Sustainable Economies - and discovering the realities of managing an EU funded project in a small Caribbean territory. pp 160-162 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

The National Parks Trust of the Virgin Islands (NPTVI) partnered with the Turks & Caicos Islands National Trust, the National Trust for the Cayman Islands and the UK Overseas Territories Conservation Forum (UKOTCF) on an EU-funded project entitled 'Management of Protected Areas to Support Sustainable Economies' (MPASSE). This project included consultancy services, capital infrastructure and purchase of equipment, but the Trusts all struggled with the strict contract rules set by the EU, which are in stark contrast to the familiar terms of the UK funding sources, such as the Darwin Initiative and OTEP. The project activities originally envisaged changed many times over the project period and, in the case of NPTVI, at least half of the project activities were unable to be achieved, as the small scale of the Virgin Islands in terms of expertise and suppliers could not fulfil the EU's rigorous tender rules. NPTVI and its project partners have learnt from this experience and wish to share advice for other UK Overseas Territories who share the same small scale economies so that expectations can be more realistic.
(Supported by a poster of the same title)

Nancy Pascoe[1], Lynda Varlack[1], Joseph Smith Abbott[1], Bernicia Herbert[1], Ronald Massicott[1], Ethlyn Gibbs-Williams[2], Christina McTaggart Pineda[3], Mike Pienkowski[4], Ann Pienkowski[4] ([1]National Parks Trust of the Virgin Islands, [2]Turks & Caicos National Trust, [3]Cayman Islands National Trust, [4]UK Overseas Territories Conservation Forum)
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Flagship species for the tropical dry forest ecosystem, which was central to the project, Grand Cayman blue iguana

The National Parks Trust of the Virgin Islands (NPTVI) partnered with the Turks and Caicos National Trust (TCINT), Cayman Islands National Trust (CINT) and the UK Overseas Territories Conservation Forum (UKOTCF) on a European Union (EU) funded project entitled *Management of Protected Areas to Support Sustainable Economies* (MPASSE) from the 9th European Development Fund (EDF).

The expected results of the project's implementation fell under five broad areas including improved ecotourism facilities, improved awareness amongst citizenry, improved conservation measures, implementation of conservation management plans and improved institutional capacity.

This project included consultancy services, capital infrastructure and purchase of equipment, but the Trusts all struggled with the strict contract rules set by the EU, which are in stark contrast to the familiar terms of the UK funding sources, such as the Overseas Territories Environment Programme (OTEP) and the Darwin Initiative /Darwin Plus funds. The project activities originally envisaged changed many times over the project period and, in the case of NPTVI, at least half of the project activities were unable to be achieved, as the small scale of the Virgin Islands in terms of expertise and suppliers could not fulfil the EU's rigorous tender rules. NPTVI and its project partners have learnt from this experience and wish to share advice for other UK Overseas Territories who share the same small scale economies, so that expectations can be more realistic.

The initial project application, known as the 'Identification Fiche for Project Approach' was submitted in 2003. The UKOTCF took the lead on drafting the application and coordinating the list of activities to be included, based upon the five broad areas identified with a total EU amount of €2,475,000.00. The total BVI component amounted to €909,200.00 with €560,000.00 funded by the EU and the remainder by the BVI, either in-kind or through local funding. The length of time it took from the initial project application in 2003 to the BVI contract signing in 2010 meant that the activities and their associated budgets were very out of date by the time implementation started. This led to six budget re-allocations by the time the project ended in 2014, with nearly all of the funds being focused on the completion of the visitor centres as the construction costs were significantly more than had been originally anticipated due to inflation in this sector of the economy over the period since project inception.

Early on in the initial review of the project application by the EU, they required that a Technical Assistant be contracted to manage reporting to the EU, in addition to explaining the EU contract rules to the Territory partners,

Historic Copper Mine (above) and new visitor centre supported by the MPASSE project (below)

The Baths National Park, BVI, (above) and the patrol boat acquired via the project (below)

Visitor centre built via the MPASSE project at Sage Mountain National Park, BVI

assisting with executing tenders and negotiations. The consultant was based in the Turks and Caicos Islands (TCI) but travelled within the three Territories over the project period.

The assumptions and risks section of the original application form to the EU contained a brief straight-forward listing that would be applicable to any project receiving international funding, including such things as risk of hurricanes, readiness of organisations other than the main partners to be involved, cooperation of the Territory Governments and other such things. The reality was that none of the three participating Territories could have envisioned that the assumption was that the contract rules would be like any other UK-funded project proved so wrong, and that the risks should include trying to apply the EU's disproportionate contract rules in a small Caribbean Territory.

BVI Project List of Activities

NPTVI started out with an initial list of 25 actions under the project. Fifteen were capital infrastructure, two environmental education and public awareness related materials, two conservation measures (one of which was purchase of a patrol boat), one management planning action, five training or meeting related actions. From this activity list, eight activities were achieved and an additional four were added over the life of the project as the original list was updated and changed.

BVI Achievements through MPASSE at National Parks (NP) and Proposed Protected Areas

- Patrol vessel for Virgin Gorda parks
- Two vending units at the Baths NP
- Restrooms at Sage Mountain NP
- Visitor centre at Sage Mountain NP
- Visitor centre at the Copper Mine NP
- Visitor centre at the Anegada Rock Iguana Headstart Facility
- Updated Species Recovery Plan for the Anegada Rock Iguana, Cyclura pinguis
- Knowledge, Attitudes & Practices (KAP) Study

This was the first EU project that NPTVI had managed and it was a major learning experience, as it was very different to the management of UK funds, of which NPTVI has extensive experience. The contract rules were very stringent and the administrative processes to be followed to ensure the contract rules were followed were very specific and required an in-depth knowledge of EU terminology and procedures, something which NPTVI did not have. The Technical Advisor that was contracted by the EU early on in the project to assist the three Territories was invaluable as it would not have been possible to navigate the contract rules without his guidance.

Recommendations when considering applying for EU funding as a small UKOT

- Limit number of activities and be realistic (add in Caribbean time)
- Limit number of tenders, group tenders and show the budget limit
- Dedicate one or more staff to the project's management; it is all consuming
- Partner with a UK organisation and have them be the lead partner where possible. (This was intended with this project, but the European Commission changed the structure.)
- Start activities as soon as possible as the EU contract rules are very specific and the tender procedure can be very difficult to achieve successfully in small economies where there are small numbers of qualified bidders.

Plans for Colliers Reserve interpretation centre, Grand Cayman, initiated under MPASSE

Ecosystem effects of eradicating invasive species

Jennifer Lee (Government of South Georgia & the South Sandwich Islands)

Lee, J. 2015. Ecosystem effects of eradicating invasive species. pp 163-165 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

Invasive alien species pose a significant threat to biodiversity. Their eradication is a key element of many environmental management plans. However, those who are tasked with implementing these plans face difficult decisions in prioritising which species to invest resources into eradicating and over what time-frame each project should be tackled. Often the inter-relations between introduced and native species are complex, and so a holistic, ecosystem based approach is required.

In the last five years, several major initiatives have been undertaken with the aim of restoring South Georgia's habitats. This provides a useful exemplar to examine the complex ecosystem effects and interactions of large eradication projects.

The Government of South Georgia & the South Sandwich Islands reindeer eradication programme saw the removal of almost 7,000 reindeer from nearly 40,000 ha of the ice-free ground on South Georgia. In the presence of reindeer, large areas of coastal vegetation became almost entirely denuded causing a shift in plant community composition and a reduction in soil stability.

In the absence of grazing pressure, both native and non-native plant species are able to grow, flower and set seed unhindered. However, because of their life history traits, in some areas, it is the invasive species that are responding more rapidly. The Darwin-funded weed management project, was designed to dove-tail with the reindeer eradication and utilise this narrow window of opportunity to assess the distribution of non-native plant species whilst they are at their most visible and then instigate a control programme to reduce target populations to zero density before they spread.

Dr Jennifer Lee, Environment Officer, Government of South Georgia and South Sandwich Islands env@gov.gs

South Georgia is a wildlife haven and is home to about five million seals of four different species, and 65 million breeding birds of 30 different species. However, past human activities have had profound impacts on the flora and fauna. Sealing began in the late 1700s and, by the early 1800s, fur seal populations were severely depleted. Then, between 1904 and the 1960s, a shore-based whaling industry hunted and killed tens of thousands of whales, bringing some species to the brink of extinction. As well as having profound impacts on target populations, these operations resulted in the introduction of a range of non-native species. One of the most destructive was rats that were inadvertently introduced by sealing parties along the entire north coastline. Then, in the early 1900s, reindeer were introduced by a Norwegian whaling station manager, Carl Larson. The animals were introduced to two peninsulas, the Barff and Busen, for recreational hunting and as a reminder of home and, in the absence of disease or natural predators, were able to thrive and multiply rapidly (Figure 1).

South Georgia is also home to a range of non-native plant species. Some species, such as annual meddow grass *Poa annua*, were likely introduced during the early sealing and whaling era and are now wide spread. Others, like bittercress *Cardamine glacialis*, are thought to be more recent

introductions and still have a relatively restricted distribution

These invasive alien species pose a significant threat to South Georgia's biodiversity, and their eradication is a key element of the island's environmental management plan and a commitment under the Government of South Georgia and the South Sandwich Islands (GSGSSI) Environmental Charter. However, because inter-relations between introduced and native species are complex, a holistic, ecosystem-based approach was required when deciding what order to conduct eradication programmes and in determining what monitoring and follow-up work would be required. In the last five years, several major initiatives have been undertaken with the aim of restoring South Georgia's habitats, and these provide a useful exemplar to examine the complex ecosystem effects and interactions of large eradication projects.

The GSGSSI reindeer eradication programme was conducted in collaboration with the Norwegian Nature Inspectorate (SNO). It involved the removal of almost 7,000 reindeer from nearly 40,000 ha of the ice-free ground on South Georgia. In the presence of reindeer, large areas of coastal vegetation became almost entirely denuded causing a shift in plant community composition and a reduction in soil stability. After reindeer had been removed, both native and non-native plant species were released from grazing pressure and were able to grow, flower and set seed unhindered.

Two monitoring programmes were established to track changes in vegetation. The first aimed to quantify fine-scale changes in community composition and involved establishing thirty-six 10 x 10 m plots across three peninsulas: the Busen and Barff Peninsulas, which had reindeer, and the Thatcher Peninsula, which did not and acts as a control. The plots are sited across the four main vegetation types: tussac, wet grassland, dry grassland and scree. At each monitoring site, five 1 x 1 m quadrats are randomly selected and the overall species composition and coverage, vegetation height and the presence of flowers or seed heads recorded (Figure 2). The monitoring has been carried out twice, once before the reindeer eradication and once after. It will be some time before the full effects of the reindeer eradication are seen but early indications are that vegetation is getting taller and that more species are growing to maturity and developing flower-heads.

The second project aimed to monitor vegetation change on a landscape scale. In collaboration with the British Antarctic Survey, GSGSSI has embarked on a remote sensing project. High-resolution multi-spectral satellite images from Digital Globe have been acquired from before the reindeer eradication (Figure 3). Data from satellite images will be paired with field spectral data gathered using an ASD field spectrometer provided by the NERC Field Spectroscopy Facility, and vegetation communities differentiated. These maps will provide a baseline against which future change can be measured. In addition to contributing to post-eradication habitat recovery monitoring, the data may also be used in the future to assess changes in vegetation cover in relation to climate change and glacial retreat over a longer timescale. When analysed in conjunction with data on bird and invertebrate populations, these data may also provide a powerful tool in assessing impacts of climate and other changes in ecosystem function.

Invasive plants may also benefit from the removal of reindeer and, because of their life history traits, may respond more quickly than some of the slower growing native species. In recognition of this, GSGSSI worked with the Royal Botanic Gardens Kew to develop a successful funding application

Figure 1. Invasive reindeer on South Georgia

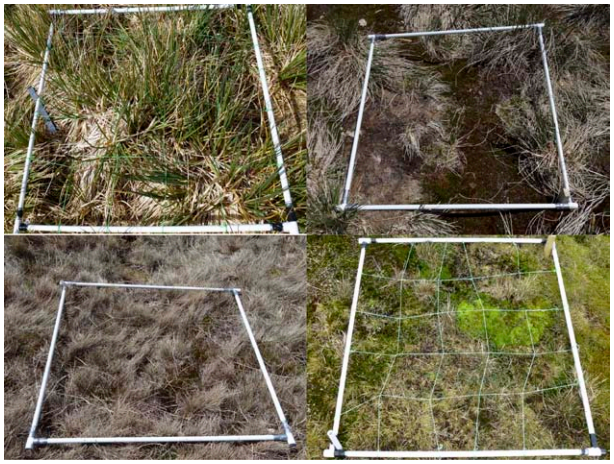


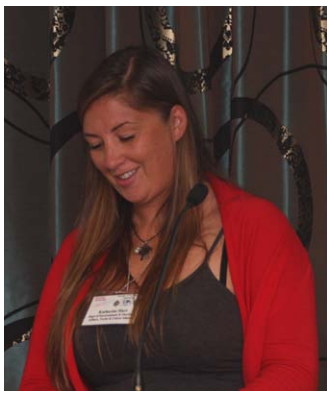
Figure 2. Examples of quadrats used at the vegetation monitoring sites

Figure 3. Example of a satellite image of South Georgia

to DEFRA's Darwin Initiative. This project was designed to dove-tail with the reindeer eradication and utilise this narrow window of opportunity to assess the distribution of non-native plant species whilst they are at their most visible, and then instigate a control programme to reduce target populations to zero density before they spread. In the first year of the project, over 6,000 ha have been surveyed and distributions of the majority of the non-native plant species present on the island have been assessed. This information is now being collated in the South Georgia weed management database and will be used to inform a weed management strategy.

Establishing Stakeholders as Conservation Stewards

Amy Avenant, Katharine Hart, (Department of Environment & Maritime Affairs) and Kathleen Wood (SWA Ltd, Turks & Caicos Islands; UKOTCF)



Katharine Hart

Kathleen Wood

Avenant, A., Hart, K. & Wood. K. 2015. Establishing Stakeholders as Conservation Stewards. pp 166-169 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

Natural resources are utilised in some capacity by all public and private interests within a community. In the Turks and Caicos Islands (TCI), stakeholders in the tourism industry rely almost entirely on natural resources for their livelihoods; however, historically, the onus of stewardship has fallen upon government. While private stakeholders absorb the benefits of well-managed natural resources, the public sector almost exclusively bears the cost. In TCI, as with most small island developing states, the government (under the Department of Environment and Maritime Affairs, DEMA) has limited human and capital resources at its disposal, making it difficult to meet most of the stewardship needs of the natural environment. Due to these constraints, DEMA developed the Community Conservation Partner Programme (CCPP) in order to instil an ethic of shared responsibility for the resources of TCI. CCPP aims to allow DEMA to pass the responsibility of 'custodian' onto the greater community, while maintaining the role of government as the monitoring agent to which custodians are accountable.

In its preliminary stages CCPP is assisting various spheres of the community in identifying resources that they make use of on a regular basis. The CCPP is also educating stakeholders on the needs of the resources they utilise and the responsibilities they can adopt in order to sustainably work together in keeping TCI *beautiful by nature* (the country's motto). Resource users, including commercial dive-operators, hotels, schools, NGOs and others, are being encouraged to work with DEMA to maintain, improve and eventually become accountable for the natural resources upon which their livelihoods depend. The programme aims also to reinforce national development strategies, cognisant that TCI's main industry, tourism, is entirely dependent upon the maintenance of an ecological baseline of high integrity.

CCPP fulfils conservation management objectives by instilling an ethic of shared responsibility and stewardship for the environment in the various commercial and public spheres of the community and by developing relationships between DEMA and the greater public, which allow for information sharing and public and government partnering in order to promote sustainable development in TCI. Without such collaboration, it is doubtful that DEMA would be able to achieve targeted management goals, such as coral reef monitoring, water-quality testing, solid-waste management and public awareness.

Preliminary results of the programme are encouraging. Dive operators on Providenciales and Grand Turk have been trained in Reef Check monitoring and lionfish control and are actively undertaking those responsibilities. Other partners are conducting regular solid-waste clean-ups. Additional funding is now being sought to implement fully the programme to address all of TCI's conservation management needs.
[*This presentation also links terrestrial & marine sessions.*]

Community Conservation Partnership Program
Turks and Caicos Islands

Amy Avenant, Katharine Hart, (Department of Environment & Maritime Affairs) and Kathleen Wood (SWA Ltd, Turks & Caicos Islands; UKOTCF)
Correspondence: Kathleen Wood, Director of Environment, SWA Ltd, Turks & Caicos Islands; kw@swa.tc

Introduction

The Turks and Caicos Islands (TCI) are a United Kingdom Overseas Territory (UKOT), located at the southeastern extreme of the Lucayan Archipelago (including the Bahamas and Turks and Caicos Islands), approximately 575 miles southeast of Miami, Florida. In this small island nation, more than nine-tenths of its territory is located underwater, and fisheries have been the primary means of livelihood for most of the Islands' human history (Sadler 1986). In recent decades, the country has experienced exponential developmental growth, primarily in tourism and related industries. In the short, 11-year, period between 2001 and 2012, the population of the country expanded from 20,014 to 31,618, a total of 58.2 percent (TCIG 2012). Unfortunately, funding for conservation has not increased proportionately, leaving government agencies with little revenue for necessary stewardship activities.

Natural resources are utilised in some capacity by all public and private interests within a community. In TCI, stakeholders in the tourism industry rely almost entirely on natural resources for their livelihoods; however, historically the onus of stewardship has fallen upon government. While private stakeholders absorb the benefits of well-managed natural resources, the public sector almost exclusively bears the cost. In TCI, as with most small-island developing states, the government (under the Department of Environment and Maritime Affairs, DEMA) has limited human and capital resources at its disposal, making it difficult to meet most of the stewardship needs of the natural environment. Due to these constraints, DEMA developed the Community Conservation Partner Programme (CCPP) in order to instil an ethic of shared responsibility for the resources of TCI. CCPP aims to allow DEMA to pass the responsibility of 'custodian' on to the greater community, while maintaining the role of government as the monitoring agent to which custodians are accountable.

What is the CCPP?

The CCPP was established with a dual purpose (1) to lessen the burden on DEMA, resulting from resource constraints required for proper and effective conservation and enforcement, and (2) to promote and develop a sense of environmental stewardship among the community at-large. Individuals, groups, private companies and other organisations agree to a Memorandum of Understanding (MoU) with the Department, where each party's responsibilities are outlined and committed to.

The CCPP fulfils the following objectives:

1. It instils an ethic of shared responsibility and stewardship for the environment in the various commercial and public spheres of the community.
2. It develops relationships between DEMA and the greater public, which allows for information sharing, and public and government partnering, in order to promote sustainable development in the TCI.
3. It supports targeted management goals, which would otherwise not be implemented due to a lack of resources, such as coral reef monitoring, water-quality testing, garbage clean-up and public awareness.

In its first year, the CCPP has assisted various spheres of the community in identifying the resources that they make use of on a regular basis and emphasising the need for stewardship of these resources. Stakeholders are being educated on the importance of the resources they utilise, and the roles and the responsibilities that they, as a

community, have and can adopt in order to work together in keeping the TCI *'beautiful by nature'* – the motto of the TCI. Resource users, including commercial dive-operators, hotels, schools and others, are being encouraged to work together with DEMA to maintain, improve and eventually become accountable for the natural resources that they so frequently access and utilise, and upon which their livelihoods depend.

The programme reinforces national development strategies and tourism products that are entirely dependent upon the maintenance of an ecological baseline of high integrity and acts as an 'umbrella' under which various, current projects may be incorporated. For example, the Native Plant Rescue initiative currently in the TCI educates school children about the importance of protecting native plants, and trains them to assist with plant rescue initiatives. CCPP provides DEMA with the ability to exercise more efficient and effective monitoring of the various initiatives in the country, as well as providing ease of management for the various current and future initiatives, aimed at resource conservation. Accountability on both sides of the partnership is another positive outcome: both DEMA and the conservation partner are obligated to fulfil the commitments outlined in the partnership agreement.

What has been achieved to date?

On Providenciales, a total of 20 partners have signed a MoU to become Community Conservation Partners, with an increasing interest in joining the programme by the private sector. Conservation partners include private sector companies in tourism, sports and recreation, and the energy sector. Individuals, community groups, and small businesses have also signed up to the programme. In Grand Turk, only one MoU has been submitted to the Attorney General's Chambers, with three currently in discussion and all of the four dive-operators showing interest in becoming conservation partners.

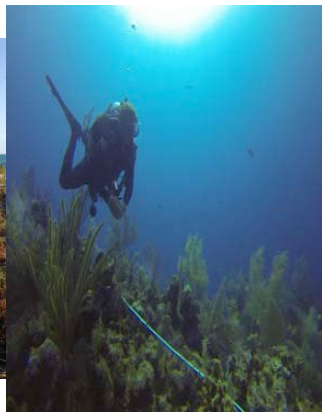
The results from current signatories to the CCPP are encouraging, and those who have become conservation partners appear to take the agreement seriously and fulfill their commitments. Many other companies and operators have informal or verbal agreements with DEMA. The CCPP is currently clarifying and formalising these relationships by outlining the accountability of all parties.

In 2014, dive operators in Providenciales and Grand Turk were trained in coral reef monitoring and lionfish control. Both of these courses were hosted by DEMA and supported by generous grants from the TCI Governor's Office and the Foreign and Commonwealth Office (FCO). As a result, when drafting MoUs for the CCPP, this participation and commitment is included. For example, dive-operators trained in the coral reef monitoring protocol agree to participate in regular coral reef monitoring in conjunction with DEMA. As the number of conservation partners increases, there is greater potential for coral reef monitoring throughout the TCI. Other conservation partners are conducting regular solid waste clean-ups, including assisting and organising their own beach and community clean-ups.

Challenges

During the course of the first year of the CCPP, a number of challenges has arisen that have restricted the number of official partners signed up to the CCPP. These challenges include:

1. ***Lack of institutional support*** – The inability of DEMA and the TCI Government to meet signatories "halfway" often hinders the finalisation of MoUs and hinders the implementation of proposed activities.
2. ***Review process*** – The length of time taken between confirming the MoU with an interested party and getting it approved by the Attorney General's Chambers can be between 3 and 4 months at times. During this period, the potential partner



Previous page, this one and next: Examples of Conservation Partners at work

often loses interest, and the momentum that is generated through the initial discussions dwindles.

3. ***Economic restraints*** – The cost of the programme is limited by costs of hosting stakeholder workshops and upholding the agreements committed to by DEMA. The CCPP would benefit from funding to promote and publicise the initiative, with the creation of stickers and decals for Conservation Partners to display in shop windows, boats, restaurants etc.

4. ***Time constraints and staffing limitations*** – In Providenciales, the programme has had a successful first year, with 20 signed or extended MoUs. It has been much slower in Grand Turk, primarily due to restricted staff and time available to promote the programme and develop the MoUs with potential conservation partners. On other islands with potential partners, *e.g.* South Caicos, Middle Caicos and North Caicos, the CCPP has not been initiated due to a lack of adequate DEMA staffing on those islands.

5. ***Pre-held judgments and existing poor relationships with DEMA*** – Due to strained relationships and a lack of trust in the past, some key environmental stewards in the community are unwilling to commit to a working 'contract' with DEMA.

Further steps

1. Sign up a broader range of conservation partners – While Providenciales enjoys a diverse group of signatories, commitment from larger hotel groups who directly occupy the Princess Alexandra National Park, is lacking. The other islands, as noted above, require additional staffing in order to effectively establish CCPP programmes.

2. Identify resources to allocate more time to dedicate to public awareness discussions with the community and resource users.

3. Streamline the process by which MoUs are approved.

4. Obtain funding for training and to develop positive incentive materials for CCPP partners to display at their business/organisation.

5. Work in conjunction with local and international NGOs to identify sources of funding to expand the programme to include a "wish list" of stewardship roles. This includes:

   a. Training and workshops on best practices for hotels for landscaping and wastewater treatment,

   b. Voluntary wastewater and coastal water quality testing by resorts, and

   c. Collection of baseline ecological data for the entire country, particularly sensitive areas with high ecosystem services values.

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The Governor Laffan's Fern Recovery Project

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Alison Copeland

Copeland, A., From, M. & Burch, K. 2015. The Governor Laffan's Fern Recovery Project. pp 170-174 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

Governor Laffan's Fern *Diplazium laffanianum* is endemic to Bermuda. First identified in 1882, this species was impacted by habitat change and exploited by Victorian fern collectors to the extent that it has been considered 'Extinct in the Wild' since 1905. In 2003, with a remaining population of just 3 ferns, a recovery project began to pull it back from the brink of extinction. Spores were sent from Bermuda to Mrs Margaret From at the Rare Plant Research Laboratory at the Henry Doorly Zoo in Omaha, Nebraska, USA. Over the last 12 years, Mrs From and lab technician Melanie Landry have worked to produce thousands of *in vitro* cultures of Gov. Laffan's Ferns. Today the *Governor Laffan's Fern Recovery Project* is a partnership between the Henry Doorly Zoo and the Bermuda Government Departments of Conservation Services and Environmental Protection. The *Project* has 3 core components: (1) spore propagation; (2) pot culture; and (3) re-introduction to the wild. Recent progress includes the establishment of two collections of juvenile ferns in Bermuda, mapping of potential reintroduction habitat, environmental monitoring of reintroduction sites, public awareness activities and listing of the species on the IUCN Red List. The *Governor Laffan's Fern Project* reached a critical point in 2014. The spore propagation and pot culture trials have been so successful at building up the *ex situ* population of ferns that the species can now take the expected losses that will come with the trial and error of a reintroduction experiment. In November 2014, the first individuals were reintroduced to the wild. As of May 2015, a number of them have survived and put out new fronds; only time will tell if they survive the hot summer months.

The long-term goals of this project are to establish self-sustaining populations of Governor Laffan's Fern in the wild, to maintain as many individuals as possible in pot culture and to make the species available to the general public so that Bermudians may participate in the continued survival of this endemic species.

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Discovery of the species

In 1880 Sir Robert M. Laffan, the British Governor of Bermuda sent some living plants of a unique fern from the islands to the Royal Botanic Gardens at Kew for identification and propagation. Mr. J.G Baker, the keeper of the Kew Herbarium described the species in 1882 and named it for Governor Laffan (Baker 1882).

Decline to extinct in the wild

Gov. Laffan's Fern was never abundant. As a habitat-limited island endemic, its existence has always been precarious. One of the largest contributors to it becoming so rare was the Victorian fashion for keeping ferns. As this 'fern craze' swept the US and UK, tourists came to Bermuda to add rare treasures to their collections. The hobby caught on in Bermuda, and large numbers of ferns were removed from the wild.

Figure 1. RGB Kew herbarium sheet of the fern sent to London in 1880 by Lt. General Sir Robert Laffan.

Most of what is known about the decline of this species comes from the writings of the curator of the New York Botanical Garden, Nathaniel Britton, who was a regular visitor to the islands. He noted the fern was *"Local in caves and crevices between Harrington Sound and Paynter's Vale, where it existed up to 1905, but has, since, apparently been exterminated"* (N.L Britton,1918).

Britton examined the species extensively on a trip to Bermuda in 1905, noting *"the plant was observed by us in the wild state in the autumn of that year, but we could not find it again at a known locality in 1913. Two plants were taken to a private greenhouse in Hamilton some years ago, where we had the pleasure of studying them in 1914, and afterwards made the attempt to raise plants from spores then obtained, unfortunately without success, the spores being immature"* (N. L Britton 1918).

It took just 23 years from the naming of the species in 1882 to its disappearance from the wild in 1905. Despite numerous searches of suitable habitats within its historic range over the course of the 20th century, no remaining wild specimens have been found. The fate of most of the potted specimens from the Victorian period is unknown. Ironically, it was the love of potted ferns that prevented total extinction of the species.

Ferns on the move 2001 – 2003

Mrs Christina Zuill gave a potted fern to the

Figure 2. Spores of Diplazium laffanianum

Bermuda Botanical Gardens around 1962. This was propagated by division and placed in the fern collection. In 2001, the remaining 5 specimens of *Diplazium laffanianum* were moved from the Botanical Gardens to the Government Plant Nursery at Tulo Valley, under the care of Nursery Superintendent Sarah Northcott. Recognising the precarious status of the species, she sent a small batch of spores to Mrs Margaret From at the Department for Plant Conservation at the Henry Doorly Zoo in Omaha, USA for propagation. The importance of this action cannot be overstated, as it is what ultimately saved the species from total extinction.

In September 2003, Hurricane Fabian destroyed the greenhouses at Tulo Valley, killing two of the ferns and damaging the other three. These died at some point after 2007. Today there are no remaining mature, spore-producing specimens of Gov. Laffan's Fern left in Bermuda.

Recovery project: 2003 to present

The collaboration between the Bermuda

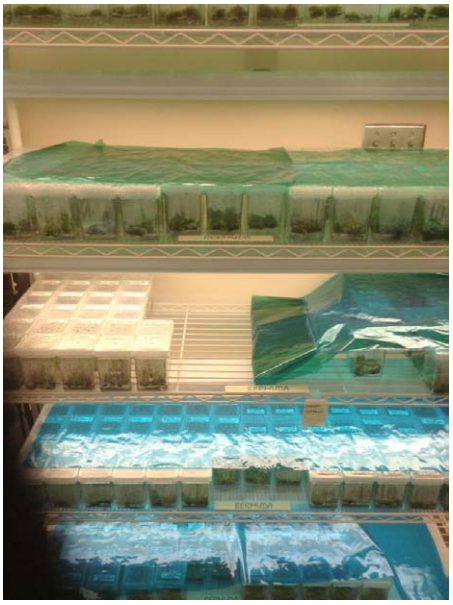

Figure 3. In vitro *Gov. Laffan's Ferns at the Department for Plant Conservation at Omaha's Henry Doorly Zoo*

Figure 4. Mature, spore-producing D. laffanianum *in the Omaha Zoo greenhouse*

Government and Omaha's Henry Doorly Zoo (OHDZ) continues today as the Governor Laffan's Fern Recovery Project. Currently the Project consists of three major areas of work; spore propagation, husbandry of potted specimens and reintroduction to the wild.

Spore propagation

Over the last 12 years, micropropagation techniques for this species have been tested and refined. From the very small sample of spores sent from Tulo Valley, Margaret From and lab technician Melanie Landry have produced hundreds of cultures of Gov. Laffan's Fern. They also maintain a collection of about 15 mature potted ferns, which are the only spore source for the species. Most of the *in vitro* flasks contain prothalli (the gametophyte life stage) and a few small sporophytes in sterile conditions, which allows them to be transported back to Bermuda (From 2010).

Pot culture

Once the *in vitro* ferns arrive in Bermuda, they are de-flasked and spread on an inch of damp potting soil covered by an inch of soaked sphagnum moss in closed glass tanks or plastic containers. Once sporophytes (the frond producing, diploid life stage) reach about 2 inches, they are transferred to individual pots. Trials in the last few years have utilised different potting media, such as commercial potting mixes, sand and 'native soil' collected from the Walsingham cave complex. This work, headed by Kimberly Burch at the

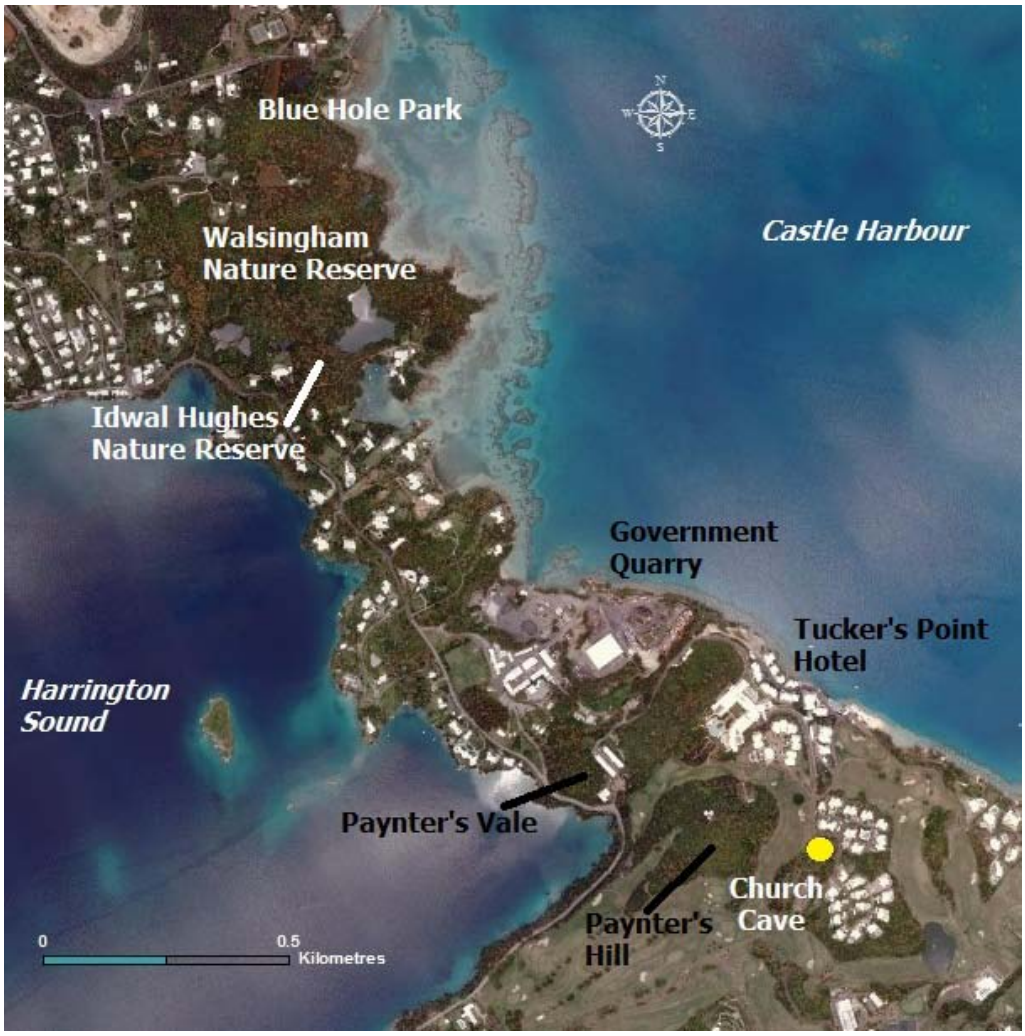

Figure 5. Map of the Walsingham area of Bermuda indicating the historic range of the species and reintroduction areas

Dept. of Environmental Protection, has shown the importance of native soil as at least a component, if not the total, potting media. Work has also been done on how to help the ferns' transition from enclosed containers to open growing conditions. This hardening-off process is a vital step toward reintroduction and keeping a long-term *ex situ* population. At present, several thousand young ferns are held *ex situ* by the Bermuda Government in 2 collections at the Department of Environmental Protection and Department of Conservation Services. Although reintroduction is seen by many as the ultimate goal of the project, the maintenance of a pot culture collection is how the species survived the 20th century, and is most likely how it will survive through the 21st.

Re-introduction site selection

The selection of the site has the greatest influence over the eventual outcome of the reintroduction. Very little is known about the ecology and habitat of the species. This has made growing it a challenge, and beginning a reintroduction difficult. We know from Britton (1918) that it grew in the Walsingham Tract *"... in caves and crevices between Harrington Sound and Paynter's Vale..."*; but little else has been written about its habitat or growth habits. Fortunately, the Walsingham Nature Reserve, Blue Hole Hill National Park, and the Bermuda National Trust's Idwal Hughes Nature Reserve together form a contiguous 14.532 hectares (35.91 acres) of protected habitat from which reintroduction sites can be selected.

Church Cave

The only named site where Gov. Laffan's Fern was known to have occurred is Church Cave (Gilbert 1898; E.G Britton 1905). Today, this cave lies between the driveway of the Tucker's Point Hotel and the Ship's Hill condominiums. In its present state the cave is not a viable reintroduction site but, by kind permission of the hotel, sets of environmental data-loggers have been placed around the cave. From these, we hope to learn more about the conditions at Church Cave and how they compare to the chosen reintroduction sites.

Habitat Management

The composition of Bermuda's woodlands has changed drastically in the 100 years since this fern last grew in the wild. The Bermuda Cedar Blight of the 1940s left over 95% of the indigenous forest dead, and led to a wave of new plant introductions to reforest the island quickly. Many of these new species became invasive on the landscape, altering the soil chemistry, light regime, and availability of water and growing space. Control of invasive plants is going to be a key, on-going step in managing Gov. Laffan's Fern.

Reintroduction

Between 24November 2014 and 4 March 2015, forty one Gov. Laffan's Ferns were planted at 3 sites in the Walsingham Nature Reserve. Additionally, in January 2015, eight ferns were placed in the Bermuda Audubon Society's nature reserve at Sear's Cave. Sear's Cave lies outside the known historic range of the species, but the habitat is similar to Church Cave and Sear's Cave already hosts populations of other rare ferns. Approximately forty two small patches of prothalli (gametophytes) were also placed across the 4 sites. Site 2 at Walsingham is a rockface with other extant fern species, while Sites 1 and 3 are dripping cave mouths, one with existing ferns of other species, one with none. Initial survivorship has been mixed across the sites. Bermuda typically experiences a dry season in April, May and June, followed by hot summer weather into October, which will challenge the remaining ferns. Further introductions are planned for the cooler months from November 2015 to January 2016.

Environmental monitoring

When ferns were planted at Walsingham and Sear's Cave, environmental data-loggers were placed at the sites (n=4) to record relative humidity, temperature and relative light intensity. Additionally, data-loggers were placed at 3 proposed reintroduction sites within the Walsingham Tract and Church Cave (n=5).

Figure 6. Reintroduced Gov. Laffan's Ferns in the wild at Walsingham

Figure 7. Environmental monitoring data-loggers at Church Cave. The HOBO U23-001 (top) records temperature and relative humidity, the HOBO UA002-64 (lower) records relative light intensity.

Protection

Gov. Laffan's Fern was given formal legal protection in 2007 when the first Protected Species Order was written under the Bermuda Protected Species Act 2003. This Act protects the species itself, alive or dead, and also protects the habitats of listed species. A recovery plan for the 6 species of ferns listed under the Protected Species Act, including *D. laffanianum*, was written in 2010 (Sarkis 2010). The plan outlines the policy, research and conservation activities need to improve the status of endangered ferns.

5-year goals of the Recovery Project

- Re-introduction plan written – in prep
- Additional shipments of prothalli from OHDZ to Bermuda – large shipments were received in September 2012, May and October 2014 and another is expected in September 2015 – done
- Taxonomy & genetic testing - research is ongoing to determine species status, endemic status and nearest relatives (Houser *et al.* 2015) – done
- Inclusion in IUCN Red List of Threatened Species – The assessment of this species was published in June 2014 in collaboration with RBG Kew (Copeland & Malcolm 2014) – done
- Suitable ferns (various life stages) hardened off for re-introduction - ongoing
- Identify suitable habitats and sites for re-introduction – done
- Develop monitoring programme for growth and survival - pending
- Raise funds for environmental monitoring equipment – done
- Awareness raising - ongoing
- Develop habitat management programme.

20- year goals of the Recovery Project

- Self-sustaining wild populations in at least 6 locations
- Habitat managed for invasive species and other threats
- Mature, spore producing plants in pot culture – Government held
- Genetic material banked in Omaha and elsewhere
- Down-listing from Level 1 of the Protected Species Act
- Pot plants distributed to the public.

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The Bermuda Land Snail *Poecilozonites bermudensis* – a Lazarus species recently discovered in the center of an urban environment

Mark E. Outerbridge (Department of Conservation Services, Bermuda)

Outerbridge, M.E. 2015. The Bermuda land snail *Poecilozonites bermudensis* – a Lazarus species recently discovered in the center of an urban environment. pp 175-177 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

Poecilozonites is a highly distinctive genus of zonitid snails that is one of the oldest endemic elements of the land fauna of Bermuda, having spent more than one million years surviving radical changes in land-area and ecology on these remote oceanic islands. Believed to be extinct by the early 1990s, a relict population of *Poecilozonites bermudensis* was found recently inhabiting a service alley and small courtyard measuring only 200 ft^2 in area within the city of Hamilton - the most urbanized region of Bermuda. A population assessment revealed that all size-classes were encountered and recruitment was occurring. The smallest snails measured 2.5 mm shell diameter while the largest measured 22.5 mm. Abundance was estimated to be 328 snails ≥10.0 mm shell diameter. Fifty four hatchlings and small juveniles were collected and taken to the Department of Conservation Services in order to establish a captive colony at the Bermuda Aquarium Museum and Zoo.

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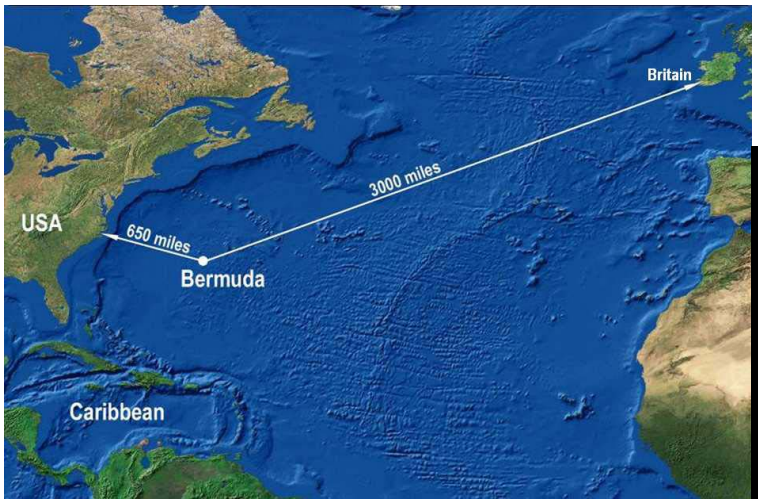
The genus *Poecilozonites* is endemic to Bermuda. At least twelve different species are known from the fossil record, but only two were recorded as being extant in the mid-20th century: *Poecilozonites circumfirmatus* and *P. bermudensis*. The latter was believed to be extinct by the early 1990s. However, a relict population was recently found inhabiting a concrete alley and small courtyard measuring only 200 ft^2 in area within the city of Hamilton – the most urbanised region of Bermuda. A population assessment revealed that all size classes (2.5 to 22.5 mm shell diameter) were encountered and recruitment was occurring. Abundance was estimated to be 328 snails ≥10.0 mm shell diameter. Fifty four hatchlings and small juveniles were collected and taken to the Department of Conservation Services in order to establish a captive colony.



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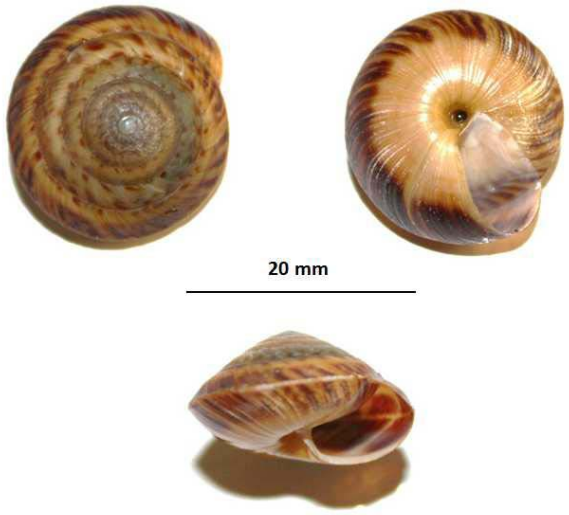


land fauna of Bermuda (Gould 1969) and has spent more than one million years surviving radical changes in land-area and ecology on these remote oceanic islands (Hearty & Olsen 2010). At least twelve different species are known from the fossil record and are believed to represent a single lineage that exhibited pulses in size and shape which correlate with fluctuating sea-levels throughout the Pleistocene era (Hearty & Olsen 2010). Furthermore, historical predation is considered the factor most likely to have selected for gigantism in the anagenetic lineage of *Poecilozonites*. During the last 500,000 years, pulses of gigantism in these snails corresponds with periods when the island was colonised by large vertebrate predators (specifically birds and a species of tortoise) which created selection pressure favouring large size and rapid growth in the snails (Olsen & Hearty 2010).

Only two species remained living on Bermuda by the middle of the 20th century, *Poecilozonites circumfirmatus* and *P. bermudensis*, but both declined rapidly island-wide after the introduction of several species of predatory snails during the 1950s and 1960s (Gould 1968, 1991). By the early 1990s, *P. bermudensis* was believed to be extinct (Gould 1991, 1993), although a survey in 1988 revealed several fresh dead specimens (empty shells with intact periostraca), suggesting that there may have been an extant relict population in one location (Bieler & Slapcinsky 2000).

On September 16th 2014, a member of the public contacted the Department of Conservation Services, saying that he had found an empty snail shell on his business premises in the city of Hamilton (Fig. 2, map on previous page) that looked like it might belong to the genus *Poecilozonites*. A live snail was encountered on the following day at the same location. Both were taken to the Bermuda Natural History Museum and subsequently identified as *Poecilozonites bermudensis* (Figs 3 & 4, above).

Given that previous terrestrial gastropod surveys failed to locate living specimens of *P. bermudensis* in recent decades (Bieler & Slapcinsky 2000; Lines 2002; J. Madeiros pers. comm.), it was surprising that a prompt examination around the discovery location revealed an extant population of *P. bermudensis* inhabiting approximately 200 ft^2 of area within the city of Hamilton – the most urbanised region of Bermuda. Population size was estimated via mark-recapture sampling and calculated using the Chapman estimator. The survey results revealed an estimate of 328 snails ≥10.0 mm. All size-classes were encountered (*e.g.* hatchlings to adult snails), with shell diameters ranging from 2.5 to 22.5 mm (Fig. 5, below). Snails were particularly abundant in and around

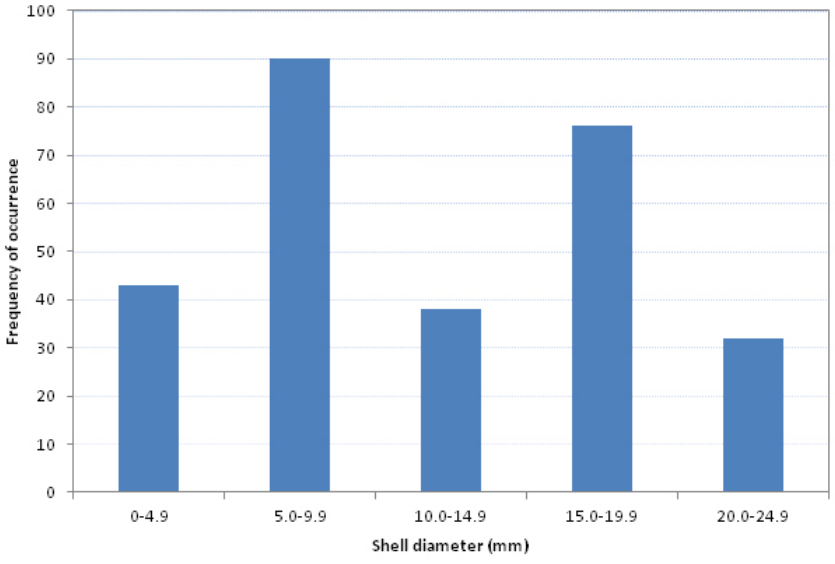
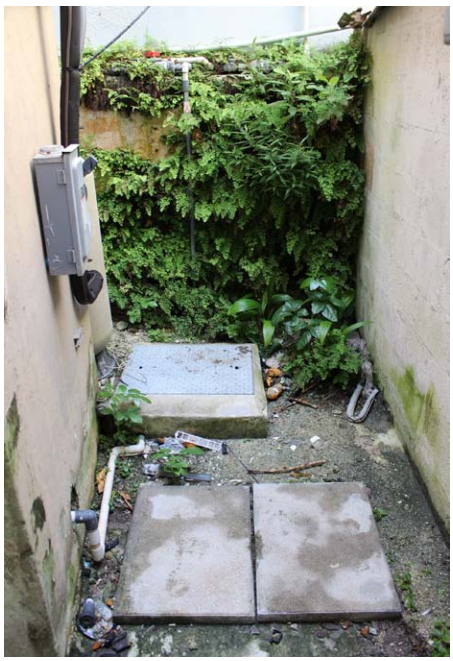


Figure 5. Length-frequency histogram of shell size for 279 P. bermudensis *snails*



a drainage channel running the length of the concrete alley, as well as in a small courtyard at the end of the alley (Fig. 6, left). The majority of the living snails were found at ground level, although a few were encountered on vertical surfaces within three feet of the ground. Those inhabiting the alley appeared to favour longitudinal cracks in the cement while those in the courtyard were found under various pieces of wood, among fern (*Adiantum bellum*), within the moist folds of plastic bags and beneath construction debris (most notably short lengths of metal and PVC piping as well as pieces of insulation material).

It is not known whether *P. bermudensis* colonised the site after it was developed commercially in the past or whether they were always present at that location and persisted in a favorable environment following development. Regardless, it is likely that their urban isolation has offered protection from invertebrate predators (especially the carnivorous snails *Euglandina rosea*, *Gonaxis quadrilateralis* and *Rumina decollata*) that are believed to have decimated *Poecilozonites* populations throughout the rest of Bermuda (Gould 1968, 1991, 1993). Additionally, this area appears to have had remained relatively unchanged for many decades, thereby providing environmental stability to the snail population.

At the conclusion of the survey, 54 hatchlings and small juveniles were collected and taken to the Department of Conservation Services in order to establish a captive breeding colony. Their care will be based on husbandry protocols developed by the Zoological Society of London (Walker & Pearce-Kelly 2006) for *Poecilozonites circumfirmatus*. Environmental parameters (such as temperature and humidity) for the alley and courtyard are unknown. Therefore a HOBO Pro v2 data-logger from Onset Computer Corporation was installed to collect data that will help to better inform the care of the captive specimens.

Plans are currently being made to send *P. bermudensis* to the Zoological Society of London in order to establish an *ex-situ* breeding colony. (This organisation already is caring for a captive colony of *P. circumfirmatus*). Furthermore, *P. bermudensis* is now being advocated for inclusion on the Bermuda Protected Species Act. (*P. circumfirmatus* is already protected.) Both *P. circumfirmatus* and *P. bermudensis* are being considered for IUCN red-listing.

Acknowledgements

I am profoundly grateful to Bruce Lines for rediscovering this species and bringing it to my attention, as well as to Simieon Massey for assisting with the population assessment.

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Golden, spikey and blushing – Conserving the invertebrates of the UKOTs

Vicky Kindemba (Buglife)

Kindemba, V. 2015. Golden, spikey and blushing – Conserving the invertebrates of the UKOTs. pp 178-180 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

The UK's Overseas Territories (UKOTs) hold over 1,000 invertebrate endemics. Despite the global importance of the UKOTs for invertebrates, there is very limited understanding of invertebrate biodiversity and, as a result, many of these important species are threatened by human impacts. Even though much of this endemic fauna is threatened, only a small percentage of invertebrate species have been IUCN Red-listed. As a result, there is a need to improve information and understanding of invertebrates and also their conservation needs in the UKOTs.

Buglife, with funding from the Darwin Initiative and in partnership with St Helena National Trust, St Helena Government and the Centre for Ecology and Hydrology, has been delivering *Bugs on the Brink* project for the last three years, to set up invertebrate conservation work on the island. Achievements of the project include a full baseline data-set of the island's invertebrates, Red-listing, training of professionals, identification guide, a reference collection; as well as outreach with schools and the wider island to improve understanding of St Helena's amazing invertebrates. The *Bugs on the Brink* project has also initiated the establishment of an IUCN invertebrate specialist group for the Mid-Atlantic tropical islands. This group of 22 experts, with knowledge of this region, will drive forward invertebrate conservation work on these islands that are rich in unique invertebrates. This group will cover the UKOTs Ascension, St Helena and Tristan da Cunha.

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The UK's Overseas Territories (UKOTs) hold over 1,000 invertebrate endemics. This rich and unique fauna means that the UKOTs are of global importance for invertebrates, but there is very limited understanding of this distinctive biodiversity and, as a result, many of these important species are critically threatened by human impacts. As a result, there is a need to improve information and understanding of these invertebrates and also their conservation needs in the UKOTs.

Museum staff training © Felix Driver

Buglife, with funding from the Darwin Initiative and in partnership with St Helena National Trust, St Helena Government and the Centre for Ecology and Hydrology, has led a flagship project over the last three years establishing invertebrate conservation work on the UKOT of St Helena. By providing information, training and resources, as well as integrating invertebrate needs into existing conservation work and so securing the long-term survival of this rich invertebrate fauna. This project can also be used as a template to inform and develop invertebrate conservation on other UKOTs.

Spiky yellow woodlouse © Ed Thorpe

Blushing snail Succinea sanctaehelenae *© RS Key*

The invertebrate fauna of the UKOTs

Oceanic islands are well known for their high percentage of endemic species, and so are key locations for species conservation efforts. In the UKOTs there has been a focus on birds, fish, plants and mammals, and invertebrates have been generally neglected.

The UK's Overseas Territories (UKOTs) hold globally important invertebrates species, with over 1,000 known invertebrate endemics, but many invertebrate groups are still under-recorded on the UKOTs. So this figure is likely to increase substantially. There is also a very limited understanding of invertebrate biodiversity; and so more basic research into ecological requirements and their distribution is needed. This will facilitate the conservation of the amazing invertebrates of the UKOTs. For example, in St Helena there are spectacular species such as the unusual spiky yellow woodlouse *Pseudolaureola atlantica*, the colourful blushing snail *Succinea sanctaehelenae* and the glinting body of the golden sail spider *Argyrodes mellissii*.

Golden sail spider © Roger Key

With human pressures more severe on oceanic island fauna compared with mainland sites, many of these species are under threat from impacts such as habitat fragmentation, non-native species, habitat loss and climate-change. Even though many endemic invertebrates are threatened, only a small percentage have been IUCN Red-listed, and so their importance and threat level is not acknowledged. As a result, there is a need to improve information and understanding of invertebrates and their conservation in the UKOTs.

'Bugs on the Brink' in St Helena

In 2012, the UK Government's Darwin Initiative awarded funds to the 'Bugs on the Brink: Laying the Foundations for Invertebrate Conservation on St Helena' project. This project has seen Buglife working in partnership with St Helena National Trust, St Helena Government and the Centre for Ecology and Hydrology over the last three years to set up invertebrate conservation on the island.

St Helena is home to over 400 species of endemic invertebrate, which included iconic invertebrates such as the giant earwig *Labidura herculeana*, giant ground beetle *Aplothorax burchelli* and St Helena darter (a dragonfly) *Sympetrum dilatatum.* However, these species have all become extinct within the memory spans of people living on the island now. As result, there is a real need to conserve the remaining endemic invertebrates on St Helena.

Achievements of the project to-date have been:

- Assembling knowledge of the island's land-based invertebrates, including a baseline dataset
- Local staff trained on invertebrate conservation management
- Development of resources, including an invertebrate identification guide for the island

- Integration of invertebrate needs into habitat management plans and threatened species added to the new species ordnance list
- Knowledge and tools allowing the restoration of native habitats as a functioning ecosystems
- St Helena's school children taught about the importance of invertebrates; and the development of an education kit and resources for school
- Public awareness has been raised on St Helena's special invertebrates
- The Red-listing of invertebrate species (16 completed and 93 in development)
- Long-term conservation planning

The 'Bugs on the Brink' project has also initiated the establishment of an IUCN invertebrate specialist group for the Mid-Atlantic tropical islands. This is a group of 22 international invertebrate experts, with knowledge of this region, who will drive forward invertebrate conservation work for these diverse and unique islands. This group will cover the UKOTs of Ascension, St Helena and Tristan da Cunha.

The future

We want to continue to create fantastic partnership projects in the rest of the UKOTs, using our knowledge and understanding from the 'Bugs on the Brink' project to facilitate the conservation of the UKOTs' amazing endemic invertebrates. If you are interested in working with us please contact vicky.kindemba@buglife.org.uk

Discussion

Much of the discussion addressed the conclusions and recommendations. If such items are adequately reported in the Conclusions and Recommendations section later in these proceedings, they are generally not repeated here. Instead, this section draws out some other aspects for which amplification may be useful, on of the discussions and ideas put forward for consideration.

Environment Funds / Funding

UKOTs raise funds for their environmental work in different ways. Present sources include: levies on tourists, entrance fees to National Parks, etc.

There were several examples of some cases where funds have been spent by governments for non-environmental projects, as the funds were not ring fenced, *e.g.* Cayman, Turks and Caicos. However, there are some developments where this is changing. For example, on Cayman, the fee was initiated in 1997. The Government did not set into a separate fund in law, as opposed to by public statement, so it went in to general revenue then got used and misused for many years. They did get some money for land purchase. The new National Conservation Law states that all fees and fines go in to the Conservation Fund held by the Treasury but as a separate fund.

On Anguilla, as part of Climate Change policy a fund has been set up and has been drafted but not implemented. BVI also has something similar. Some of these schemes were similar to the landfill tax credit scheme in the UK.

With regards to EU funds, a former reviewer for EU funded projects remarked that the EU were not interested in cheap, cost-effective projects as these cost the EU too much to run as, in their system, it costs them about as much to run a grant whatever its size. Also, with so many small EU overseas entities and limited allocated budget, the European Commission favours cross-territory projects to fund.

There were several suggestions made that UKOTs applying for funding should partner with a UK organisation as they often have administrative capabilities or experience which some of those in UKOTs do not have.

Matched funding is essential for some funding schemes and favoured by others. This is another factor which disadvantages small, efficient non-profit organisations. Some schemes allow work-time to count as matching funds; therefore good records of staff time must be kept, so that these can be accounted for appropriately as "in kind" contributions.

Private funding sources should not be ignored as they can provide significant contributions with less administration and reporting required.

Legislative Framework

In many cases, there is no legislative framework which enables a development project to be rejected based on factors relating to impacts on environmental. Planners and conservationists must keep planning and conservation legislation up-to-date. There were concerns that the UKOTs do not have much support when it comes to planning proposals and objections.

New changes occurring to National Biodiversity Action Plans and species and habitat BAPs in the Caribbean to ensure they meet legal requirements.

Should the UKOTs be considering biodiversity off-setting? There are major risks here, not just possible benefits.

Additional opportunities/resources

Other resources include: UKOTCF's organising of skilled volunteers matching with needs expressed by UKOTs/CDs, RSPB sabbaticals (which can be taken for a month after 7 years of service), equipment for remote sensing and camera-trapping which have reduced in cost over recent years, citizen scientists to get more people in community involved data collection (it will raise profile and enable better dialogue; examples in TCI with REEF).

Workers addressing invasive species must consider baseline surveys and make them as comprehensive as possible.

Engaging the community

Engaging the community is seen as vital in the success of removal of non-natives. Similar initiatives to the reindeer removal on South Georgia have been attempted elsewhere but there have been problems with local community opposition. On South Georgia, the timing of the planned removal was unfortunate. However, they wanted to engage in positive way. Objections were

received. However, they found that, as soon you sit people down and explain the massive benefits, then they were positive about it. It is important to work with partners to make sure that, in press releases, you have a consistent message so that it is reported to the media the same every time. Some remarked that, in terms of feeding back results, as a small team they do find this a challenge but have made improvements.; their Twitter feed has been particularly useful given that that messages must be 140 characters, which means they have to be short and to the point.

An additional example was that working with churches in small communities can give access to broader audiences.

Concerns were raised on how to get people to value the environment. Perhaps there should be less emphasis on economy and more on the well-being of residents and visitors.

Stakeholders as conservation stewards: many UKOTs reported that they have MOUs with local businesses, *e.g.* Gibraltar dive shops, DEMA in TCI. Activities they were involved in included: beach clean-up, report things back to them, informal discussions. The wealth of information and success stories shared at the conference is a great resource for other countries/people to tap into. Is there a way to pool all this information together? In addition to the proceedings, there is an on-going dialogue in UKOTCF's Working Groups. It was noted that collaboration is already in place between Dutch, French and British OTs, partly via UKOTCF linking with equivalent umbrella bodies for those countries. Branding of conservation stewardship is an important issue. Often NGOs can help with this by some kind of charter for responsible tourism. The Convention on Biological Diversity has recently published guidelines on tourism in sensitive areas. [This can be found at https://www.cbd.int/tourism/doc/tourism-manual-2015-en.pdf]

Recommendations from Discussions

A review is needed across the UKOTs to draw together all information on how the various UKOTs are raising the environmental funds. Those UKOTs without these funds could look to adopt some following the review. There was, however, some concern about international bodies with other agendas adopting this role to themselves in potential competition with small organisations.

Greater emphasis needed on identifying the non-monetary and cultural services offered by the environment, *e.g.* getting fishermen to feed a sense of pride/involvement in conservation projects.

A legislative framework is needed to support the appropriate rejection of planning proposals on environmental grounds.

Projects to report back to Darwin funders on how vital funding is and how successful the projects have been.

Create a standard charter for responsible tourism, which can be used to certify tour operators. If this is applied across the territories, it will be more visible.

Session 8: Conservation and Sustainable Use of Marine Resources

Chairing & facilitating team: Annie Glasspool (Bermuda), Tom Appleby (Blue Marine Foundation; UKOTCF), Peter Richardson (Marine Conservation Society), Drin Lutchman (South Atlantic, Gibraltar & elsewhere)

Governance in the Marine Environment – Tom Appleby (Faculty of the Environment and Technology, University of the West of England, Bristol/ Blue Marine Foundation/ UKOTCF)
Intra- and Inter-territory Environmental Research in the South Atlantic Supporting Strategies for Environmental Conservation and Management. – David Blockley (South Atlantic Environmental Research Institute (SAERI))
Pitcairn Islands: Integrating Research, Conservation Monitoring, Management and Sustainable Development – Terence P. Dawson[1], Jacqui Christian[2] and Michele Christian[3] ([1] School of the Environment, University of Dundee, DD1 4HN, UK; [2] European Representative of the Government of Pitcairn, Henderson, Ducie and Oeno Islands, Adamstown, Pitcairn; [3] Environmental, Conservation & Natural Resources Division Manager, Government of Pitcairn, Adamstown, Pitcairn.)
Towards a marine mammal transboundary management and governance in the Caribbean region: UKOTs on board with us? – Romain Renoux, (Réserve Naturelle de St Martin/SPAW-RAC/Agoa) and Amandine Eynaudi, Agence des aires marines protégées/ Sanctuaire Agoa/)
Sustainable fisheries management in the South Atlantic: Models of best practice – Indrani Lutchman
Tristan da Cunha – another example of registered sustainable fisheries and its recovery from the *Oliva* wreck – Jim Kerr (Tristan da Cunha Government)
Action Plan For Maintaining Coral Reef Health in the Turks & Caicos Coral recovery projects – Don Stark (Turks & Caicos Reef Fund)

From left: Annie Glasspool, Drin Lutchman, Peter Richardson and Tom Appleby

Marine Protection in Bermuda: Lessons Learned from 400 years of Management and a Range of Geographical Scales – Annie Glasspool (Bermuda)
Applying parts of UNCLOS (UN Convention on the Law of the Sea) to access data for use in mapping and monitoring in UKOT waters – Alan Evans (Marine Geoscience Group, National Oceanography Centre, Southampton, UK)
3-minute video: The Virtual Watch Room, Pioneering Technology to Help End Illegal Fishing – Jo Royle (The Pew Charitable Trusts)
Using Seabirds to Inform Marine Spatial Planning in the BVI – Susan Zaluski (Jost Van Dykes Preservation Society)
A sustainable marine and fisheries management plan for the Pitcairn Islands – Terence P. Dawson[1], Robert Irving[2] and Heather Koldewey[3] ([1] School of the Environment, University of Dundee, DD1 4HN, UK. [2] Sea-Scope Marine Environmental Consultants, Dulverton, Somerset TA22 9PW, UK. [3] Zoological Society of London, Regent's Park, London, NW1 4RY, UK
Widening Bermuda's Shipping Channels: Challenging Pre-Conceptions through EIA – A.F. Glasspool*,J. A. Ward* and J. Burnham** (*Bermuda Environmental Consulting Ltd., **Works and Engineering, Government of Bermuda)
Discussion

Governance in the Marine Environment

Tom Appleby (Faculty of the Environment and Technology, University of the West of England, Bristol/ Blue Marine Foundation/ UKOTCF)

Appleby, T. 2015. Governance in the Marine Environment. pp 185-187 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

The governance of the UK Overseas Territories is complex, endlessly fascinating and often politically charged. There is no area where this complexity is more demonstrable than in the marine environment, where the issues of extended maritime boundaries granted under the United Nations Convention on the Law of the Sea, fishing and prospecting rights, marine conservation and competing sovereignty mean that the practical application of the law in this area is particularly difficult to interpret. This complex environment makes it challenging to undertake conservation activities. This paper focuses on the Mauritius and UK arbitration over Chagos Islands and, through analysis of this case study, explores marine governance issues for the UK Overseas Territories in general. In particular, the paper explores the difficulties of restricting fishing activities where, because of the long established *mare liberum* doctrine, the world's oceans have traditionally been treated as a fishery.

Dr Thomas Appleby, Faculty of the Environment and Technology, University of the West of England, Bristol/ Blue Marine Foundation/ UKOTCFCouncil Member. Thomas.appleby@uwe.ac.uk

Chagos Marine Reserve

On April 1 2010, the UK Foreign Secretary announced the creation of the world's largest continuous marine reserve in the Chagos archipelago.

The Chagos reserve, which is more than twice the size of the UK, is an unparalleled sanctuary for marine biodiversity where human influences are minimal. It is home to 220 types of coral, 1,000 species of fish as well as turtles, sharks and dolphins.

In 1965, UK gave undertakings to Mauritius that it would return the Chagos to Mauritius

when they were no longer needed for defence purposes. Recently, a UN arbitral tribunal found that Mauritius had an interest and should have been consulted on the creation of the marine reserve and a ban on fishing.

This presentation outlines some of the issues relating to governance in the marine environment, specifically those arising following the establishment of the Chagos Marine Reserve.

Background

On the face it, declaring a marine reserve – *i.e.* stopping an industrial activity conducted by a largely distant-water fleet of third party nations (though there was some artisanal fishing from Mauritius) – should have been relatively innocuous. But the Chagos,Islands, like many of the UK Overseas Territories, have their own history, and the reserve became part of that broader narrative.

For many years, there had been a campaign for a right to return for the original inhabitants, who had been evicted to make way for the base. The reserve was therefore interpreted in the context of this narrative.

De Santo (2011) wrote: "A marine protected area designation that precludes the return of local people to the Chagos archipelago will, from a human rights perspective, also sustain the injustice that the previous removal of these people represent."

This interpretation was supported by evidence from Wikileaks (Anon. 2010) which mentioned: "[Colin Roberts] asserted that establishing a marine park would, in effect, put paid to resettlement claims of the archipelago's former residents"

There was also a claim by Mauritius for sovereignty over the Islands and the reserve acted as a lightning rod for both these pre-existing claims and resulted in Mauritius taking the UK to international arbitration.

The Guardian newspaper reported the findings of that award as follows:

"Britain acted illegally in the way it has exercised territorial control over the Chagos Islands, a UN tribunal has ruled, raising questions over the UK's claim to sovereignty and offering hope of return to hundreds of evicted islanders. In a withering judgment, the UK is accused of creating a marine protected area (MPA) to suit its electoral timetable, snubbing the rights of its former colony Mauritius and cosying up to the United States, which has a key military base – allegedly used for the rendition of terrorist suspects – on the largest island, Diego Garcia"

Was *the Guardian* right?

In April 2010, Foreign Secretary David Miliband overrode officials to make the following Proclamation (*British Indian Ocean Territory Proclamation No.1 1st April 2010*):

"There is established for the BIOT a marine reserve known as the Marine Protected Area, within the Environment (Protection and Preservation) Zone which was proclaimed on 17th September 2003.

"Within the said Marine Protected Area, Her Majesty will exercise sovereign rights and jurisdiction enjoyed under international law …. , with regard to the protection and preservation of the environment of the Marine Protected Area and the implications for fishing and other activities in the Marine Protected Area and the Territory will be addressed in future legislation of the Territory."

This Proclamation does not, of itself create a marine reserve but sets the groundwork for further legislation to do so in the future, moreover it went no further than to restate existing international law. Article 192 of the United Nations Convention on the Law of the Sea NCLOS sets out.

The decision to suspend fishing (which was the main function of the reserve) was taken

under different legislation relating to fisheries management, rather than the marine reserve.

The Tribunal investigated in great detail the relationship between Mauritius and the UK, and found that the undertakings given prior to independence were binding on the basis of estoppel. Although the UK had consulted Mauritius, because Mauritius had a right to the islands once they were no longer needed for defence purposes, those consultations did not go far enough. Therefore, the Tribunal recommended the Declaration should be set aside (although confirming in that even the artisanal Mauritian-based fishery could be closed on sufficient justification). A minority of the judges (2/5) held that the detachment of Chagos from Mauritius was illegal at the start.

In reality though, everyone lost the case: the Chagossian cause was not advanced (despite *the Guardian's* article); Mauritius lost its sovereignty claim against the UK; and the UK's reputation was tarnished and its reserve was declared illegal, but it is not clear what effect that has since the ban in fishing emanated from other legislation.

Recommendations

- It is not enough to just do the conservation science.
- The legal landscape needs to be fully understood:
  - Historic access rights
  - Relations with neighbouring states.
- There is a need to understand decision-making framework of natural resource management and play by those rules.
- Most importantly, when establishing conservation measures to ensure that the conservation story does not get lost in competing narratives by engaging as far possible with those other interests. The Chagos reserve has ended somehow in a story of human rights verses the environment – these are both ethical causes and should never have been at loggerheads.

A full version of this paper is available at:

Appleby, T. 2015. The Chagos marine protected arbitration – A battle of four losers? J*ournal of Environmental Law*, 27 (3): 529-540.

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THE SUNDAY TIMES

Beauty and the reef: billionairess dives in to save coral

Britain's richest woman, a former Miss UK, is helping Belize set up a marine reserve

Robin Henry and Frank Pope Published: 25 November 2012

HER last big purchase was a £100m superyacht, but now Britain's richest woman has splashed out on a Caribbean coral reef.

Saltwater crocodile

Antillean manatee

CLICK THE ABOVE IMAGE TO ENLARGE

Kirsty Bertarelli, 51, a former Miss UK turned songwriter, and her husband, Ernesto Bertarelli, a Swiss biotech magnate, have channelled millions into safeguarding the future of a 300,000-acre expanse of ocean off the coast of Belize.

It comes as the descendants of the HMS Bounty mutineers on the British-controlled Pitcairn Islands are planning to turn the pristine waters around their secluded South Pacific home into the largest marine reserve in the world.

The islands' council recently voted in favour of banning commercial fishing from their "exclusive economic zone", or territorial waters, although subsistence fishing by islanders will still be allowed.

A spokesman for the Foreign and Commonwealth Office confirmed that it is considering the plan,

Another example of competing narratives in a marine MPA case

Intra- and Inter-territory Environmental Research in the South Atlantic Supporting Strategies for Environmental Conservation and Management

David Blockley (South Atlantic Environmental Research Institute (SAERI))

Blockley, D. 2015. Intra- and Inter-territory Environmental Research in the South Atlantic Supporting Strategies for Environmental Conservation and Management. p 188 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

The UK Overseas Territories, Crown Dependencies and small island communities face the same environmental challenges as the larger and more developed nations of the globe, but often with fewer resources with which to meet them. Key to addressing complex environmental conservation challenges is good understanding of the natural environment based on rigorous science. The complex nature of ecosystems means that a holistic approach is required to fully understand the interactions amongst the biological and physical components. Compared to other parts of the world, most of the overseas territories are relatively understudied. This paucity of research and the availability of data are a key contributor to the dearth of scientific understanding of the local natural environment.

The South Atlantic Environmental Research Institute (SAERI) was set up to overcome some of these problems by localising scientific research within the Falkland Islands and the wider South Atlantic region. This not only ensures a research focus that aligns with the specific environmental needs of the territories but builds local expertise and capacity. SAERI not only carries out research itself, but coordinates and facilitates research by other regional and international organisations and groups providing support and structure and leveraging funding. Coordination of research and expertise amongst and within the South Atlantic is an important benefit of a dedicated scientific research institution within the territories. This has particularly been demonstrated by the data management systems that SAERI has had a leading role in establishing and has helped to overcome the chronic fragmentation of data. The scientific outputs of SAERI are able to give environmental managers greater independence from external advisors and consultants and more input into the necessary environmental research that underpins decision making.

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(Full version of paper not supplied)

Pitcairn Islands: Integrating Research, Conservation Monitoring, Management and Sustainable Development

Terence P. Dawson[1], Jacqui Christian[2] and Michele Christian[3] ([1] School of the Environment, University of Dundee, DD1 4HN, UK; [2] European Representative of the Government of Pitcairn, Henderson, Ducie and Oeno Islands, Adamstown, Pitcairn; [3] Environmental, Conservation & Natural Resources Division Manager, Government of Pitcairn, Adamstown, Pitcairn.

Dawson, T.P., Christian, J. & Christian, M. 2015. Pitcairn Islands: Integrating Research, Conservation Monitoring, Management and Sustainable Development. pp 189-192 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

The Pitcairn Island group, located in the South Central Pacific Ocean, consists of two atolls: Oeno and Ducie (the most southerly atoll on earth), a raised atoll Henderson (a UNESCO World Heritage Site) and a volcanic island, Pitcairn. Only Pitcairn is inhabited, with a tiny population of around 50, mainly descendants of the *HMS Bounty* mutineers and their Polynesian partners who landed there in 1790. The islands are the last remaining Overseas Territory of the United Kingdom in the Pacific and are extremely remote, located at the south-eastern limits of French Polynesia, approximately equidistant between Chile and New Zealand. Pitcairn, along with many other small island developing states, share significant challenges that present a special case within the world community, including isolation, lack economies of scale, have high transportation and communication costs, and have limited means and capacity to implement comprehensive sustainable development goals (Solomon & Burnett 2014). In recent years, the main employment on Pitcairn has been in local government and community services, with additional income provided by the sale of wood carvings and curios to passing cruise ships, highlighting the island's historical and cultural heritage. However, current plans are underway to revitalise Pitcairn Island with plans to create a Marine Protected Area (the largest in the world), and the building of an alternative harbour development. Working with non-government organisations, the Pitcairn Island tourism department is developing new education and outreach initiatives with a focus on the natural features and biodiversity value of the islands and their marine environment. All of these activities will help to bring more tourism and cruise ships to Pitcairn and other islands in the group, to improve the local economy and support more sustainable livelihoods.

Terence P. Dawson[1], Jacqui Christian[2] and Michele Christian[3] ([1] School of the Environment, University of Dundee, DD1 4HN, UK; [2] European Representative of the Government of Pitcairn, Henderson, Ducie and Oeno Islands, Adamstown, Pitcairn; [3] Environmental, Conservation & Natural Resources Division Manager, Government of Pitcairn, Adamstown, Pitcairn.
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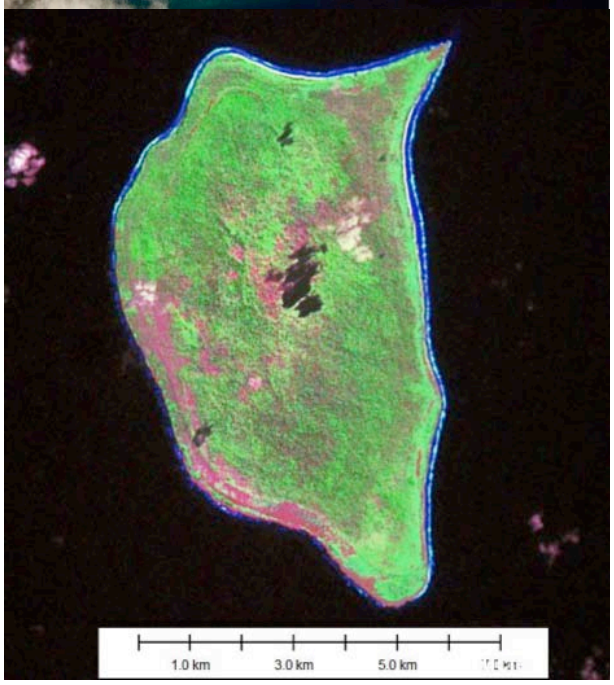
The Pitcairn Island group, located in the South Central Pacific Ocean, consists of two atolls: Oeno and Ducie (the most southerly atoll on earth), a raised atoll, Henderson (a UNESCO World Heritage Site) *(aerial views from top to bottom, below)* and a volcanic island, Pitcairn *(right)*. Only Pitcairn is inhabited, with a tiny population of around 50, mainly descendants of the *HMS Bounty* mutineers and their Polynesian partners who landed there in 1790.



The islands are the last remaining Overseas Territory of the United Kingdom in the Pacific and are extremely remote, located at the south-eastern limits of French Polynesia, approximately equidistant between Chile and New Zealand. Pitcairn, along with many other small island developing states, share significant challenges that present a special case within the world community, including isolation, lack economies of scale, have high transportation and communication costs, and have limited means and capacity to implement comprehensive sustainable development goals (Solomon & Burnett 2014).

The Exclusive Economic Zone (EEZ) of the 4 Pitcairn Islands span a vast area of ocean of about 836,000 km^2, more than three times the size of the UK

The islands have no air transport link. The nearest airport is on Mangareva in the Gambier Islands, French Polynesia, 330 miles away. Visits to the islands can only be made by boat or ship, with just four scheduled visits of the latter per year.

The islands have a rich cultural and natural heritage. There is worldwide interest in their Bounty Mutineers and Pre historic Polynesian History. In 1988, UNESCO declared Henderson Island a World Heritage Site. Five sites have been identified as proposed Ramsar Convention Wetlands of International Importance, but no progress has been made in designation for a decade. Recent scientific surveys have uncovered a veritable 'ark' of species from the inshore down to the deep-sea vents.

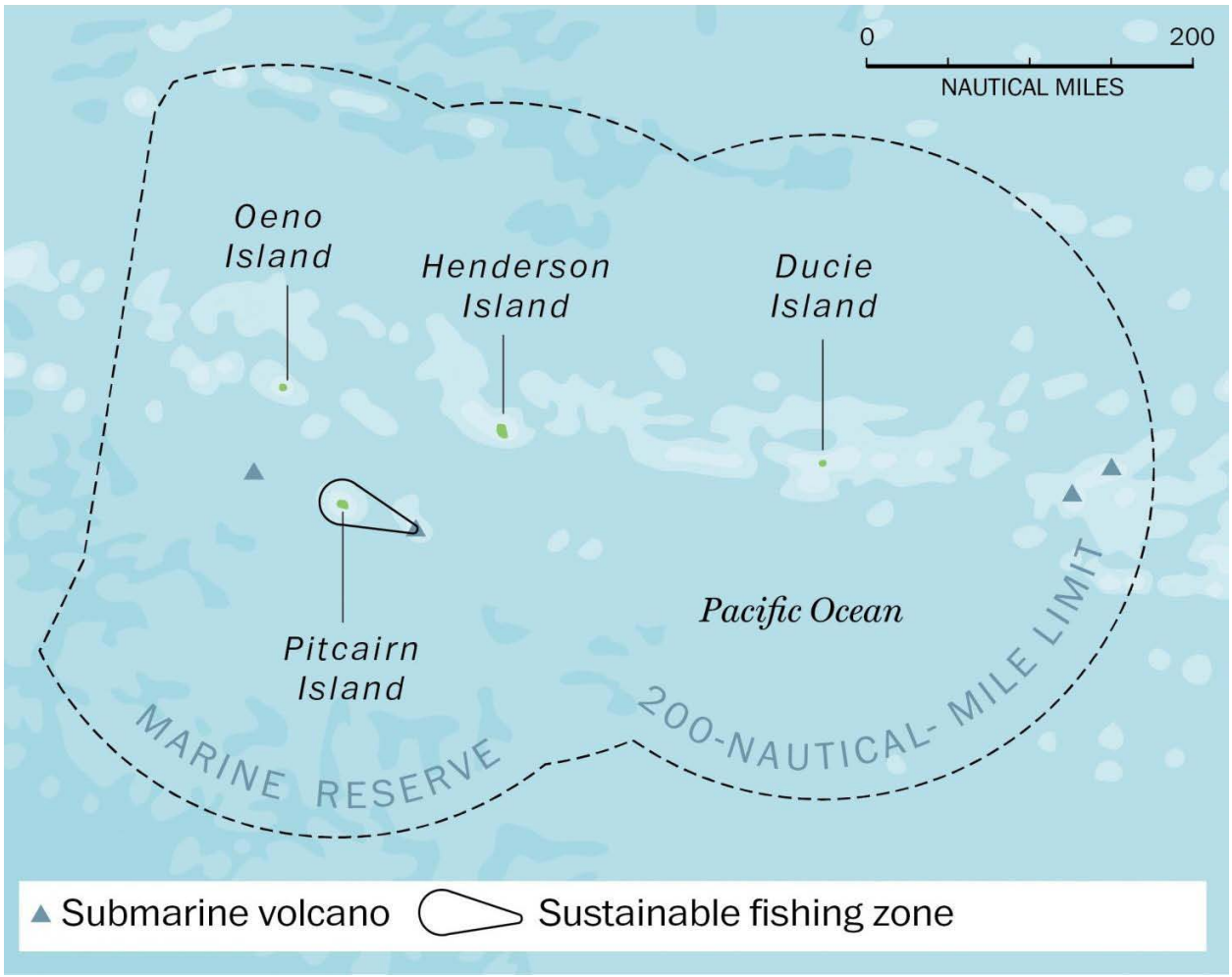
Pitcairn receives UK Budgetary Aid, which in 2012/13 totalled £2.9m, including: shipping/freight costs (£1.1m), professional salaries (£750,000), Pitcairn Island Office Auckland (£500,000) and infrastructure / repairs / capital equipment / local salaries.

In recent years, the main employment on Pitcairn

Above left: Pitcairn Islands organise a market of crafts on a visiting cruise ship (above right).

has been in local government and community services, with additional income provided by the sale of wood-carvings and curios to passing cruise ships, highlighting the island's historical and cultural heritage. Sales of island honey in Europe and elsewhere also provide an income stream.

Current plans are underway to revitalise Pitcairn Island with the creation of a Marine Protected Area (the largest in the world) (map below), and the building of an alternative harbour development (see picture at top of next page). Working with non-government organisations, the Pitcairn Island tourism department is developing new education and outreach initiatives with a focus on the natural features and biodiversity value of the islands and their marine environment. All of these activities will help to bring more tourism and cruise ships to Pitcairn and other islands in the group, to improve the local economy and support more sustainable livelihoods.



Proposed Pitcairn Marine Protected Area extent © *Pew Charitable Trusts*

Alternative harbour project: engineering works at Tedside, Pitcairn Island © Andrew Christian

Alternative harbour project: construction of the protective sea wall © Andrew Christian

On 18 March 2015, the UK Chancellor of the Exchequer, George Osborne announced in his Budget to Parliament that "The government intends to proceed with the designation of a Marine Protected Area (MPA) around Pitcairn".

Life in the seas around Pitcairn

Acknowledgents

Photographs courtesy of RSPB, Robert Irving, Enric Sala and Andrew Christian.

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Towards a marine mammal transboundary management and governance in the Caribbean region: UKOTs on board with us?

Romain Renoux, (Réserve Naturelle de St Martin/SPAW-RAC/Agoa) and Amandine Eynaudi, Agence des aires marines protégées/ Sanctuaire Agoa/)

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The marine mammal fauna of the Wider Caribbean Region (WCR) is diverse, and marine mammals have significant ecological, aesthetic and economic value to the countries and territories of the region. The wider Caribbean region is home to 32 different species of marine mammals. For many these, tropical waters serve as primary habitats for feeding, mating and calving. However, threats to marine mammals and marine ecosystems persist and new threats are emerging. Most marine mammals face multiple threats. Conservation measures that already are in force need to be evaluated and re-evaluated, and new approaches need to be developed to address threats that were unrecognized or non-existent until recently.

In 2008, the parties of the UNEP/SPAW protocol adopted a marine mammal action plan in order to assist participating governments in the region in their efforts to develop and improve marine mammal conservation policies and practices. Under this framework, regional initiatives have been undertaken:

- joint International Whaling Commission and UNEP workshops on marine mammal stranding and whale entanglement response;
- development of principles and best practice guidelines for marine mammal watching in the wider Caribbean;
- marine spatial planning and development of scenarios for marine mammal transboundary management in the insular Caribbean (LifeWeb project) highlighting critical areas for marine mammal preservation and suggesting management tools in more than 15 islands of the region.

In 2010, France and the local authorities of Martinique, Guadeloupe, Saint-Martin and Saint-Barthélemy declared the creation of the Agoa marine mammal sanctuary to ensure the conservation of marine mammals and their habitats. This area of 143,256 km^2 includes the territorial waters and EEZ surrounding the French Antilles. Improving scientific knowledge on species and habitats is a component of the Marine Mammal Action Plan for the Caribbean and the Agoa management plan. From 2012 to 2014, the French Marine Protected Areas Agency, with financial support from the SPAW-Regional Activity Centre, launched biannual transect lines and acoustic samples campaigns at sea to assess distribution and abundance of marine mammals within the sanctuary and its neighbour countries' waters, including those of Anguilla. MPA managers and staff were on board and trained in that regard.

As a complementary effort, the French MPA Reserve Naturelle de Saint-Martin and the SPAW-RAC have developed, in 2014, a satellite-tag mission on humpback whales. This is in partnership with the neighbouring islands of Anguilla, Saba, Sint-Maarten, and Sint-Eustatius, to assess migration routes of whales. Waters of Saint-Martin and Anguilla clearly host nursery and breeding grounds. Satellite tracking shows a strong connectivity between islands notably Anguilla, BVI, Dominican Republic, St Martin and St Barthélemy.

Multidisplinary, multi-islands teams' participation created new opportunities for collaboration and transboundaries management issues in the Caribbean. In that regard, the French MPA Agency is working on the establishment of sister sanctuary partnerships between existing and future sanctuaries, providing new avenues for collaborative action within and beyond the Caribbean Region.

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The marine mammal fauna of the Wider Caribbean Region (WCR) is diverse, and marine mammals have significant ecological, aesthetic and economic value to the countries and territories of the region.

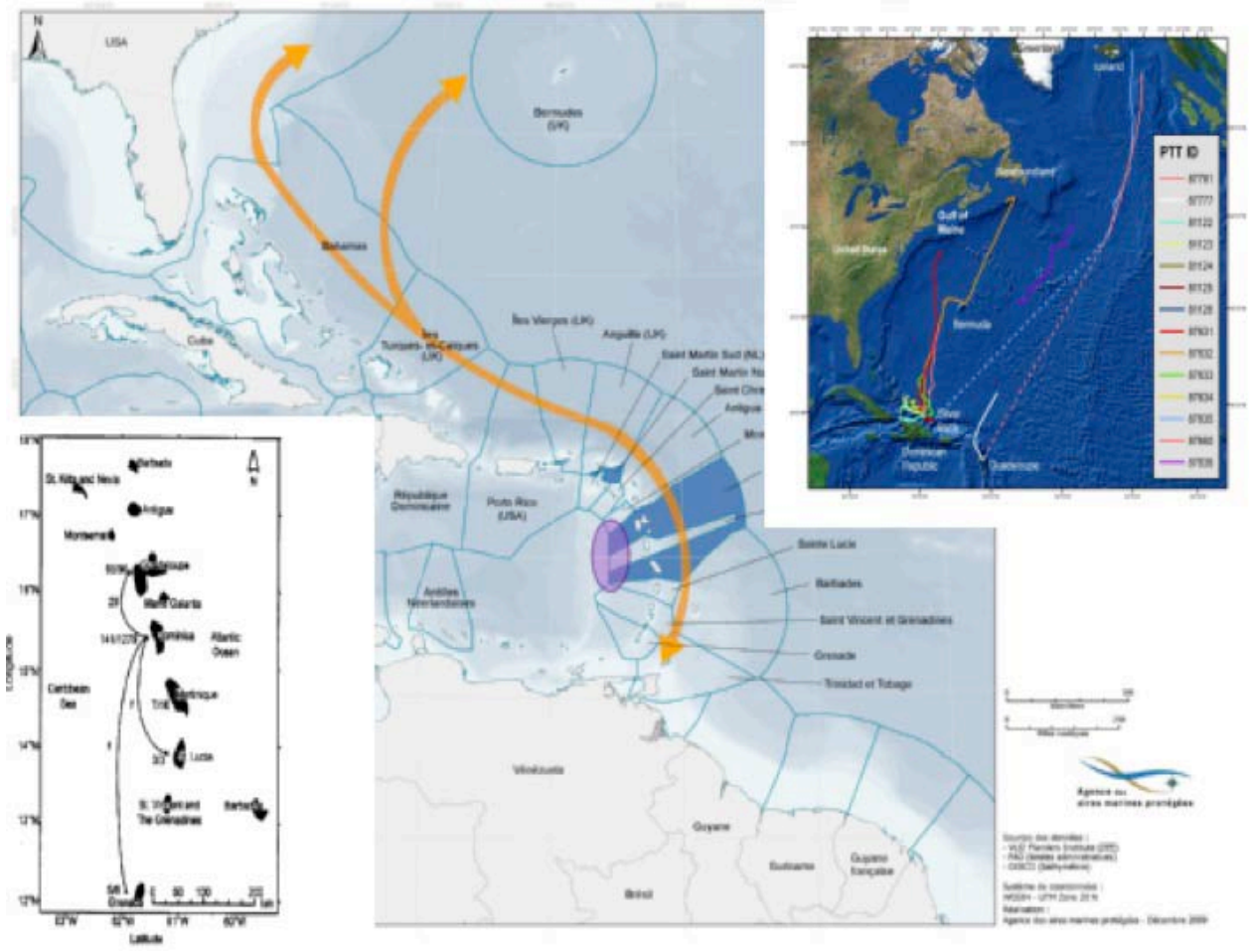
The wider Caribbean region is home to 32 different species of marine mammals. For many, these tropical waters serve as primary habitats for feeding, mating and calving. They also serve as important corridors 'stop-over points' connecting habitats in distant waters via long-ranging north-south migration routes in the Atlantic (see below and top of next page).

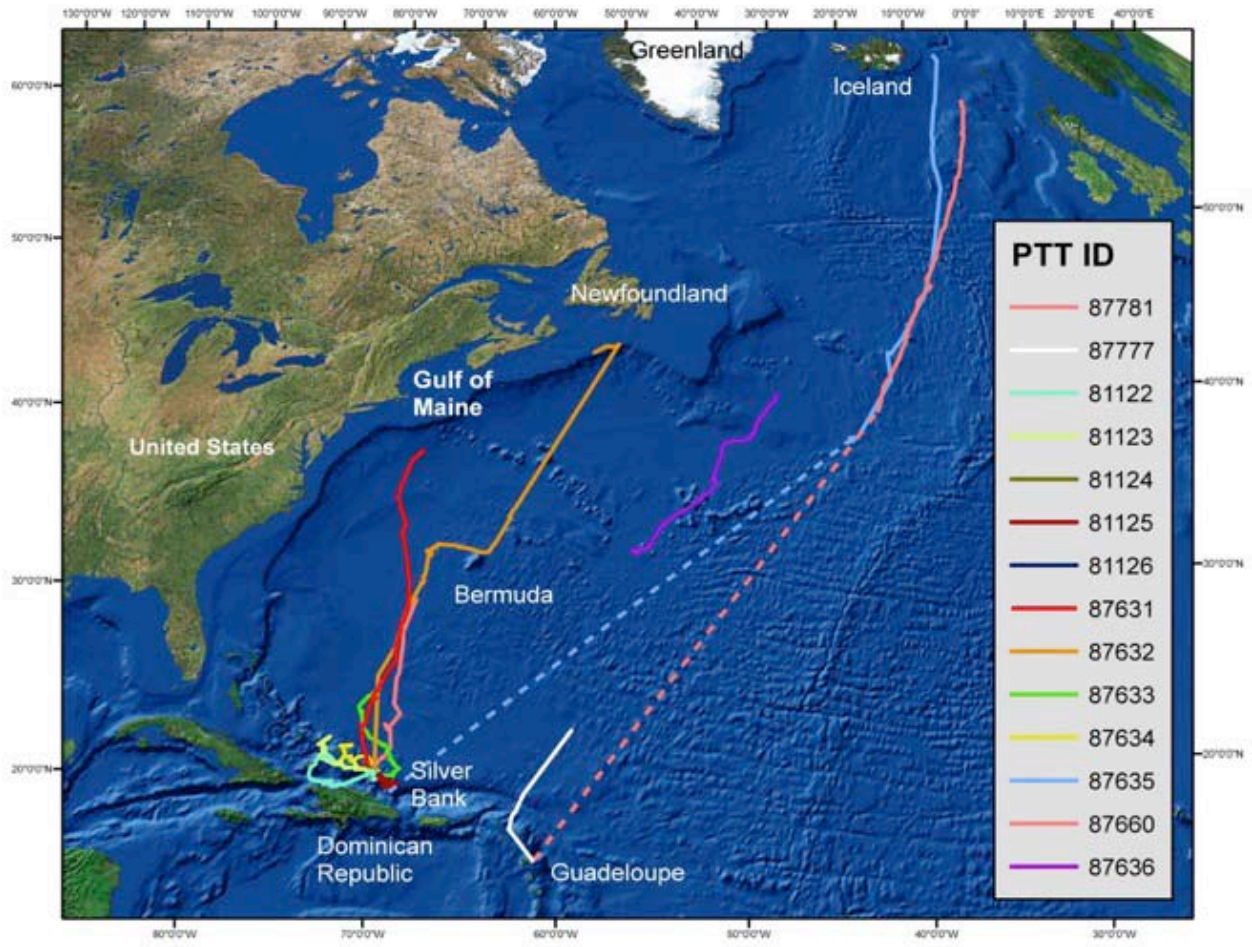
Nevertheless, threats to marine mammals and marine ecosystems persist and new threats are emerging. Most marine mammals face multiple threats such as maritime traffic, noise pollution, chemical and oil pollution, habitats degradation, and by-catch.

In 2008, the parties of the UNEP/SPAW protocol adopted a Marine Mammal Action Plan (MMAP) in order to assist participating governments in the region in their efforts to develop and improve marine mammal conservation policies and practices.

The MMAP goal is to assist participating governments in the region in their efforts to develop and improve marine mammal conservation policies and practices with two main objectives :

- Conservation and recovery of all marine mammal species and populations, and





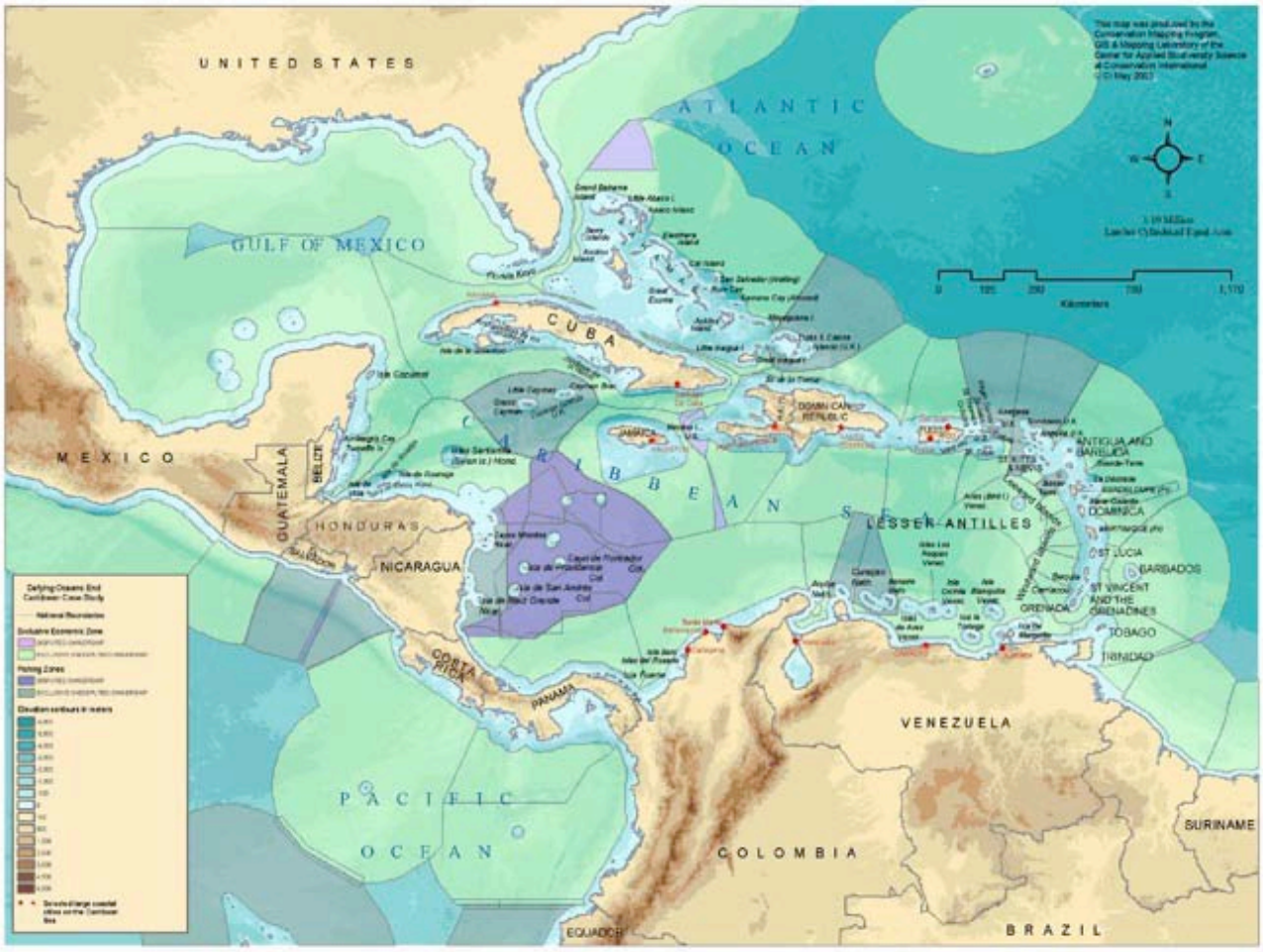
protection of their habitats in the region (*e.g.* feeding, breeding, and calving grounds, movement corridors).

- Establishment of regional cooperation programmes to increase scientific, technical, and educational exchange among relevant national, regional, and international organisations.

Sanctuaries that encompass most or all of a country's Exclusive Economic Zone are a powerful tool to ensure the conservation of marine mammal species, particularly cetaceans. Indeed, large protected areas are well adapted to the life-range of these species, whether resident or migratory, while the status of sanctuary allows for tailored measures and regulations that efficiently protect marine mammals without compromising human activities.

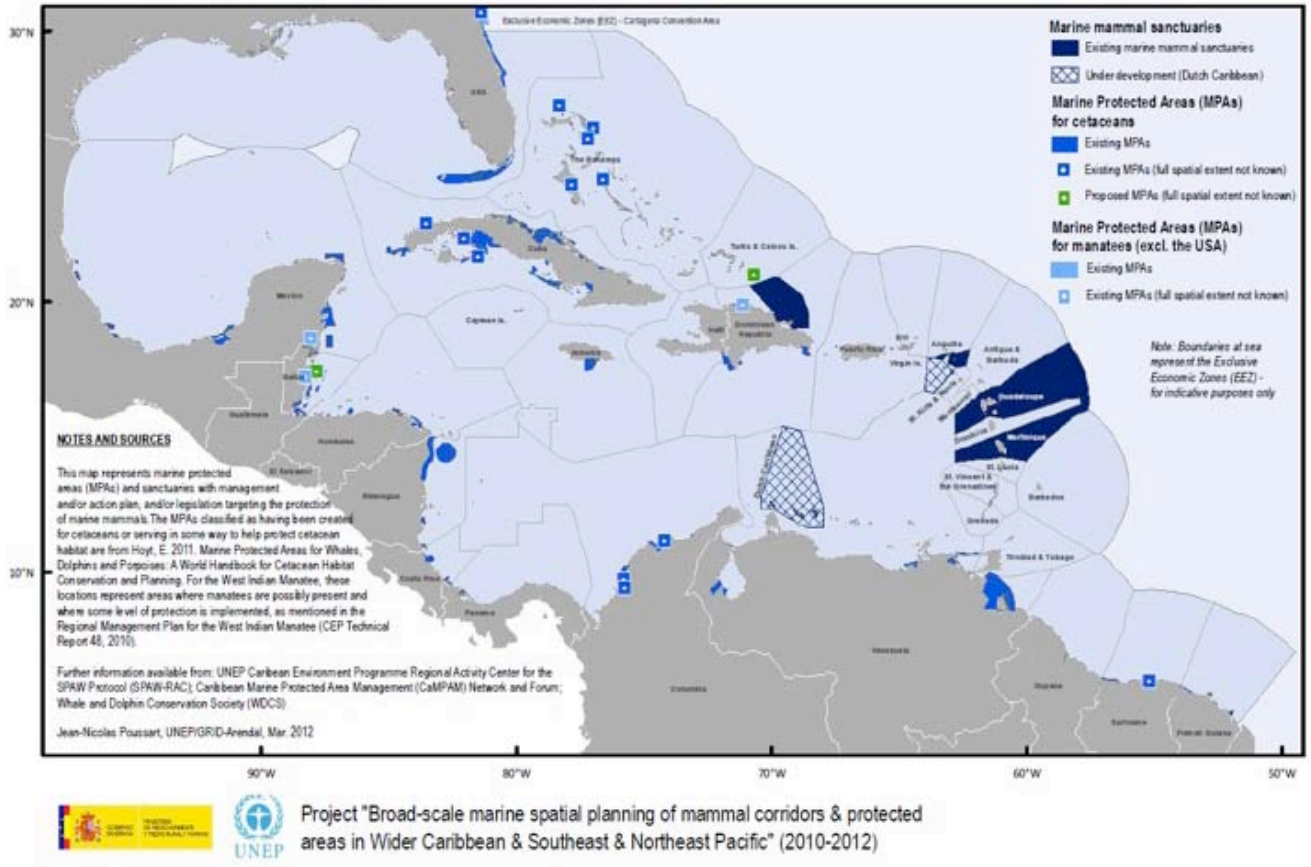
In the Wider Caribbean, several sanctuaries for the conservation of marine mammals have already been created over the years: the sanctuary for marine mammals in the Dominican Republic, that was established decades ago and which boundaries have recently been extended to protect banks such as Silver Bank, an important breeding and mating ground for the humpback whales. The government of France then declared, during the 6th Conference of the Parties to the SPAW Protocol in October 2010, the creation of the Agoa Sanctuary covering the entire EEZ of the French West Indies (St Martin, St Bart, Guadeloupe, Martinique). The Government of the Netherlands is planning as well in the near future to have the EEZ of Saba and Statia declared a marine mammal sanctuary. Finally, even if located outside of the Caribbean, the Stellwagen Bank sanctuary in the United States (Massachusetts) and Saguenay-Saint-Laurent Marine Park in Québec Canada are an important asset for the conservation of the Caribbean humpback whale, as it encompasses important feeding grounds that are used by the whales half of the year when they are not in the warm Caribbean waters for breeding and mating.

Of particular importance is also the network(s) on which a sanctuary can rely. Because of their wide range and their often migratory behaviour, marine mammal species are often known to cross the boundaries of marine protected areas, even when the latter are very large. It is therefore an asset for a newly established sanctuary to establish partnership with neighbour or more distant sanctuaries with which it shares the same marine mammal populations.

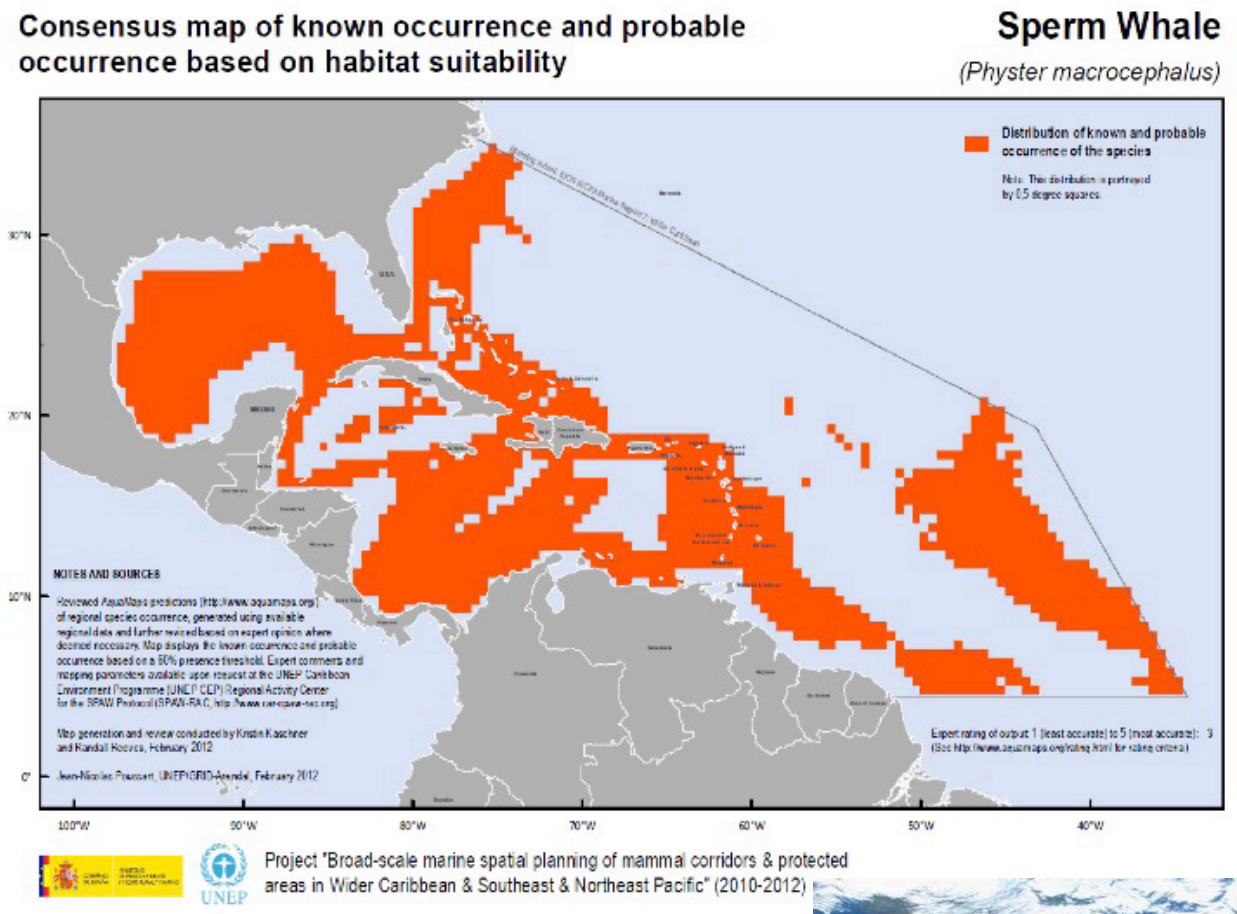


Marine Mammal Protection (1)

Sanctuaries and protected areas



Project "Broad-scale marine spatial planning of mammal corridors & protected areas in Wider Caribbean & Southeast & Northeast Pacific" (2010-2012)



In this way, several sister sanctuary agreements have already been signed: between the US (Stellwagen Bank) and the Dominican Republic (Marine mammal sanctuary of the Dominican Republic), between France (Agoa) the US

(Stellwagen Bank) and the Canada (the Saguenay-Saint-Laurent Marine Park). New agreements are expected to be signed in the near future, especially between France and the Dominican Republic, and also to connect Agoa and the future sanctuary in the EEZ of Saba and Statia.

Of interest is also the declaration of intent between the partners involved in sister sanctuary agreements that was announced during the 2nd International Conference on Marine Mammal Protected Area in La Martinique in November 2011, and where the partners confirmed their will to work together and with other interested parties to establish agreements between their respective sanctuaries, develop common activities for monitoring, management and capacity-building.

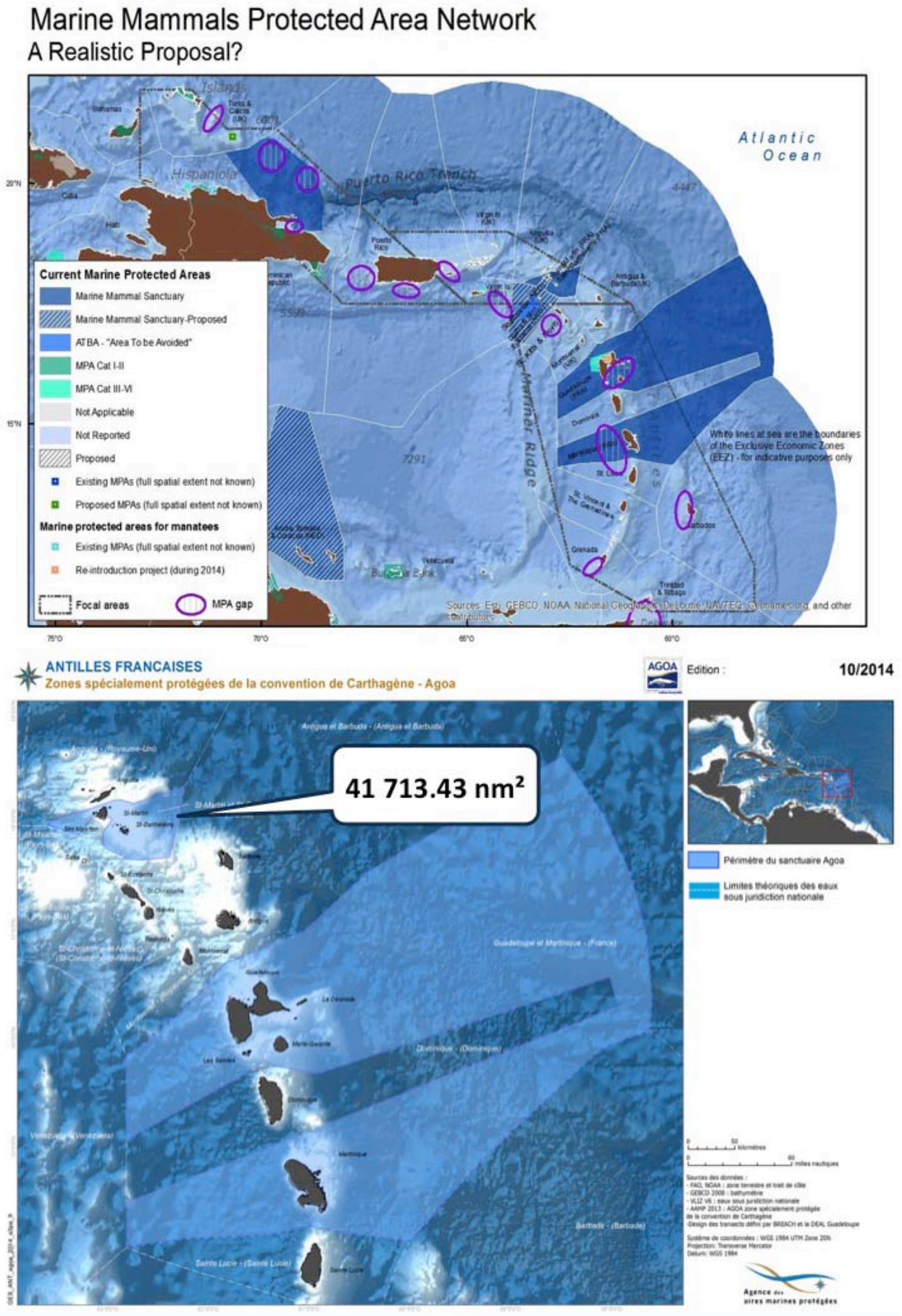
For this purpose, a first marine mammal sanctuaries cooperation meeting was organized on St. Maarten in 2012 and a second one in March 2015. Participants from the USA, France, Caribbean Netherlands and the SPAW Regional Activity Center (RAC) agreed to work together as marine mammal MPAs, cooperating on research and monitoring projects. The participants decided that the name for this group of cooperating partners is to be Marine Mammal Protected Areas Network – MAMPAN

Furthermore, a project coordinated by UNEP, UNEP-CEP and the SPAW-RAC called "Broad-scale Marine Spatial Planning of Mammal Corridors and Protected Areas in Wider Caribbean" aimed at developing scenarios for transboundary management of marine mammals based on marine spatial planning. Its main goals were to enhance national capacities for broad-scale marine spatial planning, including guidance on transboundary management and governance, and to assist in the implementation of Regional Marine Mammal Action Plan in the Wider Caribbean Eastern Caribbean. Analysis of overlaying ecological and socio-economic maps with maps of various threats provided a way to identify critical areas in the region.

In 2010, France and the local authorities of Martinique, Guadeloupe, Saint-Martin and Saint-Barthélemy declared the creation of the Agoa Marine Mammal Sanctuary to ensure the conservation of marine mammals and their habitats. This area of 143,256 km² includes the territorial waters and EEZ surrounding the French Antilles.

Improving scientific knowledge on species and habitats is a component of the Marine Mammal

Action Plan for the Caribbean and the Agoa management plan. From 2012 to 2014, the French Marine Protected Areas Agency launched biannual transect lines and acoustic samples campaigns at sea to assess distribution and abundance of marine mammals within the sanctuary. With financial



support from the SPAW-RAC, marine protected areas managers from neighbouring countries, including Anguilla, were on board and trained in that regard.

The French Agency for marine protected areas (*Agence des aires marines protégées*) decided to conduct a series of aerial surveys – REMMOA surveys (*REcensement de la Mégafaune Marine*

par Observation Aérienne; Census of Marine Megafauna by Aerial Observation). This follows a standardised methodology that allow comparisons, within and between regions as well as temporally, for the identification of hotspots of abundance and diversity and the establishment of a future monitoring scheme of cetacean and other pelagic megafauna across the French EEZ. This ambitious programme allows the identification of preferential habitats and areas of potential risks in a management and conservation perspective, and is the first of this kind to be conducted in the areas covered.

The general study areas of the REMMOA surveys include all sectors of the French EEZ in the tropical Atlantic (French West Indies and Guiana), southwestern Indian (Reunion Island, Mayotte and the Scattered Islands) and south Pacific (French Polynesia, New Caledonia, Wallis and Futuna).

The first phase started in 2008 and its field work component was totally completed January 2015, whereas its initial analysis is still in progress and is planned to be achieved in 2016. The monitoring phase should revisit all four regions (Caribbean-Guiana, south-west Indian Ocean, south-west Pacific Ocean, and Polynesia) and would start in 2016 in the French West Indies EEZ (Martinique, Guadeloupe, Saint-Barthélemy, Saint-Martin), and we hope across waters of adjacent countries in a context of regional co-operation thanks to several partnerships that need to be build.

As a complementary effort, the French MPA *Réserve Naturelle de Saint-Martin* and the SPAW-RAC have developed in 2014 a satellite-tag mission on humpback whales in partnership with the neighbour islands of Anguilla, Saba, Sint-Maarten, Sint-Eustatius to assess migration routes of whales.

Waters of Saint-Martin and Anguilla are clearly a nursery and breeding grounds. Satellite tracking shows a strong connectivity between islands, notably Anguilla, BVI, Dominican Republic, St Martin and St Barthélemy.

Multidisplinary, multi-islands teams' participation created new opportunities for collaboration and transboundaries management issues in the Caribbean.

Several messages and decisions encourage national initiatives of creating additional sanctuaries in the Wider Caribbean

In the declaration that established the Agoa Sanctuary, the Government of France had also wished to invite other countries to consider establishing their own sanctuaries, and offered to partner with them as appropriate. Are UKOTs on board with us ?

Sustainable fisheries management in the South Atlantic: Models of best practice

Indrani Lutchman

Lutchman, I. 2015. Sustainable fisheries management in the South Atlantic: Models of best practice. pp 201-207 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

Sustainable fisheries management draws on fisheries science in order to find ways to protect fisheries resources so that sustainable exploitation is possible. In addition, governmental systems must adopt appropriate management rules on defined objectives and a mix of management means to implement the rules – including monitoring control and surveillance as well as the use of observers to ensure compliance. The management of fisheries resources by the Government of South Georgia and South Sandwich Islands (GSGSSI) and the Falkland Islands Government (FIG) are internationally recognised as examples of best practice by the Marine Stewardship Council (MSC) and regional bodies such as the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR). This paper provides a brief overview of the status of these fisheries including the current fisheries management regimes implemented to ensure long term sustainability of marine resources in the South Atlantic. The role of specific measures such as the use of rights-based management (licensing) to control access to the fisheries in the Falkland Islands, and marine protected areas (MPAs) in South Georgia and the South Sandwich Islands (SGSSI) will also be discussed. The applicability of these measures to the management of fisheries in other UK territories is also examined.

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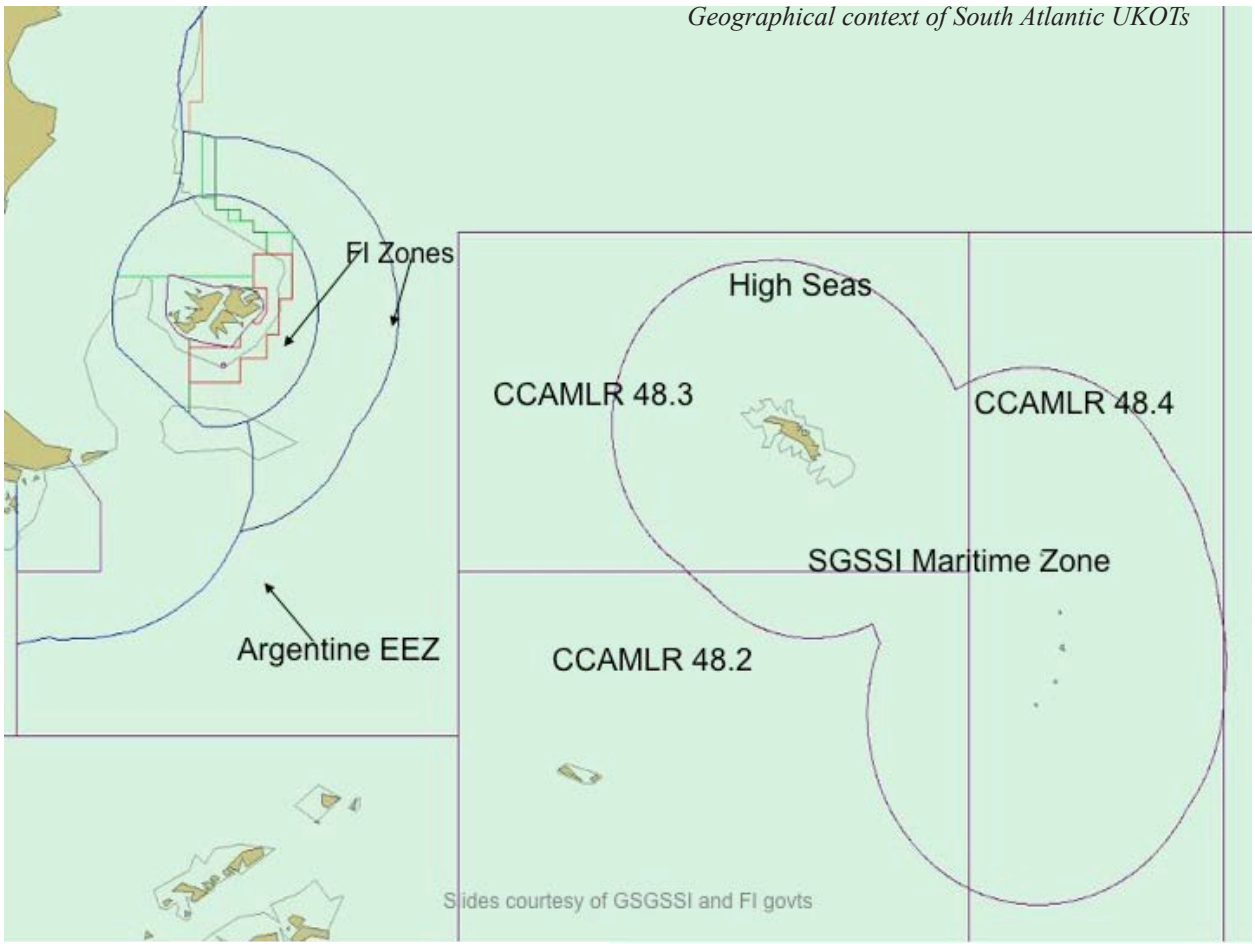
This presentation provides an overview of the status of these fisheries including the current fisheries management regimes implemented to ensure long term sustainability of marine resources in the South Atlantic. The role of specific measures such as the use of rights-based management (licensing) to control access to the fisheries in the Falkland Islands, and marine protected areas (MPAs) in South Georgia and the South Sandwich Islands (SGSSI) are discussed. The applicability of these measures to the management of fisheries in other UK territories is also examined.

All photo credits: Government of South Georgia & the South Sandwich Islands and Falkland Islands Government

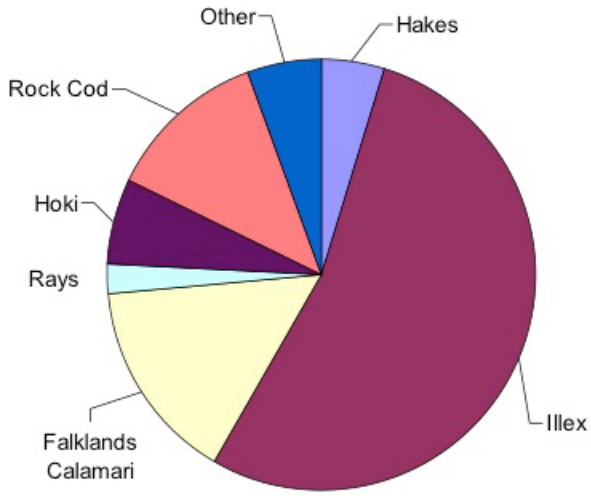
Falkland Islands fisheries

The main commercial fisheries are the two squid species, *D. gahi* and *Illex.* But there is a variety of other demersal species including hake, kinclip and toothifish and rock cod.

The total annual catch is 200,000 tonnes. This is not a large fishery in world terms but a significant squid fishery and significant in terms of global supply.



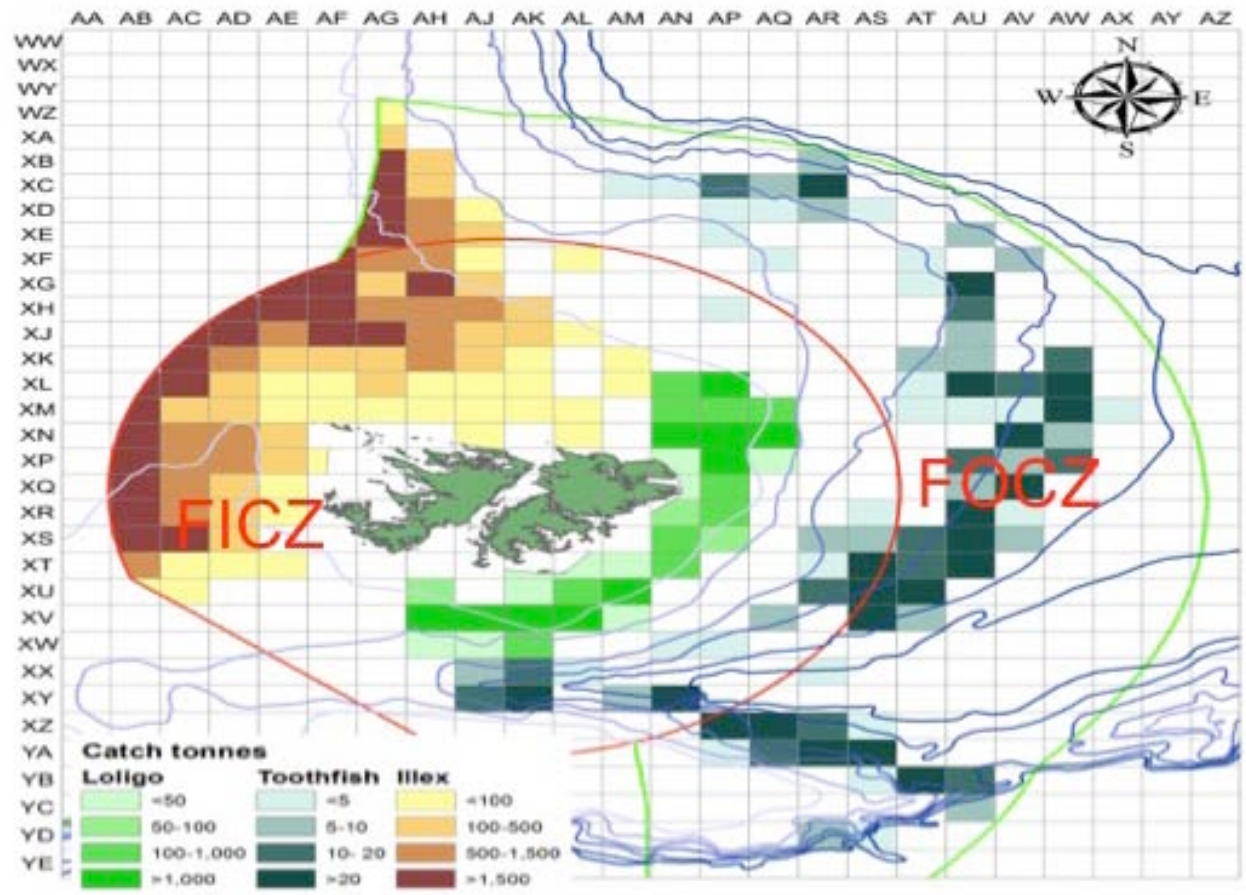
Geographical context of South Atlantic UKOTs



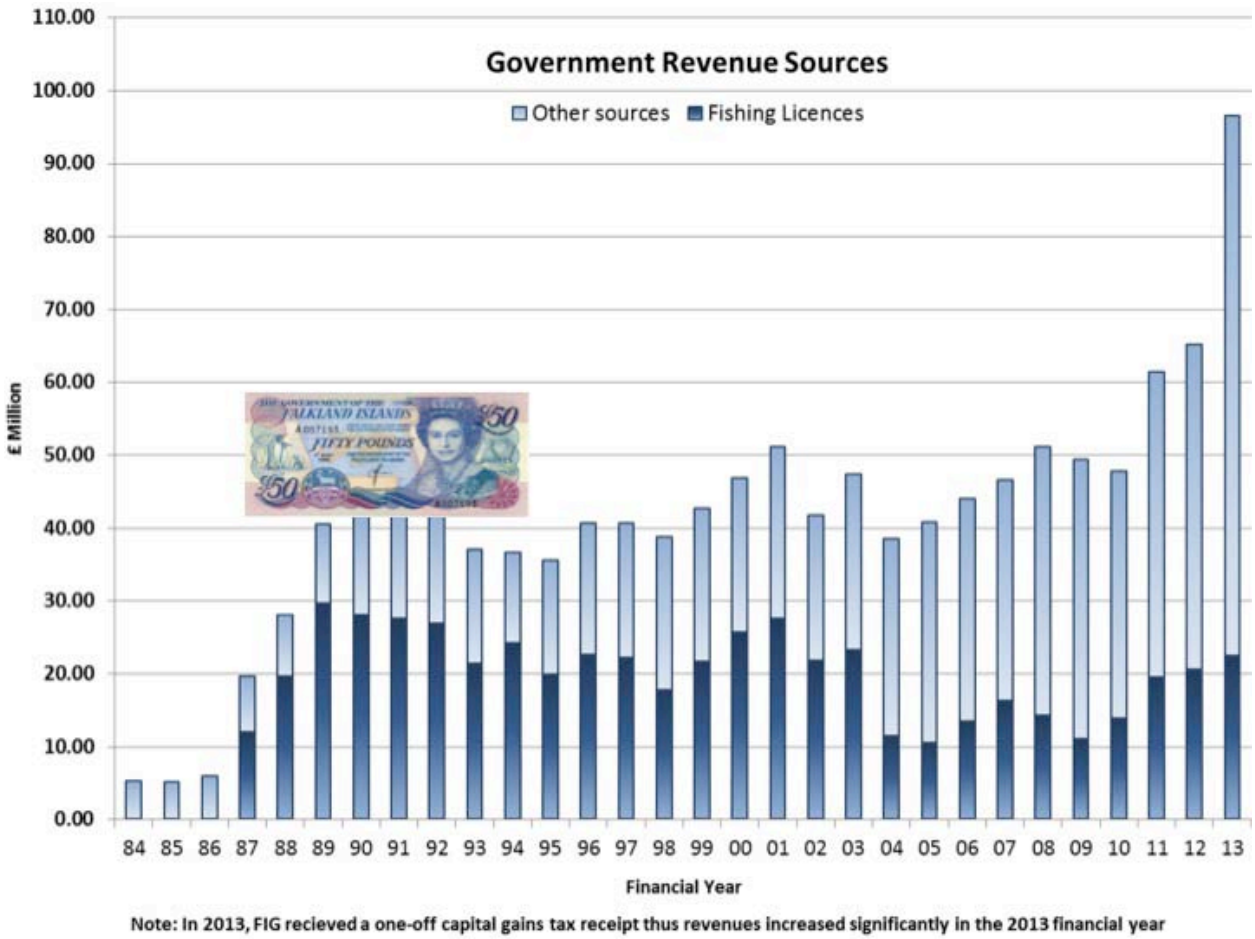
FI Fisheries (Total Catches 2013)

The squid (both species) usually account for 75% of the annual catches by jiggers or trawlers. *Illex* catches over the last couple of decades fluctuate more than the Falklands squid, and it is highly migratory. *Illex* is caught outside of FICZ into FOCZ in the North; *Loligo* caught entirely within the FICZ (see top of next page). Toothfish is another highly migratory species but less importantly economically important than squid, (at least in the FI context compared to SG); highest catches are in the FOCZ to the East.

The revenue generated by the licenses (next page) has sustained the FI economy since 1987. Fisheries revenue has averaged around £20 Million per annum although more recently revenue has declined to £12-15M per annum as a result of several very poor *Illex* seasons. Squid stocks can be quite volatile due to their one-year life cycle. Fisheries revenue has averaged around £20 million per annum although more recently revenue has declined to £12-15M per annum as a result of several very poor *Illex* seasons. Squid stocks can



be quite volatile due to their one-year life cycle. Fisheries revenue has averaged around £20 Million per annum, although more recently revenue has declined to £12-15M per annum as a result of



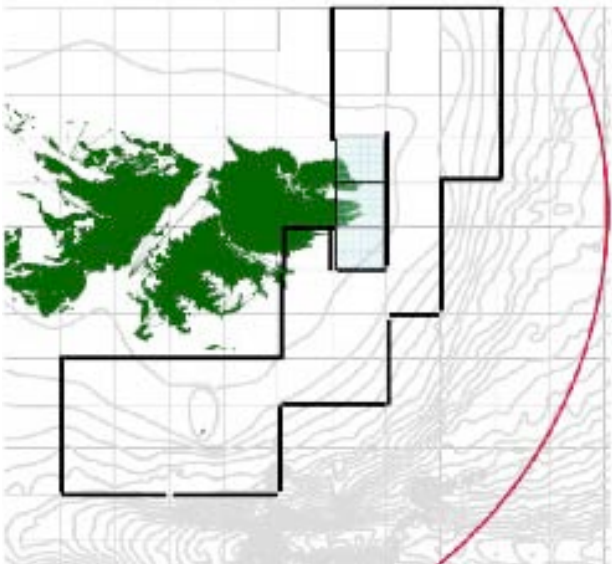
Note: In 2013, FIG recieved a one-off capital gains tax receipt thus revenues increased significantly in the 2013 financial year

several very poor *Illex* seasons.

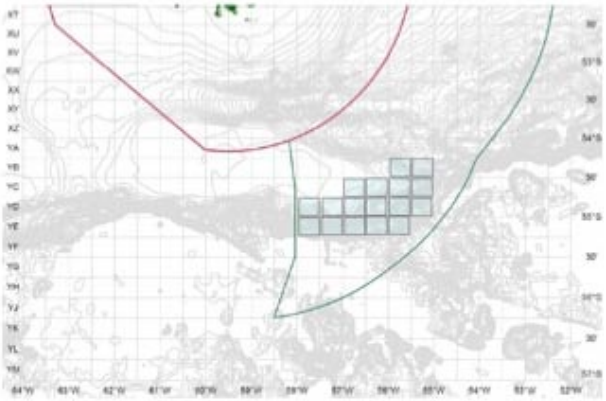
Falkland Islands management regime

The key objective is to manage the fisheries using the precautionary approach to achieve MSY (maximum sustainable yield). Rigorous stock assessments are conducted using commercial catch-and-effort statistics, observer data, life-cycle research and surveys. Also the FI use an innovation with research equipment and laboratory: 42 days research time per year (fitted on commercial vessel).

Since 2005, Falkland Islands Government (FIG) has sought to develop and stimulate Falkland Islands involvement in the fishery through a change in policy. The policy has attempted to maintain a number of the partnerships formed during the time that the joint venture scheme was in place and encouraged the development of new partnerships with Falkland Islands' companies. The main purpose of the policy has been to promote and develop a commercial fisheries sector within the economy of the Falkland Islands. The policy has also sought to create opportunities for Falkland Island companies and residents. Whilst the policy has allowed a variety of commercial arrangements, joint ventures and vessel ownership have proved the most popular. There are currently 13 companies in Falkland Islands which hold Individual Transferable Quotas (ITQ) until 2013, the Falklands fleet includes 16 trawlers and 2-3 long lines; their number is slowly increasing.



Falkland Islands- temporal and spatial closed areas

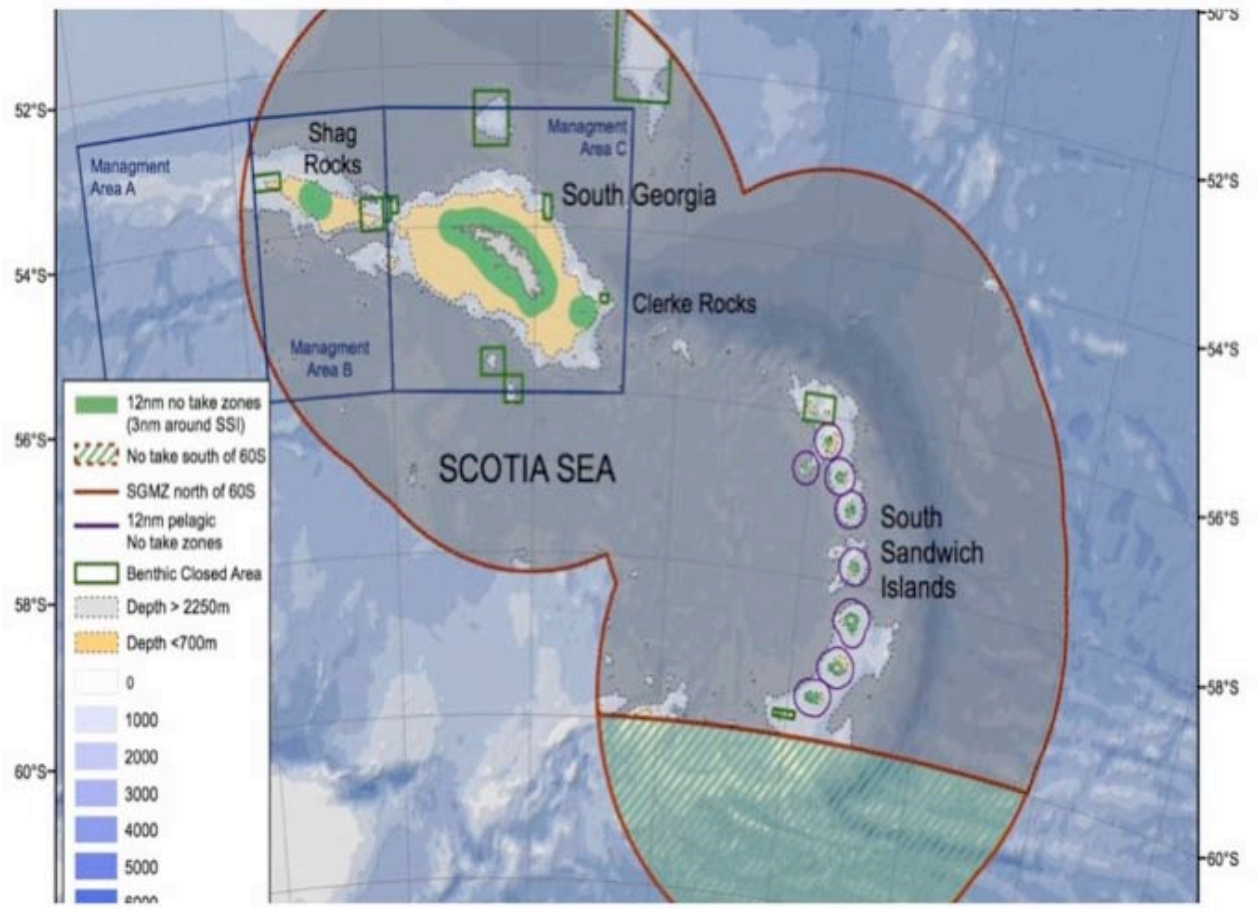


South Georgia and the South Sandwich Islands

- Sub-Antarctic island group;
- Maritime zone of 1.3 million km^2;
- South of the Polar Front;
- Cold surface water < 4 C;
- Highly productive region;
- Relatively pristine;
- Abundant Antarctic krill;
- Large numbers of charismatic predators.

Patagonian toothfish

- Demersal longline
- Deep-water
- High value
- 2000 tonnes p.a.
- Seabird by-catch issues
- £4 million per year



Mackerel icefish

- Pelagic trawl
- Krill-eater
- 4000 tonnes p.a.
- Prey of penguins and fur seals
- £0.5million per year

Antarctic krill

- Pelagic trawl
- High volume: low value
- 70,000 tonnes in 2014
- Key species in food-web
- £1 million per year

Toothfish management measures

CCAMLR

- Seasonal closures;
- Night-setting;
- Line-weighting;
- Streamer lines;
- 100% observer coverage;
- CDS, VMS;
- 5-day reporting; monthly reporting.

GSGSSI

- Closed areas;
- Tagging 1.3 fish / tonne;
- Fishing vessel safety;
- Marked hooks;
- Ban on netting;
- Vessel specific CFs;
- Catch verification;
- Daily reporting, VMS, AIS.

SGSSI – environmental issues

- Ecosystem effects (krill predators) from expansion of the krill fishery
- Environmental effects (benthic impacts) – specifically in Vulnerable Marine Ecosystems (VMEs)

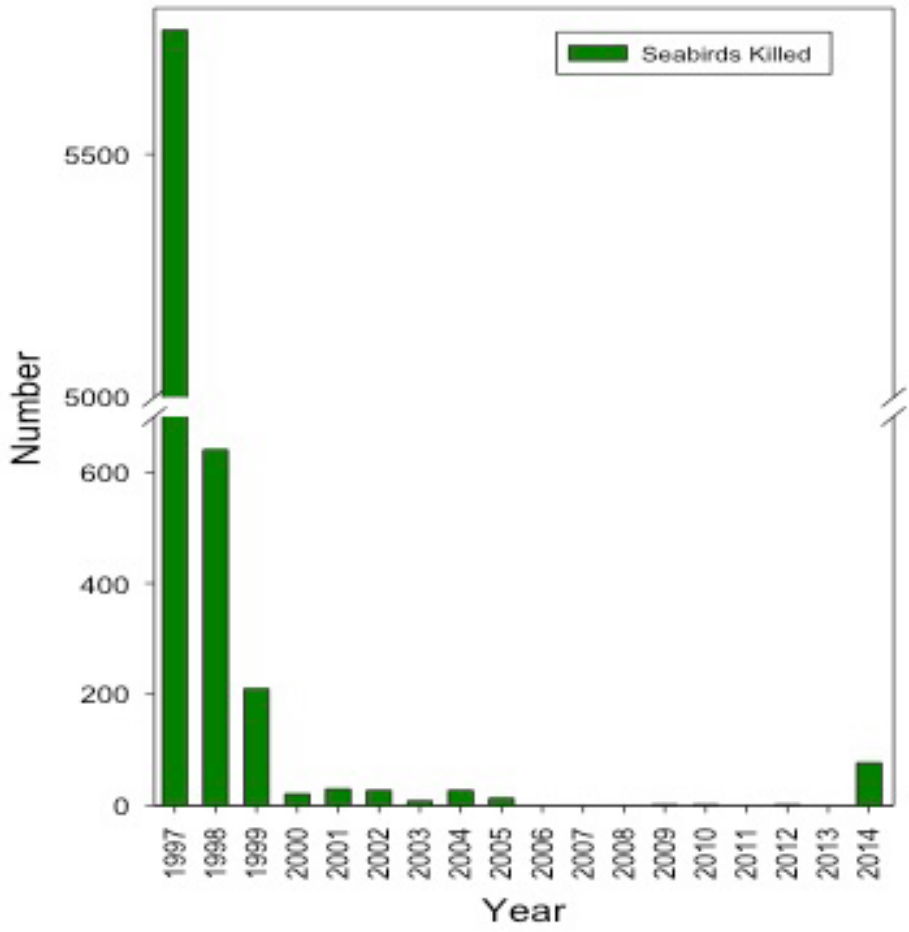
Elements of good practice

Science and research

- Data collection (commercial and research)
- Stock assessments
- Peer reviewed science

Tailored management

- Licenses (limiting access and effort)
- Closed areas/seasons



- Mitigation Measures/ technical measures

Partnerships

- With the companies licensed to fish in FI andSG
- Collaboration and partnerships at regional/ international level

Inspection

The impact of regulations

IUU fishing down to zero due to increase MCS including inspections and aerial surveillance

Seabird mortality was reduced from 1990s level although a small by-catch post 2010 due to the experimental extension of the season.

South Georgia and South Sandwich Islands MPA

- Initial meetings in 2010 to establish process;
- Reviewed existing fisheries regulations;
- Implement existing fisheries measures to create sustainable use MPA: 1.07 million km^2 (2012)
- Since 2012:

  Identify objectives and threats;

  Review existing data;

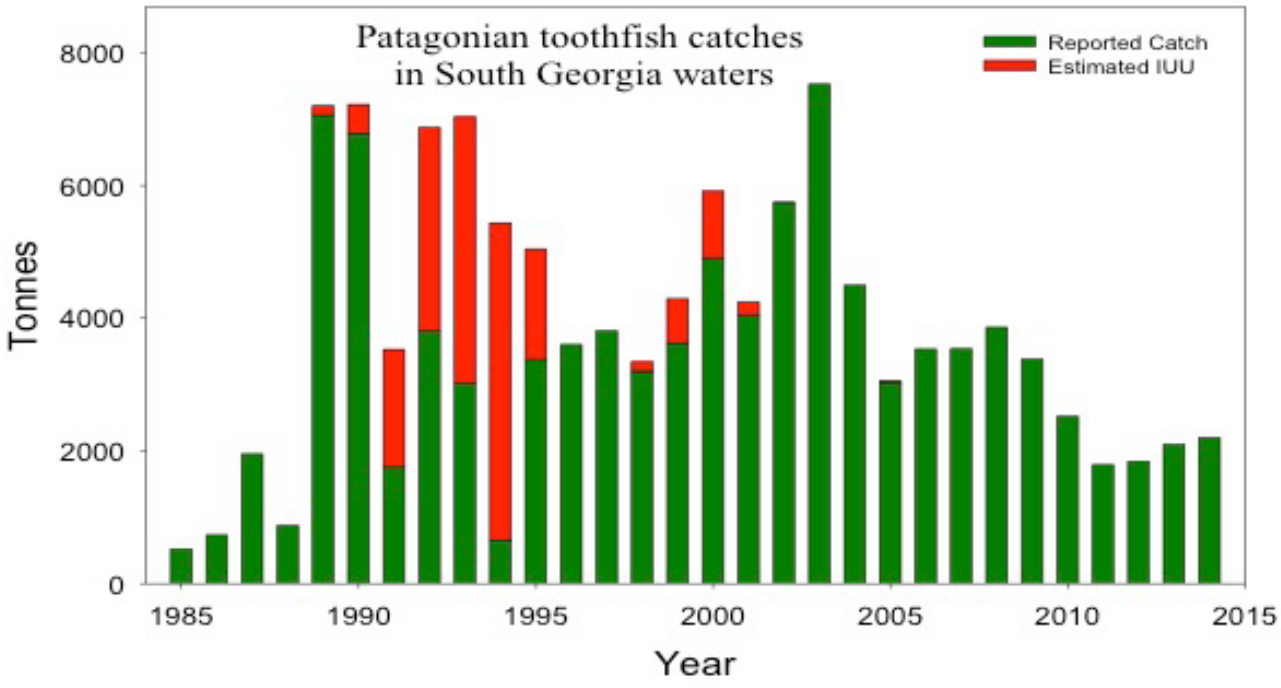
  Identify research priorities;

  Scientific workshops;

  Legislation.

Revised MPA 2013

- 1.07 million km^2 sustainably managed MPA;



- Prohibition of bottom trawling;
- Coastal no-take zones around South Georgia, Shag Rocks, Clerke Rocks and SSIs;
- Seasonal closure of the krill fishery to protect krill-eating predators;
- Bottom fishing only allowed between 700 and 2250 m;
- Suite of additional Benthic Closed Areas;
- Only 8% of the sea-floor subject to fishing.

Elements of best practice

- Falkland Island and South Georgia fisheries now well established
- In early days - limited data as basis fisheries development and management
- As data improved FIG and GSGSSI use precautionary and adapted management
- FI and GSGSSI use – licenses, good science; MCS; sanctions; MSC
- Partnerships and collaboration.

Implications for UKOTs

From the UK White Paper:

1. Continued and improved coordination, cooperation and knowledge sharing on environmental management between the UK and its Territories, and between the Territories themselves.
2. Continued delivery of UK technical advice and direct support on environmental issues within the UKOTs to where it is most needed.
3. Supported and facilitated mainstreaming of the value of the natural environment into the decision making of Governments, businesses and communities of the UKOTs.

Conclusion

- South Atlantic (SGSSI and FI) UKOTs present opportunity for showcasing best-practice fisheries management
- SGSSI and FI – very lucrative fisheries; great investment and political will
- Lead by example and transfer of expertise
- Expertise exists in the UKOTs – how to proceed in establishing protocols, assessments etc.

Tristan da Cunha – another example of registered sustainable fisheries and its recovery from the *Oliva* wreck

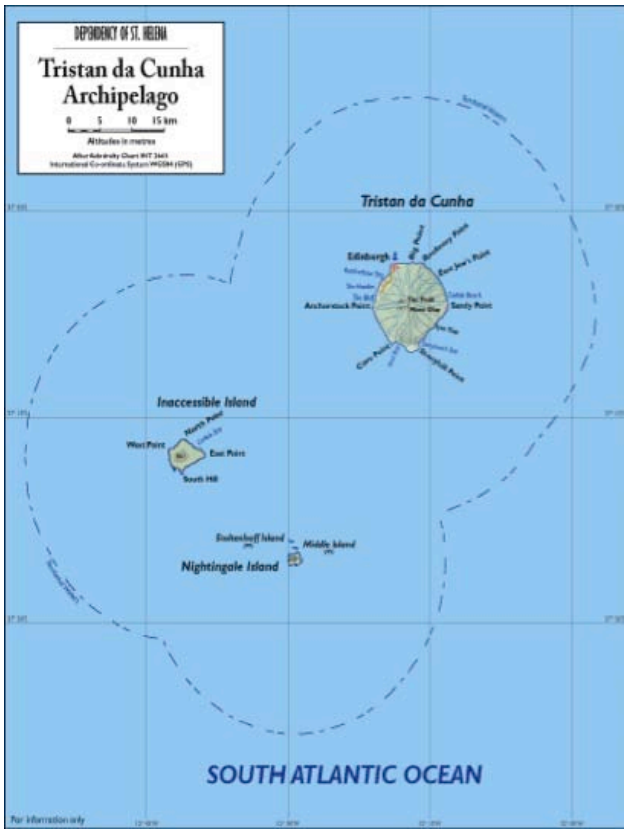
Jim Kerr and James Glass (Tristan da Cunha Government)

Kerr. J. & Glass, J. 2015. Tristan da Cunha – another example of registered sustainable fisheries and its recovery from the Oliva wreck. pp 208-214 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

1. Location of Tristan da Cunha and its outer islands; population, and remoteness. Island sustainability largely dependent on the fishery.
2. Brief history of the lobster fishery.
3. Fishery management - single user has incentive to invest in long term sustainability. Good management supplemented by adding minimum size, seasonal closures, boat and trap restrictions, catch quotas and ban on taking egg-bearing females.
4. Description of fishery. Vessel based on outer islands, catches processed and frozen on board. Island-based fishermen in small boats around Tristan itself using hoops and traps. Catch landed at Calshot Harbour and delivered live to processing factory on the island.
5. Workforce, two company representatives and 23 full time islanders. Fishing days supplemented by fisherman usually employed by TdC Government. Evenings further islanders employed in processing, approximately 140 at that time.
6. Factory and Markets: 3rd factory opened in 2009 built to EU standards. Marine stewardship award 2011 led to wider markets. Fish currently exported to USA, Japan, Australia and EU.
7. *Oliva* disaster March 2011: Description of incident at Nightingale. Leakage of 1500 metric tons of heavy fuel oils, 70,000 l diesel and loss of 65000mt of soya beans. Seabirds, especially penguins, affected by oil, soya sludge on sea floor 10 months after the wreck and lobster flesh contaminated. Fisheries at Nightingale and Inaccessible closed. Fish tested monthly until no contamination detected. Fishery reopened 2012 /13 season with TAC set to 40mt at Nightingale. Precautionary approach taken to present day, and Nightingale showing excellent signs of recovery.
8. Regulation and licensing: TACs and minimum size limits set annually for each island and 4 islands managed separately. CPUE (catch per unit effort) is the primary input to assessment and all other available data used to produce age-structured production models. Annual independent biomass surveys running since 2006. Harvest control rules and operations management procedures have been developed recently and are in place.
9. Threats to sustainability include illegal fishing and the state of Calshot Harbour.
10. Future Development: Increased knowledge base and understanding of Tristan's marine ecosystem. Further education and training. Exchange/sharing of expertise and ideas with other UKOTs.

[Jim Kerr, UK Adviser – Government of Tristan da Cunha
Head of Education – Tristan da Cunha 1985-1992
Education Adviser – Tristan da Cunha 2009-2014
Honorary Tristan da Cunha Conservation Officer]
James Glass – Head of Fisheries – Tristan da Cunha

Tristan is located 1519 nautical miles to the west of the nearest mainland of Cape Town, and is home to unique marine wildlife, found nowhere else in the world. The islands consists of the main inhabited island, Tristan da Cunha, with two smaller islands, Inaccessible and Nightingale around 20 nautical miles from Tristan, and Gough Island (not shown on map below) some 223 nautical miles to the SSE (Inaccessible and Gough constitute a World Heritage Site). Tristan da Cunha is known as being the most isolated inhabited community in the world, with a population in the region of only 270.



Tristan's fishery is for the Tristan lobster *Jasus tristani* (photo at top of next column) that is distributed among several isolated islands and submerged seamounts in the South East Atlantic Ocean. This species occurs only at the Tristan da

Cunha group and in international waters at Vema Seamount, 1680 km ENE of Tristan. All these populations are exploited commercially. The catch, processing and export of *J. tristani* is the most important economic activity for the inhabitants of Tristan da Cunha, providing the livelihood of many families and accounting for approximately 80% of the Island's revenue.

Fishing started in 1949, when the fish were tinned in a small processing plant that was buried by the lava of the 1961 volcano that also caused the evacuation of the island. It was not until freezer shipments to South Africa in the late 1960s and the introduction of steel traps on longlines in 1974 that commercial exploitation began in earnest.

Declines in the catch per unit effort (CPUE), and size composition led to the introduction of a size limit of 70mm in 1983. However catches continued to decline and, following an independent analysis of the stock status, total allowable catches (TAC) were introduced in 1991.

The previous concession holder contested the right of the Government to impose TACs and subsequently lost the concession when it was put up for tender at the end of 1996. At that time, new restrictions were written into the agreement and enforced and, as a result, the fishery started its recovery.

The uniqueness of the Tristan fishery is in the way it is managed. The island has an agreement with a single user to ensure that the licensee has a strong incentive to invest in the long-term sustainability of the resource. Tristan Islanders are acutely aware that fishing is the mainstay of the island's economy and, if sustained, will ensure employment for the next generation.

Although an exclusive concession should provide adequate incentives for good management, over the years it has been supplemented by adding a minimum size, seasonal closures, boat and trap

restrictions, a ban on taking egg-bearing females and catch quotas.

Tristan has two distinct lobster fishing sectors: a vessel-based fishery and an island-based fishery. The two sectors are closely linked as they share the same resource and markets, however, they differ in many key aspects:

Deploying lobster traps on longline's

Hauling lobster traps

The vessel-based fishery is operated by concession that employs a large ocean-going fishing vessel from Cape Town in South Africa that targets fishing grounds around the three outer islands of Inaccessible, Nightingale and Gough Island using long-lines with monster traps.

Deploying a 5 m dory

This vessel deploys also three 5m dories which fish close inshore using smaller lobster pots/ traps. Catches are processed and frozen on-board, consisting of tails only, whole cooked, whole raw and sashimi. The crawfish bodies are also packed for the Japanese market.

Tristan local fishing boat hauling a hoop net

The Island-based fishery is operated solely by island fishermen that is restricted around the island of Tristan da Cunha, using 7-8 m power-boats operating with hoop-nets and powerboat traps, (no plastic traps are allowed to operate within the fishery). All traps within the fishery have open access, so there is no ghost fishing if lost.

All catches are landed at one central point, Calshot Harbour, and transported to the fish factory for processing. The fish are delivered live and purged before processing, a requirement for sales into the EU.

Fishermen sorting their catch

The harbour is susceptible to damage from storms, and weather conditions for much of the year restrict the use of the harbour. On average there are

Calshot Harbour and fishing boats

Above and below: Calshot Harbour in a storm

only 65 fishing days per year.

Tristan's sustainability as a community is dependent entirely on the harbour, and damage from storms is a constant anxiety for the people. The islanders would like a new harbour built in a better location to the East of the existing one and believe that, in the long term, this would be more viable economically. In the meantime there is an agreement with the UK Government to maintain the existing harbour when necessary.

The workforce is entirely Tristanians, except for two company representatives of the fishing

The lobster-processing factory

company. The fish factory only employs 23 people fulltime, but when there is a suitable fishing day a dong is rung and people working for Government PWD go fishing for that day. In the evening when the boats return to the harbour a siren beckons the ladies (clerks, nurses, shop assistants, etc) to come to the factory to process the catch. At this time approximately 140 people are employed.

Three lobster processing factories have been built, the first one a cannery was buried under the 1961 volcano, the second one was destroyed by fire in 2008, and the third and present one opened in 2009 and was built to European Union (EU) standards.

In 2011 Tristan da Cunha won a Marine Stewardship Council award (photo above) and gained international recognition as a high quality and sustainable fishery. This has enabled Tristan to widen its lobster market and develop further its fishing industry, which is vital for the sustainable future of the community.

The product goes to a variety of markets: tails to the USA; whole cooked, whole raw and bodies to Japan; and whole raw to Australia. After ten years of hard work to comply with EU standards, in October 2014, the first Tristan lobster was

Above: products; and below:on sale in Selfridges

imported into the European Union (Germany, France, Switzerland, Holland), and in the UK at Selfridges, The Little Chelsea Fish Market and Roka, a group of Japanese Restaurants in Central London). There is also a by-catch of octopus which usually sells in South Africa.

In March 2011 a bulk carrier, the *Oliva* ran aground at Nightingale Island. She broke up and sank a few days later. This led to a leakage of some 1500 tonnes of heavy fuel oils and approximately 70,000 litres of diesel, which spread around both Nightingale and Inaccessible Islands.

Oliva *aground at Nightingale Island*

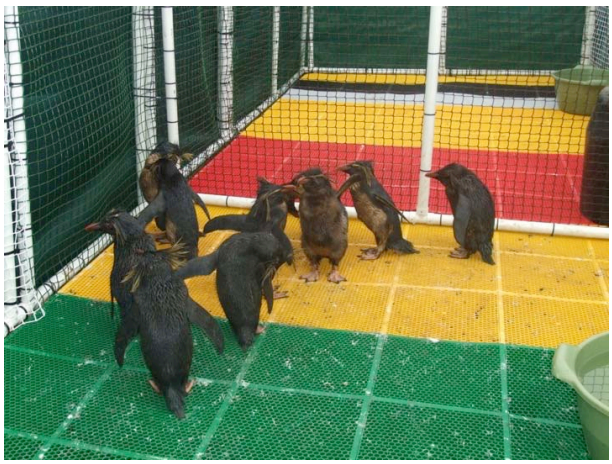
18 March 2011: Oliva *broke in half and sank: all 65,000 tonnes of the soya cargo lost*

Oliva *stern section*

After the ship broke up, all her cargo of some 65,000 metric tonnes of soya beans was lost. Much of this sank, rotted and formed pockets of thick black sludge on the sea floor, some of which was still there 10 months after the sinking of the *Oliva*.

There was wide scale oiling of several seabird species, most notable 4000 rockhopper penguins (below) at Nightingale.

Sadly despite huge rescue efforts, it is estimated only 10% of the penguins rescued survived.



Oiled rockhopper penguins captured and taken to Tristan for cleaning and attempted rehabilitation

Following the *Oliva* incident, the lobster fishery was closed at both Nightingale and Inaccessible. There was contamination of the lobster flesh, and a "test fishing" exercise was conducted at both Nightingale and Inaccessible during the months July 2011 to January 2012.

Lobster samples were subsequently collected inshore/offshore over a period of six consecutive months, and sent to a laboratory in Aberdeen Scotland for testing until no contamination was found. The results of this test fishing resulted in the fishery remaining closed at Nightingale the following season, as well as a reduction in the TAC at Inaccessible.

Biologists with expertise in this area consider that the oil is most likely to have impacted the juvenile (aged 1-3) lobsters (above), which tend to be found clinging to shallow vertical rock surfaces and in tidal pools. However, the effect of the oil on the juvenile lobsters will become evident only around 2017 onwards, and therefore the TDCG has set a conservative TAC. Recent CPUE results at Nightingale show excellent signs of recovery, and it could be that the lobsters just moved into deeper, cleaner water and went of the bite, rather than died as was the first thought and have now started to return to their habitat. The closure of the fishery for that length of time was also one of the main factors in its recovery.

The most important management measure for the

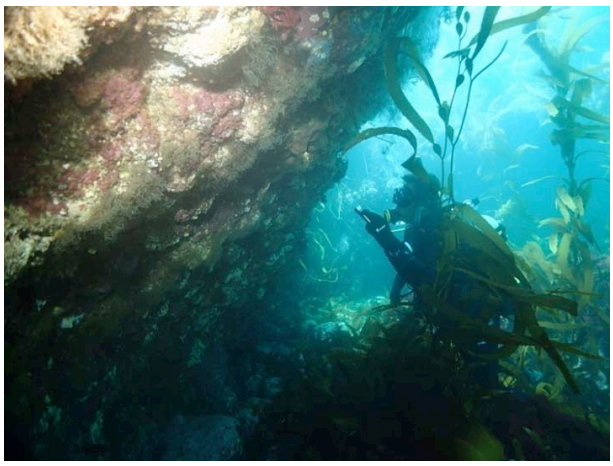
Illegal, Unregulated and Unreported (IUU) Fishing Figures: A. Jigging Fishing Gear – B. Lobster Trap – C. Gill Netting D. Surface Longline (Snood on top) – E. Bottom Longline – F. Springer Line – G. Trawl netting

Tristan Fishery has been the imposition of TACs for each island, introduced in 1991.

The 4 islands (3 inner Tristan islands and Gough Island) are managed separately, using annual TACs and minimum size limits. Catch per unit effort is the primary input to the assessment model. The stocks are assessed using all the available data as input to age structured production models. Fishery independent biomass surveys which have been running since 2006 are also carried out before the start of fishing each season.

The Tristan Fisheries Department and the Marine Research and Assessment Group (MARAM) UCT have been working together to produce Harvest Control Rules (HCR), and Operation Management Procedures (OMP) as part of a requirement for MSC certification, which are all currently in place and will be used in due course for setting annual TACs.

The greatest threat today is posed by illegal, unregulated and unreported (IUU) fishing, and there is virtually no capacity to assess, let alone control this activity. (See previous page for illegal fishing gear,) The Director of Fisheries, acting as a Sea Fishery Observer onboard a trawler this year in January, observed six different types of illegal fishing gear on the seamounts. Although there is 100% observer coverage on the fishing ship, the island's fishery Patrol boat (a Pacific 38) cannot even reach the closest seamount, which is 90 miles from Tristan, and our harbour only gives us approximately 65 working days a year.



Sustainable management of the marine environment and resources of Tristan da Cunha

especially the dynamics of the lobster stock, so that progress can be monitored through the gradual implementation of scientifically defendable fisheries management procedures. It would also like to increase its research and monitoring capacity.

The Darwin Plus project currently running at Tristan (Sustainable management of the Marine Environment and resources of Tristan da Cunha) is helping to achieve some of this.

Education and training for those involved in Tristan's fishery, and the possibility of exchanging and sharing skills with other Overseas Territories will help also to ensure the long-term future of Tristan's fishery and community.

The ability of Tristan to police its waters effectively has conservation importance that extends beyond the need to limit seabird by-catch, especially with Tristan's revenue usually being less than £1 million annually.

For the future, Tristan's Fishery Department would like to increase its knowledge-base and understanding of the marine ecosystems,

Action Plan For Maintaining Coral Reef Health in the Turks & Caicos Coral recovery projects

Don Stark (Turks & Caicos Reef Fund)

Stark, D. 2015. Action Plan For Maintaining Coral Reef Health in the Turks & Caicos Coral recovery projects. pp 215-218 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

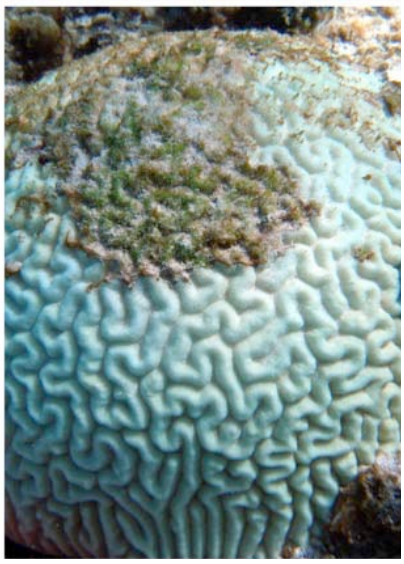
There are many threats to coral reefs around the world. Higher ocean temperatures as a result of climate change and ocean acidification are just two events threating the lives of coral reefs. But other, more direct, threats also exist. Lionfish love to eat parrotfish. Without parrotfish, algae will smother coral reefs. Shark fishing can significantly reduce the shark population on reefs, and sharks are needed to maintain a healthy reef ecosystem. The actions of man, such as anchor damage to reefs and environmentally unsound development projects, can have major and rapid adverse affects on coral reefs. But there are actions that can be taken to help fix the damage done and prevent future damage. Lionfish control, coral nurseries, coral restoration and monitoring, artificial reefs and shark protection are just some the activities being pursued in the Turks and Caicos Islands. In addition, through the acquaintances made via the UKOTCF, inter-island collaborations and information sharing are benefiting the efforts in the TCI and elsewhere in the UKOTs.

Don Stark, Chairman, Turks & Caicos Reef Fund
donstark@tcreef.org

The objective of my presentation today is to outline the key threats that we see facing the coral reefs in the TCI and some of the action steps we are taking to address these threats.

First, let me tell you a little bit about the Turks & Caicos Islands. It is a independently-governed UK territory consisting of approximately 40 islands and cays with a total land mass of approximately 430 square kilometers. The TCI are located just south of the Bahamas and just north of the island of Hispaniola where Haiti and the Dominican Republic are located. The TCI has a population of just over 30,000 souls with just over two-thirds of those living on the island of Providenciales. The islands see just over a million visitors each year, the vast majority are short-term visitors to the cruise ship terminal on Grand Turk. Only about 300,000 visitors are considered longer-term visitors, and the vast majority of those spend their days on the world famous beach of Grace Bay located on Providenciales. The average per capita gross domestic product is US$23,100, and the main industries are tourism, financial services and fisheries. We claim to have the third largest fringing barrier reef system in the world and approximately 4% of the reefs are located in Marine Protected Areas.

Everyone in this room is aware that coral reefs are under significant threat from many factors. The biggest three are climate change, overfishing and pollution. In fact, according to the US National Oceanic and Atmospheric Administration, approximately 20% of all coral



reefs in the world are damaged beyond repair. Approximately 50% of those remaining are under risk of collapse. In addition to the big three of climate change, overfishing and pollution, coral disease, tropical storms, vessels running aground or anchoring on reefs, tourist damage to reefs and invasive species add to the pressure on coral reef systems around the world.

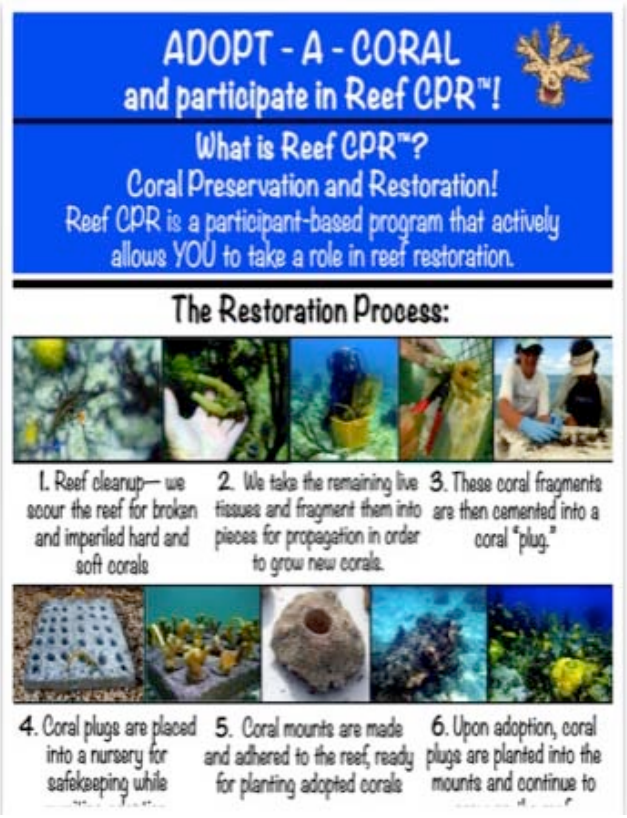
In the near term at least for the TCI, the three biggest threats to our coral reef system come from climate change, invasive species and tourists.

Our biggest invasive species threat is the ascendency of the lionfish (above) population which has occurred throughout the tropical Atlantic and Caribbean. One of the main concerns with lionfish is their potential impact on the population of herbivore fishes, especially parrotfish. Parrotfish are one of the main inhibitors of algae overgrowth on coral reefs, and any significant reduction in their population will have a negative impact on the health of the TCI coral reefs. From dietary studies, parrotfish are one of the main species of fish eaten by lionfish in the Caribbean and tropical Atlantic. In addition to threatening the coral reefs by decreasing parrotfish (below) populations and allowing algae overgrowth to occur, lionfish also are a threat to an already stressed commercial fishery in the TCI. Catches of commercially

important species such as snapper, grouper, lobster and conch are down significantly due to overfishing, and the consumption of juveniles of these species will not help with recovery of these fisheries. It is critical that we control the population of lionfish within TCI waters.

To accomplish this, we are working toward establishing a lionfish fishery in the TCI. We have attempted to incentivise local fishers to catch lionfish. Unfortunately the financial incentives we have offered have not been enough to motivate fishers to fish for lionfish. We have been successful, however, in getting several restaurants on Providenciales to agree to buy all the lionfish we can supply, so there is a demand. We want also to promote lionfish consumption to tourists but, until we can ensure that they can order lionfish at a number of restaurants, we have not pursued this aspect of the effort. So we have had limited success to date and we have shifted gears a bit. Our plan now is to work with a single fisher who will agree to focus on lionfish and, once we can clearly show that this fisher is being financially successful catching lionfish, we will present his success story to the other local fishers. We are also hoping that, as the ability to catch other commercially attractive species continues to decline, fishers will see lionfish as a new and attractive opportunity.

Climate change is affecting all of us in the tropical Atlantic and Caribbean, as well coral reef systems elsewhere in the world. One key step in understanding the impact climate change is having is understanding how the coral populations are changing over time. In other words, we cannot know how much impact climate change is having if we are not monitoring for its effects. To that end, we are attempting to establish a regular coral monitoring programme with DEMA – the TCI governmental department responsible for



the environment and maritime affairs. We are working also with a partner to establish coral nurseries to help rebuild damaged reefs around the TCI. As with most coral reef monitoring efforts, funding has been difficult to secure, so we are attempting to implement financing mechanisms to support the monitoring effort. One is an "Adopt-a-Coral" programme where visitors can pay US$50 to adopt a newly transplanted coral on a shallow near-shore reef. Another financing mechanism we are pursuing is enticing resorts to pay to have reef-ball reefs installed in the shallows in front of their resort. They will recoup their investment by charging guests a US$2 per night "conservation fee" – half of which the resort retains and half goes our organisation to support coral monitoring and maintenance of the reef-ball reef.

Tourism drives our economy in the TCI, so there is a constant push to grow that part of the economy. The addition of a cruise-ship terminal on the capital island of Grand Turk produced a tremendous increase in the number of individuals visiting the country, if only for a few hours. The push by Government is now on to find other ways to increase tourist traffic. One proposal is to allow the high-density hotel developments. Historically, the TCI has been noted for its low-density, high-end tourism business. But the desire to grow tourism is tempting the Government to move away from that successful business model. More tourists mean more pressure on the reefs from snorkels and

divers, pollution from sewage, trash, landscaping chemicals and petroleum products. More tourists mean more vessels on the reefs and an increase of vessel groundings. Finally, there is also a push to build a second cruise-ship terminal on the pristine island of East Caicos, along with a trans-shipping centre. Such a development, if it goes forward, would destroy one of the most pristine coral reefs left in the Caribbean and tropical Atlantic.

What can we do to address these threats? We are working diligently to protect the reefs that are frequently visited by tourists. We have installed boundary buoys around a shallow inshore reef to help keep snorkelers off the shallow parts of the reef. We have installed new moorings all around the islands for snorkel boat and dive boat operators to use instead of dropping anchors. We are attempting to educate tourists through our Adopt-a-Coral programme and we are actively lobbying the government against approving high-density developments and dredging for new developments such as those proposed for East Caicos.

One other item I want to mention, primarily because it is an area where we have had a recent success (sort of), is protection of shark populations in the TCI economic enterprise zone. The TCI has one of the healthiest populations of sharks in the tropical Atlantic and Caribbean. Sharks are seen

on almost every dive and snorkeling excursion. Fortunately, shark fishing has not been a problem in the TCI waters and we hope to keep it that way. We are lobbying to have the Government make the entire economic enterprise zone a shark sanctuary. Thus far, Government has passed regulations banning the export of shark products. These new regulations were to take effect on 1 June 2015, but there implementation date has been delayed along with other major fishery regulation changes that had been proposed and passed. We remain optimistic that the shark product export ban will ultimately be implemented. In the meantime, the Pew Charitable Trust has been working with us and others in the TCI to educate the Government and locals about the importance of sharks to a healthy reef environment.

Since we founded the TCRF just over 5 years ago, one of the biggest benefits we have found has been our relationship with the UKOTCF and its Wider Caribbean Working Group (WCWG). Through this relationship we have established liaisons with other like-minded individuals in other UKOTs and have begun to establish the early stages of a coral monitoring network. We have been able to meet with and share ideas on lionfish control issues. And we are exploring potential collaborative funding opportunities. We are grateful to the UKOTCF for their support and assistance in moving many of our projects forward.

Thank you all for your time and attention.

Marine Protection in Bermuda: Lessons Learned from 400 years of Management and a Range of Geographical Scales

Annie Glasspool and Jack Ward (Bermuda)

Glasspool, A.F. & Ward, J.A. 2015. Marine Protection in Bermuda: Lessons Learned from 400 years of Management and a Range of Geographical Scales. pp 219-223 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

Continuously populated since 1609, Bermuda represents the northernmost coral reef system in the world. With a land mass of just 55 km^2, the main islands of Bermuda sit on the only emergent seamount of the 7 seamounts within the Island's EEZ, which comprises an area of 466,000 km^2. This oasis of life, encircled by the unique ecosystem of the Sargasso Sea, lies in an otherwise largely oceanic desert, and exists largely by virtue of the northerly extension of subtropical systems to this latitude; a phenomenon that can be attributed to the transport of warm waters by the Gulf Stream.

The Island's evolution from a strategic outpost of rich resources ripe for replenishing mariners supplies, to an attractive tourist destination and subsequent international business hub, where its major assets were no longer its harvestable resources but rather its location, natural beauty and comfortable climate, has seen a major shift in the pressures placed on the natural environment. Accompanying this 400-year evolution has been a barrage of marine-based conservation measures, some reactionary, some proactive, some evidence-based, some precautionary, some successful, some irredeemable failures; some indeed that have sorely divided the community and shaken public confidence in the whole idea of marine spatial planning. The scale has changed too - from the establishment of two of the world's earliest coral reef preserves in 1966, to the more recent Hamilton Declaration on Collaboration for the Conservation of the Sargasso Sea, which extends Bermuda's stewardship commitments to beyond its EEZ. New management frameworks are also being explored; a prospective marine Ramsar Site at Castle Islands, also part of the World Heritage Site of St George's, and possible plans for a Marine Spatial Plan extending around the Island to the 200 m depth contour. This more far-reaching approach is in direct recognition of, and in part actively driven by, an expanding diversity of user groups, and with this the need to embrace a more pragmatic approach to the sustainable development of the island and its people.

Dr Annie Glasspool, Vice-President, Bermuda Environmental Consulting Ltd
annie@environmentbda.com

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Image: Bermuda Zoological Society

Over the succeeding years, the Island evolved from a strategic outpost of rich resources ripe for replenishing the early mariners' supplies, to an attractive tourist destination and subsequent international business hub, where its major assets were no longer its harvestable resources but rather its location, natural beauty and comfortable climate. This has resulted in a major shift in the pressures placed on the natural environment and the management measures needed as a result.

The need for marine management action was recognised early in Bermuda's history, with possibly the earliest conservation legislation in the New World enacted in 1620. Concern over the decline in numbers of the Bermuda's nesting Green Turtle *Chelonia mydas* population led the Bermuda Assembly to enact legislation to prohibit harvesting of the smaller turtles, and only allowed continued harvesting of larger specimens. Whilst this might not seem an unreasonable management approach, it turned out to be critically flawed on account of erroneous understanding of their biology. It allowed the ongoing decline of Bermuda's own nesting population (the larger turtles), whilst protecting young turtles from the Caribbean, which migrate to Bermuda as juveniles and return to their nesting beaches further south as adults. Bermuda's own turtle population was extirpated.

The key legislation leading effectively to spatial protection of marine resources has really occurred in the past half century and includes:

1966 Coral Reef Preserves Act – Coral reef protection at Bermuda was first effected with the 1966 Coral Reef Preserves Act, a private bill introduced by the then Curator of the Bermuda Aquarium, due to fear based on threatened nearshore land reclamation on the shallow reefs to the west and north of the islands. This fear was generated by the large scale degradation of environmental health due to the dredge and landfill construction of the airfield in Castle Harbour in the 1940s. Two coral reef preserves were established with complete protection of all attached animals and plants within two substantial areas of Bermuda's shallow waters.

1972 Fisheries Act – Enacted in response to overfishing concerns, this introduced seasonal protection of grouper spawning grounds and banned trawl and gill netting, the latter leading *de facto* to protection of fish in certain areas. It was the fishermen who petitioned the Government to protect the spawning grounds.

Image: Bermuda Department of Conservation Services

1978 Protected Fisheries Order – All corals have been protected since 1978, under the Fisheries Protected Order. This established effectively the whole of Bermuda as a coral preserve. Marine mammals, sea turtles and selected molluscs were also afforded complete protection under this Act. A highly regulated fishery continued to evolve in Bermuda, with expanded seasonally protected areas, protected species, limited entry, gear restrictions and bag-limits.

1990 Fish Pot Ban 'TAKE 2' – In 1990, Bermuda further enhanced its reputation for stringent fisheries management when it banned the use of fish-pots. This was preceded by a major public campaign orchestrated by local NGO, Friends of Fish calling for a ban of fish pots.

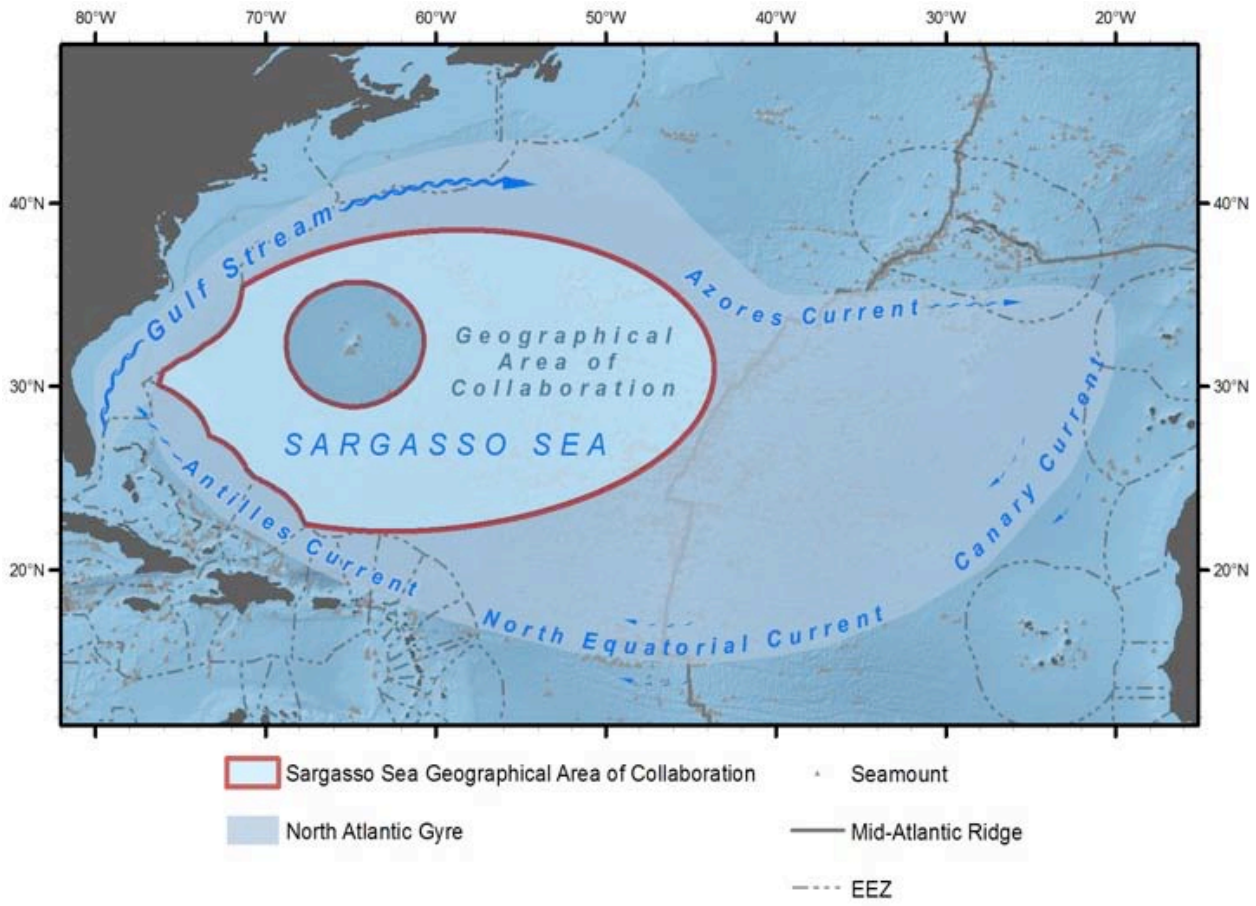

Image: [1]Ardron, Halpin, Roberts, Cleary, Moffitt, and Donnelly, 2011.
[1]Marine Conservation Institute and Duke University Marine Geospatial Ecology Lab.

This was recognised throughout the region as a shining example of marine conservation.

2000 Protected Dive Sites – In response to some user conflict between fishermen and SCUBA divers, Friends of Fish again petitioned Government, this time to establish a suite of Protected Dive Sites. With the help of local recreational divers, 29 of these have been set up. This story is interesting, not least because the original reason for establishing these protected sites has been lost in corporate memory, and a fairly recent study concluded that these sites had not demonstrated any significant increase in fish numbers compared with adjacent sites; *i.e.* had not been effective. This was never the intent, and there were no data to suggest that fishing pressure was ever heavier on the immediately adjacent sites.

The Sargasso Sea

In 2009, Bermuda decided to explore ways to improve its stewardship of the surrounding seas beyond the shallow water platform, within their EEZ and into the wider Sargasso Sea. The Saragasso Sea is the world's only sea not bordered by land, and the only holopelagic seaweed ecosystem. Lying within a large ocean gyre which concentrates pollutants and which has a variety of oceanographic processes that impact its productivity and species diversity, the Sargasso Sea plays a disproportionately large role in global ocean processes of carbon sequestration, and provides essential habitat for a wide diversity of species many of which are endangered or threatened. It is the only breeding location for the threatened European and American eels and is of importance to local and global economies.

Leading conservation and marine science organisations formed the Sargasso Sea Alliance, which began to investigate opportunities within current mechanisms for High Seas governance with the aim of affording protection for it.

In 2014, Bermuda, UK, USA, Azores and Monaco signed the Hamilton Declaration. It is a non-binding political statement. The Signatories agree to hold a regular Meeting of Signatories and endorse the establishment of a Sargasso Sea Commission to encourage and facilitate voluntary collaboration toward the conservation of the Sargasso Sea. http://www.sargassoalliance.org

The Sargasso Sea Commission was established

with the following over-arching goals: promote international recognition of the unique ecological and biological nature and global significance of the Sargasso Sea; encourage scientific research to expand existing knowledge of the Sargasso Sea ecosystem in order to further assess its health, productivity and resilience; and develop proposals for submission to existing regional, sectoral and international organisations to promote the objectives of the Hamilton Declaration.

The stated priority activities of the Sargasso Sea Commission are: international recognition of ecological importance, fisheries and fisheries habitat conservation, impacts from international shipping, impacts to the sea-floor and seabed and conservation of migratory species.

The Blue Halo Initiative

The Convention on Biological Diversity (CBD) called for the world to create a network of marine protected areas (MPAs), representing at least 10% of the world's marine regions. Currently, less than 0.5% of the global oceans are no-take reserves. The proponents of the Blue Halo initiative advocated that Bermuda designate 95% of its EEZ (extending from 85 miles offshore to 200 miles) as no-take.

The rationale behind the initiative was to position Bermuda so that it could have the conservation credibility to lead on the creation of the much larger Sargasso Sea Reserve. However, there was no defined management objective for the area itself and the project got derailed because:

- There was a failure to establish clearly and manage the scope of work to be undertaken by the overseas consultants brought in by the Bermuda Government to coordinate the local stakeholder consultations. Stakeholder consultation was limited, and many locals felt the initiative came with a prescribed template to which they had to conform.

- Bermuda has long been a leader in successful marine resource management, yet many felt the process failed to recognise this legacy. This led to resentment and a feeling of being disrespected.
- Vocal outside pressure served only to cause further resentment.
- For many Bermudians, this was the first time they realised that the UK had ceded ownership of the EEZ to the Island. This was thus the first serious conversation locals were engaged in regarding this newly 'discovered' asset.
- The case for support demonstrated the value of the environment but did not demonstrate the threats, nor identify objectives or targets. This failure led some to dub the initiative "Faith-Based Conservation". Going forwards, the Blue Halo initiative is effectively stalled.

Whilst new management frameworks are being explored, including a prospective marine Ramsar site in part of the World Heritage site of St George's, and possible plans for a Marine Spatial Plan extending around the Island to the 200 m depth contour, the recent experience has shaken many key stakeholder groups who are now wary about the whole concept of marine spatial planning, the process by which a marine spatial plan would be developed and agreed by the community, and outside influences driving the processes.

Lessons Learned

- Marine resource management initiatives have been instigated with equal success by diverse proponents: Government, key user-groups, environmental NGOs and private citizens.
- Successful initiatives have sought to address an identified problem based on a sound scientific foundation. Those that have stumbled have lacked convincing evidence.
- The UKOTs are unique and a 'cookie-cutter' [one-size-fits-all] approach is rarely appropriate.
- For most UKOTs, a project is unlikely to succeed if local 'ownership' is not secured.
- A failed process can have long-term negative impacts on subsequent initiatives.
- To subscribe honestly to the concept of sustainable development, the environmental community needs to uphold the same standards of evidence-based planning that they require other 'developers' to demonstrate through the EIA process.

Applying parts of UNCLOS (UN Convention on the Law of the Sea) to access data for use in mapping and monitoring in UKOT waters

Alan Evans (Marine Geoscience Group, National Oceanography Centre, Southampton, UK)

Evans, A. 2015. Applying parts of UNCLOS (UN Convention on the Law of the Sea) to access data for use in mapping and monitoring in UKOT waters. pp 224-228 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

Knowledge of the marine environment is a critical need for effective decision-making. The more that is known about the marine environment, the better people's interaction with it can be managed. There is an unawareness of marine spatial data relating to the offshore waters in the UK's Overseas Territories. Furthermore, local marine research is not well developed in many of the UK's Overseas Territories due to a lack of funding and research institutions. Lack of data and research capacity hampers the potential development of new sectors and is a major impediment to effective marine management and planning.

Studies have shown that significant areas of the UK's Overseas Territories have already been surveyed with high resolution multibeam bathymetry, in some instances accounting for more than 70% of the territory's maritime area, and yet the territories themselves are unaware of this valuable asset. Provisions contained within the United Nations Convention on the Law of the Sea (UNCLOS) enables a state to participate on scientific expeditions, providing a means for capacity building as well as providing the right to request data acquired during marine scientific research within a States' maritime area. It is, however, apparent that such provisions are alien to many of the UK's Overseas Territories. As a result, data that are key to enabling responsible use of the marine area are not being made available to the appropriate responsible agencies. A programme of identifying marine data that can be used in marine habitat mapping and environmental well-being will provide the foundation upon which future research can be developed.

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Application of Parts of UNCLOS

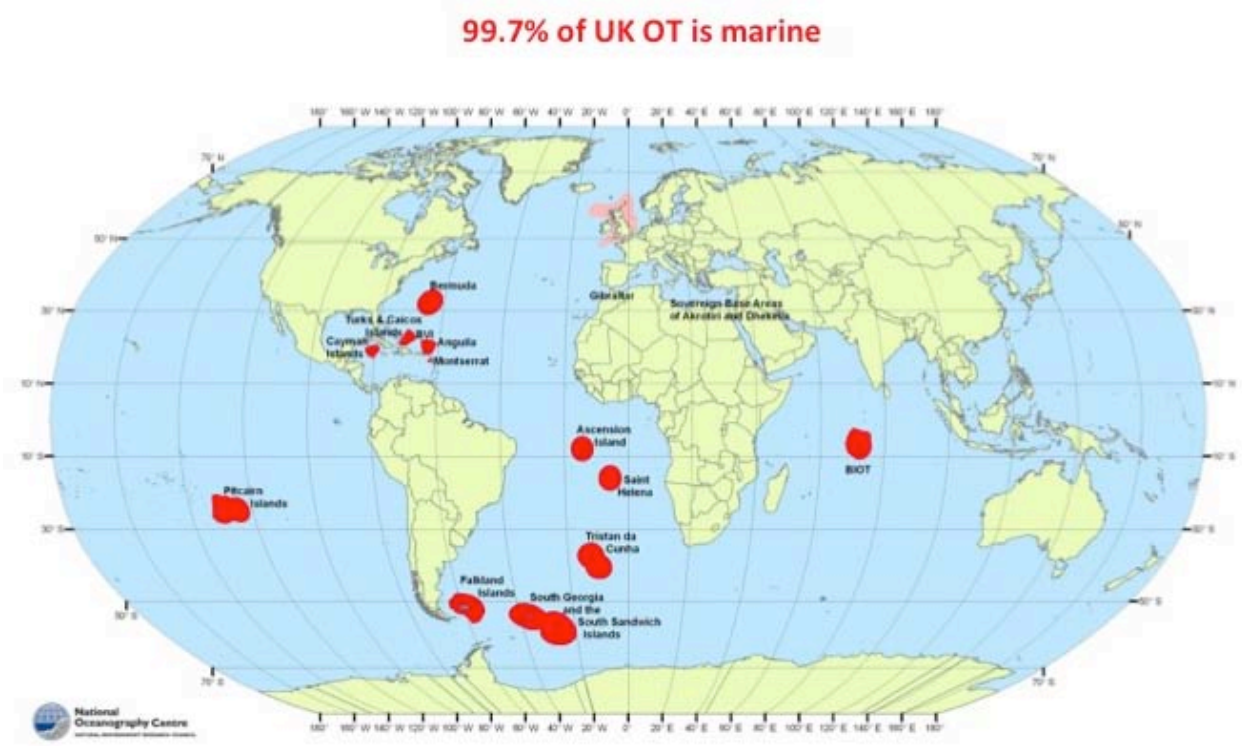
99.7% of the area generated by the UK Overseas Territories is marine (18,400 sq km land area vs 6,000,000 sq km marine). UNCLOS provides the framework by which diplomatic clearance requests for marine scientific research (MSR) within a states' maritime area are made, as well as providing the states with their rights and responsibilities for MSR within their waters. Part XIII of UNCLOS comprises six sections and 27 articles. However, of key importance to this paper are Articles 246, 248 and 249 of Section 3, where the more relevant texts are included below:

Article 246: Marine scientific research in the exclusive economic zone and on the continental shelf

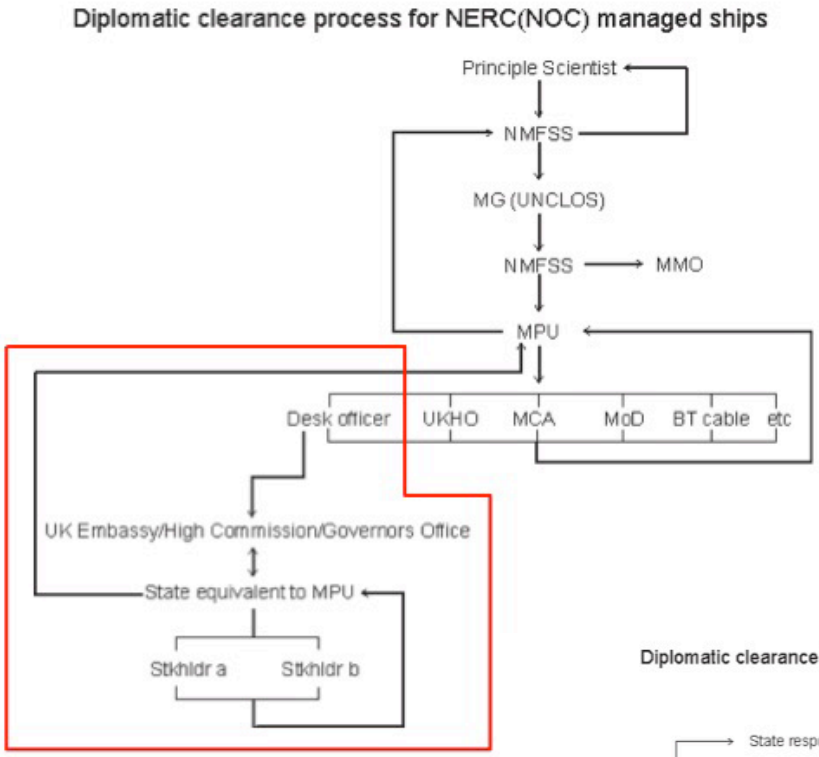
Paragraph 2. Marine scientific research in the exclusive economic zone and on the continental shelf shall be conducted with the consent of the coastal State.

Paragraph 3 […] To this end, coastal States shall establish rules and procedures ensuring that such consent will not be delayed or denied unreasonably.

Article 248: Duty to provide information to the



Land area 18,400 sq km vs marine area 6,000,000 sq km



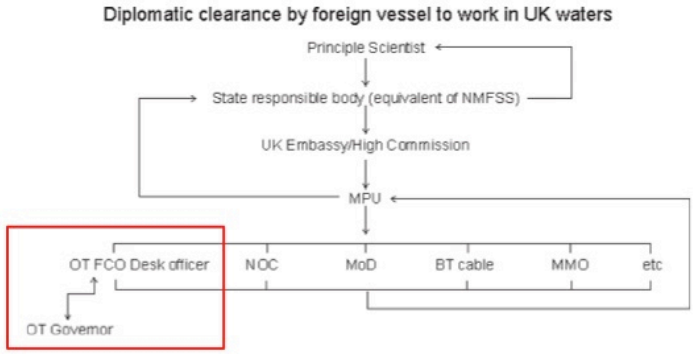
coastal State

Article 249: Duty to comply with certain conditions

Paragraph 1(a) ensure the right of the coastal State, if it so desires, to participate or be represented in the marine scientific research project, especially on board research vessels and other craft or scientific research installations […]

Paragraph 1(c) undertake to provide access for the coastal State, at its request, to all data and samples derived from the marine scientific research project […]

To provide added guidance as to how best to address MSR, the UN also published *Law of the Sea Marine - Scientific Research - A revised guide to the implementation of the relevant provisions of the United Nations Convention on the Law of the Sea, 2010*, where information relating to the history and conduct of MSR are addressed. Also included is



Need to improve diplomatic clearance process to ensure data become available

a template Form A which can be used by states to ensure that applicants include comprehensive details of the proposed scientific expedition.

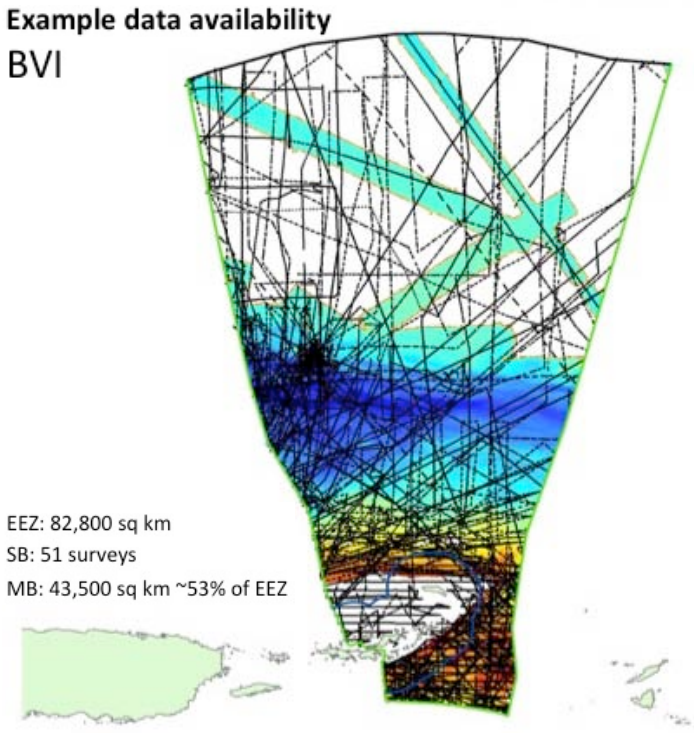
In order to determine the extent of a states' maritime jurisdiction, it is important to establish agreed maritime boundaries with opposite or adjacent states. Ensuring this enables a state to understand unequivocally to what space it has rights, responsibility and obligations. In contrast, the absence of agreed boundaries can lead to uncertainty leading to an inability to manage the marine space. UNCLOS provides guidance as to what states are expected to achieve where their respective coastlines are less than 24 nautical miles apart. Article 15, of Part II of UNCLOS, prescribes that, for delimitation of the Territorial Sea, the maritime boundary must be a *median line every point of which is equidistant from the nearest points on the baselines from which the breadth of the territorial seas of each of the two States is measured*. For boundary lines that extend beyond 12 nautical miles, UNCLOS is a little less certain, in that all that it suggests is that States resolve an *equitable solution* (article 74 of Part V and article 83 of Part VI of the UNCLOS). In absence of agreed boundaries, and in the spirit of article 6 of the 1958 Convention on the Continental Shelf, it is not unreasonable for a state to assume a median line as defining its sovereignty, understanding however that the line may be modified once agreed.

Having established an understanding of its maritime space, a state can address issues relating to the management of that space enabling a means to develop Marine Governance Policies by way of implementing Marine Spatial Planning (MSP) programmes for example. This paper draws on what UNCLOS provides in order to assist States to access what may already be available for use in better understanding the marine environment, as well as provide some example uses of these data.

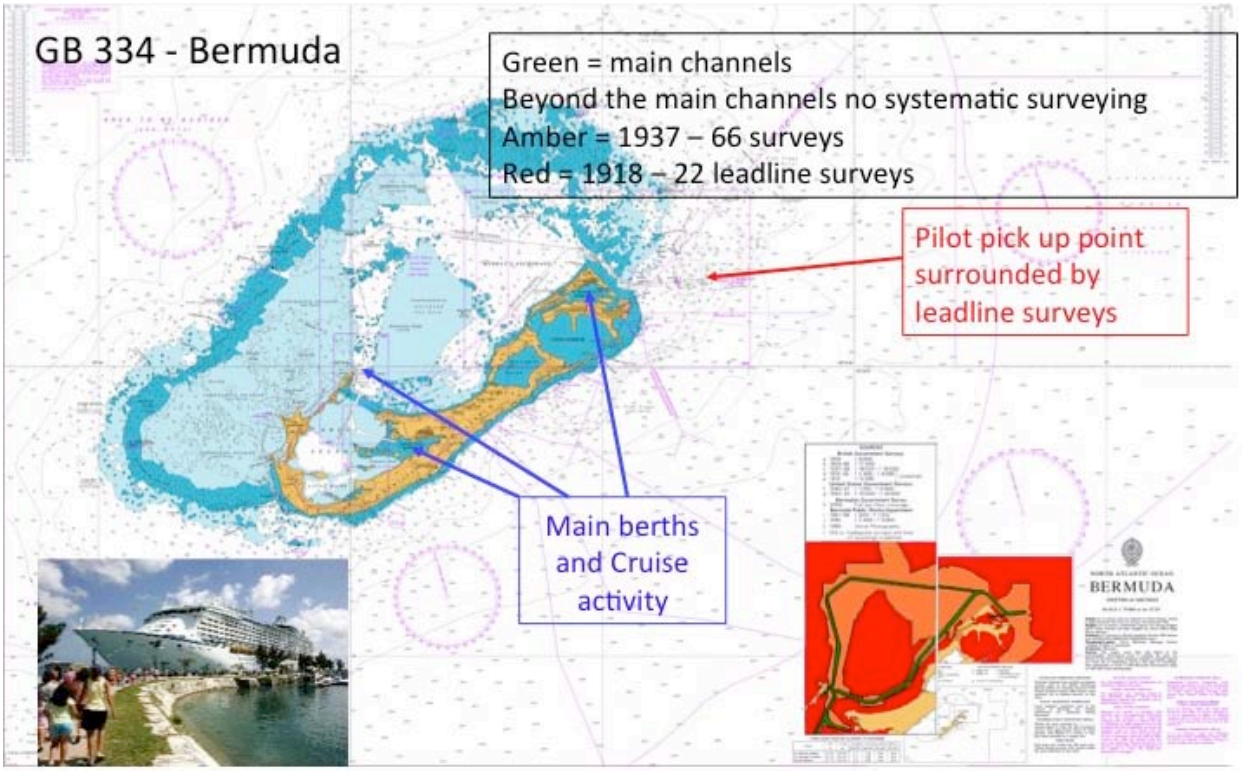
Data availability

The increased interest in developing Marine Protected Areas (MPAs) within the UK mainland areas as well as a desire to address issues relating to the UK Overseas Territories marine environment, as reflected in the 2009 UK Overseas Territories Biodiversity Strategy and the 2012 Overseas Territories White Paper, prompted research into identifying what data exist within the UK Overseas Territories marine areas that can be accessed readily and made available to the territories for marine management purposes. Initial findings were published in *Work Package 3* of a report funded by DEFRA *Investigating the feasibility of utilizing AUV and Glider technology for mapping and monitoring of the UK MPA network, 2012*, where an analysis of what data existed provided an understanding of where data had yet to be acquired and what the cost of mapping those areas would be.

Further calls reflecting a desire for assistance by some Overseas Territories seeking assistance for improving the long-term sustainable management, governance and development of the marine resources, as was the outcome of the Joint Ministerial Council 2013 and as reflected in the outcome of the UKOT Biodiversity Strategy Review Meeting at Kew in 2013, have resulted in subsequent efforts to update the findings from the above. This has resulted in a broadening of the scope of work to the extent that requests for data, as provided for by UNCLOS article 249, have allowed data to be provided to some Overseas Territories. It is apparent, since the initial study in 2012, that many more data exist and efforts to identify and access these are continuing.



To date, in excess of 210 survey data-sets have been identified within all of the UK's Overseas Territories. Of these, more than 150 have been accessed and used to start to develop an online tool that enables an Overseas Territory to examine its maritime boundaries, access information in relation



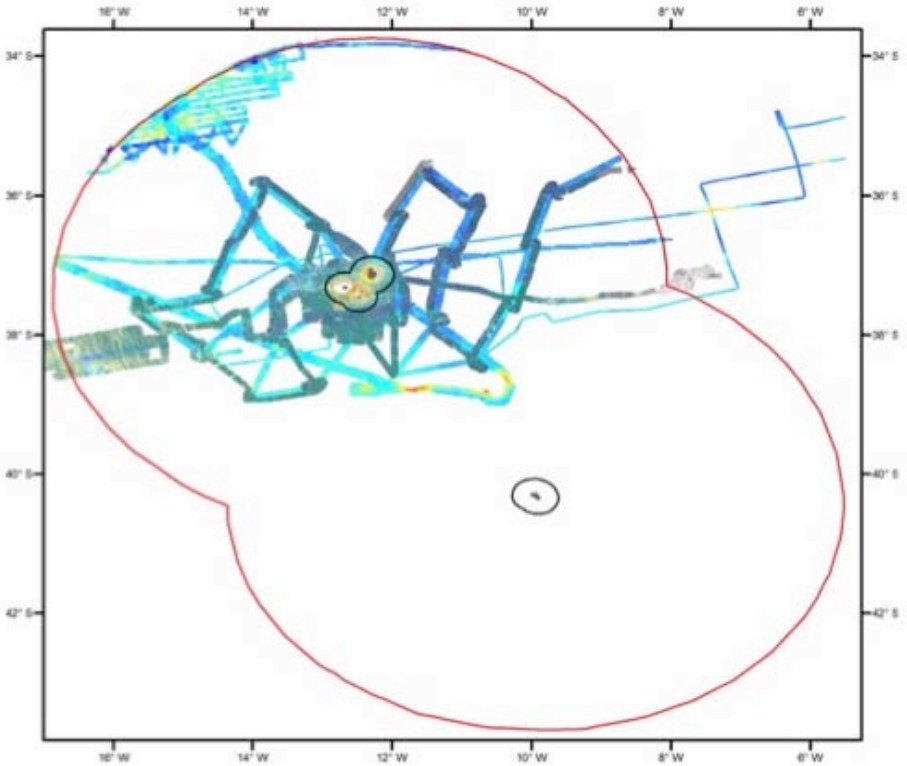
(courtesy of the UKHO)

to their EEZ (or fishery zone), identify survey navigation trackline information, with their associated hyperlinks, and recognise coverage that those data provide. Additional information, such as MPAs and areas of Ecological or Biologically Sensitive Marine Areas (EBSAs) are also included. Access to the online GIS, which is still very much under development and covers only the Caribbean Overseas Territories at present, can be made via the web page http://www.unclosuk.org/UK_OT_data.html.

Data uses

Not only does identifying and accessing data via the means provided by UNCLOS save several million pounds (£) worth of investment, it recognises also where data do not exist and, as such, enable future data-acquisition planning. Other example benefits are reflected here, where for example the provision of data to the Government of Anguilla enables them to use the multibeam bathymetry data in informing their national ecosystem assessment programme as well as be useful for marine spatial planning.

A research expedition by the Alfred-Wegener Institute, Germany, acquired significant multibeam bathymetry and backscatter data from within the waters of Tristan de Cunha. These data can be used to develop not only a classification of the seafloor, by way of understanding the geomorphology from the shallow waters offshore Tristan to the depths of the Mid-Atlantic Ridge section within Tristan's 200 nautical mile zone, but also be used



Cruise ship on a reef near Hamilton, Bermuda. 2006

(courtesy of the UKHO)

in predictive modelling to identify physiographic features than can be related to specific habitats for use in habitat mapping.

Recognising where water depths are suitable for demersal fishing can enable a state to identify potential hot spots where trawling damage could result in the destruction of the seafloor and possible loss of habitat.

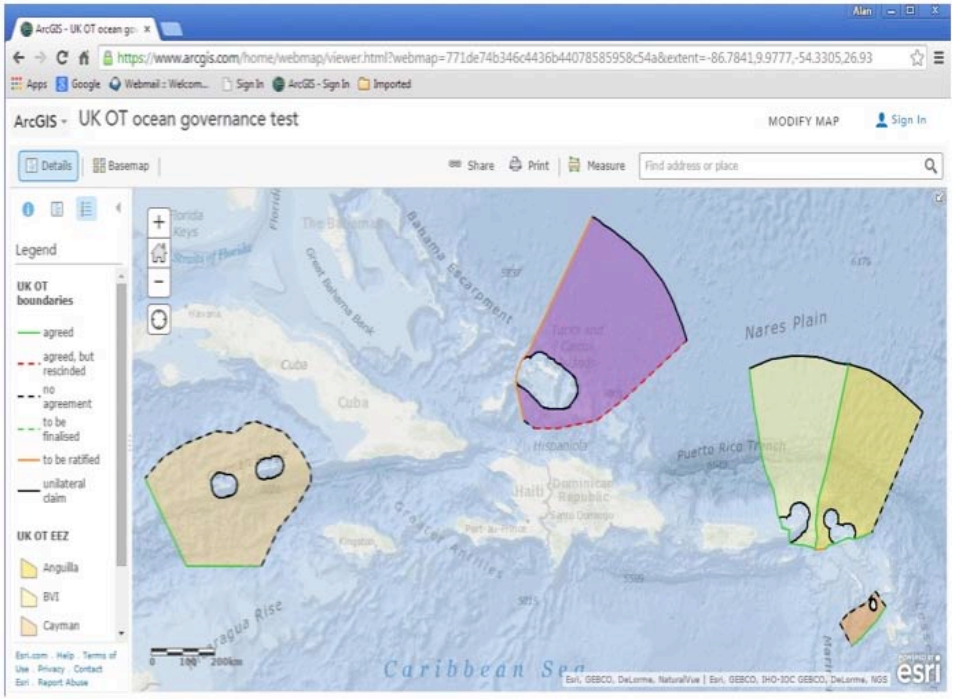
In light of the increase in cruise line traffic, in particular in the Caribbean, the UK Hydrographic Office undertook several workshops to address the shortfall of data within the these waters. Hydrographic Offices often depend on data acquired for non-charting purposes to improve their navigation charts. The International Hydrographic Organisation also recognises the value of bathymetry data for uses beyond charting, to the extent that, in 2014, the theme for the IHO's World Hydrography day was *Hydrography – much more the just nautical charts*.

The value of bathymetry data to the blue economy is also being recognised. The European Union has developed a strategy to support sustainable growth in the marine and maritime sectors, and see the seas and oceans as drivers for the European economy. One element of this strategy is the funding of the European Marine Observation and Data Network (EMODnet) Bathymetry (http://www.emodnet-bathymetry.eu/) project, which is tasked with assembling as complete as possible an inventory of bathymetric survey data. Understanding the off-shore environment can help with the development of a state's resource potential by enabling, for example, mega-yacht mooring projects, sustainable tourism or the identification of potential mineral wealth.

Higher-resolution bathymetry data can also help progress disaster mitigation plans, where improved modelling of tsunami wave impacts can be made.

Future plans

Whilst efforts to identify, access and make available more data will continue, other projects such as developing the concept of providing a mobile containerised facility, which could include an autonomous underwater vehicle (AUVs) and/or an autonomous surface vehicle (ASVs) and/or a glider would provide the Overseas Territories with the means to map their own waters without a need for the use for expensive survey vessels. Such a facility would greatly enhance the Territories ability to carry out bespoke surveys, addressing very particular needs, allowing them to map the marine environment to underpin their sustainable marine management plans. In addition, developing individual desk-top studies that would interrogate the diplomatic clearance process in state, which would identify more data as well as provide opportunities for capacity building and collaboration, combined with a review of each Territory's marine and maritime area, would greatly enhance their ability to better manage their marine estates.



The Virtual Watch Room, Pioneering Technology to Help End Illegal Fishing

Jo Royle (The Pew Charitable Trusts)

Royle, J. 2015. The Virtual Watch Room, Pioneering Technology to Help End Illegal Fishing. pp 229-230 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

3-minute video demonstrating this satellite-supported technology being applied in support of marine protected areas.

Jo Royle, Pew Charitable Trusts, London, UK. jroyle@pewtrusts.org

Monitoring and enforcement of marine reserves can be challenging in remote parts of the world, where many of the last near-pristine waters are found.

To help meet this challenge, the Pew Charitable Trusts have partnered with Satellite Applications Catapult, a UK government initiative created to help foster economic growth through the exploitation of space. Together, they have pioneered a system that enables government officials and other analysts to identify and monitor unlawful activities in global waters, particularly illegal, unreported, and unregulated fishing, sometimes referred to as pirate fishing. This cutting-edge technology merges satellite tracking and imagery data with other sources of information, such as fishing vessel databases and oceanographic data, to help monitor seas across the globe.

The partnership builds on work by the Catapult to develop a system that can synthesize and automate analysis of multiple data sources in near real time to identify vessels acting suspiciously. The system then can alert users so that they can investigate and take action. It is much more efficient than current processes, and drastically reduces the human power required to detect and analyse suspicious activities.

Pew has made this work a priority to help answer the question of how governments can protect large-scale marine reserves. In response to growing needs, Pew has initiated a Virtual Watch Room, focused on marine reserves that will be powered by the Catapult system.

The Virtual Watch Room for marine reserves is just one of the projects that Pew and the Catapult are working on to develop technological and policy approaches to stop illegal fishing in the world's oceans.

Using the Virtual Watch Room to identify suspicious activities

- The application is designed to hold and cross-reference vast amounts of data so that, when fused, the results can help identify suspicious vessel activity in an efficient and cost-effective way.
- The information includes multiple sources of satellite data, vessel and other specialist databases, international fishing and marine reserve boundaries, and oceanic data such as depth and temperature.
- The system can activate the most appropriate surveillance method to see vessels that are not transmitting their positions.
- Automatic alerts are triggered when the computer, using specially designed algorithms, detects:
    - Patterns of vessel movements or speeds typical of fishing.
    - When a vessel has stopped signaling its position.

    - Two vessels in close proximity, a possible sign of transshipment of fish or other goods.
    - When a vessel crosses a virtual geofence to enter a marine reserve or other area of restricted use.
- Alerts are investigated by trained analysts.
- Analysts notify relevant government enforcement of highly suspicious activity and transfer a data package of supporting evidence.
- Governments proceed with enforcement action or other appropriate response.

As the system develops into the next phase, new data sources will be integrated to add emerging technologies and respond to evolving needs. Among the potential sources are additional satellite imagery, various types of optical imagery, imagery from unmanned aerial vehicles, crowd-sourced photographs and sightings, electronic signals such as radar on ships, and possibly radio broadcasts.

A video which illustrates this approach can be viewed at: https://www.youtube.com/watch?v=tBgRa8e6F24

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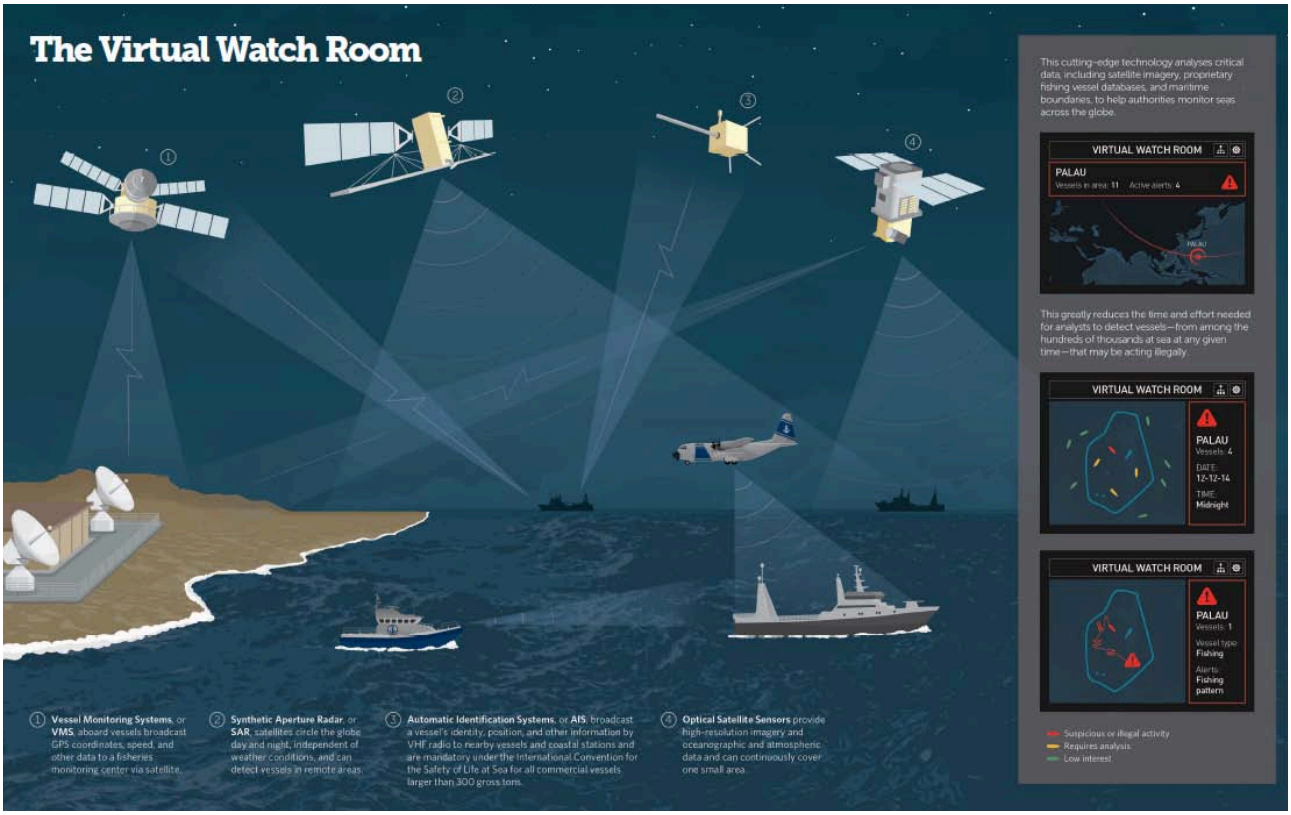
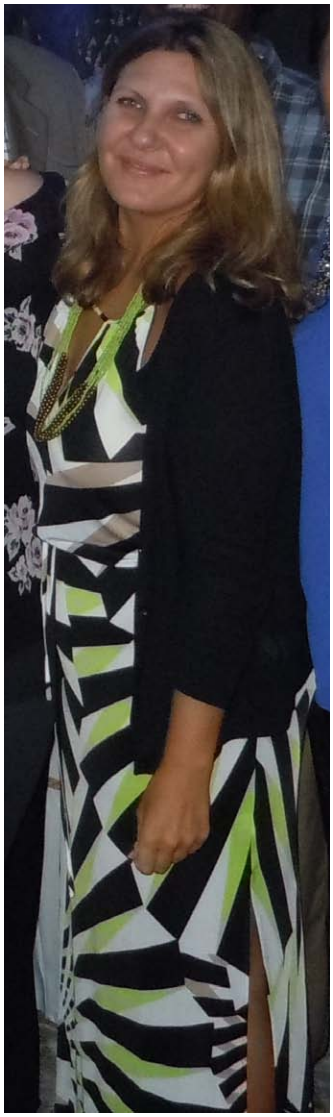
Project website: sa.catapult.org.uk



Using Seabirds to Inform Marine Spatial Planning in the BVI

Susan Zaluski (Jost Van Dykes Preservation Society)



Zaluski, S. 2015. Using Seabirds to Inform Marine Spatial Planning in the BVI. p 231 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

The British Virgin Islands host seabird populations recognised by Birdlife International as regionally and globally important. From 2013-2015, a UK Darwin Plus-funded programme, led by the University of Liverpool in partnership with the Jost Van Dykes Preservation Society and the National Parks Trust of the Virgin Islands, was implemented to: (i) help describe key foraging areas of a globally important population of magnificent frigatebirds to feed information into spatial planning to identify areas of conflict; (ii) identify current specific threats to the seabird population to guide policy-making in the ecosystem-based framework; (iii) establish a locally-driven monitoring programme to provide long-term data on seabird populations to be used in an ecosystem-based approach to marine planning and management; and (iv) to affix GPS and satellite (PTT) tags to magnificent frigatebirds over two field seasons. The maximum distance travelled from the colony during the breeding season was 1067 km; trip duration ranged from 7 hours to 8 days; and total trip distance ranged from 147 to 2291 km. Birds were recorded in the territorial waters of ten neighbouring islands, predominantly US Virgin Islands and Puerto Rico. These data will be used to increase awareness, among local partner NGOs and regional governments, of the role of seabirds in sustainable marine planning.

Susan Zaluski, Executive Director, Jost Van Dykes Preservation Society, British Virgin Islands susanjvdps@gmail.com

A sustainable marine and fisheries management plan for the Pitcairn Islands

Terence P. Dawson[1], Robert Irving[2] and Heather Koldewey[3] ([1] School of the Environment, University of Dundee. [2] Sea-Scope Marine Environmental Consultants, [3] Zoological Society of London)

Dawson, T.P., Irving, R. & Koldewey, H. 2015. A sustainable marine and fisheries management plan for the Pitcairn Islands. pp 232-233 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

The UK and Pitcairn Governments, supported by the Pitcairn Island Council, intend to develop a more sustainable livelihoods and economic growth strategy for the Islands. Whilst tourism and fisheries currently represent the primary mainstays of the local economy, drawing upon the natural wealth and cultural heritage of the Islands, to date these have not been fully realised. Further, given their extremely isolated location and difficulties of access, the Pitcairn Islands' marine habitats are one of the UKOTs' least known ecosystems. Considering these challenges, the UK Darwin Initiative has funded a project to develop local capacity for adaptive fisheries management and to enhance tourism opportunities through cruise-ships visits and on-island facilities. A recent development within the project is to support the establishment of a Marine Protected Area, and to provide the underpinning management protocols and scientific evidence-base to ensure a sustainable future for Pitcairn's marine resources.

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[3] Zoological Society of London, Regent's Park, London, NW1 4RY, UK.
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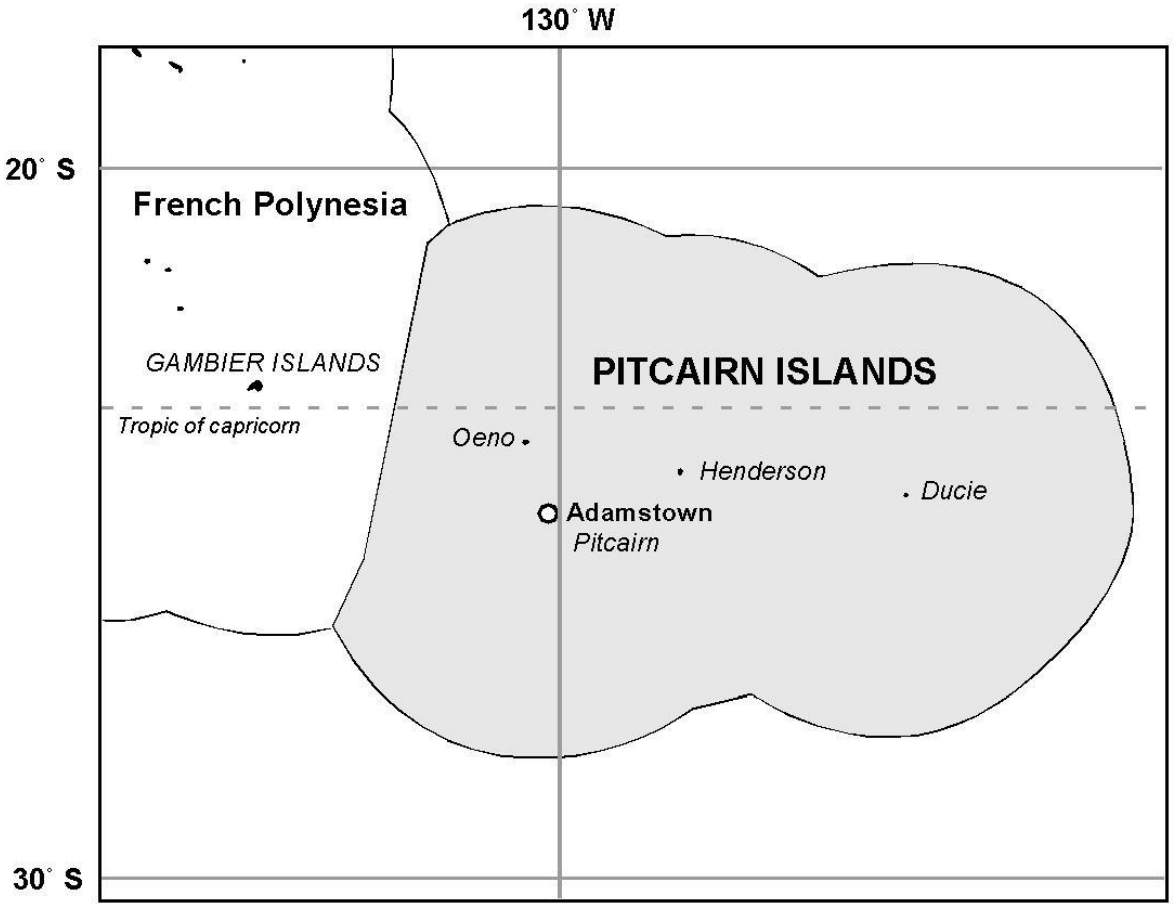
Project Rationale

Given their extremely isolated location and difficulties of access, the Pitcairn Islands' marine habitats are one of the UKOTs least known ecosystems (Figure 1, next page). Currently, the scientific evidence for fisheries management of Pitcairn's Exclusive Economic Zone (EEZ) remains insufficient for responsible decision-making to ensure sustainable extraction (Irving & Dawson 2012). Global fishing pressures on migratory species, especially tuna and billfish, have resulted in commercial fishing fleets increasingly pressuring the Pitcairn Government to lease their fishing rights. Further, the Secretariat of the Pacific Community (SPC) has proposed that the Pitcairn community develop commercial reef fisheries for export to neighbouring Mangareva (Gambier Islands, French Polynesia). The environmental and economic sustainability of such proposals are unknown. Crucially, the small local community relies on fishing for food and, together with tourism, providing income support.

The local economy of the Pitcairn Islands is reliant on tourism as a source of income due to their geographic isolation, small size, and small population (given that it is one of the primary mainstays alongside fisheries). The community's income is boosted through the sale of souvenirs, the sale of fruit, fish and lobster to cruise ships, landing and accommodation fees charged to visitors and the sale of Pitcairn products such as honey, stamps, postcards, 'signature' clothing/ accessories and traditional crafts such as wood carvings. The number of cruise ships that stop at



Pitcairn has increased slightly in recent years and it is expected to continue to rise if the proposed Marine Protected Area is established. The creation of the world's largest marine reserve in the Pitcairn Islands will enhance the island's image to potential visitors. It provides an opportunity for increased awareness of the islands and their unique tourism experience on offer. This opportunity, and the consequent increased number of visitors, represents a realistic opportunity for building a sustainable economic future for the community.

Considering these challenges with socio-political and economic pressures, our project is undertaking a number of activities designed to facilitate informed decision-making by the Pitcairn Government for sustainable marine resource use by:

(1) underpinning the scientific evidence-base;

(2) developing local capacity for fisheries and environmental assessments;

(3) developing a marine management plan with the Pitcairn community and UK Government for fisheries and the proposed marine reserve;

(4) enhancing tourism opportunities; and

(5) increasing awareness of Pitcairn's importance in meeting the UK's biodiversity targets.

A key development within this project has been to work closely with the Pew Charitable Trust and the Pitcairn Island Council to support the establishment of a Marine Protected Area, and to provide the underpinning management protocols and scientific evidence-base to ensure a sustainable future for Pitcairn's marine resources. Indeed, on 18th March 2015, the UK Chancellor of the Exchequer, George Osborne announced in his Budget to Parliament that "The government intends to proceed with the designation of a Marine Protected Area (MPA) around Pitcairn" (BBC 2015). The project is now in a good position to build upon this foundation, and to ensure a successful long-term future for Pitcairn's biodiversity and well-being for the local community.

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Widening Bermuda's Shipping Channels: Challenging Pre-Conceptions through EIA

A.F. Glasspool*,J. A. Ward*, C. Rickards* and J. Burnham** (*Bermuda Environmental Consulting Ltd., **Works and Engineering, Government of Bermuda)

Glasspool, A.F., Ward, J.A., Rickards, C. & Burnham, J. 2015. Widening Bermuda's Shipping Channels: Challenging Pre-Conceptions through EIA. p 234 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

Application of EIA is not legislated in Bermuda, but a recent decision to accommodate the newest Quantum class of cruise-ship resulted in the Bermuda Government requesting an EIA to assess three possible channel upgrade options. Whilst flawed by the fact that the "do nothing" option was not under consideration, the resulting EIA process nevertheless provided a valuable framework and for engaging the community, analysing and determining the least impact option, and developing a structured approach for managing the impacts and implementing possible mitigation strategies. Through this process, the universally expressed pre-conception of local environmentalists regarding the option offering least impact to the marine environment was actually realised to be misguided and, with environmental, social and economic factors all aligned, general consensus was largely secured for the option to realign Bermuda's North Channel, despite its closer proximity to coral reefs than the other options. Coupled with a determination by all key stakeholders to arrive at the solution of least impact, the overall scale of the project was then further reduced.

Dr Annie Glasspool, Vice-President, Bermuda Environmental Consulting Ltd
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Discussion

Much of the discussion addressed the conclusions and recommendations. If such items are adequately reported in the Conclusions and Recommendations section later in these proceedings, they are generally not repeated here. Instead, this section draws out some other aspects for which amplification may be useful, on of the discussions and ideas put forward for consideration.

First question session

Chagos MPA

With respect to establishing the Chagos MPA, taking an ecosystem services analysis in the beginning would have been more effective.

The associated funding (that associated with Tom Appleby's work) has ended for Chagos. As to reopening the fishery, the cost of enforcement outweighed any money that was being earned on the fishery.

Some questions are beyond the conservation scope to answer.

There is potential to enforce using satellite imagery.

SAERI

A GIS specialist is currently visiting a lot of other UKOTs, not just in the South Atlantic. SAERI is well aware that there are similar issues and resource constraints between Territories.

There are advantages of regional organisations which can work more in a strategic way and less in an *ad hoc* way, SAERI is doing this already and wherever possible will carry on to do so through running training courses, etc.

Between South Atlantic territories, information is being shared, *e.g.* frameworks, licencing agreements, etc. This sort of information can also be shared easily between other UKOTs. Knowledge exchange and the exchange of personnel are very useful.

SAERI is looking into a freely available software which could act as an accessible resource base.

Cultural aspects linked to the marine environment

In the Pitcairn Islands, different marine species, *e.g.* corals have appeared on stamps over the years. There is also the *Bounty* wreck, which people dive to visit. The inhabitants of Pitcairn are seafaring folk and do respect this.

The Falkland Islands do not have a strong nautical/seafaring culture. The main economic activity is sheep farming. It is only recently that the cultural dependence upon the sea has emerged in terms of *e.g.* fisheries. The Falklands has an emerging culture, as opposed to historical.

The cultural landscape is part of the story that we have to tell people in the UK if we want to get them interested in the UKOTs. For example, perhaps had the Chagos story been structured in a different way, there would have been more access to military technology.

Second question session

Sustainable fisheries management

Whilst zonal fisheries management is used, we do not yet use zonal conservation management. The Falklands, in particular, have always used spatial and closed areas for sustainable fisheries. Management in the Falklands is for distinct fisheries.

Spatial and temporal closures in South Georgia and the South Sandwich Islands are to do with larger predators. For example, the krill fishery closures are timed so that fishing is not in conflict with predators.

Coral Reef Health

There is a sustainable jewellery practice in Bermuda using the lionfish. This involved collaborations with fishermen.

Tristan da Cunha

There was an insurance claim for the *Oliva* disaster which was successful. Part of the claim covered the cost of penguin rescue. Jim Kerr thought it also covered the closure of the Nightingale fishery (and Inaccessible fishery?) when closed.

Since the incident, large carriers are tracked very carefully when they are close to the island. They are more wary than before. With the *Oliva*, the problem was that the course was determined by somebody that was sat in an office in America. They had plotted the course and did not realise that

it went right across an island. There was a court of enquiry.

Marine Protection in Bermuda

Expanding upon Annie Glasspool's presentation regarding the Blue Halo Initiative, there was quite a lot of suspicion with Blue Halo Initiative coming in. There were suspicions that there might be a reserve (*e.g.* mineral) that an outside organisation was coming in to exploit.

Whilst through the project, some locals were engaged, there was a lot of pressure to meet a deadline, and people did not understand the rush. It was the most polarising situation that the islands ever seen in terms of the management of the environment. The fish-pot situation was bad, but this was worse. It fed into the racial politics as well.

Discussion session

Governance and MPAs

We welcome the opportunities to talk with neighbouring UKOTs while at this conference.

Regarding the establishment of whale and other marine sanctuaries, it may be that Territories have sanctuaries inadvertently. Coming from the TCI point of view, there may be other territories that have similar legislative situations. It would be good to get together and discuss this.

There were criticisms of how BVI established their shark sanctuary. The commercial fishing of sharks was banned, yet there was an incident recently where a hammerhead shark was caught off Anegada and a photo taken which went viral on Facebook. Makes you look like a laughing stock, despite doing everything correctly. There was involvement at the lower level regarding the shark sanctuary in the BVI with the Minister as the driving force. The current minster is very environmentally aware in BVI.

Regarding the shark sanctuary in Bermuda, there was a bottom-up approach, with a group of young people approaching the Government. There is strong enforcement as the Government is committed to their pledge.

The situation in TCI is a bit different. Regulations have been passed but not yet implemented. The local fishing population has not yet questioned it.

You very much need public consultation. With an outside group coming in, you are rarely successful if you do not take into account local values. Anyone else thinking of implementing a shark sanctuary might want to take this into consideration.

There is a difference between the TCI islands as well as between UKOTs, and this could be the same with other Territories. From the point of view of fishermen in Grand Turk, they asked why people were coming in and telling them what to do.

One issue with Pew was that its approach was straight across the board, and there cannot be a direct cookie-cutter (or one fits all) approach.

It is very important to take time to facilitate discussion between different stakeholders.

We work within a complicated governance framework. As a result, we have to be really careful with how structures are implemented. We have to knock out business models that are harmful and develop those that are beneficial.

For tracking species, tagging is very expensive. There are more basic structures to develop beforehand.

Sustainable fisheries

Not every Territory has access to resources to manage fisheries in the way described. In the Falklands, a lot of the fisheries are now under MSC procedures..

There is a large amount of white fish around Tristan, and island fishermen catch what they need for their families. There has never been any thought to use this in a commercial way.

It is a concern that fishermen have jumped overboard from Taiwanese fishing vessels. All of these people were interviewed, and the Falkland Islands Government does take this very seriously.

Data sharing and access

Regarding whether and how a SAERI-type approach could be set up in a different region, at this stage SAERI is not sure how all of the relationships will be or are working. There are a lot of different institutions and universities working there, and it takes a lot to bring all of that together. It also takes a lot of face-to-face time to build the relationships. As a developing regional scientific institute, it is important to know what is going on in the regions that they are working in. Fundamental relationships are really important for any area and communication is essential. It is

important to note also both the this is a research model, not a conservation one, and that the needs in other regions may already be covered, at least in part, by other approaches, which could be developed further, rather than starting a new institution.

Regarding project start-up costs, it is much cheaper to sustain these than to establish them in the first place. The main cost involves the establishment of the infrastructure.

One recommendation could be to establish research licences and the fees associated with that are being investigated.

One recommendation could be that all data collected meets ISO 95 data standards.

One problem is that maintaining the skill base can be done only through as much training as possible. It is important to engage actively in the training.

Especially relevant to the CDs, a lot of UK and French data are fed into a combined database.

With regards to the reliability of data, it is essential to have standard monitoring procedures.

In creating a metadata catalogue, a simple spreadsheet of data can be meaningless. You have to also know how it has been captured. Every data set should be accompanied by another dataset which contains this important information, *e.g.* the machinery used.

The US has a very well established way of disseminating its data, which can be downloaded pretty much in real time. The UK is catching up, with a similar system in mainland UK waters.

One issue encountered in Bermuda waters involved a research vessel which sent around a document about the killing of marine mammals. The aim was to inform local vets, but they had applied to the US State Department, rather than the Bermuda authorities, to come into Bermuda waters. Bermuda therefore did not know anything about it and there could have been a serious issue where they were taking marine mammals without Bermuda being aware. There is a need to be very cautious of a lack of communication.

There is a need to be wary of anything falling through the nets fairly easily.

It would be useful to have an outline of where data exist. For certain surveys, you can then connect to the data source itself and can get an immediate understanding of the data itself.

One issue with open access could be that anyone could access the data. There may be areas with mineral deposits (or sensitive species) among other areas that could be of commercial interest. It is important to have ways to be able to control that.

Some areas of data access may involve requesting the data. However, this could take a long time, *e.g.* it took some data 6 weeks to get to Tristan. There are therefore some issues with this data access.

GIBRALTAR CHRONICLE

PRICE £1

Conservation takes centre stage for week-long conference

by Eyleen Sheil

A major five-day conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities starts tonight in Gibraltar.

The purpose of the conference is "to exchange best practice, discuss successes, explore innovations and forge partnerships with the overall aim to ensure that the wildlife, and the ecosystems of the UK Overseas Territories and Crown Dependencies is secured for future generations by the people."

It has been six years since a conference like this was held, previously one was held in Gibraltar in 2000.

At a press conference yesterday, Minister for Environment Dr John Cortes introduced Dr Mike Pienkowski, the honorary executive director of the UK Overseas Territories Conservation Forum (UKOTCF).

Dr Cortes commented that it was a special conference for him as he had been a member of the UKOTCF council.

Seventeen UK territories will be represented - some at ministerial level - together with nine other countries, resulting in over 100 people participating.

With many prominent people from conservation coming to **(Continued on page 2)**

Conservation takes centre stage for week-long conference

(Continued from front page)

the Rock, Dr Cortes said: "The value of this conference is tremendous."

Referring to the cost of hosting such a large conference Dr Pienkowski said it would be somewhere in the range of £400,000. However, with all the experts giving their time for free, it is costing half that and for the many vast discussion groups and sessions that will be held it will be money well spent said Dr Cortes. Who added that he and the department's staff would be trying to glean as much information from these experts as they can.

Previous conferences have proven their worth before said the Government as several initiatives and projects have been launched including invasive species removals, scientific surveys and research, economic evaluation projects in several UKOTs, pilot work on tourism to protect wildlife, increased support from UK institutions and UK Parliament and input into EU funding policy.

One common aspect all experts will have is that they all work within the same boundaries or with the same issues other UK overseas territories do, for example climate change and sea-level rise, unsustainable development, and alien species introduced by humans.

Each territory also has a set of unique challenges but share some similarities such as small human populations and small land areas.

Many of them are so unique they are home to various species some of which are not found anywhere else in the world. The threatened frog specie the Mountain Chicken, blue iguanas and spiky yellow woodlice are some examples.

Gibraltar will play a key role in all the discussions that will be held in addition to hosting some sessions such as Dr Cortes's session on 'Conservation: the Gibraltar perspective revisited.

The ways that Gibraltar is dealing with the challenges to the environment will be discussed together with methods from other UKOT's such as the use of drones; remote sensing; apps and citizen science to monitor and carry out survey work; the use of controlled burns and native nurseries to save species from extinction and the use of satellites for surveillance of illegal fishing.

The conference is being organised by HM Government of Gibraltar and UKOTCF, with support from the Gibraltar Ornithological and Natural History Society.

In addition to the conference, Dr Cortes has organised a meeting of the environment ministers or their equivalents for next Thursday. Dr Cortes said the aim of the meeting was to exchange views, learn from each other and to work together so that the OT's have one voice when speaking to various bodies or organisation such as the UK or the EU.

A BIT OF COMMUNICATIONS MEDIA: Top left: Mike briefs the mic team before a conference session discussion. Lower left: Ann on duty at her video camera. Top right: The first of several almost-daily articles in the Gibraltar Chhronical. (Phtotos: UKOTCF & HMGoG). Lower right: Photographer photographed through a coach windscreen. (Photo: Boyd McCleary.)

Session 9: Multilateral Environment Agreements (MEAs) sign-up workshop

Chairing & facilitating team: Liz Charter (Isle of Man Government; UKOTCF), Clare Hamilton (Defra) and Jennifer Lee (Government of South Georgia & the South Sandwich Islands)

Attending

Tom Appleby	UK Overseas Territories Conservation Forum
Esther Bertram	Falklands Conservation
Arlene Brock	Former Bermuda Ombudsman
Natasha Bull	Gibraltar Natural History and Ornithological Society
Stephen Butler	Falkland Islands Government
Liz Charter	Isle of Man Government
Alison Copeland	Department of Conservation Services, Bermuda
Tim Earl	UK Overseas Territories Conservation Forum
Gina Ebanks-Petrie	Cayman Islands Government
Jonathan Hall	RSPB
Lyndon John	RSPB
Jennifer Lee	Government of South Georgia and South Sandwich Islands
Indrani Lutchman	Independent Consultant
Farah Mukhida	Anguilla National Trust
Bryan Naqqi Manco	Government of Turks and Caicos
Iain Orr	UK Overseas Territories Conservation Forum
Tara Pelemebe	Joint Nature Conservation Committee
Isabel Peters	St Helena Government
Mike Pienkowski	UK Overseas Territories Conservation Forum
Christina Pineda	National Trust for the Cayman Islands
Catherine Wensink	UK Overseas Territories Conservation Forum
Henry Wilson	Government of Turks and Caicos

Presentations

Clare Hamilton opened the clinic with an introduction on Extension of MEAs to UK Overseas Territories and Crown Dependencies – how does this work?

Liz Charter then gave a presentation on the Isle of Man's journey towards signing up to the Convention on Biological Diversity (CBD).

Jennifer Lee then gave an account of the most recent sign up to the CBD by the South Georgia and South Sandwich Island Government, which was done in March 2015.

Their presentations are outlined below, followed by a note of the subsequent discussion.

Extension of MEAs to UK Overseas Territories and Crown Dependencies – how does it work?

Clare Hamilton, Head of International Biodiversity Policy, Defra

Main MEAs dealing with biodiversity conservation

Convention on Biological Diversity (CBD): UK ratification June 1994

Includes: Jersey, BVI, Cayman Islands, Gibraltar and St Helena, Ascension & Tristan da Cunha. Extended to Isle of Man June 2012 and SGSSI March 2015.

Convention on International Trade in Endangered Species (CITES): UK ratification August 1976

Includes: Jersey, Guernsey, IoM, Bermuda, BIOT, BVI, Falkland Islands, Gibraltar, Montserrat, Pitcairn and St Helena, Ascension & Tristan da Cunha. Extended to Cayman Islands May 1979 and Anguilla February 2014

Convention on Migratory Species (CMS): UK ratification October 1985

Includes: IoM, Jersey, Guernsey, Bermuda, BIOT, BVI, Cayman Islands, Cyprus SBAs, Falkland Islands, Gibraltar, Montserrat, Pitcairn, St Helena, Ascension & Tristan da Cunha, SGSSI and TCI

Agreement on the Conservation of Albatrosses and Petrels (ACAP): UK ratification April 2004

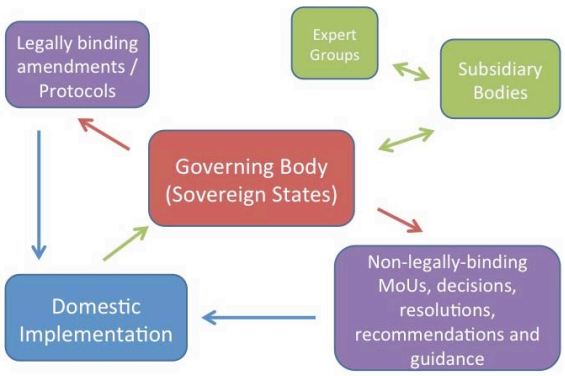
Includes: BAT, Falkland Islands, St Helena, Ascension & Tristan da Cunha and SGSSI

Ramsar Convention on Wetlands of International Importance: UK ratification May 1976

Includes: Jersey, Guernsey, IoM, Anguilla, Bermuda, BIOT, BVI, Cayman Islands, Falkland Islands, Gibraltar, Montserrat, St Helena, Ascension & Tristan da Cunha, TCI, Pitcairn, SGSSI and Cyprus SBAs

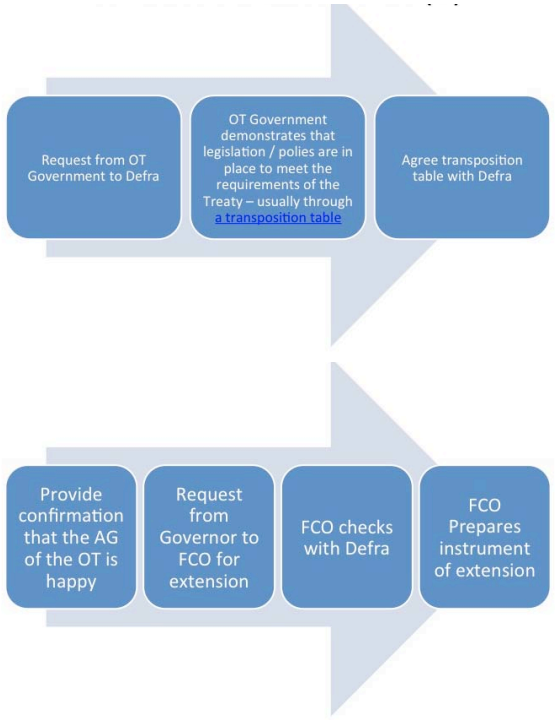
How do MEAs work?

Each Multilateral Environmental Agreement (MEA) has a governing body made up of sovereign states – often known as the 'Conference of the Parties' (CoP) or the 'Meeting of the Parties' (MoP) - which meets every 2 or 3 years and takes decisions about priorities and activities up to the next governing body meeting. The governing body is supported by 'subsidiary bodies', which provide policy, technical or scientific advice, and are supported by smaller expert groups. In the UK, we usually invite UKOT representatives to participate as members of the UK delegation (i.e. Bermuda for CBD in 2012; Anguilla for Ramsar in 2015). Decisions taken by the governing bodies then have to be implemented at domestic level. Reporting back on domestic implementation helps to inform future decisions.



Process for extension

The UK practice is for MEAs to be extended to UKOTs and CDs only where this is requested, rather than automatic extension when the UK ratifies. Before an MEA can be ratified, the UK must be able to demonstrate that it is able to



meet the obligations set out in that MEA, and we apply the same requirement to extension to the UKOTs. The first step is to contact Defra to indicate interest in extension. Defra will explain what the requirements of each MEA are and help the UKOT to identify whether it is already in a position to meet the requirements or whether additional activities or (in some cases) legislation are needed and, if so, what this is. This will include completion of a simple matrix that matches actions with obligations. Before the request comes to Defra, there will usually have been a period of consultation within the UKOT on whether to request extension of ratification.

Once Defra and the UKOT are satisfied that the obligations of the MEA can be met, the next step is for the UKOT to write to FCO formally to request extension, providing evidence that the obligations can be met and indicating that Defra is in agreement. FCO will then write to the MEA's depositary (often the UN) to notify it of the extension.

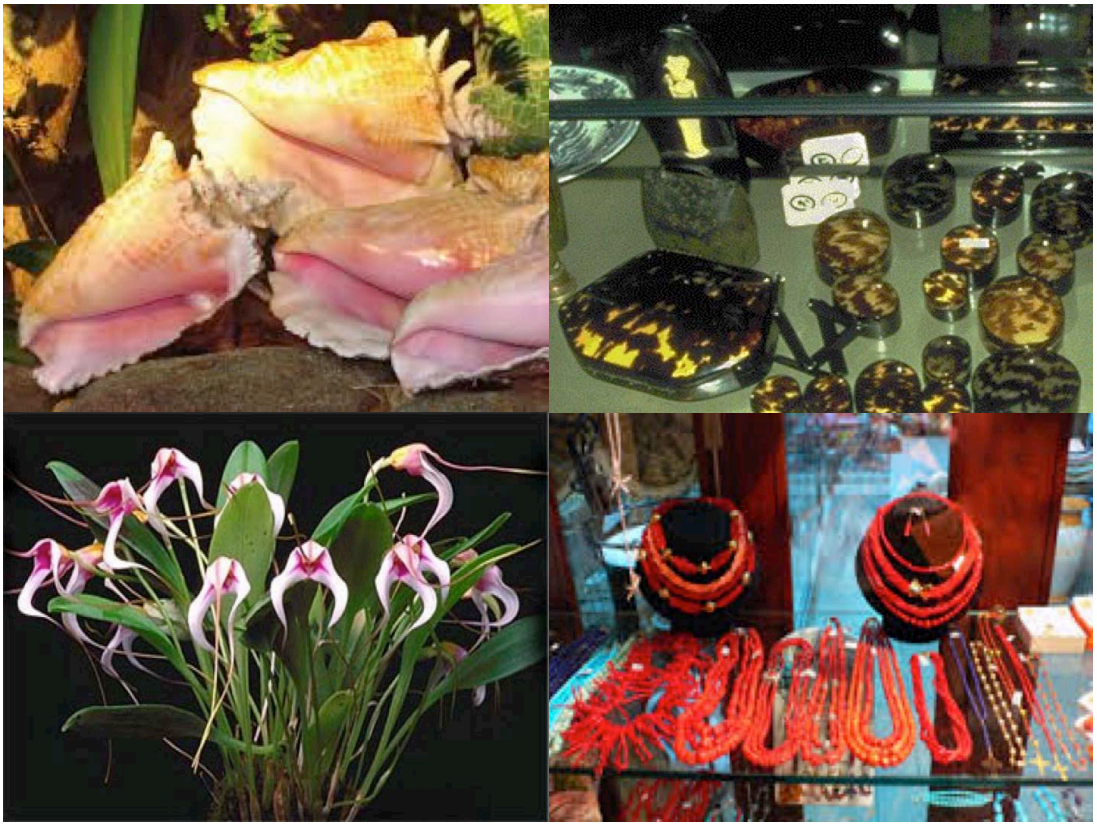
What next after extension?

Extension of MEAs to UKOTs is only part of the story. Once an MEA has been extended, it then has to be implemented, and proof of implementation needs to be demonstrated regularly, for example through the UK national reports. By way of example:

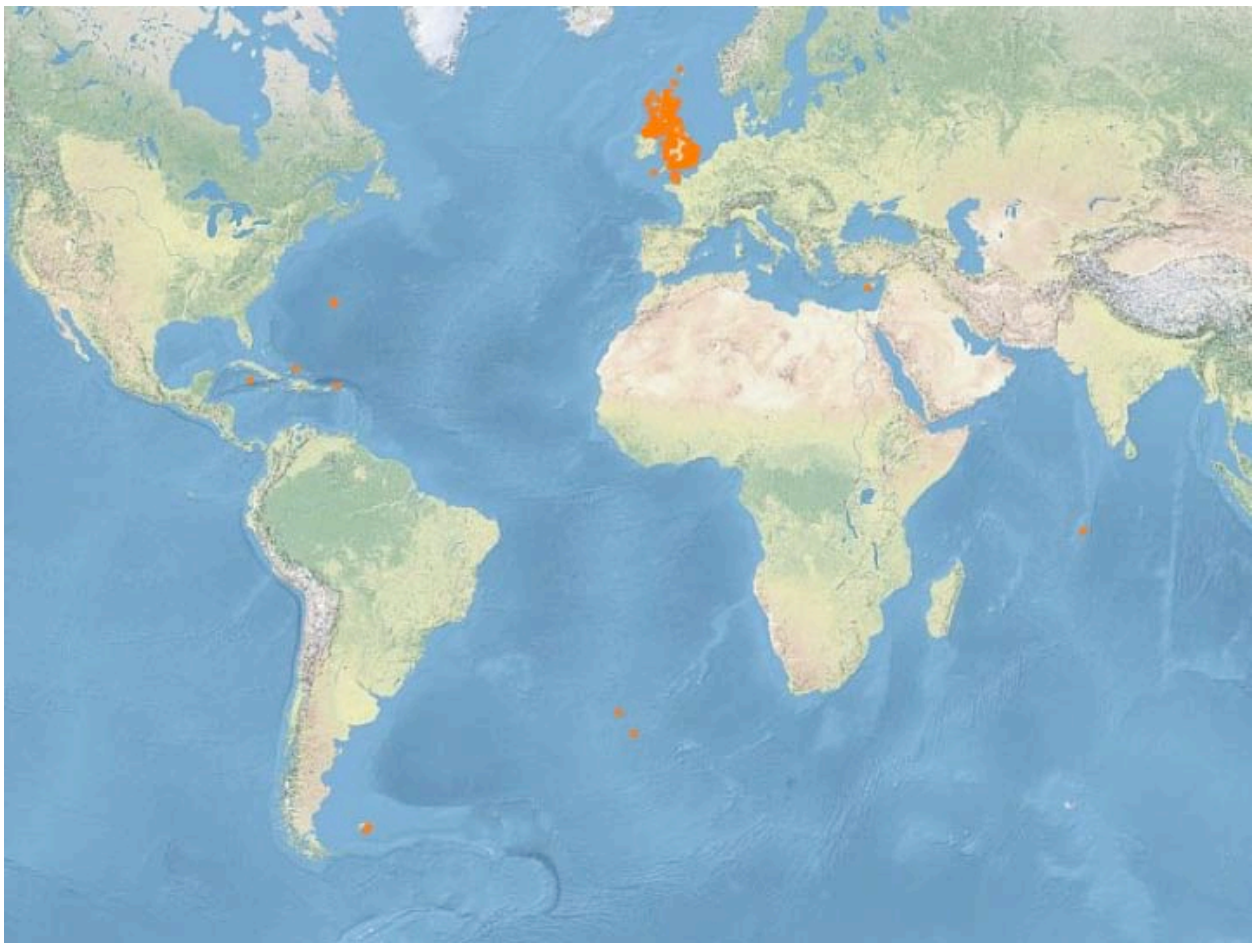
Example 1: CITES National Legislation Project

CITES has four basic requirements:

- Appointment of Management & Scientific Authorities
- Regulation of Trade
- Penalisation of Illegal Trade
- Power to seize / confiscate



Some CITES species and products made from them.



At CITES COP12 in 2014, a decision was taken to apply trade sanctions to all Parties (countries) and dependent territories that do not have CITES compliant legislation in place by January 2016. A number of UKOTs and one of the CDs still do not have CITES compliant legislation in place.

Example 2: Ramsar site designation

The UK has 173 Ramsar sites (map above) – more than any other country. Once sites have been designated, there is a requirement to be kept informed if the ecological character of a site has changed, is changed or is likely to change. 8 UKOTs and all of the CDs have designated Ramsar sites:

- Bermuda (7) – Hungry Bay Mangrove Swamp; Somerset Long Bay Pond; Lover's Lake Nature Reserve; Spittal Pond; Warwick Pond; Paget Marsh; Pembroke Marsh
- BIOT (1) – Diego Garcia
- BVI (1) – Western Salt Ponds of Anegada
- Cayman Islands (1) – Booby Pond and Rookery
- Cyprus SBAs (1) – Akrotiri Marsh
- Falkland Islands (2) – Sea Lion Island and Bertha's Beach
- TCI (1) – North, Middle & East Caicos
- Tristan da Cunha (2) – Gough and Inaccessible Islands
- Jersey (4) – Les Ecrehous & Les Dirouilles; Les Minquiers; Les Pierres de Lecq; South East Coast
- Guernsey (incl. Alderney & Sark – 4) – Lihou Island & L'Eree Headland; Herm, Jethou & The Humps; Alderney West Coast & the Burhou Islands; Gouliot Caves, Sark
- Isle of Man (1) – Ballaugh Curragh

MEA Reporting

Each MEA requires regular reporting. This provides a 'healthcheck' on global implementation and helps to identify priority areas for action. The UK submits a single report, which includes information provided by UKOTs and CDs to which the MEA in question has been extended. The reporting format is decided by the MEA itself, not by Defra – so we do not have any control over the questions, but we can usually find a way to provide additional information where this would be helpful. Timescales can be tight and again are imposed by the MEA.

CBD - Isle of Man experience

Liz Charter, Principal Biodiversity Officer, Isle of Man Government

In the 1990s

Before my time in post, there had been only one person 1-2 days a week doing nature conservation (the role being combined with running the Wildlife Park) .

Extension of the CBD had been discussed, but identifying the financial implications had been difficult.

Defra meeting July 2002 and the IOM CBD review 2004

My talk in the main conference session (pages xxx-xxx) gives a little more on this story.

But in August 2002, at the Whitehall meeting I mention in that, Louise Vall of Defra suggested we use the CBD assessment forms and seek the help of the World Conservation Monitoring Centre. Alastair Taylor was duly contracted by WCMC and proved an excellent ally in this process. He spoke to many different organisations around the island, and gathered evidence objectively of our progress in biodiversity conservation (such as illustrated below). He wrote a report with 10 recommendations. This "article by article" assessment provided the basis of our submission to DEFRA for CBD extension. That document was produced in 2006.

2009 There was preparation for a Treasury bid in 2009, but in 2010 everything went pear-shaped, as they say!

Public consultation 2010

Following this, we held a public consultation in 2010 on the CBD, producing a document (next column) to explain what the Convention is about and what it would mean to the Island. This is a resource which anyone can borrow and improve on.

There were over 100 positive responses

This was well received and the Minister agreed in

NATIONAL CAPACITY SELF-ASSESSMENT REPORT

Convention/ Resolution text	*Summary of current action*	*Summary of proposed action*	*Comments on the actions and proposals*

Checklist for OTs / CDs regarding extension of the UK's ratification of the CBD

No	Requirement	Article no.	Evidence

early 2011 that we would make the first informal request to Defra to have our assessment evaluated.

Run-up to "signing"

November 2010: submission of assessment update (to cover the work done since the 2006 report) and implementation report to Defra, which passed this to JNCC.

February 2011: positive response from JNCC

February 2011: the UK Government was approached formally through the official channels (initially, for a Crown Dependency, through the Ministry of Justice [rather than FCO, the route for a UKOT]).

October 2011: Request for different submission format from Defra. Politely declined by IoM as pointless duplication.

May 2012: we heard that the CBD had been extended to us, effective from August 2012.

CBD- Lessons learnt

It doesn't need to be this thorough!

Or time-consuming!

CBD is about intention and moving in the right direction [not precisely specified items that need to be fulfilled, as in CITES – possible for the latter because it works through trade licensing arrangements, not conservation actions in the natural environment]

Use valuable Defra guidance (re Aichi etc)

There is potential to make use of other people's resources (*e.g.* public consultation document)

Key deliverable needed after extension is the Biodiversity Strategy and Action Plan (BSAP) (already done in some places).

BSAP process

Formation of steering group, summer 2010

Drafting of Strategy, 2010-2012

Internal agreement to consult, spring 2013

Public consultation on draft Strategy, July – September 2013

Consult JNCC

Change of Minister, June 2014

Further consultation with main stakeholders, February 2015

Consult DEFRA

To Tynwald, October 2015?

Delivery Plan: due to be written, consulted on and agreed in next 6 months.

Extension of the Convention on Biological Diversity to South Georgia & the South Sandwich Islands

Jennifer Lee (Government of South Georgia & the South Sandwich Islands)

What are the pros?

Demonstrates commitment to conservation of biodiversity, environmental protection, and environmental stewardship

Well recognized treaty

Eco-tourism

Opportunity to showcase SGSSI projects on a global stage

Most requirements already met

Ratification process highlighted areas where policy development would be useful

Links to international community

Share experience and best practice

Concerns and how they were addressed

Reporting

Small team, limited resources available

Solved by careful structuring of NBAP

DEFRA/JNCC may be able to assist with drafting if required

Ability to meet commitments

Best efforts bearing in mind in-territory capacity

Leverage for funding/ collaboration

Some commitments not relevant for uninhabited territory

Process

"Sufficient laws and policies in place to enable the Territory to implement and comply with its obligations under the CBD"

Map policy documents against Aichi targets

Map deliverables against Aichi targets

Supporting evidence (Table 1 below)

Evidence pack

Identify key policy documents (no NBAP in place at that time)

SG strategy, Environmental roadmap, Environment Charter, MPA management plan

Table 1. Overview of how the GSGSSI key strategy documents contribute to each of the Aichi Targets.

Target 1 – Awareness: By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.		
South Georgia Strategy 2010-2015	**Fisheries** • Maintain the long-term sustainability of the toothfish fishery and the MSC Certification • Work with industry to address the MSC Conditions in icefish fishery	p8-9
	Tourism • Work with IAATO to maintain and enhance biosecurity arrangements • Continue to develop visitor management plans for key sites • Consider methods of gaining added value from tourism (e.g. donations, sponsorship) • Work with SGHT to ensure that the museum is run to a high standard	p10-11
	Outreach and publications • Update the GSGSSI visitor briefing DVD • Produce an environmental management plan that is available as a pdf through the GSGSSI website • Explore ways of further improving the web site	p13
Environmental Roadmap 2014	**Sustainable Fisheries** • Supporting sustainable fisheries management within the CCAMLR framework	N/A
Environmental Charter 2001	• Bring together local representatives of government of local user, of scientific communities and of environment and heritage organizations in a forum to formulate a detailed strategy for action • Commit to open and consultative decision-making on developments and plans that may affect the environment; ensure that the environmental impact assessments include consultation with stake-holders • Promote the value of our environment as part of the world's natural heritage of regional and global significance	N/A

Table 2. Overview of how the GSGSSI selected evidence documents demonstrate delivery on Aichi Targets.

Document title	Description	Aichi Targets
Wildlife and Protected Areas Ordinance 2011	The legal instrument that provides comprehensive protection for the flora and fauna of South Georgia & the South Sandwich Islands. Under the ordinance it is prohibited to undertake actions that may harm native birds, mammals, plants or invertebrates. It is also an offence to introduce non-native species or export any biological material without a permit. This legislation also makes provision for the establishment of specially protected areas and marine protected areas.	**1, 5, 7, 9, 11**
Reindeer on South Georgia, literature review and discussion of management options	Prior to embarking on an eradication project, all options for managing reindeer were considered, including taking no action, on going control, eradication of only one herd and complete eradication of all reindeer on South Georgia. In advance of making this decision, a meeting of experts was held at Kew in 2010 and a stakeholder consultation was undertaken.	**5, 9, 18**
Reindeer eradication project – phase I. Summary report	Outline of the 2013 operation to remove invasive reindeer from the Busen area. In total over 1,900 reindeer were removed using a combination of techniques in a eight week period. The majority of animals were gathered using traditional herding techniques and then gathered into corrals where they were slaughtered	**5, 9, 15**

Extract commitments and map against Aichi targets

Identify key projects that have delivered under policy framework (Table 2 above)

ACAP action plan, Wildlife and Protected Areas Ordinance, site visitor management plans, MSC certification reports etc

Time-table

Identified as something to work towards in 2010-2015 strategy

Decision to proceed taken in September 2014

DEFRA/JNCC start Aichi target mapping process – December 2014

GSGSSI completed Aichi target mapping and assempling evidence pack in January/February 2015

Instrument of extension deposited in March 2015

Support

DEFRA on hand to provide guidance

Agree time table for collating documentation and submission

Media coverage/publicity

Ongoing support ensuring new policy documents such as the NBAP are easy to transpose on to CBD Aichi targets

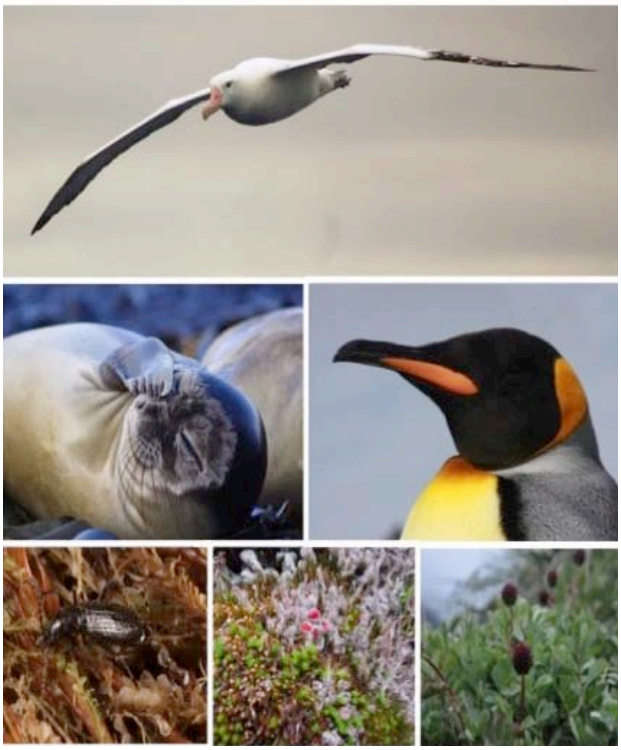
Final thoughts

Hardest part is to make the decision to have CBD extended

Extension process itself can be relatively straight forward and fast

Reporting does not have to be onerous if planning documentation is structured with CBD in mind

Identifying Aichi targets which are not well supported is useful when thinking about future policy development needs.



Discussion

Following these presentations, participants were invited to ask questions which are summarised below:

How do you ensure that the public is consulted?

It can be difficult to get all the information across. Some ways in which this can be done are by having shorter documents in colour, and items on radio and TV. On the Isle of Man, 105 answers to the public consultation were received out of a population of 84,000. All the Minister wants to know is if key people *e.g.* fisherman, business leaders etc, are happy. Another way is to hold meetings and work with NGOs. The Nature Conservation Forum in Isle of Man was proactive and continued its dialogue with various groups throughout the process. The MEAs, and in particular the CBD, are like a moving bus and it is a question of getting on it. There are CBD targets with an end date 2020 … which is rapidly approaching, and thought is needed as to how new territories address this challenge. Isle of Man has been addressing this.

On South Georgia although no population, there are stakeholders, *e.g.* tourism and NGOs and they used the annual stakeholder meeting in London.

It was remarked that the CBD is an entry level to the human race. The commitments agreed by hundred of nations. Tom Bingham in the House of Lords looked at international law and interpreted it in domestic law.

How do you impel the UKOT government to ask Defra in the first place? A ground swell of public support is needed. This is stated in the Environment Charter commitment 4. Someone goes to CBD from Bermuda as Government represent. How does it get to people of Bermuda on board the process?

This is one of the roles of civil society. The bureaucracy involved in the detailed reporting under CBD was thought to be important. However, one way in which to overcome this was in good project design and tying applications to the Aichi targets under the CBD.

Explaining the benefits of sign-up to CBD and Ramsar for civil society and Ministers might be a worthwhile exercise to do.

An example from Cayman was cited. The Government was approached by a cosmeceutical company to explore the properties of a protected coral species in Cayman. They were interested in looking at extraction of prostaglandin from gorgonia *Plexaura homomalla* for "producing affordable, high quality prostaglandins to the research community". They signed an agreement whereby they would pay for harvesting a limited amount. As part of this agreement, they were obligated to tests on regrowth. [See https://www.caymanchem.com] This has been ongoing since the 1980s. Under the CBD, a sustainable approach to the use of natural resources was required, but also the company realised that it was in their best interests to be involved with protecting and preserving this species so that they could have a "renewable, economically viable source of prostaglandins". The company wanted to use the fact that their product came from a sustainable resource and the fact the Cayman Marine Protected Area is famous for its careful management. This takes in to account the Access and Benefit Sharing approach to Cayman's natural resources.

UK is signed up to the Nagoya Protocol but has not ratified it. This will take a lot of work domestically before it is ready to discuss with the UKOTs. Once the UK Government officials have a better understanding of it, they will pursue its ratification.

Sign-up to Conventions often gives an opportunity to showcase unique environments. For example, World Heritage Site status is important for some UKOTs. It may assist fundraising, particularly Gough and Henderson and perhaps St Helena.

It was mentioned that the Ramsar Information Sheet (RIS) template has changed. For one territory, which has 7 Ramsar sites would all this information have to be put in to the new format?

Every 6 years those signed up are supposed to go back and update the RIS, but this hasn't been done [by most countries, in fact]. There is an agreed updated template, which can be circulated to those involved. It is a slightly more difficult system with limits on what can be updated. UKOTs were encouraged to send information to UK Government and they will transpose information on to the electronic system as only one login has been given.

Do you have to do Nagoya to be signed up to the CBD?

If signed up to the CBD, Territories would not have to be signed up to all the protocols. However they would have to do an IS.

The CBD has a National Biodiversity and Species Action Plan (NBSAP) Forum. It is an interactive website. It is being updated but is a useful resource. The details of this can be circulated.

The RSPB press machinery can be used to celebrate sign-ups. The more notice is given the better.

UKOTCF has particular experience in Ramsar designation, so those wishing to join or start the process can ask for advice any time. JNCC echoed this. [see, for example, http://www.ukotcf.org/pubs/ramsarReview.htm]

Liz Charter welcomed Territories to contact her with specific questions.

An additional comment made the point that UKOTs cannot working in isolation in the Caribbean region and so must reach out and work together, particularly on issues such as climate change and sea-level rise. Many countries work under different frameworks; for example, in Montserrat, they have the St Georges Declaration as well as the Environment Charter. The CBD enables regional cooperation as well as global on issues relating to sustainability of natural resources.

Action Points

Paper explaining the benefits of sign-up to CBD and other MEAs for civil society and Ministers with some good examples (possibly a development of the generic guide for small islands on the implications of signing up to the Convention on Biological Diversity, initiated by Rebecca Kinnesley, with the checklist initiated by Liz Charter; this would be valuable to small islands in relation to making progress on CBD targets and goals; UKOTCF and Defra indicated their interest in pursuing this).

Circulation of new Ramsar Information Sheets and NBSAP Forum website.

Contact details

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For other enquiries, please email Catherine Wensink, UKOTCF. cwensink@ukotcf.org

Discussion: a case-study from the Cayman Islands

As a contribution to the discussion, Gina Ebanks-Petrie supplied some information relevant to the Access and Benefit Sharing elements of CBD and the Aichi Targets. A summary is provided below. There is more information in the source of this, the Chamber of Commerce website: https://www.caymanchem.com/app/template/History.vm

CaymanChem, a pharmaceutical company, approached the Cayman Government in the early 1980s to take a small amount of coral, from which they could extract prostaglandin.

Cayman Chemical Company had been incorporated 6 June 1980 in Denver, Colorado, USA. The goal of the new business was to demonstrate the value of naturally growing gorgonian corals as a renewable, economically viable source of prostaglandins. Careful environmental studies and negotiations with the Cayman Islands Government culminated in August 1981, when an eight-pound sample of the gorgonian *Plexaura homomalla* was collected near Fisherman's Cay in the North Sound of Grand Cayman Island. The coral was frozen and transported to a small lab in Denver where 30 grams of relatively pure Prostaglandin A2 was extracted. Inspired by this success and the vision of producing affordable, high-quality prostaglandins to the research community, the new laboratory printed and mailed a flier offering five prostaglandin standards. In November 1981, Cayman Chemical closed its first sale.

Session 10: Renewable Energy

Chairing & facilitating team: Maya Doolub (Elms Consulting), Bruce Dinwiddy (UKOTCF), Daniella Tilbury (University of Gibraltar) & Liesl Torres (HM Government of Gibraltar)

Introduction – Renewable Energy in UK Overseas Territories and Crown Dependencies – Maya Doolub (Elms Consulting)
Wind-turbines: environmental benefits and challenges – Stephen Butler (Falkland Islands Government)
Tidal power: the environmental benefits and challenges of emerging renewable energy development within the Crown Dependencies – Roland Gauvain (Alderney Wildlife Trust)
Geothermal energy: environmental benefits and challenges – Sarita Francis (Montserrat National Trust)
Renewable Energy Deployment and Waste Treatment – Liesl Torres (Department of Environment, Government of Gibraltar)
Environmental Impact Assessment and Tidal Power Filling the Legislative Gap: A case study from Alderney (Bailiwick of Guernsey) – Dr Melanie Broadhurst (Living Seas Officer, Alderney Wildlife Trust, with the kind support of Alderney Commission for Renewable Energy (ACRE) and the States of Alderney (SoA))
Discussion

From left: Maya Doolub, Daniella Tilbury, Bruce Dinwiddy and Liesl Torres

Introduction – Renewable Energy in UK Overseas Territories and Crown Dependencies

Maya Doolub (Elms Consulting)

Doolub, M. 2015. Introduction – Renewable Energy in UK Overseas Territories and Crown Dependencies. pp 250-255 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

Paying some of the highest electricity prices in the world, islands continue to spend a large portion of their GDP on imported fossil fuels. Despite an abundance of natural resources and technologies that are economically viable today, very little use of renewable energy has been implemented in UK Overseas Territories or other islands. Although islands emit less than 1% of all global emissions, they do bear the brunt of climate change. Now is the time to highlight that islands can be at the frontline of demonstrating solutions to climate change.

Given the size of islands, there is the opportunity to present a model to the rest of the world for commercially viable renewable penetration – demonstrating that entire economies can transition to low-carbon solutions while achieving economic growth. The will is there and technologies are ready – they are a commercially viable solution to energy needs now. Impacts include: reduced cost of electricity for households and businesses, increased private investment on islands, growth and diversity in the job market with higher paying jobs, stopping the 'brain drain', improved energy efficiency and increased resilience.

Although the 'will' is there, commitment is needed to drive the development of frameworks that enable renewable projects.

It is important that there is capacity to understand the technologies and the financing and contracting issues. One mistake can prove costly, and islands should not be guinea pigs for unproven technologies. Reform of regulatory frameworks is still a key barrier, particularly in Overseas Territories. Some policy changes still need to be made to reflect the desire for change.

The private sector believes that the capital is there; billions are not currently being tapped into. Projects need to be de-risked, making them more attractive to developers, and there is a need to show proof of concept that the model is both replicable and scalable – investors like big. We can play our part in creating an open playing-field for the private sector, increasing competition and opportunities for collaboration. However, donor funding and support are still much needed by territories. Small Island Developing States receive far more help. That said, we need to identify and understand clearly what is needed to help territories define and realise their vision.

Islands can focus on and accelerate commercial opportunities for transitioning their economies off fossil fuels. They can create a shared blueprint for each other and for other isolated economies by: identifying tailored clean-energy solutions; developing a commercially viable renewable energy model for islands; access to the global market in order to catalyse the flow of private investment into renewables (in the process creating a platform of bankable renewable projects and a competitive renewable investment market) and the development of a roadmap or blueprint that enables islands to realise their low-carbon vision, and in turn supports the

development of larger-scale renewable energy models, setting an example for the rest of the world to follow. In order to achieve this a collaborative approach is needed. This will include: local governments, private sector, utilities, non-government organisations and the UK Government.

Local governments can lead the way setting their own vision for their territory. In some cases this has already been done. They can identify partners and focus on the sustainable growth of all sectors of their economy. UK Government and agencies could provide assistance in the following ways: capacity building, assistance with policy and development of regulatory framework, technical assistance, de-risking the market, business advisory services (such as developing the go-to market strategy for projects), communications and marketing. Non-government organisations can assist by: capacity-building, working with utilities as well as governments, sharing best practice, coordination of regional programmes, development of island specific templates to support the development of bankable projects, development of island specific guidelines for retro-fitting buildings, *e.g.* schools, hospitals. The private sector can provide: financing solutions to support project development and implementation, capacity building, sustainable solutions that support the development of on-island businesses, ensure investments support local infrastructure, engage with utilities and governments to define the clear value proposition for renewables beyond cost per kw/h. Utilities can work with governments to develop operational plans that set out a low-carbon pathway, develop the business model that reduces consumption and generation of energy from diesel, support governments to develop well informed projects and work inclusively with governments and partners so that all can understand the needs of your business model.

Potentially, there are some quick-win projects which could include: LED street lighting, improving energy efficiency in government buildings, hospital retrofits, schools- solar installations and hotel retrofits.

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Context

Island economies pay some of the highest electricity prices in the world, perpetuating poverty, contributing to national debt and obstructing any form of sustainable development and economic growth. Despite an abundance of sun and wind on many of our islands, very low amounts of renewables have been implemented to date, even though ***technologies are ready and economically viable now***. As a result, islands continue to spend a large portion of their GDP on imported fossil fuels, thereby constraining their socio-economic development. While small islands emit less than 1% of total global greenhouse gases, they do bear the brunt of climate change, facing near-term impacts from sea-level rise, increasing temperatures and extreme weather events. Now is the time to highlight instead that islands could be at the front line of ***demonstrating solutions to climate change***.

Waste Management and Waste to Energy

With scarcity of land on many islands, running out of landfill space is a critical issue. Technologies

which utilise municipal waste to produce electricity and/or heat appear to present an opportunity to "kill two birds with one stone" – offering the potential to extend landfill lifespans and reduce energy imports, while also decreasing greenhouse gas emissions. Despite this, development of Waste-to-Energy projects so far has suffered far more false starts than successes on islands.

Opportunity

From an environmental, economic and social standpoint, the vision needs to be one of economically robust territories, rich with renewable energy systems and committed to becoming completely fossil fuel free.

Because of their size and abundance of natural resources, islands are in a unique position to reduce their dependence on imported fossil fuels and benefit from the positive environmental, social and economic impacts of using sustainable energy sources. Islands can combine their abundant renewable resources with economically viable technologies to become more independent and resilient.

For many territories, in particular, the enhanced opportunity of achieving high levels of renewable penetration is an exciting one. Given their size, some small territories may be able to achieve 60-80% renewable penetration through hybrid solutions, presenting inspiring demonstration models to the rest of the world.

The opportunity for successful waste-to-energy solutions, however, seems less clear.

Although each case is unique, a number of basic criteria need to be met for a waste-to-energy project to be successful:

- Waste-stream inputs must have an assured price, quantity and quality – and guaranteed for around 15-20 years
- The power or heat outputs of WtE plants must have a guaranteed sale price for around 15-20 years
- A commercially proven technology suitable for the size and composition of the waste-stream must be available
- A site that is not only economically and environmentally appropriate, but also politically acceptable, needs to be identified.

The Carbon War Room is a non-profit organization that Richard Branson, the billionaire founder of the Virgin Group, established to fight climate change. In 2014, the Ten Island Challenge partnership (made up of Aruba, the Bahamas, the British Virgin Islands, the Colombian islands of San Andrés and Providencia, Dominica, Grenada, Saint Kitts and Nevis, Saint Lucia, and the Turks and Caicos Islands) gathered on Necker island, BVI to demonstrate their commitment to use of renewable energy. See carbonwarroom.com

Impact

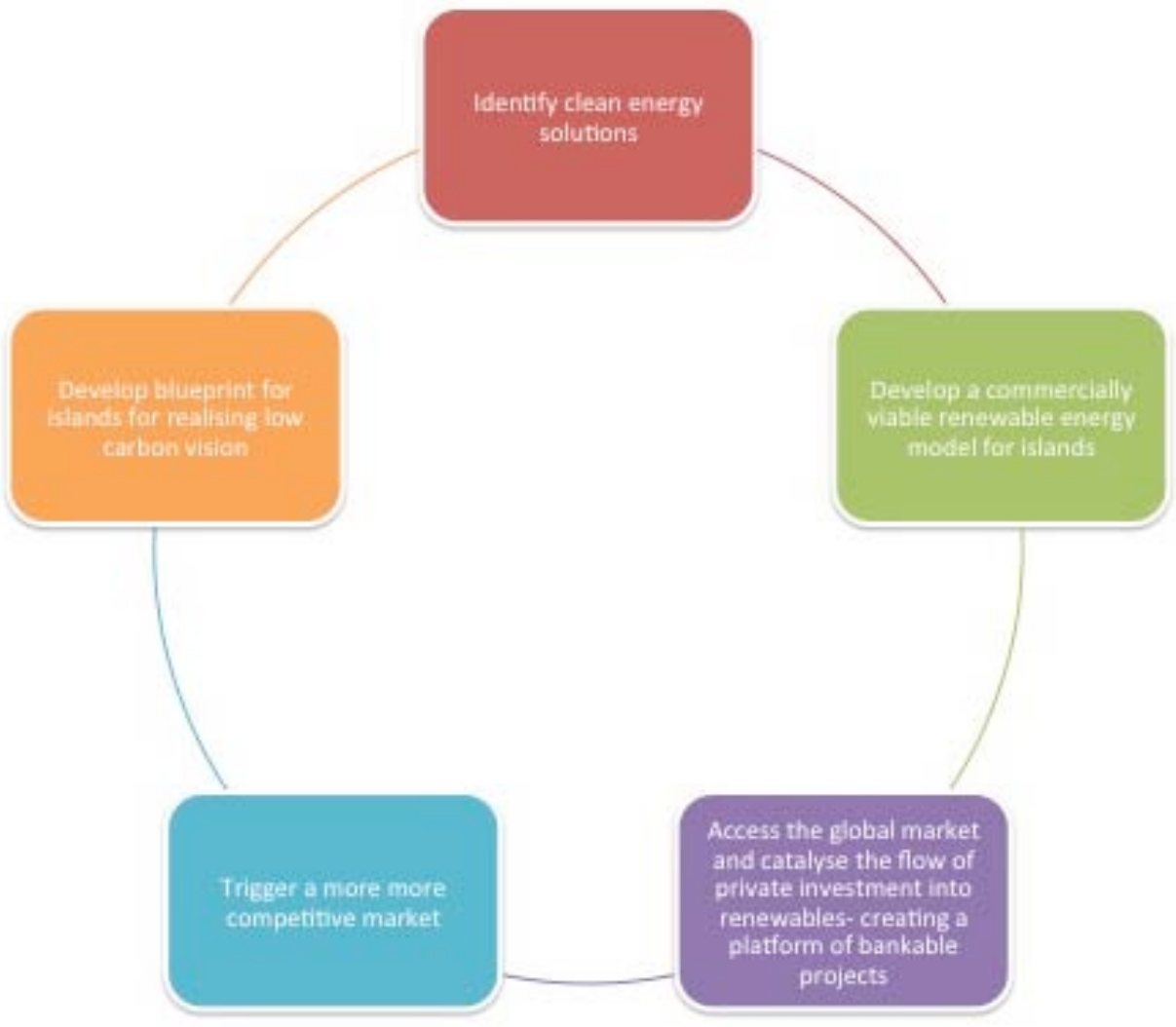
By accelerating the transition of the energy sector on islands, we can:

- Reduce the cost of electricity for households and businesses
- Increase private investment on islands
- Enhance and diversify the local markets with higher skills, better paying jobs – reducing the "brain drain" and loss of talent on islands
- Improve energy efficiency
- Reduce each island's emissions
- Reduce each island's dependency on fossil fuels.

In the process, we can demonstrate that entire economies can transition to low-carbon solutions while improving their long-term viability.

Understanding the Barriers

We know that technology is ready and commercially viable now; we are seeing that island governments have the will to move to low-carbon pathways. The barriers that remain largely indicate gaps or bottlenecks with ***commitment, policy*** and ***capacity***. Many islands are still "locked into" ***long-term supply contracts*** with utilities still using diesel generation and issues with ***local permitting***. Although the will is there, ***commitment*** needs to drive the development of frameworks to enable implementation of renewable projects. Engagement with the ***private sector*** tells us that the capital is there – billions of dollars that are not being tapped into. Work needs to focus on de-risking projects for the private sector and creating an open playing field for technology providers to deliver solutions, thereby ***catalysing the flow of capital*** into renewables and on islands. Whilst islands are perfect in size to deploy commercially viable renewable solutions, the scale of the opportunity remains too small for many private sector firms. The development of *ad hoc* small projects is not always exciting. A more robust approach to integrated resource planning that identifies a roadmap of opportunities for planning, design and implementation needs to be accompanied



by the development of an enabling environment for project financing – and where possible across a number of islands in the same region, *e.g.* the Caribbean. ***Capacity*** and ***skills*** remain an issue; many island governments are bombarded with technology providers pitching solutions for the production of energy from renewables and from waste – knowing what is a sound proposal and what is not can be a minefield. Whilst islands are well positioned to demonstrate innovative low carbon models for growth, they should not be guinea pigs for emerging or unproven technologies. Whilst many island nations remain the focus of numerous donor funding and programmes of work, support for most of the UK Overseas Territories by comparison is very little. Understanding the barriers identified already, and understanding also that a more positive/productive approach to solutions comes from the private sector rather than traditional donor community, ***focus should be on identifying support, which enables islands to define and realise their own vision for a clean economy***.

Accelerating Progress

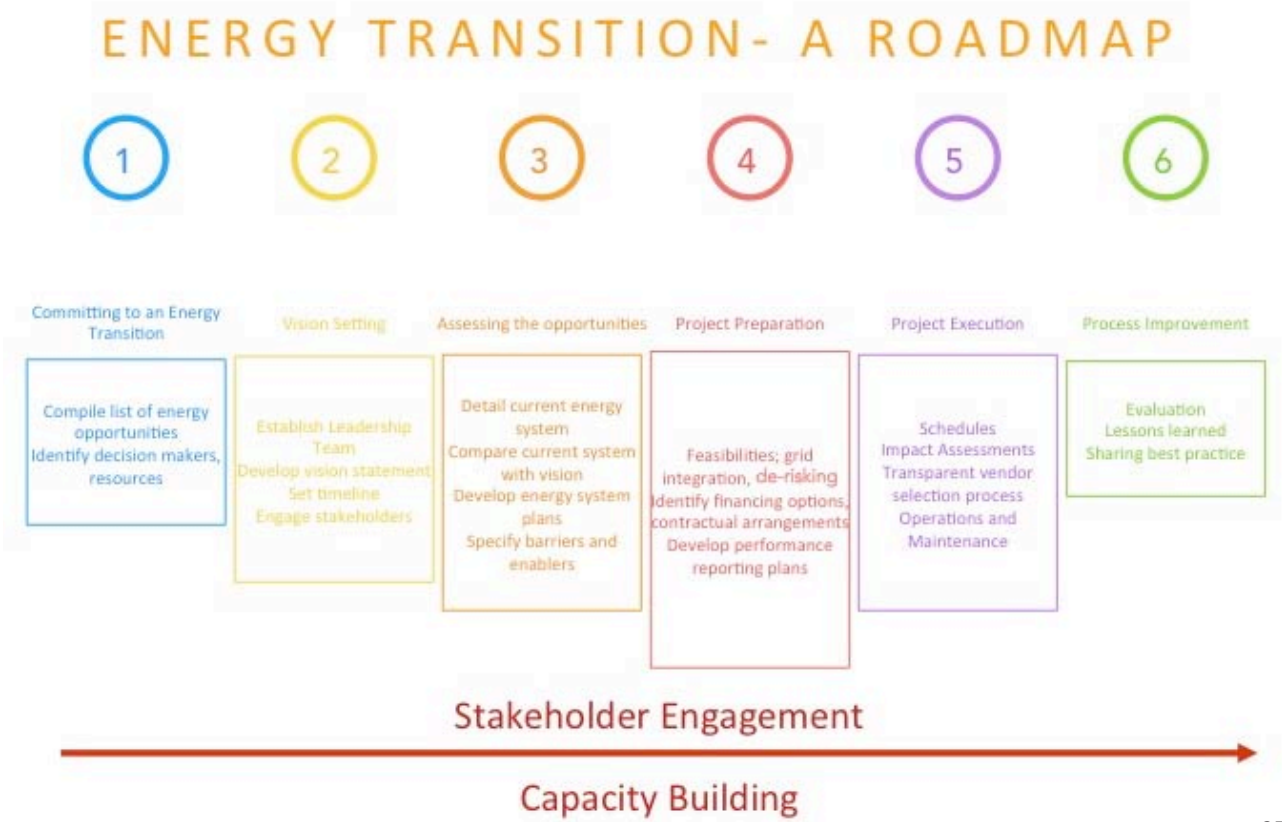
How can islands focus on and accelerate the commercial opportunities for transitioning their economies off ***fossil fuels and create a shared blueprint for each other and for other isolated economies?***

- We need to support islands to identify tailored clean-energy solutions
- We need to develop a commercially viable renewable energy model for islands
- We need to support islands to access the global market and catalyse the flow of private investment into renewables, and in the process create a platform of bankable renewable projects and a competitive renewable investment market
- We need to develop a roadmap or blueprint that enables islands to realise their low-carbon vision and supports the development of larger scale renewable energy models – ***setting an example for the rest of the world to follow***

A Collaborative Approach

Island Governments

- Providing a territory-led approach
- Vision setting – creating a vision that each person living on island can see clearly and define their role in
- Identifying the partners that can assist in both defining and realising this vision
- Will and commitment, demonstrated by focusing on policy change and incentives
- Engaging the private sector on island to drive a more sustainable framework for industry with



local operating costs reduced

- Focus on sustainable growth of all sectors – many islands have 5* star hotels, but far from 5* hospitals and schools

UK Government

- Capacity building
- Assistance with policy and development of an enabling regulatory framework
- Technical expertise and support – providing feasibility studies, grid integration studies, thereby de-risking projects for the market
- Business advisory services – developing the go-to market strategy for projects
- Communications and marketing
- What role can the UK Government play progressing the economic viability of other technologies such as Ocean Thermal Energy Conversion (OTEC)?

NGO/Multilateral Community

- Capacity building
- Sharing best learning outcomes, *e.g.* work in the Eastern Caribbean on regulatory reform
- Coordination of regional programmes, *e.g.* in the Caribbean, South Atlantic and Pacific, to enhance the potential for scale across a number of islands
- Development of island-specific templates to support the development of bankable projects, *e.g.* Power Purchase Agreement (PPA) templates, bankable criteria
- Development of island-specific guidelines for retro-fitting buildings, *e.g.* schools, hospitals

The Private Sector

- Development of tailored financing solutions to support project implementation
- Capacity building, ensuring that training is included in the implementation of solutions on island
- Programmatic approach to building solutions that enable the development of on island businesses
- Ensure that investment supports/enhances local infrastructure
- Engage with utilities and governments to define the clear value proposition of renewables beyond cost per kw/h

Utilities

- Working with governments to develop operational plans in line with a low-carbon vision
- Developing a business model that focuses on reducing the level of diesel-generated energy and the amount of energy used on island
- Supporting governments to develop well informed projects that are ready to move now, with competent grid integration studies – ***doing what can be done now***
- Working inclusively with governments and others partners so that all can understand the needs of utility business models

Discussion Outcomes

Discussion in this session looks forward to highlighting successes to date on islands, whilst providing also an insight into challenges common across the territories. We look forward to exploring how the enhanced roles of stakeholders – governments, utilities, NGOS and the private sector – can drive progress, with a keen focus on how progressive energy and waste strategies can support sustainable economic growth, boosting local entrepreneurship and the job market.

Wind-turbines: environmental benefits and challenges

Stephen Butler (Falkland Islands Government)

Butler, S. 2015. Wind-turbines: environmental benefits and challenges. pp 256-260 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

The Falkland Islands' location necessarily means that imported fossil fuels are expensive to use, and transporting them long distances presents risks. In Camp (everywhere outside of the capital, Stanley) small isolated farms and settlements have, until relatively recently, often been reliant on diesel generators that would provide power for a limited time each day.

To respond to the challenge of developing cheaper, more secure and (for Camp) 24-hour power we have been taking advantage of one source of energy that is potentially cheap, green and in plentiful supply – wind power. There has been investment from Government in the development of wind farms to serve Stanley and the provision of a grant scheme to support individual farms investing in their own supply. More recently, Falkland Land Holdings has invested in four settlement-based wind turbine initiatives.

This has not been without challenges, and is an ongoing process. However, wind turbines now provide 30-40% of the electricity needs of Stanley. Within the remainder of the Islands, smaller-scale schemes at an individual farm level have been successful, and 85% of farms have 24-hour power from renewable sources.

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Introduction

Content

The presentation covers:

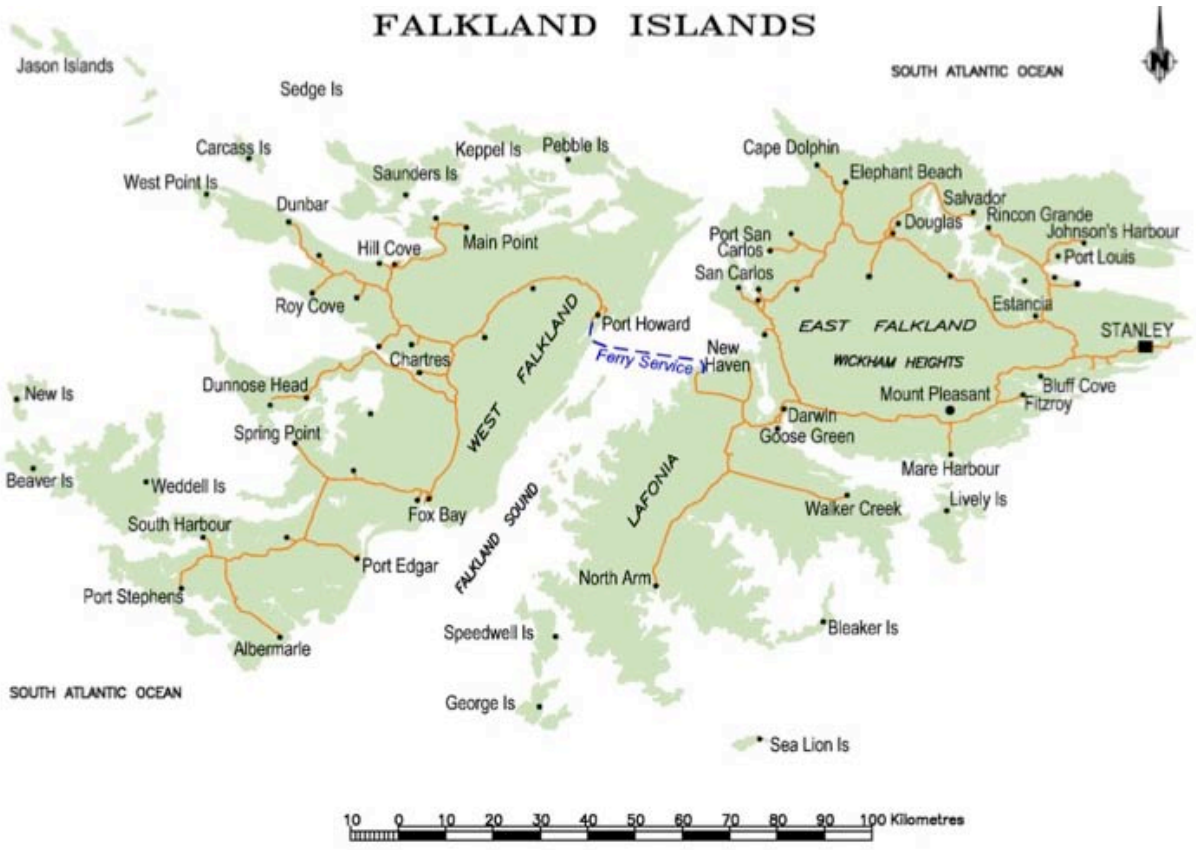
- a general overview of the Falklands;
- the policy context;
- why wind was identified as an area to look at;
- the three ways in which wind energy has been developed (individual farms, Falkland Land Holdings and Stanley); and
- ongoing and future work.

Overview

The Falkland Islands are comparable in size to Northern Ireland but with a population of 2,840 (excluding military personnel). There are two main islands (East Falkland and West Falkland) with over 700 smaller islands. The capital (Stanley) is located in the East of East Falkland. The 2012 census indicates that there are 1,237 households (82% in Stanley, 10% on East Falkland and 8% on West Falkland and the outer islands). The 2011-12 Falkland Islands National Accounts show that GDP was £198 million in 2012, 34.1% of this from fishing and aquaculture.

Before 1979, there were 36 farms in the Islands. However, as a result of Government policy to increase the number of locally owned and operated farms through sub-division of some of the larger 'corporate farms', there are now 84 farms. Most of these are run as family units with an average size of 10,000 hectares running 6,400 sheep.

In 1991, four large farms equating to about 25% of the total farm-land in the Islands, were purchased by the Falkland Islands Government from the Falkland Islands Company. Falkland Landholdings Corporation was established as a statutory organisation to run these farms,



which total 308,000 ha, with 150,000 sheep and approximately 1000 head of cattle.

The 2012 Census reveals the following about energy:

- 8 out of 10 households use kerosene for heating;
- use of diesel oil for heating is declining but still widespread in Camp;
- the main fuel for cooking in Stanley is electricity;
- the main fuel for cooking in Camp is gas;
- Stanley Power Station provides almost all of Stanley's electricity;
- local generators are used in Camp (mix of diesel and wind energy); and
- the total average cost of fuel per year is 7% of annual income (62% on fuel attributed to heating).

Policy Context

Policy options were considered by Executive Council in 2011, and a general approach was taken which seeks in particular to reduce consumer operating costs through energy conservation and good practice, and reduce reliance upon imported fossil fuels through continued development of the Sand Bay Wind farm (related to Stanley) or further wind power systems at larger farms (in Camp).

The 2014 – 2018 Islands Plan contains commitments to:

- secure and enhance power supplies within the Islands through investment in power generation and
- implement a responsible strategy to mitigate the effects of climate change, including:
  - exploring and supporting further take-up of renewable energy in both Stanley and Camp; and
  - implementing measures to improve the energy efficiency of existing buildings so as to reduce energy consumption.

Demonstration of the availability of wind in the Falkland Islands

Why wind was identified as an area to look at

There are a number of reasons that the use of wind energy for power is a good fit for the Falkland Islands. The use of diesel generators has necessitated transporting materials over long distances, at significant cost. Wind is plentiful, although winds can be very strong (perhaps too strong) with gusts (average windspeed is 29 km/h).

Having a large, sparsely populated country means that siting on-shore wind-turbines away from built up areas is easier than in more densely populated areas. The nature of the landscape is such that turbines can be very prominent. However, in consideration of the 2nd Phase of the Stanley Windfarm, it was concluded that, "Whilst some may regard them as undesirable man-made features in the semi-natural landscape, many others consider them to be attractive moving sculptures. The proposed wind turbines will be very prominent when viewed from the Stanley-MPA road although the whitish colour of the tower and blades will reduce their visual impact when viewed against the sky".

Bird strike was considered in the development of the Wind Farm at Stanley and the main issue was in relation to Upland Geese. (The farm is located a considerable distance from any flying seabird colonies or aggregations.) Incidents on the overhead parts of the high-voltage distribution system of the first phase were largely seasonal, peaking in spring and autumn, but occurred occasionally throughout the year. The overhead power-lines were reconfigured to respond to this.

The ways in which wind energy has been developed

There are three ways in which wind energy has been developed, which will be considered in turn: individual farms, Falkland Lands Holding and Stanley.

The three ways in which wind energy has been developed: Individual Farms

These are off-grid systems and range from small one-property systems to larger micro-grid systems for a settlement. Before 1996, people had diesel generators running 8 hours a day (so periods without electricity). The first installation of small-scale wind turbines in Camp was 1997 when a grant was made available by FIG, with money from the EU. Since 1997, there have been around 120 small-scale wind turbines installed in off-grid or micro-grid systems on around 85% of farms. The original intention was that, with the installation of a wind turbine and a 25% fuel saving on diesel a year, applicants would receive 24-hour electricity. However, many people have seen see a 70-80% fuel saving. Devices need to be adaptable to weather and variable windspeeds. With small-scale wind hybrid systems, people can live and work in any part of our islands without large-scale and expensive civil works to install power-lines.

Since 1996, there have been a number of challenges:

- remote locations and costly diesel generators means that they need to be reliable;
- an increase in the number of appliances in homes and business increases the demand;
- many of the systems were installed in 1996 and so are starting to reach the end of their

Individual farms are run off-grid. They range from small one-property to larger micro-grid systems. Pre-1996 diesel generators were widely used running for 8 hours per day. After the introduction of a rural energy grant, 24-hour electricity became a possibility, wind hybrid systems and other technologies have been used.

designed life; and

- an increase in the price of diesel, which is still used for heating.

The responses to these challenges have included:

- the installation of reliable technologies;
- building local capacity to maintain the systems;
- energy saving methods; and
- installation of different technologies (*e.g.* solar power).

There have been several challenges post 1996 but some of the solutions have included: installation of reliable technologies and the development of a local skills-base amongst others.

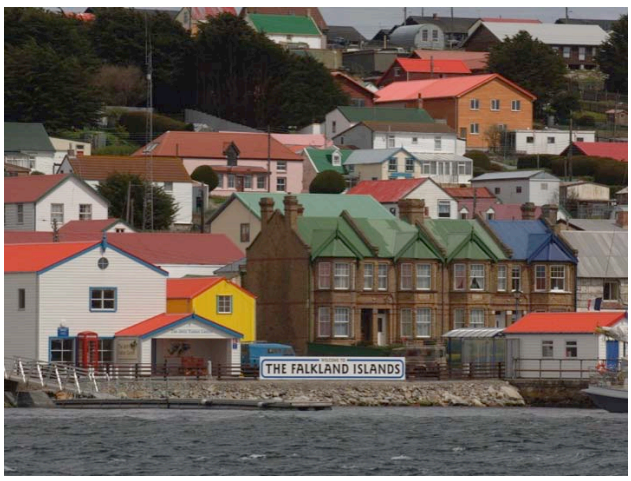
The three ways in which wind energy has been developed: Falkland Land Holdings

FLH has installed wind turbines in their four settlements to help supply electricity to around 40 homes. The key driver behind this is cost-saving, and it is hoped that payback will be in 5-6 years. Outside of the shearing season, surplus power is generated on windy days and options are being looked at as to how this could be used. Because this is driven by cost savings, a holistic approach is being taken as to where further investment will result in savings.

The three ways in which wind energy has been developed: Stanley

The demand is around 16,000 MWh per year. The power station is supplied by 8 diesel generators and 6 wind turbines (sited outside Stanley). Because the generators are within Stanley, the waste heat is used by the school, hospital and swimming pool. The Sand Bay Wind Farm supplies 30-40% of Stanley's electricity.

One of the key challenges is the equipment installed in the mid 1970's. In addition, not only has the population increased by over a third since 1991, but there has been an increase in the number of appliances in each home/business, leading to increased demand. This, along with increases in the price of imported diesel, created a need to look at alternative ways of generating electricity. However, because Stanley's electricity is based on a ring main with the switch gear based at the power station, any input to the grid has to go through the power station.



Stanley

The solution has been to use the wind turbines to provide the base-load and then using the diesel powered generators to create the electricity for the reaction load. This required technology that would enable a more consistent output from the turbines, which is achieved through altering the pitch of the blade and the strength of the magnetic coil. The wind power aims to provide 33% of the demand per year, saves 1,382,000 litres of fuel per year and 3,000 tonnes of carbon dioxide.

Ongoing and future work

Reducing Demand

In order to reduce demand, the draft revision of the Development Plan includes a policy which states, "To protect the general amenity of the future occupiers and surrounding area proposals must… show how they have considered opportunities for sustainable construction techniques (including micro-renewables) … Proposals may present opportunities to use sustainable construction techniques, which should be explored where appropriate, for example energy efficiency. Energy efficiencies in buildings may be achieved by having regard to issues of aspect, design and layout, construction, insulation and use of

renewable heat sources. Development proposals will be encouraged to minimise their requirements for energy".

An update of the Building Regulations has been approved and is ongoing. This includes proposals to:

- increasing thermal insulation;
- require room thermostats/zonal control;
- set out minimum temperatures for all buildings; and
- ensuring boilers are of an appropriate type and adequately set up.

Good Decision Making

To ensure good decision-making, work is ongoing to the wider legislative framework. For example, on-shore Environmental Impact Assessment Regulations have recently been adopted as part of the planning system. Information is also important, and the Falkland Island Development Corporation has a Rural Energy Advisor to provide advice and support to Camp residents. Work is ongoing to produce resource maps to identify suitable renewable technologies and enable comparisons.

Further investment

The Falkland Islands Government has installed 3 additional wind turbines from which to sell power to the military base (and subsidise remaining diesel costs). Work is ongoing to progress the National Infrastructure Plan to provide a clearer strategic context for future investment decisions.

Wide Opportunities

Energy is part of the terms of reference for the Environmental Mainstreaming Group (which provides a forum to facilitate better cross-sectoral communication and collaboration on environmental mainstreaming, and be responsible for identifying and implementing actions that are necessary to achieve the Falkland Islands' environmental objectives). Furthermore, the Waste Action Plan (2015 – 17) includes potential action to, "Support options appraisal work in relation to power generation and the potential to use waste incineration as part of this".

Tidal power: the environmental benefits and challenges of emerging renewable energy development within the Crown Dependencies – Alderney's case study

Roland Gauvain (Alderney Wildlife Trust)

Gauvain, R. 2015. Tidal power: the environmental benefits and challenges of emerging renewable energy development within the Crown Dependencies – Alderney's case study. pp 261-266 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

The increasing need for alternative and sustainable sources of energy production is well documented and has perhaps a special importance within the island communities of the Crown Dependencies (CDs). With the growth in larger-scale wind-farm proposals and the emergence of smaller trial tidal and wave installations, the potential for larger renewable energy projects having either a direct environmental effect, or a socio-economic impact, within the CDs is now becoming a reality. At this stage though no CD has as yet established a larger-scale renewable energy site, given the recent growth in interest, both within the jurisdiction of the CDs and in adjacent waters, renewable energy development is beginning to exert an influence on local governmental bodies and non-governmental organisations. It is also worth noting that the level of potential impact to be assessed within the CDs when responding to consents proposals is perhaps proportionately higher than that of the neighbouring states due to the CDs' geographical positions, ecological wealth and unique socio-economic environments when compared with the wider regional context.

At this stage, it can be argued that the potential impacts of larger-scale developments, both environmental and socio-economic, are relatively well scoped for within the national planning process of EU member states and within existing Strategic Environmental Assessments. However, experience within the Channel Islands, and specifically looking at the case-study of Alderney, suggests that, given the limited resources, the diverse nature of different jurisdictions' planning systems and the lack of local experience in responding to UK or European national planning and environmental assessment processes, CDs are often not able to consider pre-emptively the implications of these developments, let alone respond to them in detail when called to.

This presentation attempts to use Alderney's case-study, specifically its response to development proposals in adjacent UK and French waters as well as to local consents applications within its own waters, to investigate the diverse impacts on both the local NGO and government, and from this starting point, to consider the scope of positive and negative impacts which the wider CDs may experience in the future.

Roland Gauvain, Trust Manager, Alderney Wildlife Trust
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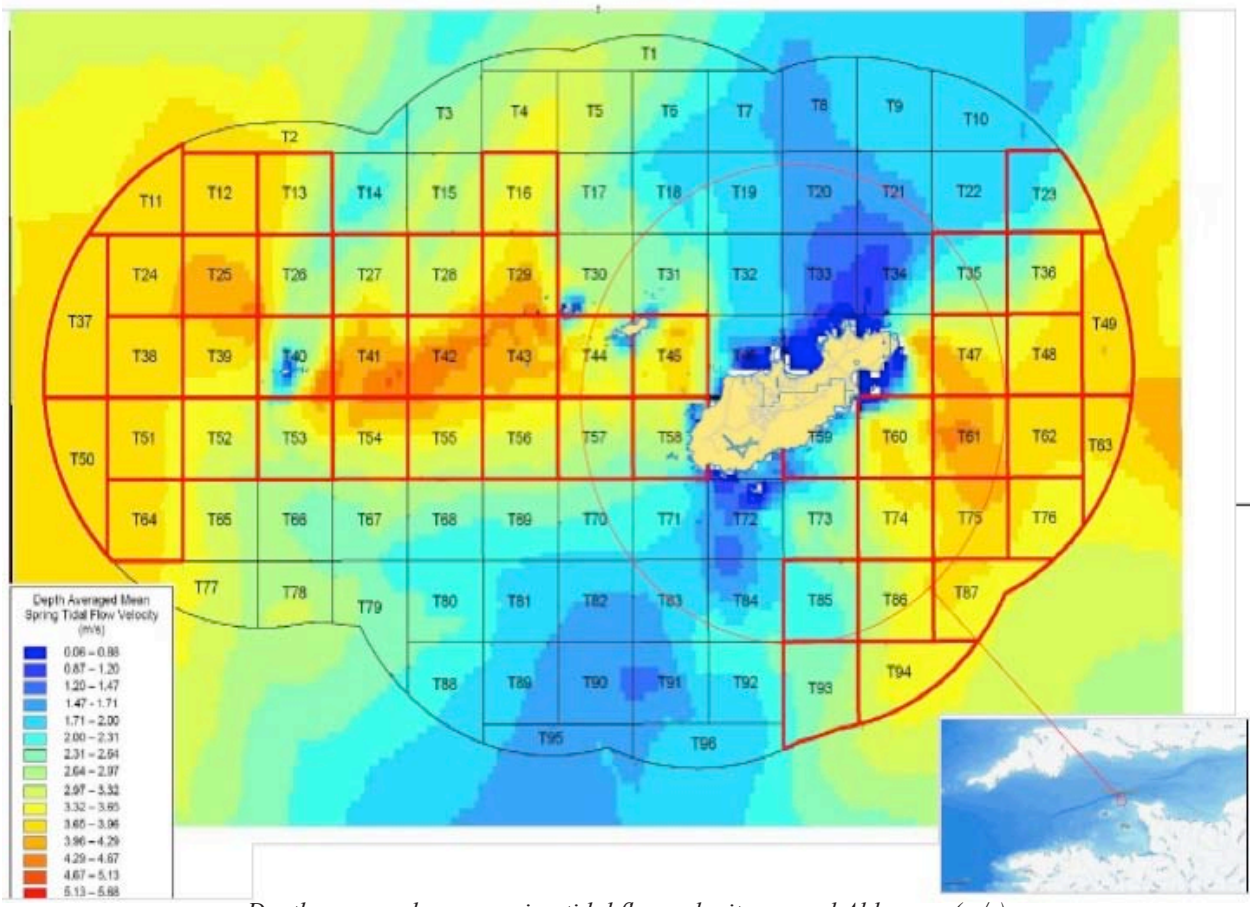
Alderney is small and its geo-political situation unique, being both part of the Bailiwick of Guernsey and independent in regards its natural environment. Its planning system is 'island centric' and is focused on localised development. The largest, most impactful, types of planning consideration are infrastructure projects such as its school, hospital and harbour. At a local planning



Depth averaged mean spring tidal flow velocity around Alderney (m/s)

Alderney Kanalinseln (Article appeared in the Sunday Times November 2010)

level, the island is only just beginning to consider environmental impacts in a systematic way.

Alderney has become increasingly interesting to those investigating the development of renewable energy, because of its ownership of its seabed (Alderney owns its 3 nautical miles (nm) territorial limit, an area of 100nm² of which over 90nm² is seabed), its tidal (estimated potential 3.2GW) and wind resource, and its position as a way-station within growing regional power infrastructure projects.

In 2003, an assessment of British tidal resource drew media attention to what was a poorly understood area of the renewable energy sector, and specifically attention to the island of Alderney and its unique political situation, direct control if its marine resource, the scale of the resource – perhaps the 2nd most energetic tidal resource, by area, within the British Isles.

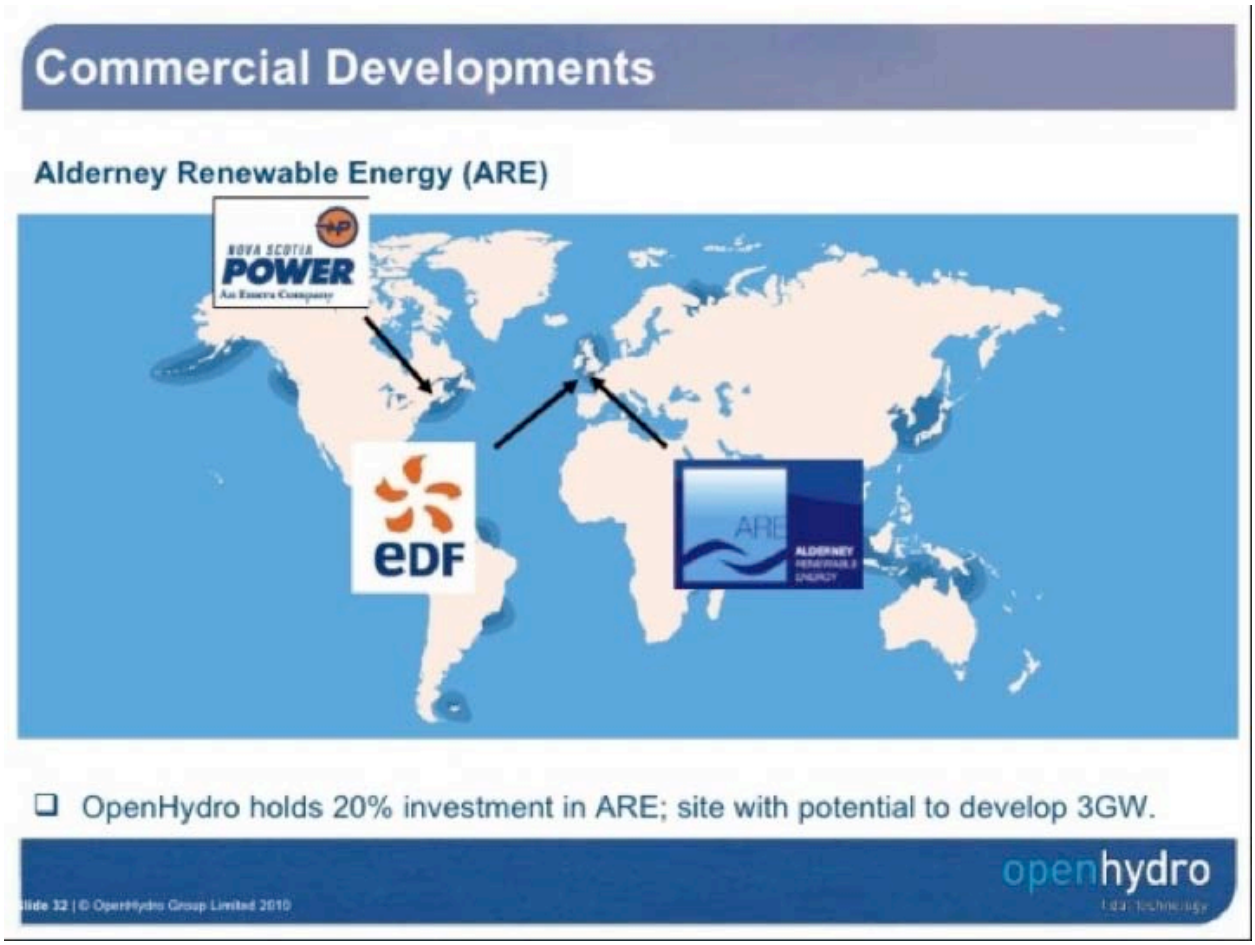
By 2004, an Alderney-formed company, Alderney Renewable Energy (ARE), had been established. ARE consisted of resident entrepreneurs and external interests, and it rapidly started a publicity campaign promoting the potential economic and social benefits for Alderney if it were to exploit its tidal resource.

By 2005, Alderney found itself having to adapt and respond to an increasing interest in its seabed. It did this by splitting its planning process. Local government planning continued for on-island projects and began to develop local mechanisms for assessing and mitigating impact, under control of the States of Alderney Building and Development Control Committee (B&DCC). The passing of the Renewable Energy (Alderney) Law 2008 led to the formation of an independent body, the Alderney Commission for Renewable Energy (ACRE), which was tasked with the marketing, licensing and protection of Alderney's renewable resource. Both elements of this new planning infrastructure worked independently of each other.

In 2008, ARE was issued a licence for 50% of Alderney's marine assets by ACRE. This enabled them to market 1km² blocks of Alderney's seabed for deployment of renewable devices (in the first case sub-surface tidal devices).

ACRE received its first licence application from a developer, OpenHydro, in 2008 and its second from ARE itself in 2009

During this time, it focused increasing efforts on developing the tools /policies to flesh out its extensive legislative powers. By 2014, these



OpenHydro.com

EDF Christel Sasso

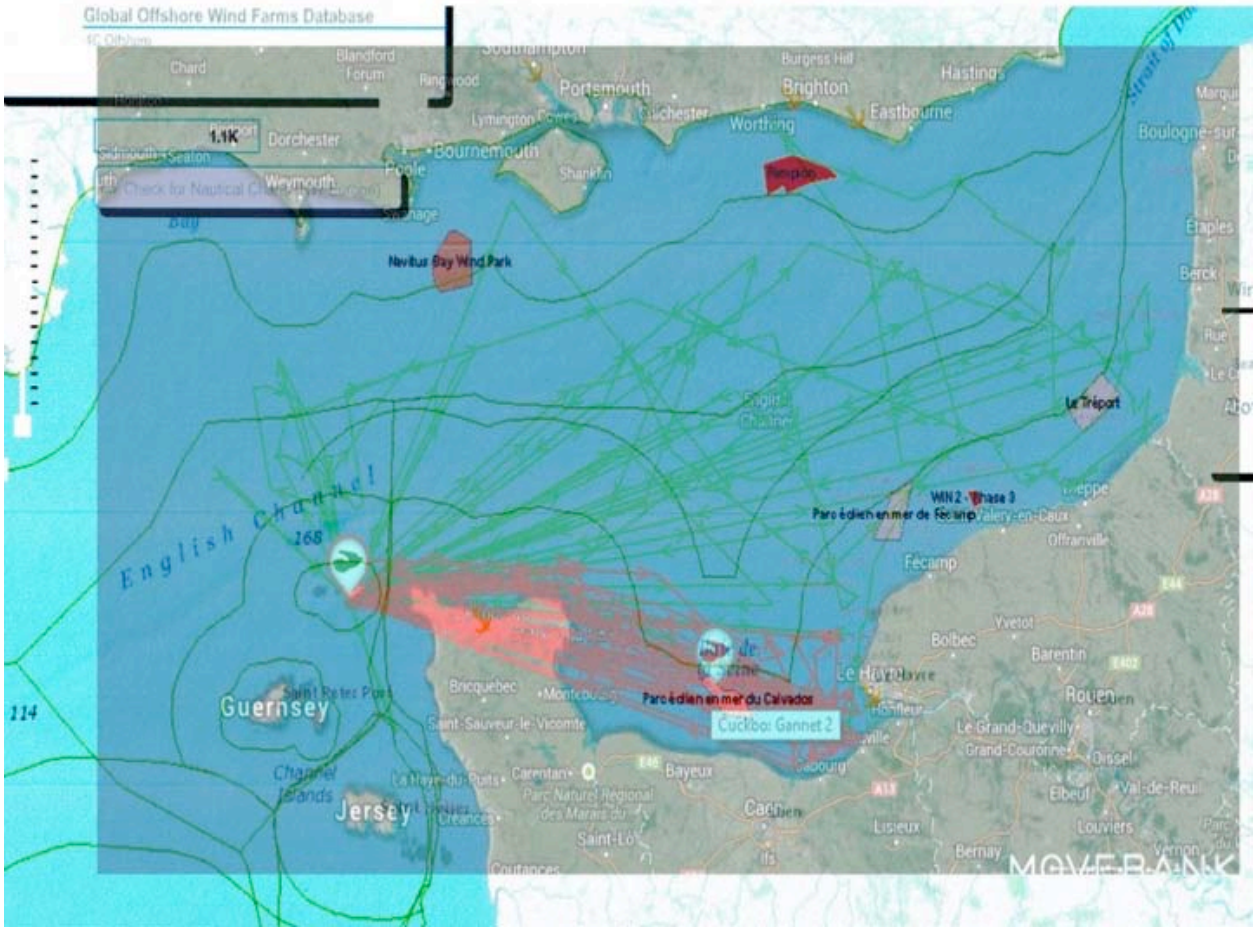
included: development of a developers' checklists for the marine and terrestrial environment, a framework Regional Environmental Assessment (REA) which set standards generally compliant with EU Directive 2001/42/EC, and a range of baseline assessments which could be used to support EIA for licence applications

Despite ACRE's strong mandate and its framework for the licensing of renewable developments, the organisation does not readily allow for cross-over in regards to any development which extends beyond the bounds of renewable energy extraction. Infrastructure projects such as the proposed France-Alderney-Britain (FAB) power interconnector, whilst being vital to allow renewable development, falls strictly within the remit of the B&DCC, and projects outside of Alderney's waters may affect the island's environment.

In 2014, Navitus Bay Development Ltd approached the States of Alderney (SoA) with a proposal for a large-scale wind farm (originally proposed as 192 120m devices) deployed to the south west of the Isle of Wight, possibly as early as 2019. This approach was triggered by the presence of an internationally designated site (Alderney West Coast and Burhou Islands Ramsar site) and the presence of an internationally important bird population whose established range intersected with the development site.

However, also in 2014, the Rampion Wind Farm, to the south of Brighton, received approval, without needing to contact or raise concerns with Alderney.

Navitus Bay went through the UK PINS process,



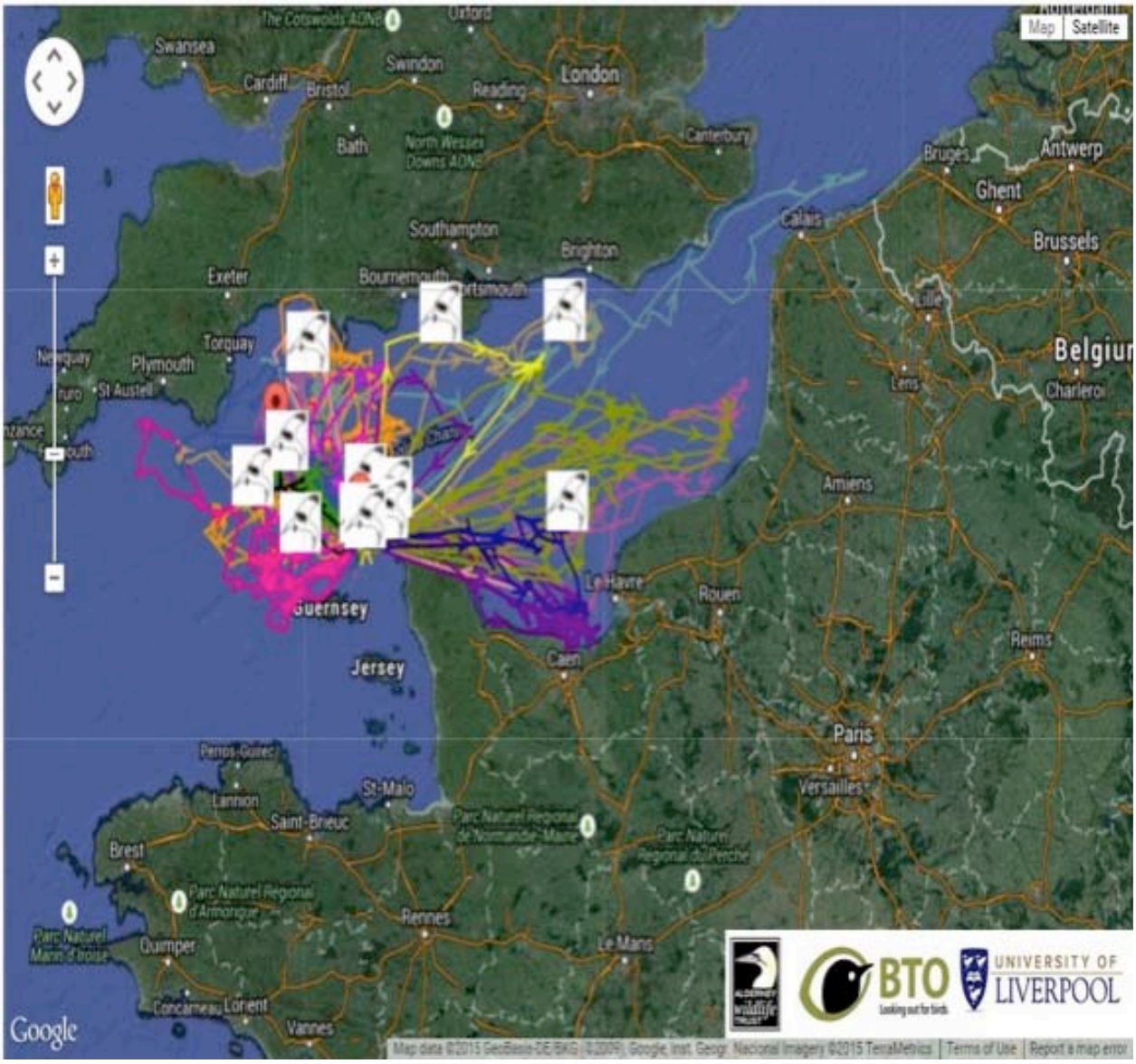
Gannet tracks for trial 3G tagging project Alderney 2014, overlaid on map of wind farms proposed for the English Channel area (at various stages of consideration). Source: University Liverpool, BTO, ACRE, AWT - http://www.4coffshore.com/offshorewind/

Breeding gannets, Alderney. Photo: Alderney Wildlife Trust http://www.alderneywildlife.org

during which time over 500 'Appropriate Responses' were registered, of which more than 100 referenced northern gannets in some way.

AWT's membership as part of the Federation of British Wildlife Trusts was the principal reason Alderney became aware of the seriousness of this application. Despite the site being over 90nm from Alderney, the AWT, acting on behalf of the SoA, found itself responding in detail on the ornithology chapter of the Environmental Statement.

Navitus highlighted a number of issues. Alderney's maritime resource and ecological diversity mean that developments as far as 250nm distant may need to consider Alderney during an EIA. Alderney's focus has been on managing the growth of local interest in renewable energy (specifically tidal). The Island has taken its islands' eyes off the international arena, where 2 UK and 4 French wind farms are all under varying degrees of consideration within English Channel Waters. Alderney's planning systems, which is struggling to respond to local and Island scale developments, struggles even more when trying to consider projects outside of its jurisdiction, which may have



Gannet tracks from the Alderney colony, Source Track-A-Gannet (TAG) project http://www.teachingthroughnature.co.uk/t-a-g/ TAG is a partnership between BTO, Liverpool University and AWT

‘significant impacts’ locally.

Despite developers in French and UK waters working to Directive 2011/92/eu, there are real and significant mismatches in EIA practice, which are especially concerning when considering transboundary effect on key local species. This can also seriously effect an individual government/ organisation’s ability to respond to EIAs. In addition, cumulative impact assessment is still very poorly described within UK and French EIA practice. Alderney is dependant on external partners to bring the necessary skills into play when dealing with large scale EIA process.

Going forward, Alderney must develop a single unified standard for EIA practice across all parts of government. It needs to open its eyes to wider regional issues, if it is not to miss opportunities to respond to, or flag up, concerns about them. This requires the island to begin investigating knowledge gaps NOW in order that it can commence acquiring necessary baseline data, which can then be used to inform future EIAs. For example, comprehensive cabling projects affecting a range of significant habitats and species may not require EIA ,whilst the siting of 5 tidal turbines in a highly energetic environment may require the highest level of assessment.

Geothermal energy: environmental benefits and challenges

Sarita Francis (Montserrat National Trust)

Francis, S. 2015. Geothermal energy: environmental benefits and challenges. pp 267-272 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

The Caribbean lies along a volcanic arc of islands stretching from Saba in the North to Grenada in the South. Guadeloupe, St Vincent, St Lucia, Dominica, Nevis and Montserrat all have large thermal reservoirs and have attempted to explore geothermal resources with the hope of realising alternative cheap energy resources for these developing nations. Guadeloupe is the only island in this region so far that is generating power using geothermal energy. The exploration started over 50 years ago and is now generationg approximately 15 MW of power. Since the onset of volcanic activity on Montserrat, scientific monitoring and investigations have been ongoing for the past twenty years, and this has stimulated speculation and research into the islands capacity for geothermal power generation.

Government of Montserrat, with the aid of DFID, embarked on the development of geothermal energy in 2013, with the drilling of two wells to a maximum depth of 2800m, at 250-270˚, each producing 3 MW of power. It is anticipated that the two geothermal wells will produce environmentally-friendly, long-lasting energy, sufficient to power the island in the near future. With forthcoming construction of a third well, it is anticipated a surplus of energy may be available. However, this third well is earmarked for reinjection for the first two wells.

Benefits:
Now, with geothermal coming on board, it is anticipated that energy prices will be significantly lower in the long run.
Building internal capacity for citizens in a number of disciplines and the creation of medium and high-quality local jobs
Ability to collaborate scientifically with other scientists across the region and the world to develop the product
Other industries demanding high power can be developed. (Cement Making, Glass Making, Fruit Drying)
More money stays in the country for development.

Challenges:
Cost of installation is high for the drilling and installation of electricity towers and power station.
The lack of local and regional technological familiarity to provide skilled man-power will have an impact in overall operating cost. Limited technical and legislative expertise means that these skills will need to be imported at a cost.
Other skills are required in the following:
- Geochemistry
- Geology
- Geophysics
- Geothermal Reservoir Engineering
- Specialized Plumbing
- Environmental Management

Financial risk is high so the area is not always attractive for investment. In the majority of cases, public and grant funds are used for exploration. Profits on investments will take a number of years to be realized.
Wells can run out of steam and stop producing, as in the case of one of the wells in Guadeloupe.
Geothermal plants may release highly acidic substances, as in the case of St Lucia,

where extreme corrosion caused the project to stall.
High concentrations of gases, which can affect both terrestrial and marine life.
Large water consumption
High cost of transporting the energy to neighbouring islands, which will eventually mean lower return on investment
Environmental Monitoring is costly but necessary.

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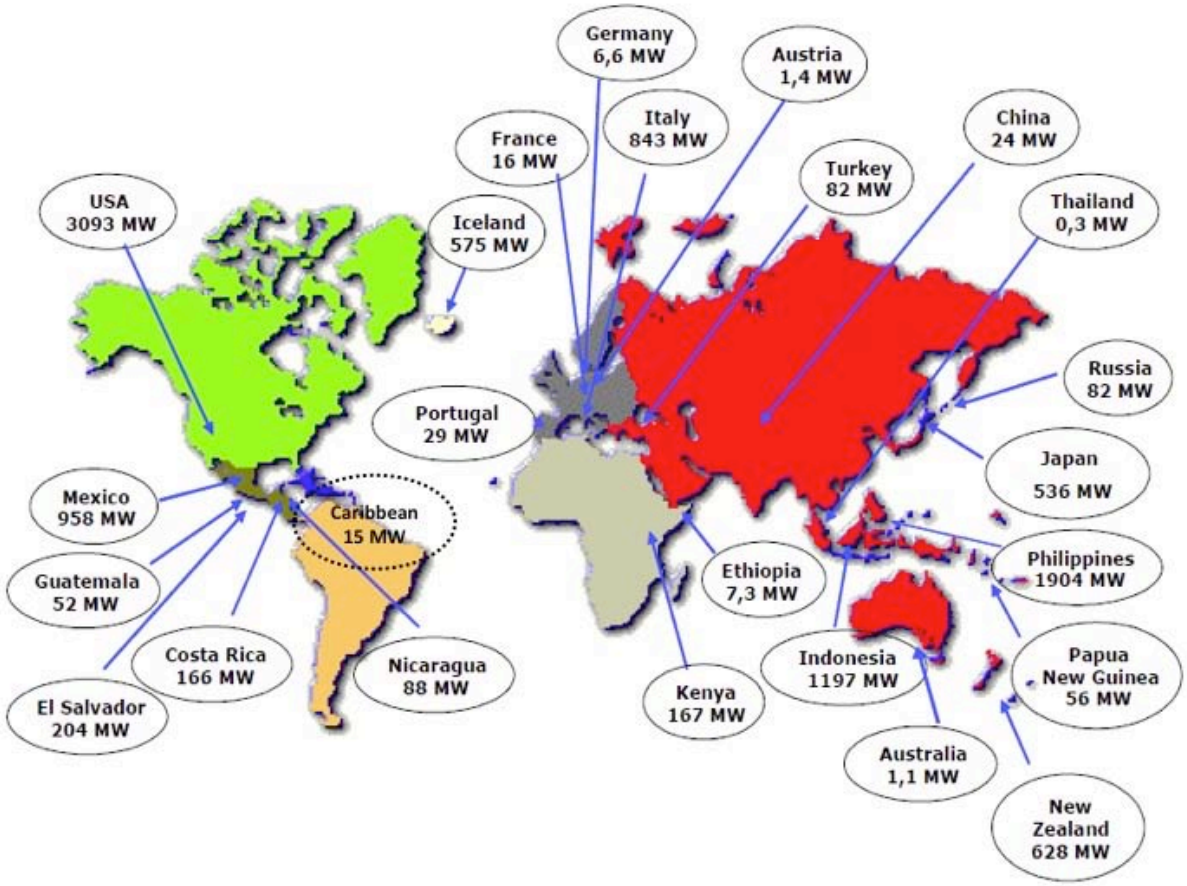
Geothermal Energy

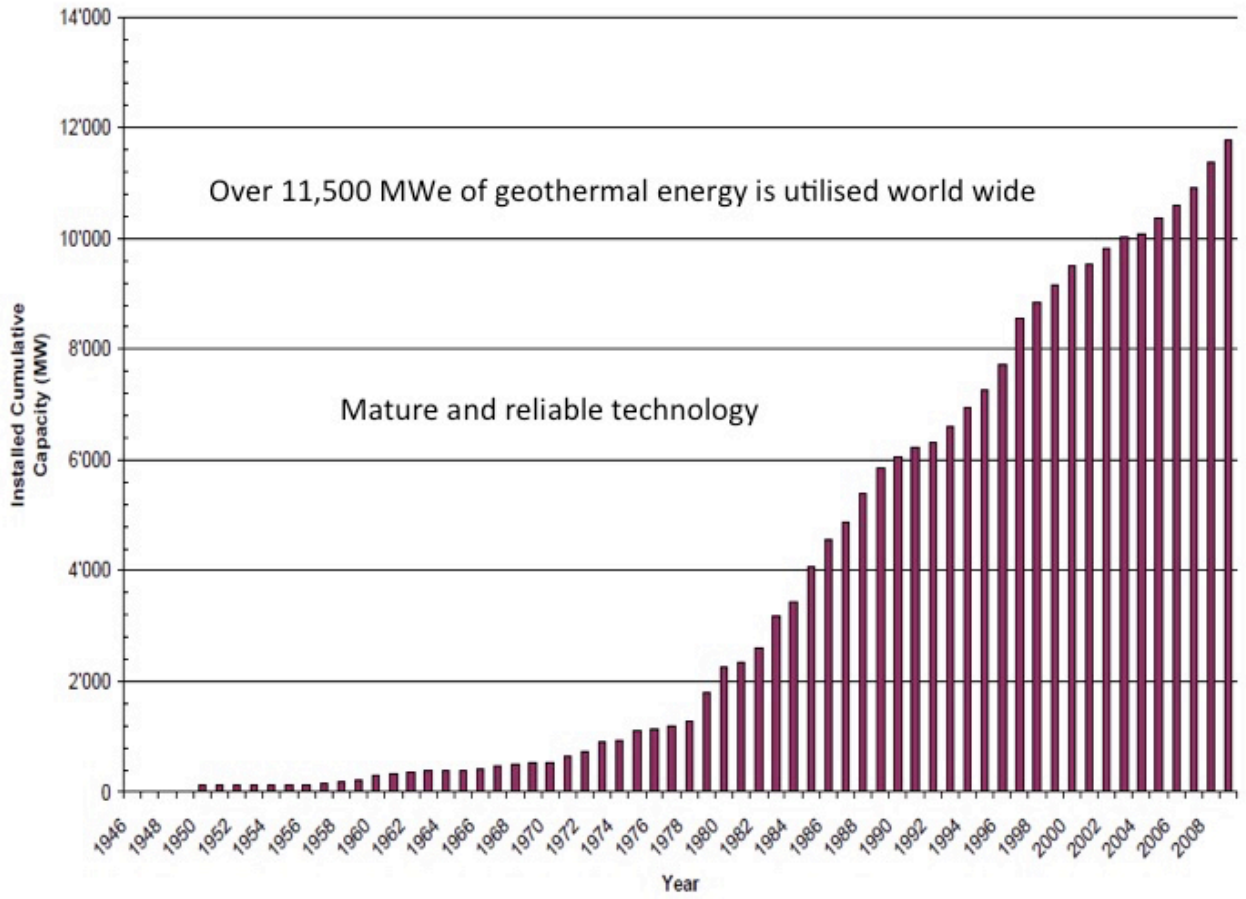
Although the science of geothermal energy development has been in existence for around 80 years, the last 40 years have shown a significant increase in development and power generation, as countries across the globe are seeking alternative sources of energy (see chart at top of next page). This started in the late 1970s, with the dramatic increase in the cost of oil and, more recently, the frantic attempts to address the issues of changes in climate brought about by the increase of gases in the atmosphere as a consequence of emissions from burning fossil fuels.

The map below shows that USA is lead producer of geothermal power in the world, producing 3,386 megawatts (MW) of installed capacity. This translates to 30% of the world geothermal energy and 0.5% of total US electricity. About 80% of this geothermal energy is produced in California near to the Geysers.

The Caribbean produces only a fraction of the world's geothermal power, but its location in a volcanic zone means that there huge potential for increased development and generation which can be a change-maker for these fledgling economies.

The Caribbean lies along a volcanic arc of islands (map on next page) stretching from Saba in the North to Grenada in the South. Guadeloupe, St Vincent, St Lucia, Dominica, Nevis and Montserrat have all large thermal reservoirs and attempted to explore geothermal resource with the hope of realising altenative cheap energy resources



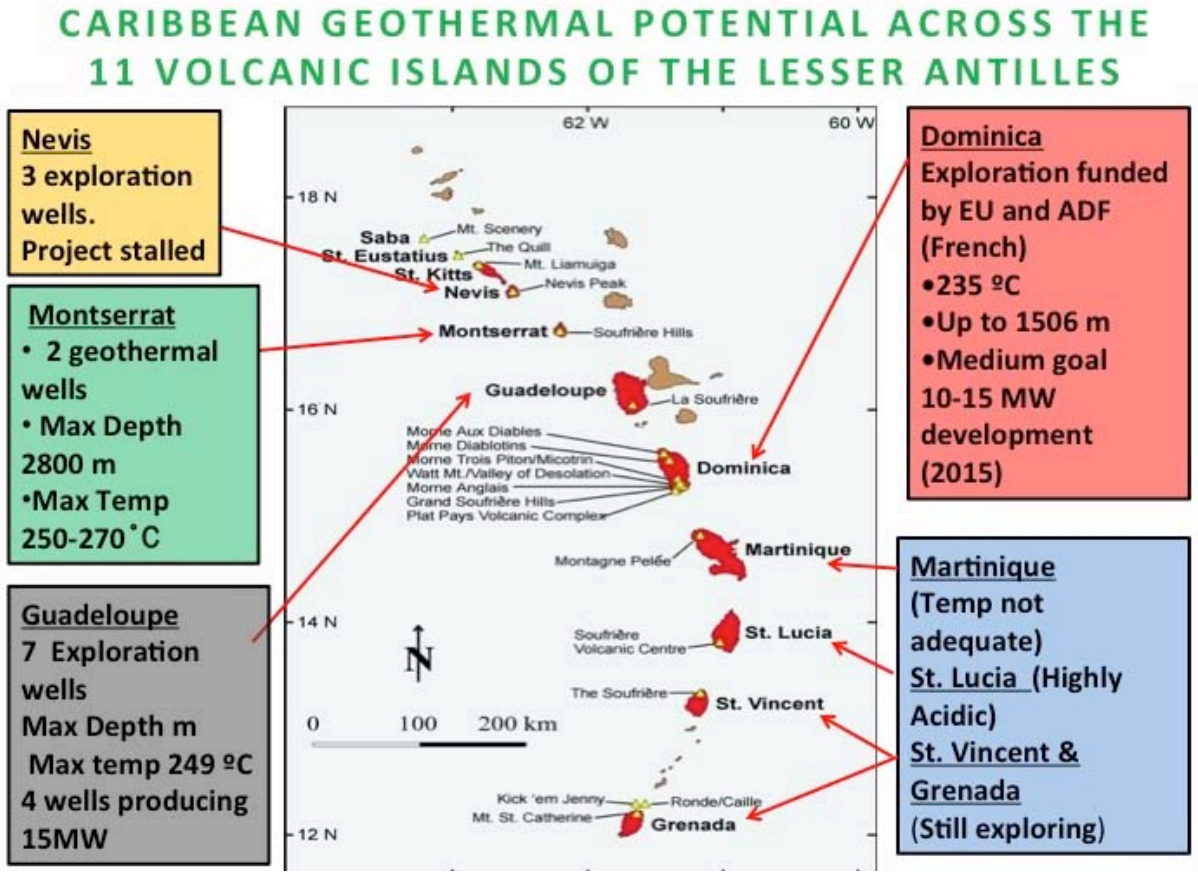


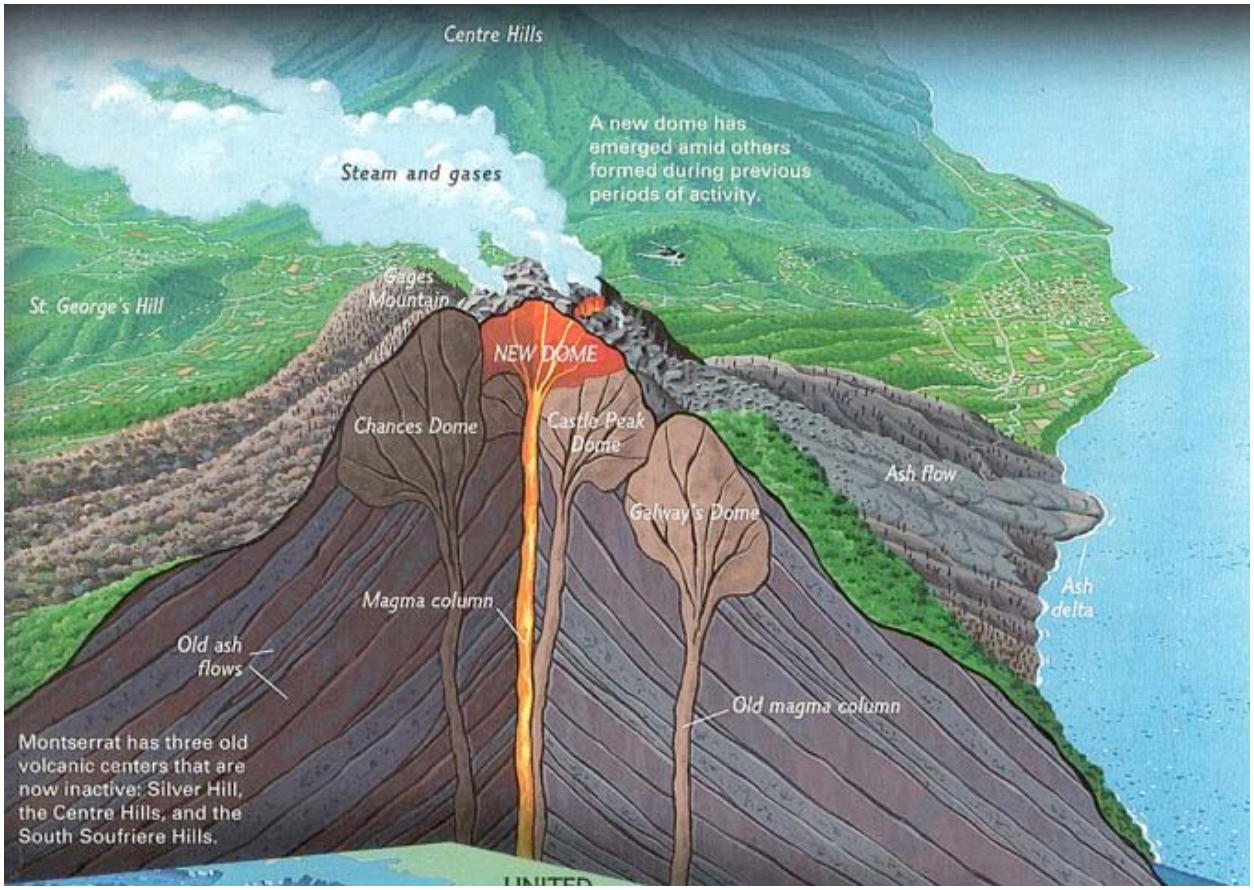
for these developing nations. Results from this exploration in the region have been varied.

Guadeloupe is the only island in the region that is generating power using geothermal energy.

The exploration there started over 50 years ago and is now generating approximately 15 MW of power. Other islands such as Dominica, St Lucia, Martnique, St Vincent and the Grenadines, Nevis and Montserrat are at various stages of exploration,

CARIBBEAN GEOTHERMAL POTENTIAL ACROSS THE 11 VOLCANIC ISLANDS OF THE LESSER ANTILLES





as can be seen on the map on the previous page.

Volcanic activity in Montserrat started in 1995. Since the onset of volcanic activity on Montserrat, scientific monitoring and investigations into geothermal potential have been ongoing. Tests have shown that the best potential site for geothermal energy development is about two miles from the Soufriere Hills Volcano, on a plain at the foot of St Georges Hill which provides a buffer.

About 65% of the electricity tariff goes to the importation of diesel for powering generators. Government of Montserrat (GOM), with the aid of DFID, embarked on the development of geothermal energy in 2013, with drilling of two wells to a maximum depth of 2800m and 250-270˚C, each producing 3 MW of power. According to GOM, it is anticipated that the two geothermal wells will produce environmentally-friendly, long-lasting energy, sufficient to power the island in the near future. With forthcoming construction of a third well, it is anticipated a surplus of energy may be available; however, this third well is earmarked for reinjection for the first two wells.

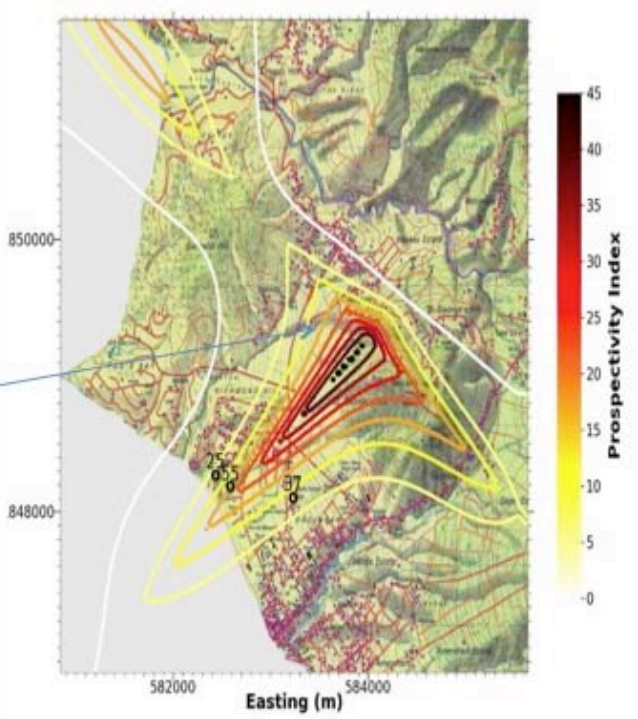
As with all huge projects which extract resources from the earth, there are benefits and challenges. A few of these are highlighted below.

Benefits

- Now, with geothermal coming on board in Montserrat, it is anticipated that energy prices will be significantly lower in the long run. There is expectation that cost to citizens will be lower, so air conditioning for residences and offices will be easily accessible
- Building internal capacity for citizens in a number of disciplines and the creation of medium and high-quality local jobs (geologists, plumbers, scientists, engineers, environmental managers etc)
- Ability to collaborate scientifically with other scientists across the region and the world to develop the product
- Other industries demanding high power can be developed (cement making, glass making, fruit drying, etc).
- Tourism Development with the development of leisure and health benefits such as spas
- More money stays in the country for development.

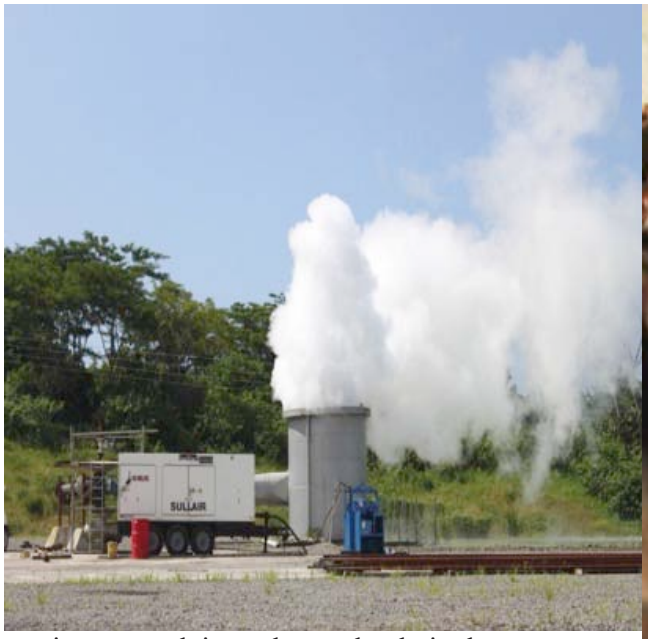
Challenges

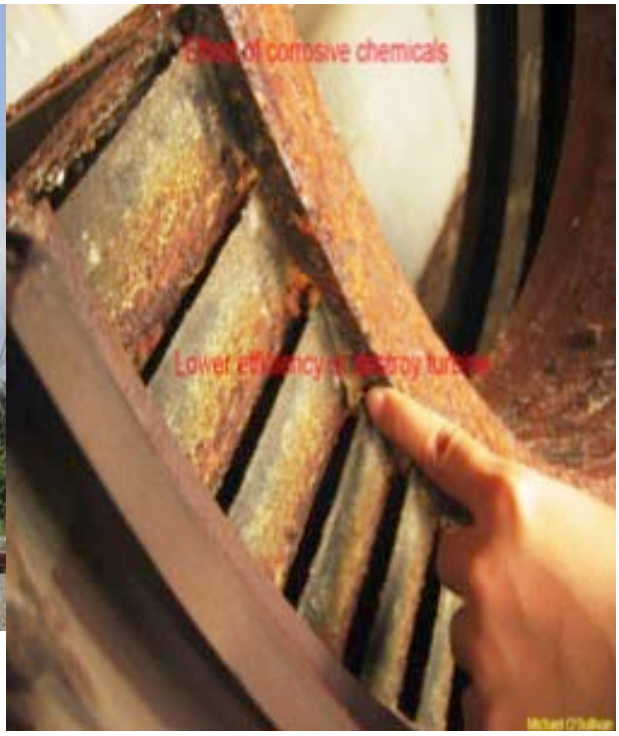
- Cost of installation is high for the drilling and installation electricity towers and power station. To get geothermal energy requires exploration by drilling wells and the



installation of power plants, to get steam from deep within the earth and this require huge one time investment, as well as hiring a certified installer; skilled staff need to be recruited and relocated to plant location. Moreover, electricity towers and stations are need to set up to move the power from geothermal plant to consumer. Financial risk is high, so the area is not always attractive for public investment. In the majority of cases, public and grant funds are used for exploration. Profits on investments will take a number of years to be realised

- Technical Expertise. The lack of local and regional technological familiarity to provide skilled man-power will have an impact in overall operating cost. Limited technical and legislative expertise means that these skills will need to be imported at a cost. Since this type of energy is not widely used, the unavailability of equipment, staff, infrastructure and training pose hindrances to the installation of geothermal plants across the globe. Not enough skilled manpower or availability of suitable build location pose serious problem in adopting geothermal energy globally.
- Skills are required in the following:
  - Geochemistry
  - Geology
  - Geophysics
  - Geothermal Reservoir Engineering
  - Specialized Plumbing
  - Environmental Management
- Wells can run out of steam and stop producing, as in the case of one of the wells in Guadeloupe. The possibility exists that large investments may not yield results. Geothermal sites can run out of steam over a period of time, due to drop in temperature or if too much water is injected to cool the rocks, and this may result huge loss for the companies which have invested heavily in these plants. Due to this factor, companies have to do extensive initial research before setting up the plant.
- Transportation. High cost of transporting the energy to neighbouring islands which will eventually mean lower return on investment. Geothermal Energy cannot be easily transported. Once the tapped energy





is extracted, it can be used only in the surrounding areas. Some Caribbean Territories are thinking about selling to neighbouring islands, but the cost of undersea transport may outweigh the benefits. Other sources of energy like wood, coal or oil can be transported to residential areas, but this is not a case with geothermal energy.

Environmental effects

- Possible effects include scenery spoliation, drying out of hot springs, soil erosion, noise pollution, and chemical pollution of the atmosphere and of surface- and ground-water.
- The underground hot water and steam used to generate geothermal power may contain chemicals that could pollute the air and water if released at the surface, and high concentrations of gases which can affect both terrestrial and marine life. Geothermal sites may contain some poisonous gases, and they can escape deep within the earth through the holes drilled by the constructors. Also, there is a fear of toxic substances getting released into the atmosphere. The geothermal plant must therefore be capable enough to contain these harmful and toxic gases.
- Hydrogen sulphide, which is toxic in high concentrations, is sometimes found in geothermal system. Newer methods of generating geothermal power separate the hot steam collected underground from the steam used to power turbines, and substantially reduce the risk of releasing air-polluting contaminants.
- The water mixed with the steam contains dissolved salts that can damage pipes and harm aquatic ecosystems. Some subsurface water associated with geothermal sources contains high concentrations of toxic elements such as boron, lead, and arsenic. Geothermal plants may release highly acidic substances, as in the case of St Lucia where extreme corrosion caused the project to stall.
- Injection of water in enhanced geothermal systems can lead to large consumption of water, which can cause a drop in domestic water supply, and may cause induced seismicity. Earthquakes at the Geysers geothermal field in California, the largest being Richter magnitude 4.6, have been linked to injected water.

Environmental monitoring is costly but necessary to manage the negative environmental effects

Renewable Energy Deployment and Waste Treatment Decarbonising the Economy: the Gibraltar blueprint

Liesl Torres (Department of Environment, Government of Gibraltar)

Torres, L. 2015. Renewable Energy Deployment and Waste Treatment. pp 273-277 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

Her Majesty's Government of Gibraltar recognises that priority on the environmental agenda has multiple benefits. With this objective in mind, it is focusing its efforts in decarbonising the economy.

The Department of the Environment and Climate Change has developed a strategy to this effect which concentrates on the deployment of renewable energy in Gibraltar up to 2030. This strategy highlights how the energy sector is structured, current costs and concerns, key aspects such as network and system operation, and opportunities in the transition to renewables.

Other projects which form part of the strategy which would deliver energy efficiency gains include a major overhaul of the treatment of Gibraltar's waste-streams. The common objective of these highly inter-related infrastructure projects is to accelerate Gibraltar's move to a more sustainable, low-carbon and a high-efficiency economy, which will in turn help to open up local markets to green investment, and to promote sustainable business throughout the region.

Dr Liesl Mesilio Torres, Chief Executive Officer, Department of Environment, Government of Gibraltar liesl.torres@gibraltar.gov.gi

There are a number of activities occurring at present including: green procurement policy, public sector lighting policy, solar street lighting, solar thermal projects, MOUs and PPAs on renewables, move to gas, smart meters, change in billing format, energy efficiency campaign, removal import duty for renewables.

We can decarbonise an economy by reducing the 'carbon ratio', C/E by changing energy sources, reducing the 'energy ratio' by improving energy efficiency, thus:

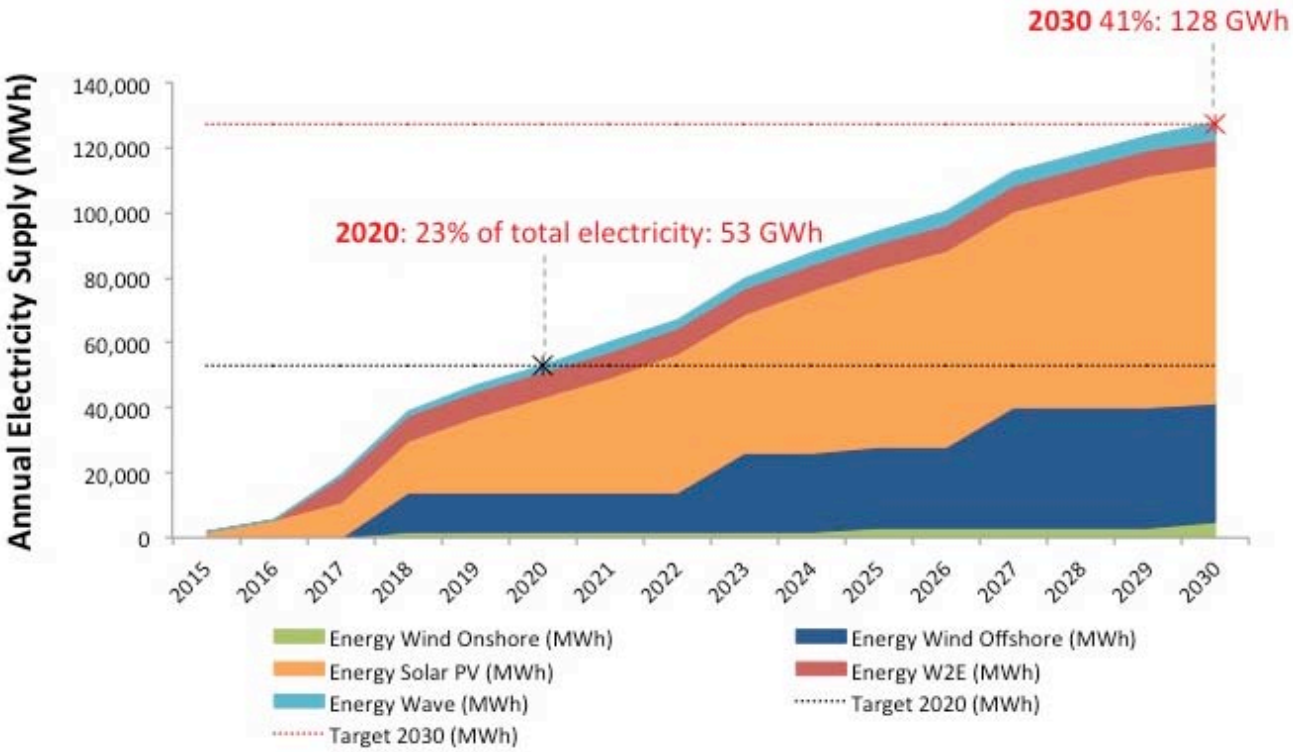
Decarbonisation = (RE+EE/ Research) x sustained £ planning

Electricity is expensive and the demand is ever growing. Fossil fuels bring other costs too, including: supply insecurity through reliance on imports; volatility of fuel price; local pollution of water, soil, air; noise; and green-house gas emissions (GHG).

We know what we need to do and we know how to get there.

Waste to Energy

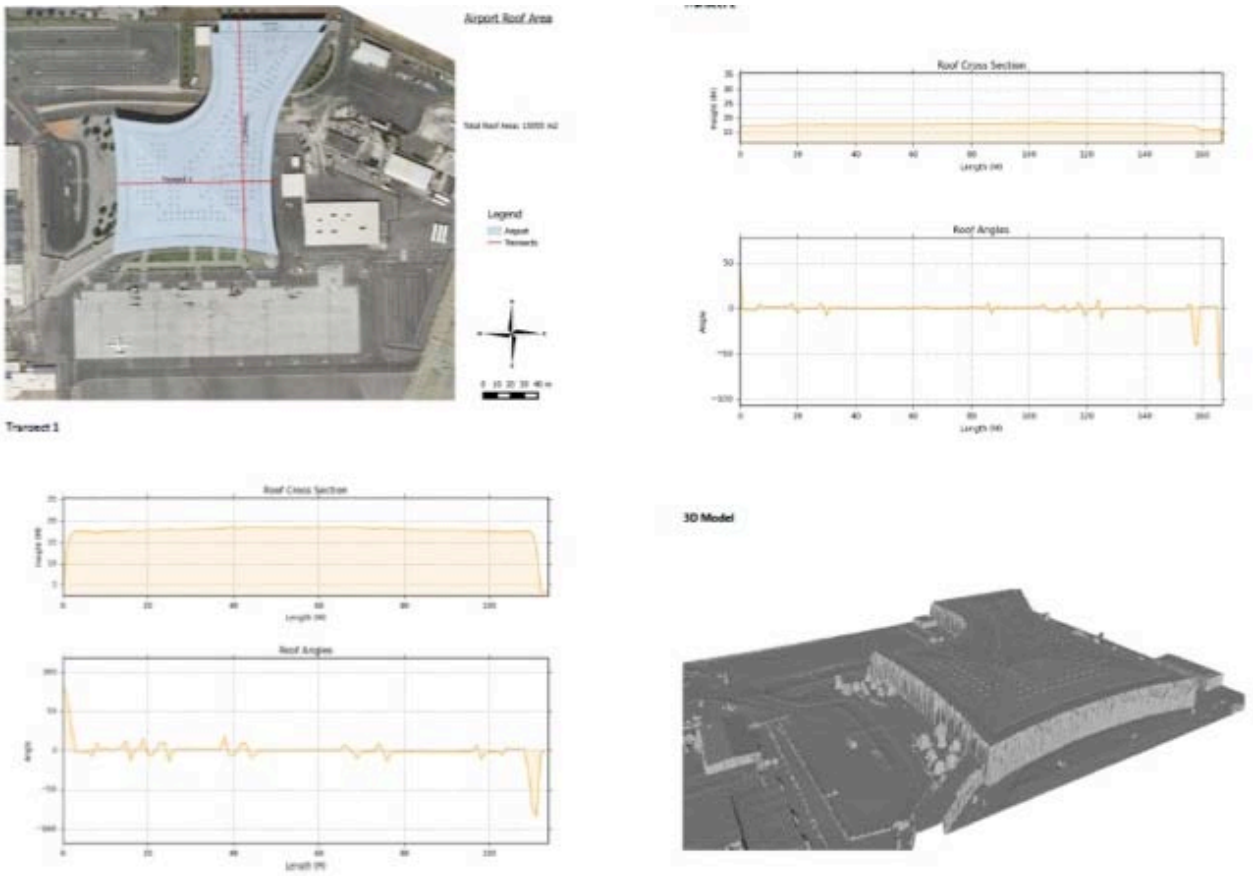
The management of waste has become an issue of utmost importance as the social, economic and



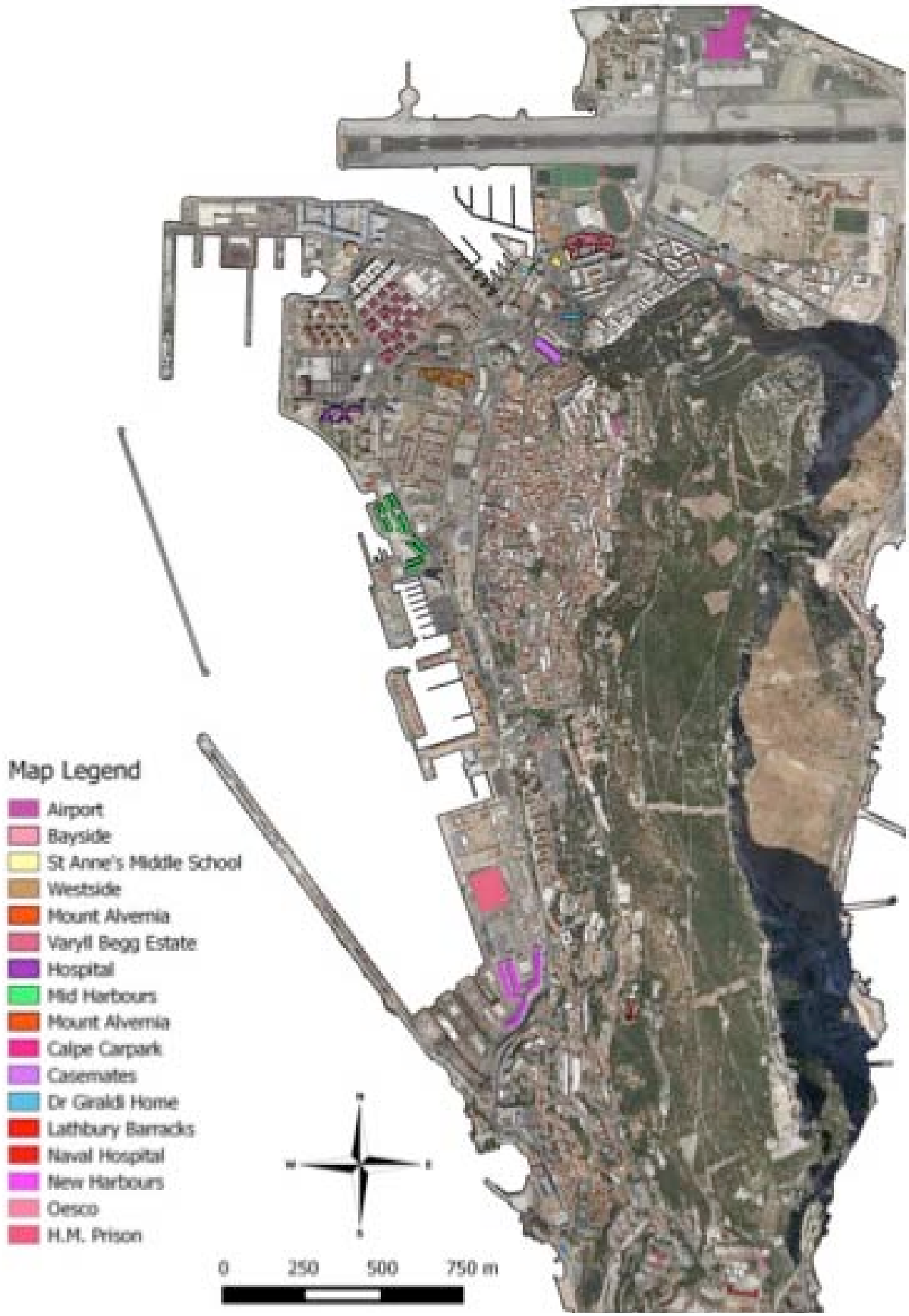
environmental costs of waste disposal rise. Since 2003, Gibraltar's waste has been sent to landfill in Spain.

An integrated waste management strategy has been drafted (PP and BPEO), recycling and education is being conducted, an EU Tender has been prepared, and a waste reception facility with pre-sorting capability for the removal of the recyclable element of the waste. It must include also process:

- the generation of electricity;
- the production of potable water;
- the production of biodiesel; or



Solar panelling for the roof of the new airport terminal



Map of solar panelling in Gibraltar

- the production of syngas; and
- disposing of ad-hoc waste (including saline sewage sludge).

Exploiting the renewable energy opportunity

The cost to HM Government of Gibraltar (HMGoG) differs with the business model.

Sector	Principal policies	Supporting policies
Power	- feed-in tariffs/power purchase agreements	- capital grants - preferential loans - demonstration projects
Transport	- fuel content standard - sales subsidies for lower-carbon vehicles	- fuel tax - tax concession - loans for electric vehicle purchase
Buildings	- mandatory building codes - minimum energy performance standards	- loans for energy - efficiency investment - smart meters

However, the choice of business model lies with HMGOG. The model may change with time and it is also dependent on experience, technology cost reduction, investor interest.

HMGoG has considered two generic approaches: 1) HMGOG buys electricity from privately owned assets, which is the present approach to RE, with a 20-year PPA at fixed price (typical), either with soft loans or independently financed.

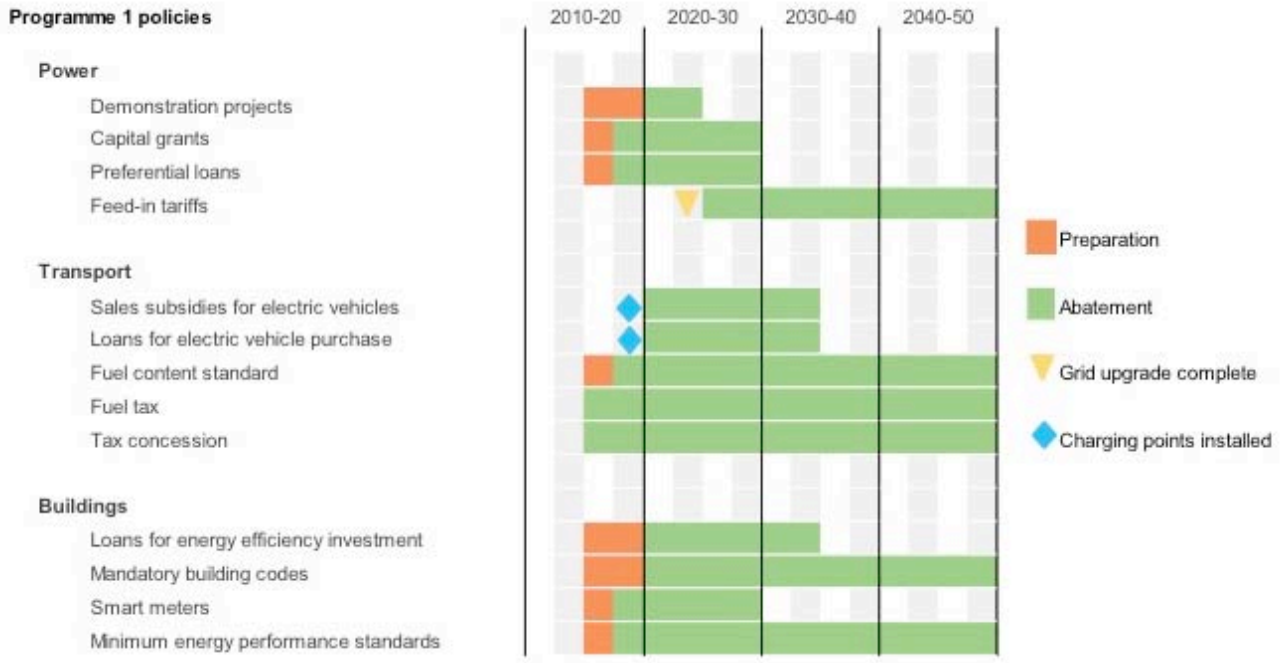
2) Alternatively, HMGOG owns RE power plants.

First mover advantage is the possible trade and growth benefits stemming from technological leadership in technologies required to implement transition to a low-carbon emitting economy. So can the local economy get First Mover Advantage from pioneering strong climate action?

Clean energy technologies (electric vehicles, wind, solar, biofuels and energy efficient equipment) have a large potential of cost reduction if developed at a large scale. What is the impact of the latter on the local grid and energy security with Gibraltar as a Research and Development centre?

Policies include financial instruments, fiscal instruments and direct regulation

Some of Gibraltar's policy milestones (see Table above) are: the launch of feed-in tariffs, preceded by brief behavioural study to maximise effectiveness, photo-voltaic (PV) opportunities in the government estate, environmental investigations for offshore wind, followed by possible tendering process for wind to be phased – with decision gate: go ahead if capital costs low enough and wind speeds high enough. An electricity system management study is needed to assess desirable balance between wind, marine, waste and PV, with network and generation systems enabling works; also buildings regulations review to start immediately borrowing from published research; cost and effect control levers: level of PV feed-in tariffs and placement of other RET contracts.



Most policies can be implemented immediately. However, some policies may require preliminary work. In addition, feed-in tariffs and electric vehicles require additional infrastructure to be built (see Table below).

Appropriate preparation will help these policies to be effective. Some preliminary thoughts might be:

- Are the necessary institutions in place?
- Will institutional change require long-term planning?
- Will legal frameworks need adjusting?
- Is the private sector ready to supply capital?
- Where will private investment be needed?
- What is the prevailing investor sentiment in this sector?
- Will demonstration projects be necessary?
- Do we have plans in place to adapt our infrastructure?
- Will there be large-scale investment projects?
- If so, will they require private financing arrangements?
- Will planning permission be difficult to agree?
- Is the finance of the policy programme feasible?
- Will there be constraints on public finance?
- Would the discipline of private investors be valuable for projects within the policy programme?
- What is the financial strategy to be adopted for each sector?
- Have you considered risk apportionment?

HMGoG is striving to improve its energy efficiency throughout all sectors and recognises that this is one of the most effective ways to reduce our carbon footprint. It is also fully committed to the ideology of generating an increasing proportion of electricity from renewable energy sources. For further information on our policies and practices see https://www.gibraltar.gov.gi/new/energy.

	Power	Transport	Buildings
Principal policies	- feed-in tariffs	- fuel content standard - sales subsidies for lower-carbon vehicles	- mandatory building codes - minimum energy efficiency performance standards
Supporting policies	- capital grants - preferential loans - demonstration projects	- fuel tax - tax concession - loans for electrical vehicle purchase	- loans for energy efficiency investment - smart meters
Total expenditure (£m)	-	-	-
Cumulative emissions saved over 2015–20 ($ktCO_2$)	-	-	-
Average abatement cost over 2015–20 (£/tCO_2)	-	-	-
Requirements	- institutional arrangements	- primary legislation	- ministry buy-in
Risks	- high technology costs	- impact on exports	- public opinion

Environmental Impact Assessment and Tidal Power Filling the Legislative Gap: A case study from Alderney (Bailiwick of Guernsey)

Dr Melanie Broadhurst (Living Seas Officer, Alderney Wildlife Trust, with the kind support of Alderney Commission for Renewable Energy (ACRE) and the States of Alderney (SoA))

Broadhurst, M. 2015. Environmental Impact Assessment and Tidal Power Filling the Legislative Gap: A case study from Alderney (Bailiwick of Guernsey) . p 278 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

Due to the isolation inherent with Alderney being not only a Crown Dependency, but also an island with complete ownership of its seabed, an area of approximately 150km², the Island faces unique challenges when considering the potential local and regional environmental impacts of developing tidal energy instillations.

This poster reviews the process by which Alderney has undertaken the origination of the legislative, policy and practical infrastructure required to respond to increased interest in marine renewable developments, specifically tidal energy. The main focus is Environmental Impact Assessment and the criteria by which Alderney aims to assess future applications, as well as the way in which Alderney's independent commission ACRE, its government and its environmental NGO are responding to this process.

Discussion

Much of the discussion addressed the conclusions and recommendations. If such items are adequately reported in the Conclusions and Recommendations section later in these proceedings, they are generally not repeated here. Instead, this section draws out some other aspects for which amplification may be useful, on of the discussions and ideas put forward for consideration.

Trans-territory issues

Some issues raised:

- What financing mechanisms are in place for renewable energy development?
- Sharing experiences of development of energy policies between jurisdictions would benefit small islands which have limited capacity to develop policies themselves.
- What is the role the UK should take, and in what capacity, in assisting funding or facilitating access to funding, for renewables?

Financing mechanisms need to take into account territory-specific or island-specific circumstances. It may be beneficial for Bermuda, TCI and Cayman to create a Working Group focusing on legislative framework, and include interests from the private sector who specialise in working in these areas.

Cayman has an energy policy which includes a renewable energy component. Discussions are already taking place to expand this and make renewable energy plans in the Territory more ambitious. The challenge in the Territory is how they respond to the renewable energy proposals that are coming in – the Government needs to be more prepared as to what is optimal and reliable in terms of these developments. There is a need for some sort of strategic environmental assessment to help with this, rather than new legislation.

The development of a common resource of technical expertise which Territories can draw on to help decide which kind of renewable technology is appropriate when transitioning from diesel would be very useful. There is a lot of technical information in the public domain; harnessing this for the benefit of the Territories and their unique requirements is key.

Developing a preliminary screening of what looks feasible in terms of renewables is a very important first step for Territories, as this forms a basis of what is appropriate when renewable projects are proposed. This could potentially be a project suitable for partnership with universities/academia.

JNCC renewable energy roadmap.

Outside interest in exploitation of resources is an issue in many Territories. Large-scale wind developments can affect island capacity, so it is important to interlink island requirements with large developments.

Stakeholder engagement

Some issues raised:

- Engagement is crucial to create political support and investment in bringing projects into existence and facilitating pathways going forward.
- Incentives.

Managing of expectations is important.

De-risking and scaling up – cumulative risks are increasingly being recognised. If we are going to de-risk from a business perspective, we also need to de-risk from a biodiversity and ecosystem services perspective.

The poorer sectors of society often have the most expensive electricity costs. It is important for governments to incentivise renewables in a way which includes these sectors.

Partnerships

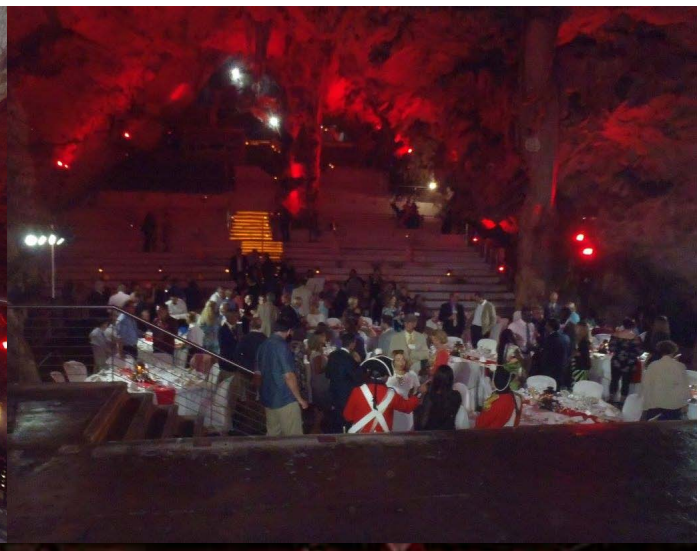
Some issues raised:

- How can we use private investor interest to evaluate different proposals and identify strengths and weaknesses?
- What are the possibilities and pathways for collaboration and sharing expertise and good practice?

Using academia/universities to build expertise locally is potentially beneficial.

Scale is important when it comes to private sector investment.

Need to consider possible tension when bringing in external expertise, and consider local requirements.



A PREVIEW OF THE CLOSING EVENT: Above: are the redcoats arresting this man from the rebel colonies or providing Naqqi with a guard of honour?
Above right and right: gathering for drinks before the conference dinner.
Below: At the dinner with music from the Gibraltar Corps of Drums.
Photos: Bryan Naqqi Manco and Chris Tydeman

Session 11: Future funding and BEST

Introduction: some funding issues – Tom Appleby
Delivering conservation outcomes through a new funding strategy: the European Overseas BEST Initiative – Romain Renoux, (Regional Best Caribbean Hub Coordinator; Regional Activity Centre for Specially Protected Areas and Wildlife in the Caribbean region (SPAW-RAC)/Réserve Naturelle de Saint-Martin) and Maria Taylor, (Regional Best South Atlantic Hub Ecologist; South Atlantic Environmental Research Institute (SAERI))

Biodiversity and Ecosystem Services in the Overseas Territories (BEST III): general overview – Maria Taylor (South Atlantic Environmental Research Institute (SAERI))
Biodiversity and Ecosystem Services in the Overseas Territories (BEST III): specific focus on UKOTs – Maria Taylor (South Atlantic Environmental Research Institute (SAERI))
A dedicated funding scheme for Biodiversity and ecosystem services in European overseas territories: the BEST Initiative – Romain Renoux (Regional Best Caribbean Hub Coordinator, Regional Activity Centre for Specially Protected Areas and Wildlife in the Caribbean region (SPAW-RAC)/Réserve Naturelle de Saint-Martin)
Discussion: an example from Trinidad and Tobago Green Fund

Introduction – some funding issues

Tom Appleby

Appleby. T. 2015. Introduction – some funding issues. p 282 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

A brief introduction to the short session.

Dr Thomas Appleby, Council Member, UKOTCF
Thomas.appleby@uwe.ac.uk

Sources of funding

There are many ways in which an organization might seek funding. Some are:

1. Charitable Foundations

When making an application a very tight plan and concept is needed for example SG rat eradication. They often have their own funding criteria. Overheads should be included (say 20%)

2. Government

Funding criteria must be met

Current options for UKOTs include: UK Government's Darwin Plus, BEST 2.0

3. Consultancy

Need a business to run

Any application needs to be understood from the funder's point of view.

Mysteries of the European Union

This light-hearted, but extremely informative, look at the relationship between the UK, EU and the Overseas Territories was shown:

https://www.youtube.com/watch?v=O37yJBFRrfg

Where to from here?

- All charities need a healthy mix of funding sources.
- Core funding almost impossible to get – so incorporate it in project costs.
- Collaboration is probably the best way to access funds.
- All delegates should leave here with at least two good funding ideas / plans.

Delivering conservation outcomes through a new funding strategy: the European Overseas BEST Initiative

Romain Renoux, (Regional Best Caribbean Hub Coordinator; Regional Activity Centre for Specially Protected Areas and Wildlife in the Caribbean region (SPAW-RAC)/Réserve Naturelle de Saint-Martin) and Maria Taylor, (Regional Best South Atlantic Hub Ecologist; South Atlantic Environmental Research Institute (SAERI))

Renoux, R. & Taylor, M. 2015. Delivering conservation outcomes through a new funding strategy: the European Overseas BEST Initiative. pp 283-287 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

The European Union includes 9 Outermost Regions (ORs) and is associated with 25 Overseas Countries and Territories (OCTs) located across 3 oceans and divided into 7 regions: Caribbean, Indian Ocean, Pacific, Macaronesia, Polar and Sub-polar, Amazon and South Atlantic. These territories are politically attached to six EU countries (Denmark, France, The Netherlands, Portugal, Spain, UK), even though they are, in some cases, geographically very distant from continental Europe.

These regions are very rich in biodiversity and natural resources. They host a high number of endemic species and are home to several Key Biodiversity Areas (KBAs), globally important for biodiversity worldwide. This natural heritage is instrumental for the economic, social and cultural potential of the inhabitants of these regions. However, serious threats are being faced by biodiversity there, such as the destruction of habitats, spreading of invasive alien species, or pollution to the natural habitats. This, combined with their isolation and insular nature (except for French Guyana), makes most of them very vulnerable, especially to the effects of climate change.

For these reasons, it is vital for the European Union to ensure the conservation and a sustainable use of biodiversity and ecosystem services in these overseas regions. The BEST Preparatory Action (Biodiversity and Ecosystem Services in Territories of European overseas) adopted by the European Parliament in 2010, for a limited period, provided seed money which allowed funding of 16 on-the-ground projects. The outcome of the two open calls for proposals BEST 2011 and BEST 2012 showed a definite need for overseas funding, as the requests amounted to more than six times the available budget and several projects passing all evaluation criteria could not be funded.

There is definitely an obvious need to make this funding not a one-time effort, but to establish a financial support mechanism sustainable for years to come. Thus, BEST III aims to catalyze the transition to a sustainable BEST facility. This BEST III project is indeed a voluntary scheme involving 7 regional knowledge hubs across the world, coordinated by IUCN and staff involved in local projects, working for and with local stakeholders. The project is focusing on the EU ORs and OCTs biodiversity hotspots. Based on up-to-date scientific data and through local consultation, BEST III objectives are to identify and map KBAs in order to define conservation outcomes for each territory. Thus regional ecosystem profiles will be established for the different territories and a funding strategy will be proposed to support, in the most efficient way, conservation projects on the ground.

In the meantime, recognizing the urgency to keep support for projects while a long-term BEST financing mechanism is being elaborated, the European Commission has decided to allocate new resources for concrete projects in the OCTs through a 5-year programme called BEST 2.0, with calls for proposals organised in the two coming years for a budget of over € 6 million. This BEST 2.0 programme will - amongst others - support implementing actions for biodiversity conservation, sustainable use of ecosystems and ecosystem services in the KBAs identified through the participative Ecosystem profiles process led by the regional BEST knowledge hubs.

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Maria Taylor, Ecologist - BEST III project, South Atlantic Environmental Research Institute - SAERI mtaylor@env.institute.ac.fk

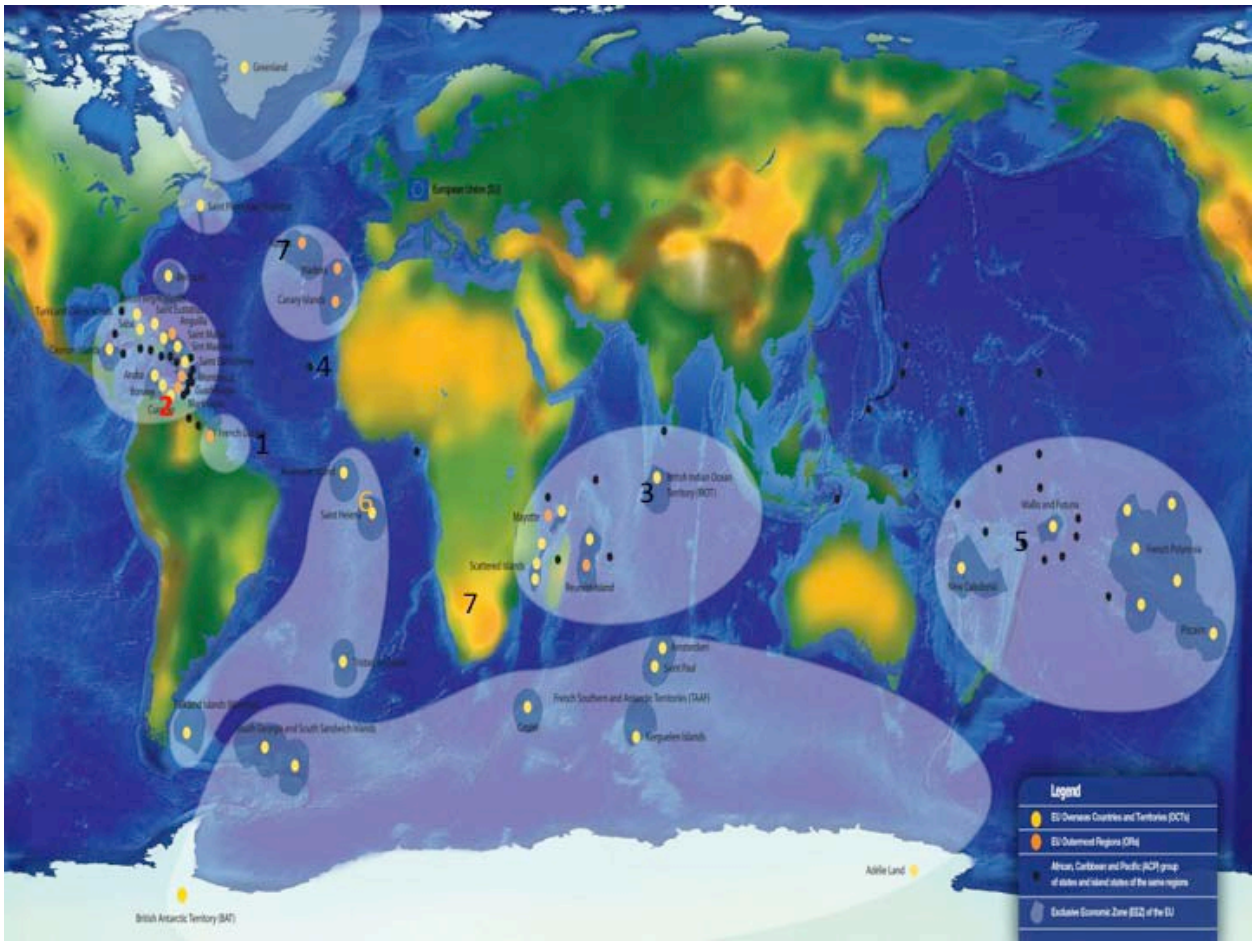
Context

The European Union includes 9 Outermost Regions (ORs) and is associated with 25 Overseas Countries and Territories (OCTs) located across 3 oceans and divided into 7 regions: Caribbean, Indian Ocean, Pacific, Macaronesia, Polar and Sub-polar, Amazon and South Atlantic.

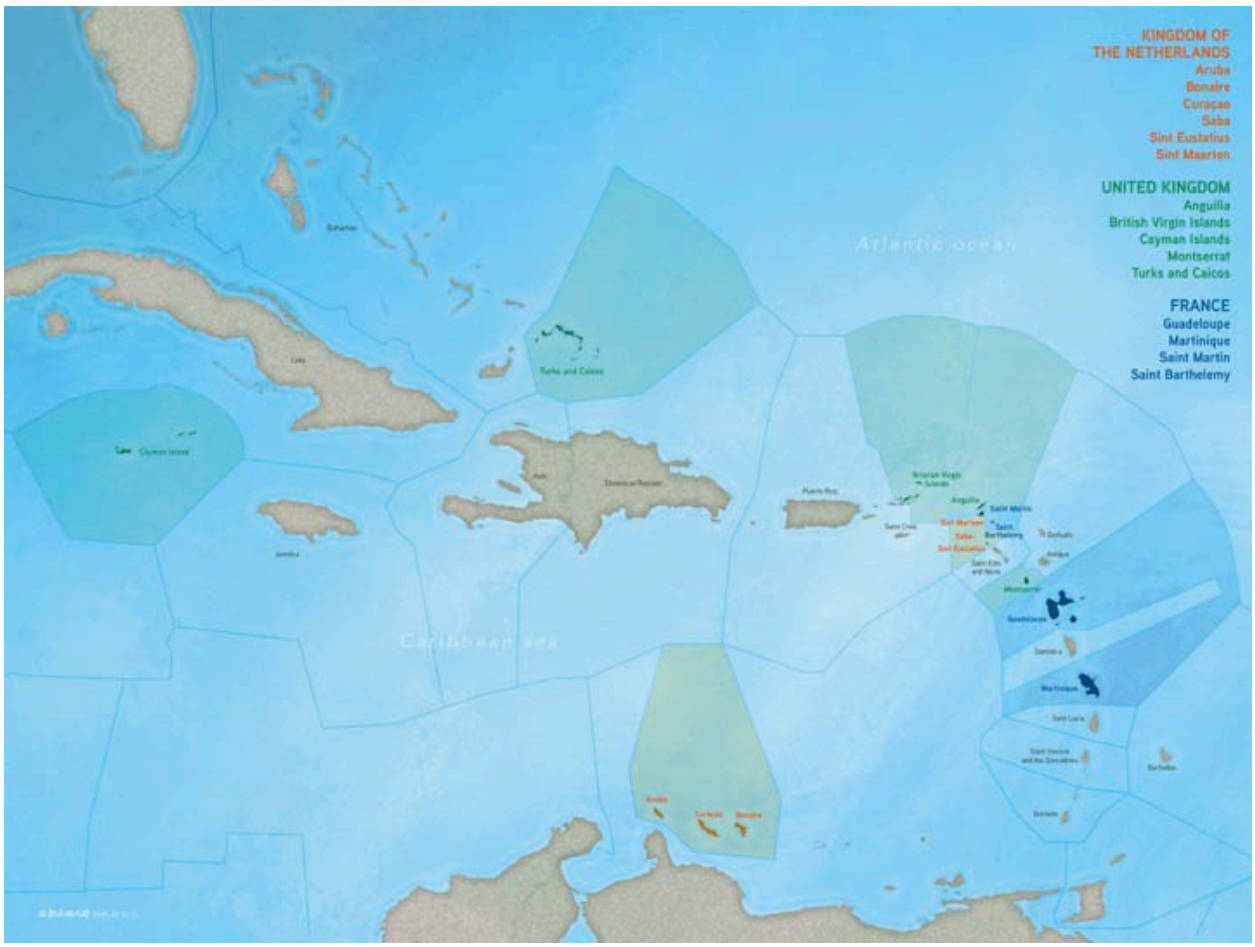
These territories are politically attached to six EU countries (Denmark, France, The Netherlands, Portugal, Spain, UK), even though they are, in some cases, geographically very distant from continental Europe.

The Caribbean region comprises of 15 Outermost Regions (ORs) and Overseas Countries and Territories (OCTs) politically attached to 3 EU member states (France, Kingdom of the Netherlands & United Kingdom)

- United Kingdom entities: Anguilla, British Virgin Islands, Cayman Islands, Turks and Caicos, Montserrat
- Dutch entities: Aruba, Bonaire, Curacao , Saba, Sint Eustatius, Sint Maarten
- French entities: Saint Martin, Martinique , Guadeloupe, Saint Barthelemy



Seven BEST regional knowledge hubs



Caribbean hub

The South Atlantic region consists of 4 OCTs which are all under the jurisdiction of the United Kingdom Government, but are to different degrees self-governing. They are:

- Ascension Island
- Falkland Islands
- St Helena
- Tristan da Cunha

South Georgia and the South Sandwich Islands are within the South Atlantic but for the BEST initiative these are included within the Polar and Sub-polar region.

Europe overseas host over 70% of the EU's biodiversity and contribute to the Caribbean Islands Biodiversity Hotspot

Those territories host a high number of endemic species and are home to several Key Biodiversity Areas (KBAs), globally important for the biodiversity worldwide.

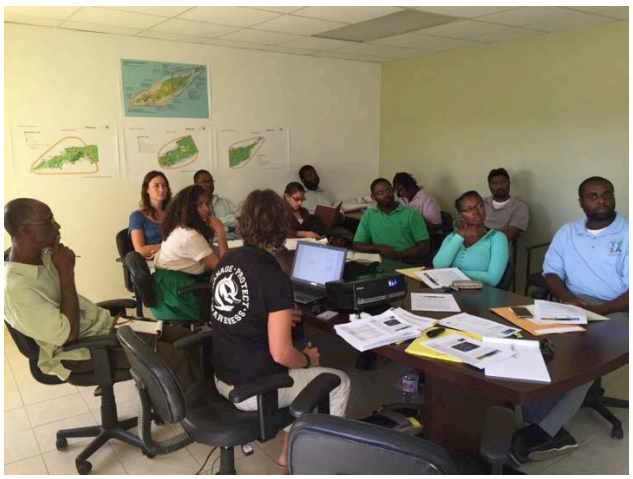
Healthy ecosystems and ecosystem services are essentials to the economies of Europe overseas. Agriculture, fisheries and tourism rely on healthy ecosystems.

However, serious threats are being faced by biodiversity across all the EU ORs and OCTs, such as the destruction of habitats, introduction of exotic species and the spreading of invasive alien species or pollution to the natural habitats. This makes most of them very vulnerable, especially to the effects of climate change.

The BEST initiative – which stands for Voluntary scheme for Biodiversity and Ecosystem Services in Territories of EU Overseas – was launched in 2010 for a limited time by the European Parliament to promote conservation and sustainable use of biodiversity and ecosystem services in EU ORs and OCTs.

The BEST Preparatory Action provided seed money which allowed funding of 16 on-the-ground projects. The outcome of the two open calls for proposals BEST 2011 and BEST 2012 showed a clear need for overseas funding as the requests amounted more than six times the available budget and several projects passing all evaluation criteria could not be funded.

There is definitely an obvious need to make this funding not a one-time effort, but to establish a financial support mechanism sustainable for years



Consultation process: Workshop Anguilla March 2015

to come. Thus, BEST III aims to catalyze the transition to a sustainable BEST facility.

In order to guide future investments in biodiversity hotspots by the European Commission and other donors, Caribbean and South Atlantic ecosystem profiles are being implemented by regional hubs located in the overseas regions.

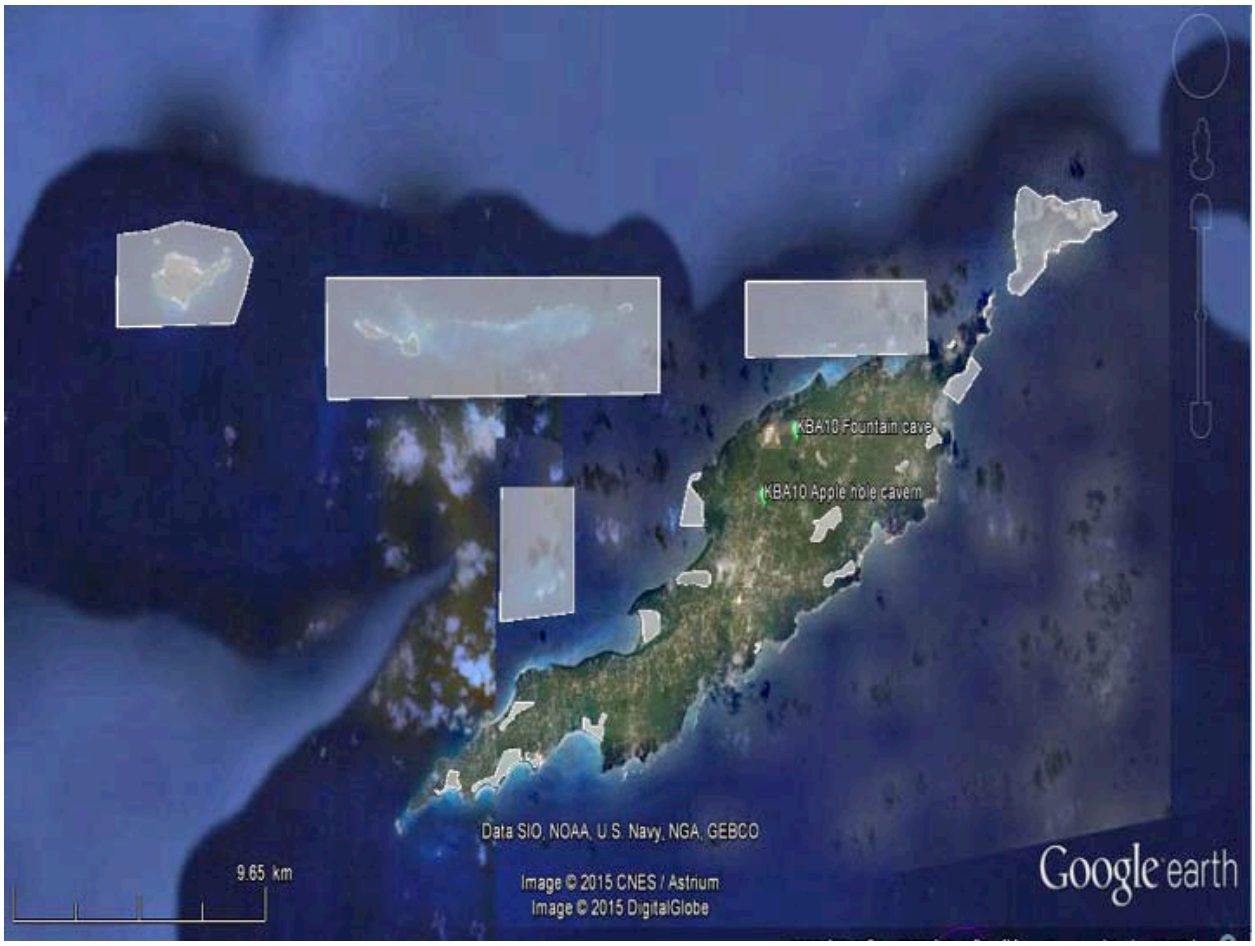
Ecosystem profiling is a 5 steps process involving a broad stakeholders consultation on the ground in order to :

1. Set up Conservation Outcomes at three ecological scales

- Species outcomes equate to globally threatened species (following IUCN categories: Critically Endangered (CR), Endangered (EN) and Vulnerable (VU)).
- Site outcomes equate to Key Biodiversity Areas (KBAs), that is to say:
  - sites contributing significantly to the global persistence of globally threatened species; geographically restricted species; centres of endemism
  - species at key stages of their life cycle
  - ecological integrity and naturalness.
- Corridor outcomes equate to conservation corridors: inter-connected landscapes of sites important for the conservation.

2. Provide an overview of the socio-economic context

- Analyze how the socio-economic context impacts on conservation outcomes
- Analysis of policies related to environment



KBA idenification: an example

- Provide an overview of the civil society organizations, scientific and research institutions, professional organisations and private sector engaged in natural resources management and conservation in the hotspot.

3. Identify and Prioritise Threats

Assessment of the threats and root causes of threats that directly impact the conservation outcomes and the ecosystem's integrity.

4. Identify Funding Gaps

Analyse the funding gaps and identify the priorities for investment.

5. Define a niche and strategy for future investments

Detail major efforts on biodiversity conservation, and where and why existing activities and investments are insufficient.

Outcomes

Ensure the sustainability of the BEST scheme: define niche for investment; fundraise and establish a 5-year action plan to submit to the European Commission

Timeframe

2014-2016: Development of the ecosystem profiles, with several series of exchanges, both bilaterally and collectively, with local stakeholders.

2016-2018: Define the general BEST investment strategy to identifying donors that can contribute to fund BEST in addition to European funds.

BEST Regional Hub in the Caribbean

In the Caribbean Region, under the leadership of IUCN, the SPAW RAC (Regional Activity Center for Specially Protected Areas and Wildlife) in partnership with the Natural Reserve of St Martin, will be in charge of the coordination of the Caribbean regional hub and of the development of the Caribbean ecosystem profiles for the 15 European overseas entities in close collaboration with the existing networks and stakeholders.

BEST Regional Hub in the South Atlantic

In the South Atlantic, SAERI – the South Atlantic Environmental Research Institute based within the Falkland Islands – is responsible for the implementation of the BEST III work and creation of the ecosystem profiles for the 4 OTs within the region. This work will be completed in partnership with the main environmental representatives on each of the islands. SAERI is also responsible for providing expert advice to the Polar and Sub-Polar hub team with regard to South Georgia and the South Sandwich Islands, whose government is based on the Falkland Islands.

New funding opportunities for environmental projects in the EU Overseas Countries and Territories (OCTs): BEST 2.0

In the meantime, recognising the urgency to keep support for projects while a long-term BEST financing mechanism is being elaborated, the European Commission has decided to allocate new resources for concrete projects in the OCTs through a 5-year programme called BEST 2.0, with calls for proposals organised in the two coming years for a budget of over € 6 million.

This BEST 2.0 programme will, amongst others, support implementing actions for biodiversity conservation, sustainable use of ecosystems and ecosystem services in the KBAs identified through the participative ecosystem profiles process led by the regional BEST knowledge hubs.

Web sites

http://ec.europa.eu/best/

http://www.car-spaw-rac.org

http://www.south-atlantic-research.org

Biodiversity and Ecosystem Services in the Overseas Territories (BEST III) - general overview

Maria Taylor (South Atlantic Environmental Research Institute (SAERI))

Taylor, M. 2015. Biodiversity and Ecosystem Services in the Overseas Territories (BEST III) - general overview. p 288 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

The European Union (EU) comprises 34 Outermost Regions (ORs) and Overseas Countries and Territories (OCTs) across the globe, located in 7 regions and 3 oceans: Caribbean, Indian Ocean, Pacific, Macaronesia, Polar and Sub-polar, Amazon and South Atlantic, which in turn form the 7 regional knowledge hubs implementing the BEST III initiative. EU Overseas biodiversity is very rich, home to the majority of endemic species in the EU, and acknowledged as being of international importance. It is, however, particularly at risk because island systems are highly vulnerable to invasive alien species, development, and the impacts of climate change. The EU BEST III initiative is a voluntary scheme being coordinated by staff involved in local projects, working for and with local stakeholders, focusing on the EU ORs and OCTs biodiversity hotspots. Its main aims are:

To create an Ecosystem Profile for each of the territories that will act as a tool to guide future long term conservation efforts and investments

To support the conservation of biodiversity and sustainable use of ecosystem services (including ecosystem based approaches to climate change adaptation and mitigation throughout the EU OR and OCTs)

To combine knowledge and input to foster regional cooperation between territories

To create sustainable funding support on a long term scale by sharing funding opportunities and connecting projects in need of support.

Maria Taylor, Ecologist - BEST III project, South Atlantic Environmental Research Institute - SAERI mtaylor@env.institute.ac.fk

Biodiversity and Ecosystem Services in the Overseas Territories (BEST III) – specific focus on UKOTs

Maria Taylor (South Atlantic Environmental Research Institute (SAERI))

Taylor, M. 2015. Biodiversity and Ecosystem Services in the Overseas Territories (BEST III) – specific focus on UKOTs. p 289 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

As one of the 7 regional knowledge hubs across the world part of the BEST III initiative, the South Atlantic hub encompasses Ascension Island, St Helena, Tristan da Cunha and the Falkland Islands. All these territories are part of the United Kingdom (UK) Overseas Territories (OTs). Coordinated from the South Atlantic Environmental Research Institute in the Falkland Islands, the BEST III South Atlantic Regional Hub is able to take advantage of the existing inter-territory research cooperation within the UK South Atlantic OTs to facilitate the work, whilst strengthening collaboration in environmental science. These South Atlantic UKOTs altogether contain over half of the UKs endemic species (St Helena alone contain a third of the total number). However, there are very little data for the majority of these species, even about their basic distribution, population size or threats they face. Their marine ecosystems are the most understudied and lack even basic lists of species present, although this is starting to be addressed in some areas through active research being conducted within the territories. New species are still being described in all these territories to this date, showing how much there is still to learn about these remote ecosystems and highlighting the very real need for continuing research. Without the fundamental knowledge of what species are present, their conservation status, or basic ecology, it is impossible to protect these globally significant areas of biodiversity. The BEST III initiative within the South Atlantic regional hub aims to create accurate ecosystem profiles for these territories and identify Key Biodiversity Areas (KBAs) that will support environmental management. This process will also differentiate between the prioritisation of conservation work and research. This work is of fundamental importance to the continued obligation of environmental stewardship and management of the natural resources of South Atlantic Territories and will underpin future research and funding opportunities for environmental stakeholders within the region.

Maria Taylor, Ecologist - BEST III project, South Atlantic Environmental Research Institute - SAERI mtaylor@env.institute.ac.fk

A dedicated funding scheme for Biodiversity and ecosystem services in European overseas territories : the BEST Initiative

Romain Renoux (Regional Best Caribbean Hub Coordinator, Regional Activity Centre for Specially Protected Areas and Wildlife in the Caribbean region (SPAW-RAC)/Réserve Naturelle de Saint-Martin)

Renoux, R. 2015. A dedicated funding scheme for Biodiversity and ecosystem services in European overseas territories : the BEST Initiative. p 290 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

In the Caribbean 15 territories are European Union overseas entities politically attached to United Kingdom, France and The Netherlands. Those entities are very rich in biodiversity and natural resources. They host a high number of endemic species and are home to several Key Biodiversity Areas (KBAs), globally important for the biodiversity worldwide. However, serious threats are being faced by biodiversity there, such as the destruction of habitats, spreading of invasive alien species or pollutions to the natural habitats.

For this reason, the BEST initiative – which stands for Voluntary scheme for Biodiversity and Ecosystem Services in Territories of EU Overseas – was launched in 2010 by the European Parliament to promote conservation and sustainable use of biodiversity and ecosystem services in EU overseas territories.

From 2014 to 2018, a study commissioned by the EU and carried out by IUCN, SPAW-RAC and Réserve Naturelle de Saint-Martin in close conjunction with key institutions and existing networks, will be conducted to ensure the sustainability of the BEST scheme and a better integration of the European territories in the Caribbean networks and activities.

Regional ecosystem profiles based on up-to-date scientific data and through consultation with local or regional stakeholders and experts will be developed in order to identify and map marine and terrestrial KBAs. This assessment relies on globally threatened species (IUCN RedList), restricted-range or congregatory species. Assessment of current investment in biodiversity will be identified in order to define niche for investment and establish a 5-year action plan to submit to the European Commission in order to support in the most efficient way conservation projects on the ground.

In the meantime, recognising the urgency to keep support for projects while a long-term BEST financing mechanism is being elaborated, the European Commission has decided to allocate new resources for concrete projects in the OCTs through a 5-year programme called BEST 2.0, with calls for proposals organized in the two coming years for a budget of over € 6 million. This BEST 2.0 programme will, amongst others, support implementing actions for biodiversity conservation, sustainable use of ecosystems and ecosystem services in the KBAs identified through the participative Ecosystem profiles process led by the regional BEST knowledge hubs.

Romain Renoux, BEST Caribbean Hub Coordinator, Reserve Naturelle de St Martin /SPAWRAC romain.renoux@rnsm.org

Discussion: a case-study from Trinidad and Tobago Green Fund

As a contribution to the discussion, Lyndon John looked up and provided information on the Trinidad and Tobago Green Fund, as a model for sustainable financing mechanisms for environmental management but for those who are interested in a cross-sectoral approach, as against the discussed levies on departure taxes, cruise-ship head-taxes etc., Trinidad and Tobago levies a 0.1% tax across all business transactions that is yielding great results. The disbursement was a challenge but this has apparently been resolved. A summary is provided below. There is more information in the source of this, the Chamber of Commerce website: Chamber.org.tt

A look at the Green Fund

What is the Green Fund?

The Green Fund is the national environmental fund of the Republic of Trinidad and Tobago. According to The Miscellaneous Taxes Act, Chapter 77:01 Part XIV, the purpose of the fund is to provide financial assistance to community groups and organisations for activities related to reforestation, remediation, environmental education and public awareness of environmental issues and conservation of the environment. Remediation is the remedying and restoring the functional capacity of an environmental resource damaged by natural or man-made causes.

Reforestation is the replanting a previously forested area mainly with seedlings of indigenous forest tree species. Conservation is wise use of natural resources for the benefit of present and future generations.

Since inception, the Fund has successfully financed a number of certified activities totalling some TT $117,011,878. These include the Fondes Amandes Community's "Sustainable Community Forestry (Reforestation) Initiative", Phases I & II; Greenlight Network's "Plastikeep Projects", Phases I & II; Environmental Management Authority's "Nariva Swamp Restoration, Carbon Sequestration and Livelihoods Project"; Toco Foundation's "Water Harvesting in the Northeastern Region of Trinidad"; Nature Seekers "Matura Development Initiative of Awareness, Management and Eco-tourism for Natural Resource Conservation"; and Realize Road Environmental Club's "Greening the Plastic planet recycling Project".

The Green Fund was first established under the Finance Act 2000 through the Miscellaneous Taxes Act, Chapter 77:01 Part XIV – Green Fund Levy – by the Government of the Republic of Trinidad and Tobago (GoRTT). This was amended by Act No. 5 of 2004 and was followed by the Green Fund Regulations 2007 and the Green Fund (Amendment) Regulations 2011. The Fund is capitalised by a tax of 0.1% on the gross sales or receipts of companies carrying on business in Trinidad and Tobago. The first contribution to the Green Fund Levy was made on 31 March 2001. The levy is payable quarterly in each year of income i.e. March 31st, June 30th, September 30th, and December 31st.

The implementation of the Green Fund became operational through the establishment of the Green Fund Executing Unit (GFEU) and the appointment of a Green Fund Advisory Committee (GFAC) in 2008 by the then Ministry of Planning, Housing and the Environment. The balance of the fund at 30 September 2011 was $2,581,557,613.94.

The Green Fund Advisory Committee

Members of the GFAC are appointed by the Minister with the responsibility for the Environment. The members represent a variety of expertise relevant to the Green Fund including law, finance, environmental management and forestry sectors. It is legislated that there will be no less than five (5) and no more than nine (9) members serving a two-year period. The Committee's primary role is to advise the Minister regarding applications for funding.

Having been installed a little over 12 months ago, the GFAC has already recommended six applications for certification, with a combined value of TT $44,868,521.

The Green Fund Advisory Committee's process is robust, detailed and intense, as it should be with respect to taxpayer's funds and grant funding. The process has also aided applicants in ensuring that the proposed projects provide community and environmental impact while being sustainable.

The Evaluation criterion relates to all the key policies, for example the Medium-Term Policy Framework 2011-2014, the National Environment Policy 2006, the Manifesto of the People's Partnership 2010 and other relevant National and

International environmental and development Conventions, Policies and Programmes. The UN Millennium Development Goals (MDGs) 2015, goal 7 – Ensure environmental sustainability, integrate the principles of sustainable development into country policies and programmes; reverse loss of environmental resources.

Applicants will receive support from the Green Fund Executing Unit, ably led by Mr Richard Laydoo. The Unit will provide a range of resources, from supportive trained officers, to the Green Fund Application Form and Excel budget template.

The Green Fund Executing Unit

The Green Fund Executing Unit serves as the administrative and operational division of the Green Fund. The Unit is the point of contact for all applicants and its staff communicates with the Advisory Committee regarding referrals of applications to the Fund via its Project Coordinator.

Its Mission is "To enhance the quality of the natural environment of Trinidad and Tobago and achieve the goal of the National Environmental Policy of environmentally sustainable development by the provision of financial assistance from the Green Fund to organisations and community groups engaged in remediation, reforestation and conservation activities."

Its Vision is to be "An articulate, diligent, innovative unit facilitating the promotion and implementation of the Green Fund through partnerships, particularly with local organisations and community groups, towards environmentally sustainable development thereby improving the wellbeing of all citizens of Trinidad and Tobago."

The Mandate of the Green Fund Executing Unit (GFEU) is to manage the implementation and operations of the Green Fund. It executes this mandate through the following core functions:

- Promoting the Green Fund among key stakeholders, including public and private sector agencies and beneficiary organizations and community groups;
- Receiving and ensuring proposals submitted for funding from eligible organizstions and community groups meet the criteria of the Green Fund;
- Forwarding proposals received to the Green Fund Advisory Committee for review and recommendation for certification;
- Monitoring the implementation of projects approved for funding, including evaluation of performance, auditing and reporting;
- Coordination of all activities with respect to the administration of the Green Fund;
- Implementation of the financial system, including monitoring and reporting, in keeping with legal and institutional requirements;
- Provision of timely reports in conformity with requirements of the Green Fund (Amendment) Regulations 2011.

Organisations and Non-Governmental Organisations may access the Green Fund.

An Organization is defined as a body incorporated by statute other than the Companies Act; or a body incorporated as a Non-Profit Company under the Companies Act; which is engaged in activities related to the remediation, reforestation and conservation of the environment.

A Non-Governmental Organization (NGO) is defined as a non-profit, unincorporated body, which is registered as a Non-Governmental Organization with the Ministry with responsibility for Community Development or the THA; and engaged in activities related to the remediation, reforestation and conservation of the environment.

The application process

The Green Fund Executing Unit reviews all applications, which are then submitted to the Green Fund Advisory Committee. Satisfactory applications are then recommended to the Minister responsible for the Environment for approval. An application may require the following (among others): Application form through the GFEU; Project proposal; Technical and budget details; Organisation details including constitution; Legal requirements, *e.g.* permissions, approvals; Stakeholders; Sustainability. Upon approval, an agreement is signed and part of the project's approved funds is disbursed and project implementation initiated.

Chairman of the Green Fund Advisory Committee (GFAC), Inshan Meahjohn, stated that he feels humbled by the renewed interest in environmental projects by community groups and eligible organisations throughout Trinidad and Tobago. He encourages eligible groups throughout the entire nation to apply for funding for environmental projects that will improve and develop Trinidad and Tobago.

Session 12: Using informed decision making to manage development sustainably (including physical planning, environmental impact assessments etc)

Chairing & facilitating team: Dace Ground (Bermuda; UKOTCF), Jo Treweek (Treweek Environmental Consultants), Isabel Peters (St Helena), Arlene Brock (Bermuda)

Introduction – Dace McCoy Ground (Bermuda National Trust & UKOTCF)
Cayman: some successes, by public pressure; and by negotiations, rather than by EIA process – Christina Pineda (National Trust for the Cayman Islands)
St Helena Airport: Environmental Lessons Learnt – Isabel Peters (St Helena Government)
A model for rapid assessment and mapping of ecological criteria for informed land use in small island developing states – Kathleen McNary Wood (Turks & Caicos Islands)
Managing Marine Protected Areas in the Isle of Man in partnership with fishermen – Fiona Gell[1], Peter Duncan[1], Karen McHarg[1], Isobel Bloor[2], Sam Dignan[2], Kev Kennington[3], Liz Charter[4] and Andy Read[1] ([1] Fisheries Directorate, Department of Environment, Food and Agriculture, Isle of Man Government; [2] School of Ocean Sciences, Bangor University, UK; [3] Government Laboratory, Department of Environment, Food and Agriculture, Isle of Man Government; [4] Environment Directorate, Department of Environment, Food and Agriculture, Isle of Man Government)
Community Voice Method - a contemporary approach to engaging stakeholders in development of marine resource conservation policy – Peter B. Richardson[1], Lisa M. Campbell[2], Gabriel B. Cumming[2], Quentin Phillips[3], Sue Ranger[1] & Amdeep Sanghera[1] ([1]Marine Conservation Society (MCS), Ross House, Ross Park, Ross-on-Wye, Herefordshire, HR9 7QQ; [2]Nicholas School of the Environment, Duke University, Durham, NC, USA; [3]Department of Environment and Maritime Affairs, South Caicos, Turks and Caicos Islands, BWI)
Cyprus SBAs: need for measures in view of recent change of British policy – Melpo Apostolidou (BirdLife Cyprus)
Legal requirements for EIAs – Arlene Brock (former Ombudsman for Bermuda)
Environmental Impact Assessments (EIAs): what they involve and what are the benefits – Jo Treweek (Treweek Environmental Consultants) (linking to the workshop for some participants on the day after the main conference)
Discussion

From left: Jo Treweek, Arlene Brock, Dace Ground and Isabel Peters

Introduction

Dace McCoy Ground (Bermuda National Trust & UKOTCF)

Ground, D.M. 2015. Introduction. pp 294-297 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

An introduction to the session on Using informed decision making to manage development sustainably (including physical planning, environmental impact assessments etc).

Lady (Dace) Ground, Bermuda National Trust; UKOTCF Council; Wider Caribbean Working Group dacemccoyground@gmail.com

Some UKOTs and CDs have good environmental legislation, but some do not. Some may have legislation but there are difficulties in implementing it. In this session, we cover situations both in which environmental impact assessment and other environmental safe-guarding measures are required and where they are not. We explore some ideas about what to do in the absence of effective legislation, or indeed where effective legislation can be complemented by additional approaches.

Lady Ground opted to give only a very short introduction, and said more in summarising the session. Some of that summary, relating particularly to the continuing relevance of the Environment Charters is given below.

We all hear all the time that the responsibilities for the environment has been devolved by UK Government to the UK Overseas Territories, but what we forget sometimes is the process through which this devolution was achieved. That arose from a recognition, back in the late 1990s, about the UK responsibilities under Multilateral Environmental Agreements, such as the Convention on Biological Diversity, for having responsible environmental management in its Overseas Territories. It was recognised too that a way was needed to devolve that responsibility to the Territories while the UK continued to take responsibility for its side of it. So what we got, through the offices of Iain Orr –

who has been with us throughout – and many other people, is a double set of Commitments. The Government of each UK Overseas Territories committed to fulfil various things required by the international conventions that UK Government had, with their agreement, signed them up to and other aspects of international law and expectations. UK Government, as the sovereign state actually making the international commitments, committed itself in its corresponding Commitments in the Charters to support the UKOTs in their Commitments. Below is an example from the British Virgin Islands, but the wordings of Environment Charters from all the UKOTs are substantially the same.

We hear (below) from Arlene Brock that the Charters have been validated by courts. They are valid, applicable and enforceable agreements between the UK and the UK Overseas Territories. So, if UK is not living up to its obligations or the Overseas Territories are not living up to theirs, there is a mutually enforceable treaty here.

So, in that context we urge the Overseas Territories Ministers to recognise the commitments of their own Governments under the Environment Charters agreed with the UK Government in 2001; and to continue to press the UK Government to fulfil its Commitments under the Charters. These include a strong element in relation to technical assistance, especially regarding technical and scientific issues

like renewable energy, fulfilling Commitments number 1, 5 and especially 7:

> UK Government Commitment 1. Help build capacity to support and implement integrated environmental management which is consistent with the British Virgin Islands' [or each other Territory's] own plans for sustainable development.
>
> UK Government Commitment 5. Help the [Territory] ensure it has the legislation, institutional and mechanisms it needs to meet international obligations.
>
> UK Government Commitment 7. Use the UK, regional and local expertise to give advice and improve knowledge of technical and scientific issues. This includes regular consultation with interested non-governmental organisations and networks.

So the UK is obligated by treaty to do these things.

A second element is assistance with updating environmental legislation, and that relates to:

> UK Government Commitment 2. Assist [the Territory] in reviewing and updating environmental legislation.
>
> UK Government Commitment 5: (see above)

A third element is a ring-fenced fund to support projects of lasting benefit to the territories environments:

> UK Government Commitment 8. Use the existing Environment Fund for the Overseas Territories, and promote access to other sources of public funding, for projects of lasting benefit to the [Territory's] environment.

This is worth a note. When it was written in 2001, there was something called the Environment Fund for the Overseas Territories in existence within FCO; so the treaty referred to that Fund. By the time we met in Bermuda in 2003, UK Government had sort of forgotten about that, and its Commitment of only two years earlier, and obliterated that Fund. So, as a result of the UKOTCF conference in 2003 in Bermuda, we negotiated the Overseas Territories Environment Programme (OTEP), which was funded by DFID and the FCO jointly. And that is something that came out of that conference. And so I think we feel that, if we say something in this conference something might happen, especially as OTEP itself was cancelled without consultation just a few years later.

Anyway, there is a Commitment by UK Government to a ring-fenced fund for projects of lasting benefit to the Territories' environments.

Another element is facilitating the Territories' inclusion and compliance with multilateral environmental agreements, and that comprises UK Government Commitments 3 and 4. Those, I think you can see, are just simply to facilitate the extension of MEAs and ensure that Territories are kept up to date with those.

The final element that I want to stress is:

> UK Government Commitment 6. Promote better cooperation and the sharing of experience and expertise between the Territory], other Overseas Territories and small island states and communities which face similar environmental problems.

This concerns political co-operation and the sharing of experience and expertise among the Territories, including by helping fund regular conferences, like this one hosted by the Gibraltar Government in July 2015.

We need to keep these extremely important Commitments in mind during our discussions, planning and activities.

Annex 1. Environment Charter guiding principles, commitments of the UK Government and the commitments of the Territory Government, example for the Virgin Islands

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Environment Charter

BRITISH VIRGIN ISLANDS

Guiding Principles

For the UK government, for the government of the British Virgin Islands and for the people of the British Virgin Islands.

1. To recognise that all people need a healthy environment for their well-being and livelihoods and that all can help to conserve and sustain it.
2. To use our natural resources wisely, being fair to present and future generations.
3. To identify environmental opportunities, costs and risks in all policies and strategies.
4. To seek expert advice and consult openly with interested parties on decisions affecting the environment.
5. To aim for solutions which benefit both the environment and development.
6. To contribute towards the protection and improvement of the global environment.
7. To safeguard and restore native species, habitats and landscape features, and control or eradicate invasive species.
8. To encourage activities and technologies that benefit the environment.
9. To control pollution, with the polluter paying for prevention or remedies.
10. To study and celebrate our environmental heritage as a treasure to share with our children.

Ralph T. O'Neal
BRITISH VIRGIN ISLANDS
26 September 2001

Valerie Amos
UNITED KINGDOM
26 September 2001

Commitments

The government of the UK will:

1 Help build capacity to support and implement integrated environmental management which is consistent with the British Virgin Islands' own plans for sustainable development.

2 Assist the British Virgin Islands in reviewing and updating environmental legislation.

3 Facilitate the extension of the UK's ratification of Multilateral Environmental Agreements of benefit to the British Virgin Islands and which the British Virgin Islands has the capacity to implement.

4 Keep the British Virgin Islands informed regarding new developments in relevant Multilateral Environmental Agreements and invite the British Virgin Islands to participate where appropriate in the UK's delegation to international environmental negotiations and conferences.

5 Help the British Virgin Islands to ensure it has the legislation, institutional capacity and mechanisms it needs to meet international obligations.

6 Promote better cooperation and the sharing of experience and expertise between the British Virgin Islands, other Overseas Territories and small island states and communities which face similar environmental problems.

7 Use UK, regional and local expertise to give advice and improve knowledge of technical and scientific issues. This includes regular consultation with interested non-governmental organisations and networks.

8 Use the existing Environment Fund for the Overseas Territories, and promote access to other sources of public funding, for projects of lasting benefit to the British Virgin Islands' environment.

9 Help the British Virgin Islands identify further funding partners for environmental projects, such as donors, the private sector or non-governmental organisations.

10 Recognise the diversity of the challenges facing Overseas Territories in very different socio-economic and geographical situations.

11 Abide by the principles set out in the Rio Declaration on Environment and Development (See Annex 2) and work towards meeting International Development Targets on the environment (See Annex 3).

The government of the British Virgin Islands will:

1 Bring together government departments, representatives of local industry and commerce, environment and heritage organisations, the Governor's office, individual environmental champions and other community representatives in a forum to formulate a detailed strategy for action. (See Annex 1).

2 Ensure the protection and restoration of key habitats, species and landscape features through legislation and appropriate management structures and mechanisms, including a protected areas policy, and attempt the control and eradication of invasive species.

3 Ensure that environmental considerations are integrated within social and economic planning processes; promote sustainable patterns of production and consumption within the territory.

4 Ensure that environmental impact assessments are undertaken before approving major projects and while developing our growth management strategy.

5 Commit to open and consultative decision-making on developments and plans which may affect the environment; ensure that environmental impact assessments include consultation with stakeholders.

6 Implement effectively obligations under the Multilateral Environmental Agreements already extended to the British Virgin Islands and work towards the extension of other relevant agreements.

7 Review the range, quality and availability of baseline data for natural resources and biodiversity.

8 Ensure that legislation and policies reflect the principle that the polluter should pay for prevention or remedies; establish effective monitoring and enforcement mechanisms.

9 Encourage teaching within schools to promote the value of our local environment (natural and built) and to explain its role within the regional and global environment.

10 Promote publications that spread awareness of the special features of the environment in the British Virgin Islands; promote within the British Virgin Islands the guiding principles set out above.

11 Abide by the principles set out in the Rio Declaration on Environment and Development (See Annex 2) and work towards meeting International Development Targets on the environment (See Annex 3).

Cayman: some successes, by public pressure; and by negotiations, rather than by EIA process

Christina Pineda (National Trust for the Cayman Islands)

Pineda, C. 2015. Cayman: some successes, by public pressure; and by negotiations, rather than by EIA process. pp 298-300 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

In the absence of environmental protection legislation and an outdated development plan, a highway was haphazardly plotted through the interior of Grand Cayman in 2005. This threatened to cut through the heart of the island's most pristine habitats, including mangrove wetlands, old growth forests and shrublands. The entire length of the highway was set to impact five Trust-owned properties including reserves where the endangered endemic Grand Cayman blue iguanas are released.

After years of no progress on the proposed highway, due to lack of Government funding, it was hoped that it would never become a reality. However, the Trust faced its biggest crisis in years when the issue of the gazetted East West Arterial road resurfaced in mid-2014, when a developer offered to construct the highway in connection with a large golf resort development on the eastern side of the Island.

The Trust mobilised quickly to develop a comprehensive advocacy strategy which included, amongst other things, seeking international and local support in relation to this crisis. As a result, in an unprecedented step the Government responded favourably to the Trust's invitation to discuss a mutually agreeable way forward.

This presentation will explore the Trust's approach, the importance of local support and necessary compromise, which ultimately avoided the destruction of hundreds of acres of the important interior forest in the Cayman Islands.

Christina Pineda, Executive Director, National Trust for the Cayman Islands
director@nationaltrust.org.ky

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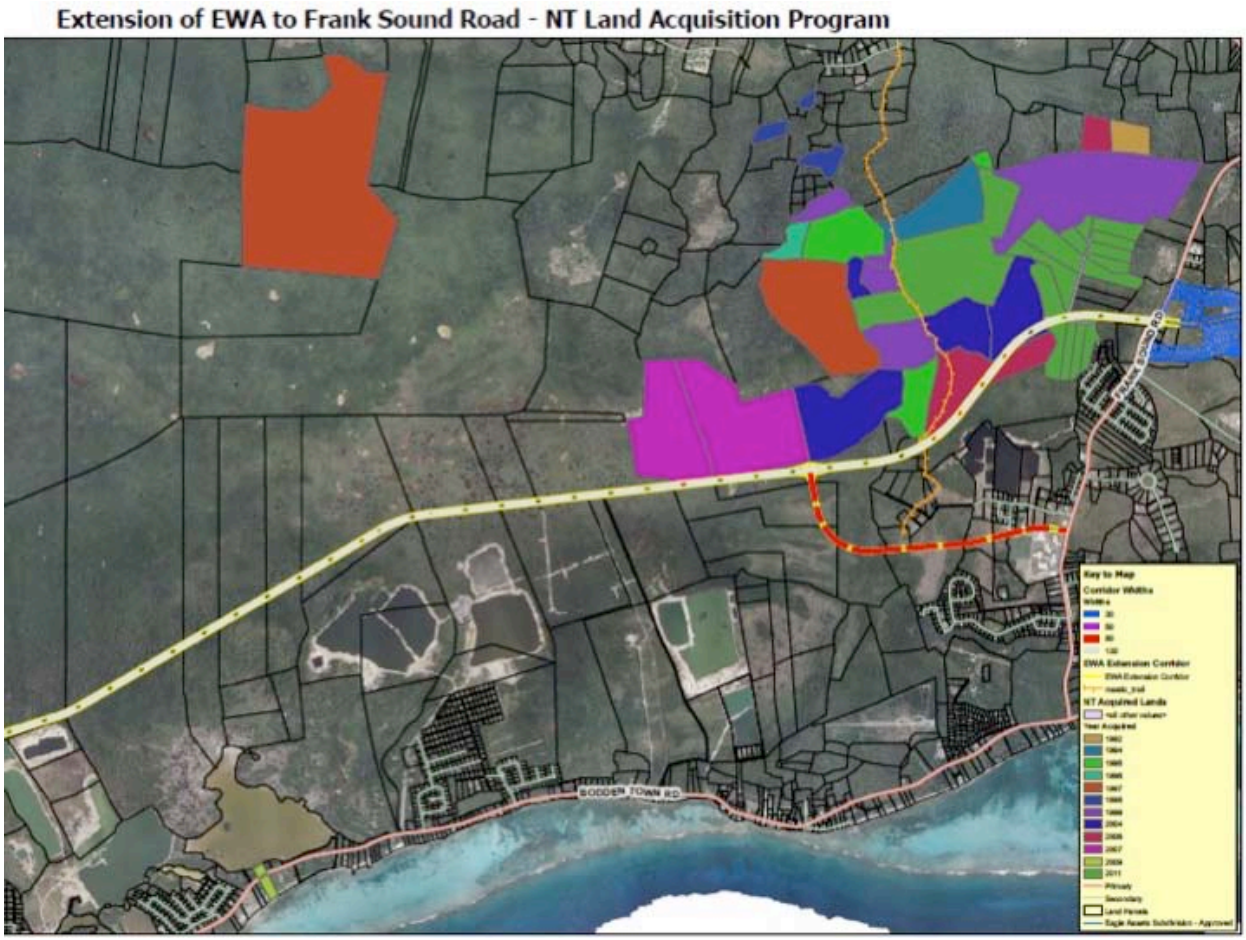
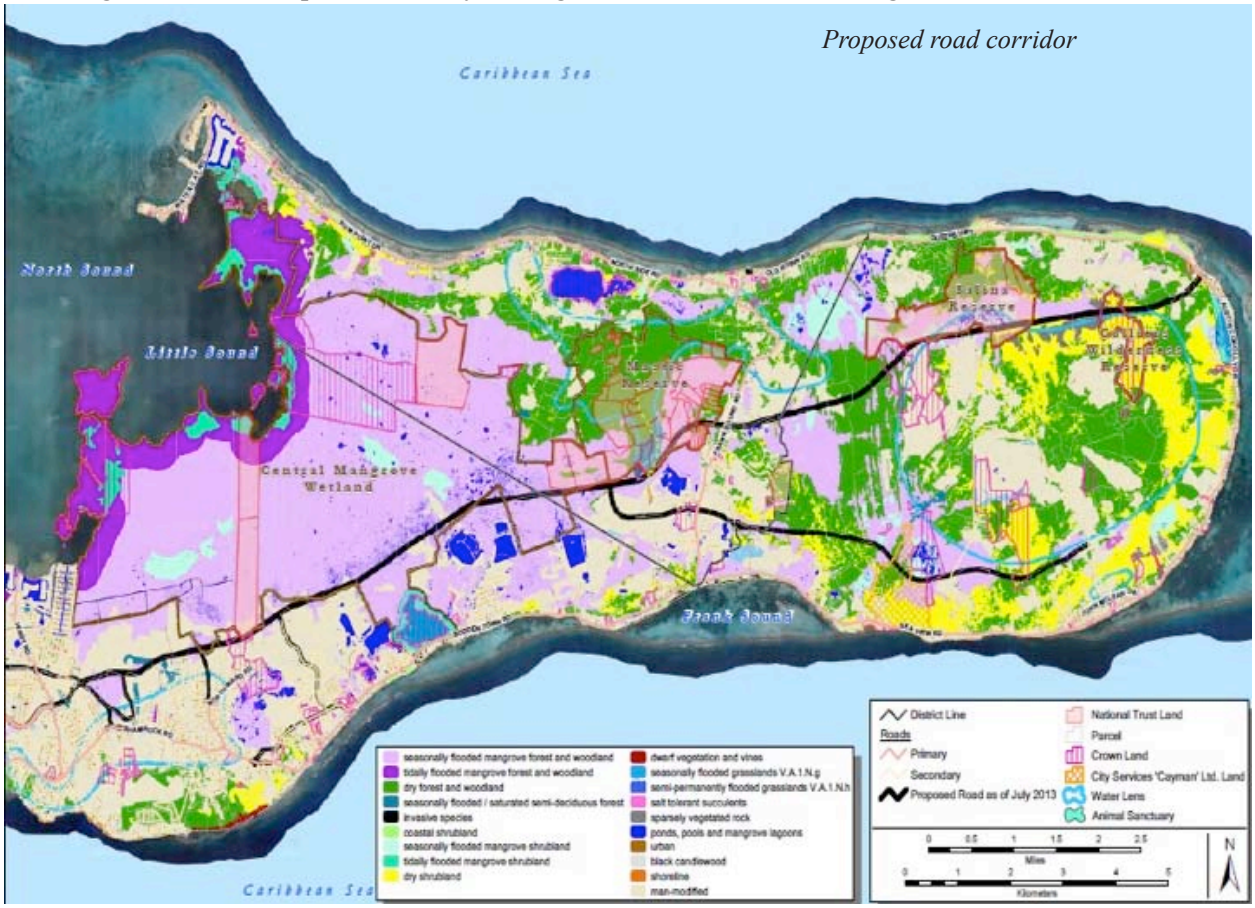
The problem was that there was no conservation legislation to protect environmentally sensitive areas and so no way to compel legally the Government to consider, and mitigate for, adverse environmental impacts.

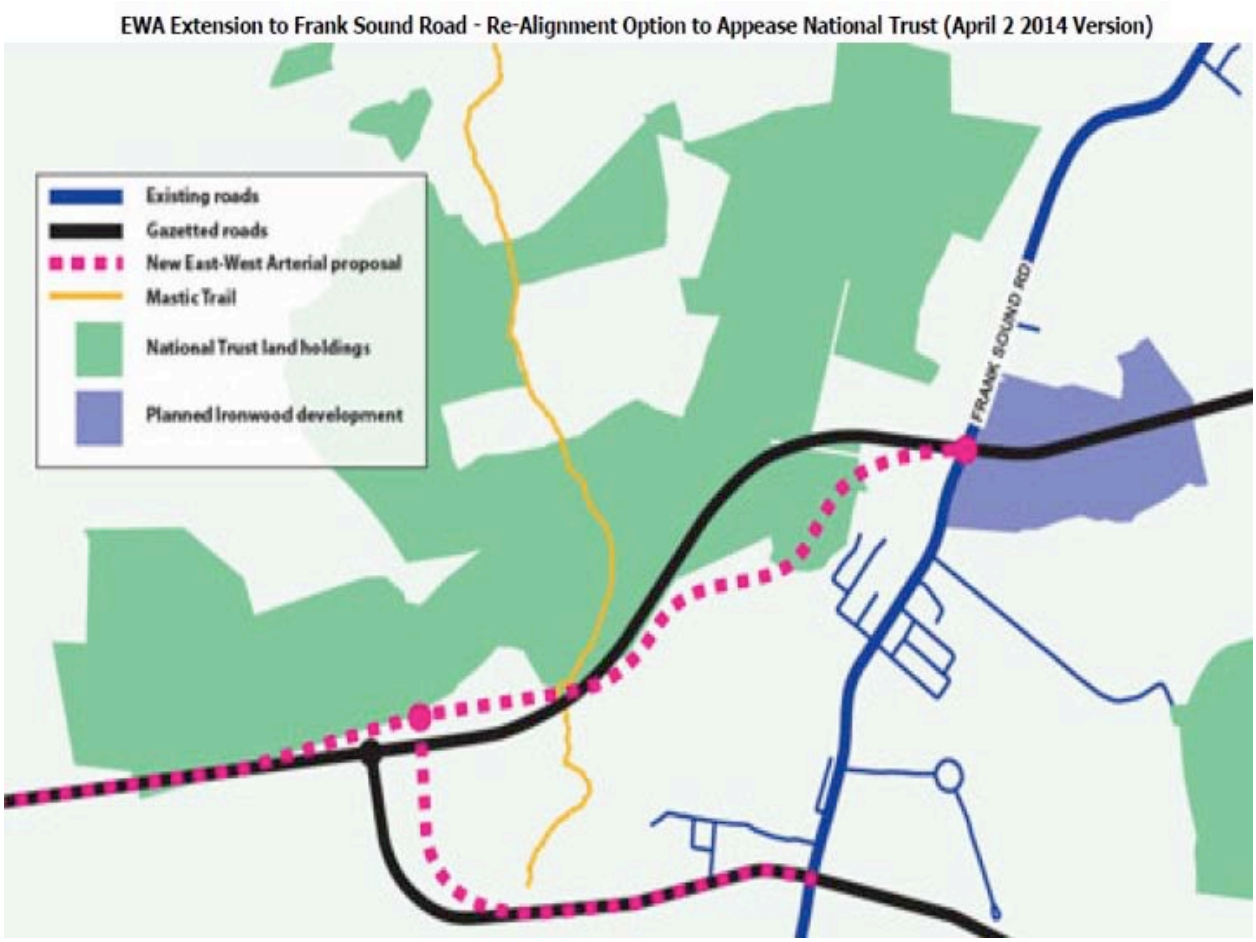
The potential effects were that the entire length of highway was set to impact five Trust-owned properties. In addition it threatened the Mastic Reserve (old growth forest), and would cut it off from wetlands that provide vital moisture to the dry forest. There would be habitat loss, fragmentation, change and edge-effects.

The Trust mobilised quickly to develop a comprehensive advocacy strategy, which



included, amongst other things: briefing outlining potential adverse effects and recommendations including a national transportation study, strategic environmental impact assessments, moving route south, and mitigation measures. The strategy involved also seeking international and local





The outcome: EWA Extension to Frank Sound Road – Re-Alignment option to Appease National Trust (April 2 2014 version)

support in relation to the crisis.

The advocacy strategy included: stakeholders, important deadlines, target audiences, tools, an overall aim, a means objectives, and an action plan. Key components of the strategy included befriending top-level civil servants and guerrilla tactics when necessary.

As a result, in an unprecedented step, the Government responded favourably to the Trust's invitation to discuss a mutually agreeable way forward.

This included the existing route modified to avoid as much of reserve as possible, loss of a small portion of the southern trail head, saved approximately 30 acres from direct destruction and set precedent for future negotiations with Government.

This experience highlights also the importance of local support and the need to compromise, which ultimately avoided the destruction of hundreds of acres of the important interior forest in the Cayman Islands.

Local press reports

St Helena Airport: Environmental Lessons Learnt

Isabel Peters (St Helena Government)

Peters, I. 2015. St Helena Airport: Environmental Lessons Learnt. pp 301-309 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

The construction of the St Helena Airport, the largest project the island has seen, presented many environmental challenges and opportunities. The site for the airport on Prosperous Bay Plain, an area of immense ecological value, raised a number of significant environmental issues from the onset.

Loss of habitats and species was inevitable, but this provided a catalyst for raising the profile of habitats and species that had previously not been particularly well studied. Understanding more about what was actually present on the site and designing mitigation to counteract the direct and indirect impacts became a key part of the project, both prior to and throughout the construction. Many valuable lessons have been learnt and will continue to be learnt as the construction of the airport draws to a close and restoration works begin.

The airport project became a driver also for establishing positive environmental management practices and procedures, including the adoption of the Environmental Impact Assessment (EIA) process, now a legal requirement under the planning process. The EIA for the airport project was completed some six years before construction started; parts of it were already out of date and other parts needed to be modified to suit the real situation on the ground as the project evolved. All parties involved needed to work together to come up with realistic solutions.

One of the most important lessons learnt was that the environment was only one aspect that needed to be considered. Throughout the project, decisions were made by balancing the technical, logistical, social, financial and environmental needs.

(Supported by display material in poster room)

Miss Isabel Peters, Chief Environment Officer, St Helena Government
isabel-peters@enrd.gov.sh

Introduction

I have been involved in the St Helena airport project for over 15 years and what I have learnt could fill a book, but this presentation is only 13 minutes long so I will just share with you some of the highlights from the environmental lessons learnt from the St Helena Airport Project.

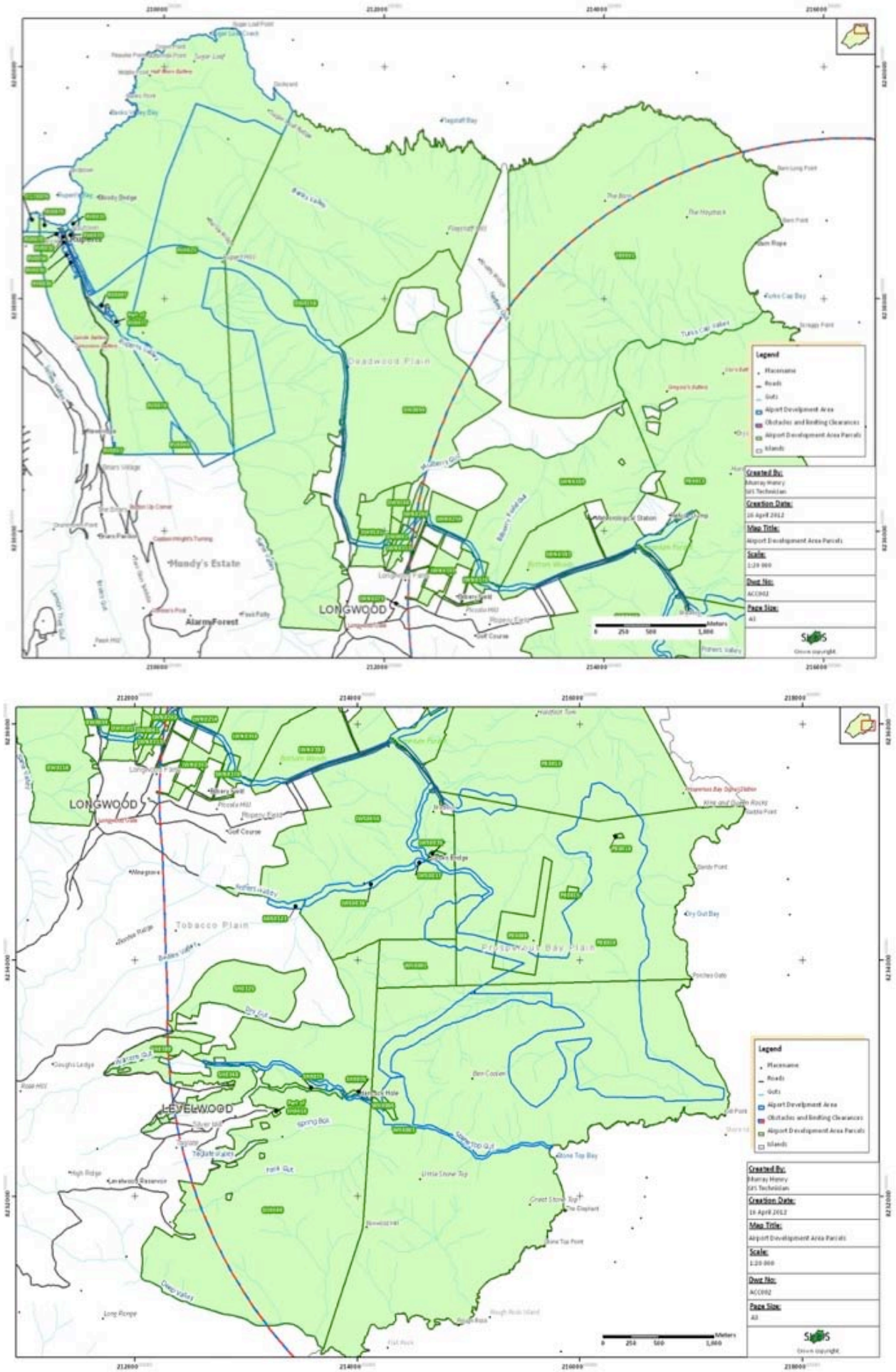
Planning for an airport on St Helena began many years ago. Indeed, there are references to studies having been done as far back as 1943. Over the years there were countless visits by consultants and specialists who produced many reports and feasibility studies and plans and designs. In recent years, the driver for an airport for St Helena was to reduce the Island's isolation and, through this, create the means for economic development and self-sustainability, and ultimately reduce the dependency on grant-in-aid from the United Kingdom.

Facts and Figures

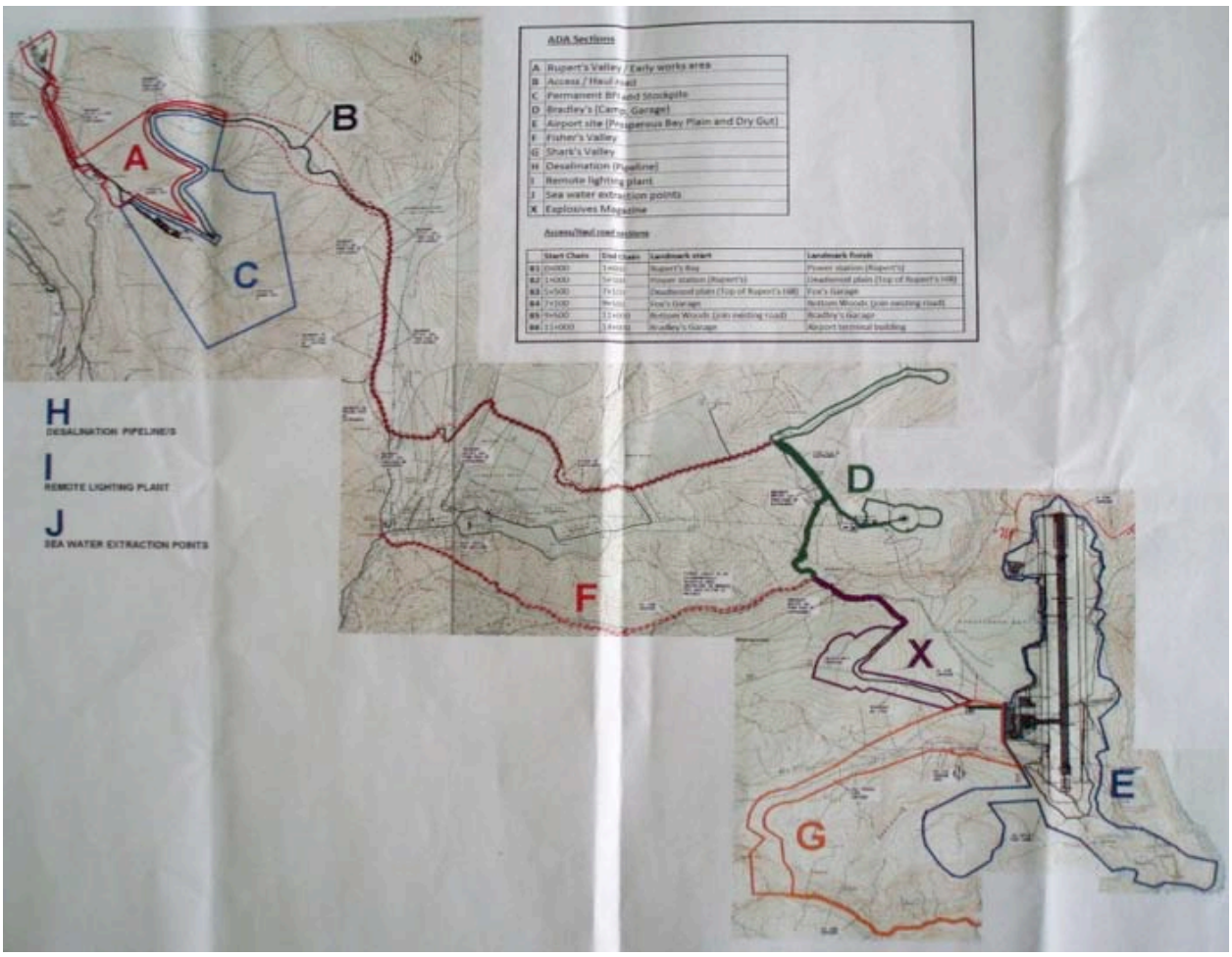
To put the scale of the project into perspective, here are some interesting facts and figures:

Total land area covered by the project: 200ha

Length of the airport road: 14km



St Helena Airport_Airport development area



St Helena Airport Scheme Components and project area

Runway length : 1,950m Width: 45m

Amount of earth moved: 9.5 million m^3

Total Number of people employed: 600, of which approximately 2/3 are Saints [St Helena islanders]

Cost of the project: £250 million

Environmental Impact Assessment (EIA) Process

The EIA for the airport project began in 2005 and was based on the reference designs. The Environmental Statement (ES) and Environmental Management Plan (EMP) were completed in December 2007. However, following the financial crisis, the UK Government "paused" the airport project in 2008, and this was not lifted until July 2010. Recognising that there had been some changes to the original reference design, an Addendum to the ES was produced, along with an updated EMP in 2011. The Design, Build, Operate (DBO) Contract with Basil Read, a South African construction firm, was signed on the 3rd November 2011.

St Helena Airport temporary jetty at Ruperts

St Helena Airport Sea Rescue facility under construction

St Helena Airport bulk fuel installation

St Helena Airport haul road: Rupert's Hill to pipe ridge – climbs 300m over 5km

The EMP translates the findings of the EIA into measures that need to be undertaken by the contractor to avoid, minimise or offset the adverse environmental impacts. The EMP was first issued in 2007 and formed part of the Employer's requirements of the Invitation to Negotiate. It then formed part of the Employer's requirements of the contractor, meaning that everything in the EMP became a contractual requirement that the contractor could be forced to comply with. This ensured that the EMP was a working document that needed to be consulted and acted upon throughout the project.

The contractor produced a Contractors Environmental Management Plan (CEMP) that is updated biannually and provides the detail of how they will implement the EMP. One of the key lessons learnt, however, was that future EMPs must be clear and unambiguous, with actions that are implementable, measurable and auditable, with key performance indicators, responsible persons identified and all mitigations properly costed.

Institutional Arrangements

In order to implement and monitor compliance to the EMP and CEMP, a resourced team of dedicated environmental staff was required. Initially there was an underestimate as to the scope and volume of work involved but, as this was realised, teams grew. The contractor, Basil Read, employs a Contractor's Environmental Control Officer (CECO), who is responsible for ensuring compliance with, and implementation of the CEMP on site. She is assisted by a team of up to 10 who are responsible for workplace audits, environmental monitoring, clearing invasive species, rehabilitation, pest and predator control, waste management and keeping archaeological watching briefs. An off-island Environmental Manager is responsible for inputs to design, overall environmental management and quality assurance, ongoing advice, internal audits and preparing the annual environmental report.

The airport project is overseen by the Project Management Unit (PMU), a small resident team from Halcrow. This includes an Environmental Monitor and Environmental Inspector responsible for checking CEMP compliance on site and reviewing designs to ensure they comply with environmental regulations and incorporate

Prosperous Bay Plain - before airport construction

Prosperous Bay Plain during construction

St Helena Airport DVOR under construction at Bradleys

St Helena Airport Dry Gut infilling: 7.6 million cubic metres of rock dumped and compacted to maximum height of 120m

environmental mitigation measures outlined in the ES. SHG has the Deputy Airport Project Director (Environment and Operations) in the Access Office responsible for facilitating the delivery of the Airport Project, with particular focus on the environmental aspects of the project, and myself from the Environmental Management Division in a supporting role. The Access Office also currently has a team of 9 that work in partnership with Basil Read to deliver the Landscape and Ecological Mitigation Plan (LEMP). We also have off-island technical support at DFID from Dick Beales. With dedicated environmental posts in each of the four key organisations directly involved in the airport project, we have been able to work together effectively to ensure environmental requirements have been met. We meet formally on a weekly basis to discuss current and up-coming issues. It has also been advantageous that the key environmental staff members from each organisation have been with the project since the start of works on site.

The lesson learnt here was that, once an EIA is done and an EMP produced, a dedicated environmental team has to be employed for the duration of the project to ensure implementation.

Catalyst for wider environmental management

The airport project also became a driver for establishing positive environmental management practices and procedures, including the formal adoption of the EIA process. Following the airport EIA, EIA legislation was drafted for inclusion in our local planning legislation. This was adopted in 2008, and it is now a legal requirement to consider whether or not an EIA is required for each development application. The EIA process is guided by the EIA regulation, 2013.

The processes put in place for the implementation of the EMP were all new to the Island, and we have learnt much from these that we can apply to all developments. Whilst we are not likely to see another project on Island of the scale of the airport project, the general approach to implementing an EIA and EMP can be applied to other developments: the need, for example, for CEMPs, site-walkovers, watching briefs and

St Helena Airport: view to Great Stone Top, August 2012

St Helena Airport: view to Great Stone Top, February 2015

St Helena Airport buildings, runway and Dry Gut area

St Helena Airport buildings, runway and Dry Gut area

stakeholder and public engagement. In many ways, the airport project has "set the bar" for what is required in terms of environmental assessment and management of development projects on the Island.

Ecological Issues

Finding a suitable site for the airport was a challenge, particularly as there is very little flat land on the Island. Prosperous Bay Plain, the site eventually chosen, had been one of the main contenders from the beginning. From an environmental point of view, it was not one we would have wished to develop under normal circumstances. It is the only desert-like habitat on the island and has immense ecological value, being home to a suite of invertebrates found nowhere else on the Island and nowhere else in the world. It is also a significant habitat for St Helena's only endemic bird, the wirebird.

Whilst there was early recognition that there was a significant endemic invertebrate fauna on Prosperous Bay Plain, there was very little detail on what species were present and where they were found. In 2003-4, the SHG commissioned Dr Philip and Dr Myrtle Ashmole to undertake studies on the invertebrate fauna on Prosperous Bay Plain, a project that was funded by the Environment Fund for Overseas Territories (EFOT). The project provided a baseline study of invertebrates present with locations. The Ashmoles provided also recommendations for actions to minimise adverse impacts and mitigate for loss of sensitive habitats. Their work highlighted the particular importance of the Central Basin as a unique habitat, with a number of species found only here. As this was discovered early on in the EIA process, this information was relayed to the designers as an area to be avoided. This was largely met, with the reference designs showing that approximately 20% of the Central Basin would be affected; however, during the detailed designs, this was reduced to approximately 11%. This is evidence that, if ecological studies are done early on and findings are fed into the design process, sensitive areas can be avoided.

The airport construction footprint included a

Rehabilitation Plot for asteiid fly (from construction footprint)

Mole Spider

St Helena Airport buildings

number of wirebird territories; as part of the EIA process, advance mitigation works included restoration of three compensatory wirebird habitat areas outside of the airport construction footprint. Whilst a large area of wirebird habitat was destroyed and/or modified during construction works, far from being frightened away by the activity, the wirebirds seemed hardly bothered at all and maintained a constant presence throughout. This did, however, cause problems for the contractors as it is an offence to disturb nesting wirebirds, and there were a few incidences of wirebirds nesting in active construction areas; works there had to cease until the eggs hatched and the chicks fledged. A valuable lesson learnt here was to work around the wirebird nesting season, monitor wirebird activity and employ active site-management including the use of tactics to try to prevent nesting in areas where construction was or was due to take place.

As the design of the project evolved, it became necessary to commission further baseline ecological studies of areas that had not been included in the original EIA. We learnt here that

Wirebirds: (top) on nest; (middle) young chick; (bottom) adult in distraction display, trying to draw potential predators (including human) away from chicks.

Lichen Dimelaena triseptata *removed from construction footprint to safe stockpile location (above) and translocation work (right)*

Relocation of babies toes from construction footprint into newly created habitat

Rehabilitation - planting

further work should have been done on the ES prior to finalisation of the DBO contract, due to the number of significant changes to the reference design and the amount of time that had elapsed since the original surveys had been done.

The additional surveys provided additional valuable data on species and habitats. In some cases, this information was used to inform planning applications. In cases where losses were inevitable, appropriate mitigation had to be designed. As this involved unique species, there were few if any references to use and most of the methods were new and untested. But we have had successes; as an example, the open channel was adapted to reduce the impacts on rare lichens and invertebrate species including the successful translocation of lichens.

Stakeholder engagement, communication and working together

Communicating and engaging with stakeholders has been very important throughout the project. The project area (including wharf, airport road, bulk fuel farm, the runway and airport buildings) spreads across the island from north-west to north-east, passing through a number of small settlements and sensitive habitats. Residents have been impacted by general construction impacts such as noise, dust, vibration and disruptions to access to their properties.

The airport project has in place a number of processes to ensure that the different groups of stakeholders are fully aware of the issues that affect them. The public can raise issues of concern and input into decision making as and when appropriate. A number of methods are used including: regular airport updates published in the local newspapers and online; radio talks as and when appropriate; Stakeholder Engagement Forums which are open to the general public and held in various locations around the Island; and door-to-doors and letter drops. The contractor employs a Community Liaison Officer (CLO) as the focal point of contact for the public and has a dedicated complaints line manned by their staff. The CLO offers frequent guided tours of the airport site for tourists, local Saints and school children.

St Helena Airport rehabilitation planting

St Helena Airport: aerial views, May 2015

Putting the environment into context

For an environmentalist (or conservationist) one of the most frustrating aspects of the airport project was the need to compromise. Despite the airport being constructed in an ecologically significant area, it was not always possible to put the environment first – we could not save it all or we would not be able to have an airport. In all decision-making, the environmental issues needed to be carefully weighed up against the technical issues, economic and financial issues (including the repercussions of delays to the project) and social issues.

Conclusion

In conclusion, there were many valuable environmental lessons learnt from the St Helena Airport Project:

- Ensure the EIA process is embedded in legislation and/or forms part of a contractual agreement with developers.
- Then ensure that there are adequate resources (particularly human) to implement and monitor compliance.
- Always try to plan to maximise the benefits and minimise the negative impacts identified in the EIA process.
- Develop an ecological baseline early on, and ensure key species are protected by legislation.
- Ensure that the EIA and EMP provide a robust, scientific framework for implementing the required environmental management measures.
- And, most importantly, learn to work together – environmentalists, developers, stakeholders and the local community, so that the most sustainable decisions can be taken.

Thank you.

A Model for Rapid Assessment and Mapping of Ecological Criteria for Informed Land Use in Small Island Developing States: East Caicos, Turks and Caicos Islands, as a Case Study

Kathleen McNary Wood (Turks & Caicos Islands)

Wood, K.M. 2015. A model for rapid assessment and mapping of ecological criteria for informed land use in small island developing states: East Caicos, Turks and Caicos Islands, as a Case Study. pp 310-319 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

Small-island developing states (SIDS) contain some of the most biodiverse ecosystems on earth, yet these countries suffer from pandemic sustainable policy failure, leading to significant losses in ecological assets and ecosystem services. This phenomenon is of critical importance in UK Overseas Territories (UKOTs), which are said to contain as much as 94 percent of the unique or endemic British species. Many of the above sustainability issues in SIDS arise from poor development practices, due to a lack of economic and human resources to inform sustainable land use planning. This is the case in the Turks and Caicos Islands (TCI), where tourism development pressures have resulted in large-scale, unplanned development, with significant consequent ecological losses. A recent Green Economy project in TCI identified the country's lack of a national physical development plan as a major impediment to sustainable development. In response to this need, a model has been developed that addresses the sustainability problems experienced by SIDS by implementing a case study on the island of East Caicos, an uninhabited island in (TCI) that is currently slated for the development of a transhipping and cruise-ship terminal. East Caicos is characterised by the presence of endemic and endangered species populations and critical habitats, such as mangrove forests, seagrass beds and coral reefs, yet no comprehensive environmental evaluation has ever been conducted and no sustainable land-use plan exists for the island. To address these limitations, a multi-criteria evaluation model, that combines remote sensing, rapid ecological assessment and GIS mapping and data analysis, has been developed. Procedures for rapid assessment, classification and determination of evaluation criteria are based on Nature Conservancy and European Union methods and are standardised for ease of implementation and suitability for SIDS. Presence/absence of evaluation criteria, recorded during field studies, provide objective data for a GIS dataset and map of ecological characteristics. Resultant graphic imagery of ecological "hot spots" will be readily understandable to disparate interest groups and decision-makers.

The developed evaluation model can be applied to any land-area and is designed to employ readily available open-access software and imagery, thus being particularly relevant to the needs and resource limitations of SIDS. A final analysis will examine results to make recommendations for sustainable land-use planning and development policy, to identify priority areas for conservation and to delineate areas for further analysis.

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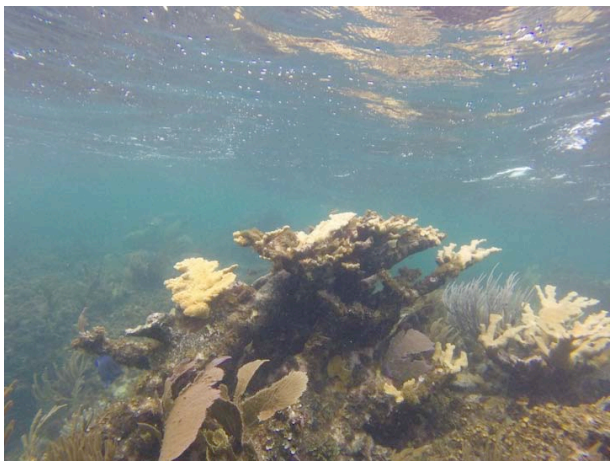


Critically Endangered elkhorn coral

"There are some things that sometimes we may have to sacrifice. It [East Caicos] is an area we can use to boost our economy, to boost our development" - Premier of the Turks and Caicos Islands, Dr Honorable Rufus Ewing, as quoted in the BBC Radio 4 Series *Costing the Earth* (Cross 2014).

Introduction

In a 1971 assessment, visiting scientists to the Turks and Caicos Islands (TCI) described the natural environment *"...as close to the natural state as is likely to be the case for any similar islands within the American tropics due to relatively light utilization by man"* (Ray & Sprunt 1971, p. 6). Ray and Sprunt also forewarned:

"Their [the islands'] value lies in their still retained beauty and relative remoteness. Their ecology and small size makes mandatory that development not violate ecological integrity or natural beauty. Their remoteness makes mandatory that they not imitate or compete with the massive developmental schemes in the more accessible Western Hemisphere tropics. In short, these islands are a special case. They deserve to be treated in a very special way" (Ray & Sprunt 1971, p. 20).

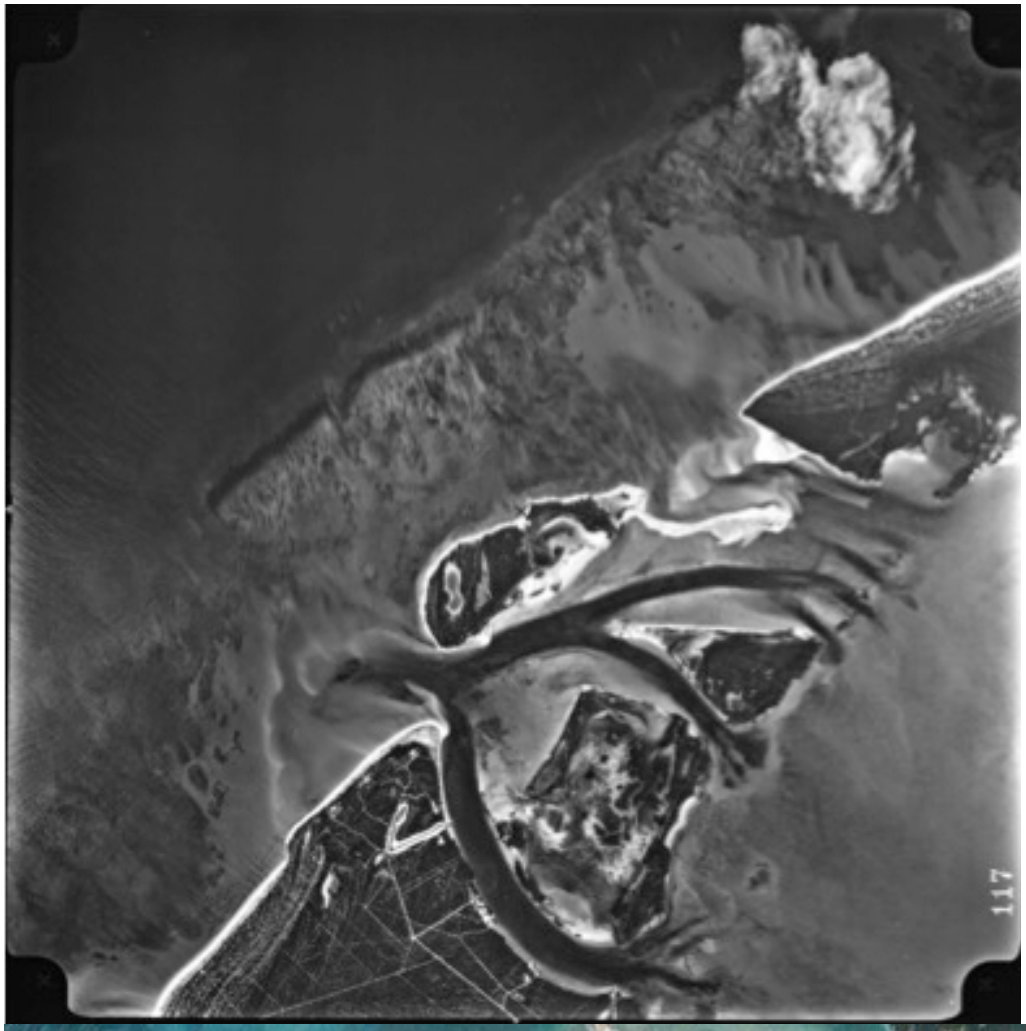
Unfortunately, development in TCI has not taken place in a special way. Development interests began flocking in large numbers to TCI shortly after Ray and Sprunt's assessment. Pristine dwarf forests and coastal habitats have been clear-cut for hotel development and infrastructure, and living and diverse coral reefs, mangrove estuaries and seagrass meadows have been dredged to create marinas, a cruise-ship terminal and other developments (Goreau *et al.* 2007; Johnson 2002). Uncontrolled development, coupled with a rapid increase in population, drives squatting and urban

Least tern chicks hide from predators (or humans)

sprawl into undeveloped lands. No sustainable development plan for the country currently exists; therefore, development has largely been driven by investment interests, rather than by informed planning (see next page for one example).

TCI is not alone in its struggle for sustainable development. Small-island developing states (SIDS) in general struggle to foster economic development, while simultaneously sustainably managing ecological assets. Commonalities include vulnerability to natural disasters, small economic and natural resource bases, limited land areas and scarce access to resources and expertise to inform sustainable development decisions (Albuquerque, McElroy & McElroy 1992; Anonymous 1994; Beukering, Brander, Tomkins & McKenzie 2007; Kaffashi & Yavari 2011). SIDS are also typically areas of high biodiversity. For example, a recent Royal Society for the Protection of Birds (RSPB) study revealed that the United Kingdom's Overseas Territories (UKOTs), contain an estimated 94 percent of the unique or endemic British species (Churchyard *et al.* 2014).

The combination of high conservation values and limited resources for effective sustainable development planning is a recipe for environmental disaster. In 1994, the Convention on Sustainable Development in Small Island Developing States recognized the needs of SIDS for sustainable planning initiatives, with a focus on the development of human resources and sustainable land-use management (Anonymous1994); however, in the past 20 years, little progress has been made in this regard. In 2006, an analysis of tourism development in the Caribbean concluded that the region suffers from pandemic "sustainable tourism policy failure" (Mycoo 2006, p. 506). In particular, the study cited failures of public planning policy and, where appropriate policy exists, inadequate implementation. A 2003 study reviewed the impact of tourism development on 51 islands and found that the vast majority of tourism



Aerial views of Leeward Channel area 1969 (left) and 2015 (below): The basically natural flow patterns and vegetation (albeit with subdivision marks) have been replaced by a deepened channel dredged through coral, a mega-yacht marina filling most of the channel, and intensively built-up land on the Providenciales (south-west) bank.

development was unplanned and intrusive, and had resulted in deforestation, erosion, pollution and reef damage. In 2003, at least 30 percent of Caribbean coral reefs were at high risk from impacts due to cruise ship development and pollutants (McElroy 2003).

Ideally, land-use management should be based on a model of sustainable use and conservation of important ecological and cultural assets. Traditionally, however, data to identify and quantify the above variables have been costly to accumulate and when they exists, difficult to access and use by decision-makers.

Global information system (GIS) technology has also revolutionized environmental survey and evaluation processes (Almeida *et al*. 2014; Joerin, Thériault & Musy 2001). However, historically, the use of GIS modeling in environmental applications has been restricted. The level of expertise required for use, software, equipment and imagery are cost-prohibitive. Furthermore, recent projects are often targeted towards valuation of environmental services only and may not take into account intrinsic criteria, such as aesthetic and cultural values, endangered species populations, endemic species, critical habitats or other conservation values.

The Model for Rapid Assessment and Mapping of Ecological Criteria for Informed Land Use in Small Island Developing States seeks to address these limitations. The model incorporates desktop studies and a standardised method for rapid field assessment of terrestrial, wetland and marine habitats, adapted from Nature Conservancy and NOAA methods. Data from desktop and field studies are then used to develop a GIS digital database that records, maps and highlights ecological assets in relation to the subject landscape. Open-access GIS software (QGIS) and imagery (Google Earth and Landsat) enhance accessibility by resource-limited users. The end-product is a GIS dataset that can be incorporated into national databases. Such a dataset has myriad applications and can be used to:

- Identify priority areas of high ecological value for conservation purposes,
- Inform national sustainable development plans,
- Identify critical areas and populations that merit further scientific research, and
- Inform other conservation and development priorities.

In order to test the model, a case study that focuses on the island of East Caicos in TCI is currently being undertaken. East Caicos is an uninhabited island of approximately 47 square kilometres. As such, it is the largest uninhabited island in the Caribbean. This application of the model demonstrates its practicality and ease of implementation in scenarios where resources are limited and physical planning lacks informed environmental input.

Research Methods

In addition to prohibitive cost considerations, evaluation of ecosystem values is often fraught with subjectivity (Smith & Theberge 1987). In order to be accepted by broad interest groups, a credible model must incorporate methods that will be viewed across different interests as objective. A simple, empirical method involves presence/absence measurement. Presence/absence criteria are, by their nature, objective. Either a variable exists or it does not. Presence/absence is also easy to determine in the field. By incorporating rapid assessment for the presence/absence of pre-determined ecological criteria, a simple and objective map of ecological significance can be developed using GIS mapping technology.

The method incorporates the following procedures:

1. A desktop review of all existing literature for a site, combined with collection of data available from online databases, such as GBIF, IUCN, CITES, etc.;
2. Preliminary remote assessment of the survey site using open-access satellite imagery to determine locations for stratified samples, based on discernable characteristics of the study area;
3. Rapid field assessment, incorporating predetermined terrestrial, wetland and marine transects (where applicable) to record species compositions, substrate, hydrological and other site characteristics and presence/absence of ecological criteria; and
4. Mapping of all habitats and recorded ecological assets with QGIS or other open-access GIS software to create a map of ecological “hot spots”.

The Criteria

In order to ensure scientific validity and broad acceptance, the set of ecological criteria is based

on a composite of recognised standards throughout environmental fields (Boyd & Banzhaf,2007; Fisher & Kerry Turner 2008; Koschke, Fürst, Frank & Makeschin 2012; Moberg & Folke 1999; Root, Akçakaya & Ginzburg 2003). Evaluation criteria are divided into three main categories, including species, habitats and ecosystem services.

On a species level, criteria include endemism, extinction risk, rarity and other conservation considerations, such as biome-restriction and/or other ecological variables that may become evident during field studies.

Habitat criteria include rarity, biodiversity, critical habitats for migration, spawning and nesting, juvenile areas and other variables that may become apparent during field studies. Parameters for selection for biodiversity criteria are based on relative values derived from quantitative plot samples.

Criteria for ecosystem services are based on the European Environment Agency's Common International Classification of Ecosystem Services (CICES), which includes a total of six "sections" of ecosystem services (Agency 2013). Most criteria are also sub-divided. The comprehensive evaluation criteria are outlined in Table 1 below.

The Case of East Caicos and Conclusions

In the case study of East Caicos, an inventory of known ecologically important assets was first developed. An additional list of possible ecological assets was developed also, and based on data from other areas in TCI for use in the field. Based on these collated data, a base map with basic GIS layers from existing topographical and geological surveys, habitat maps and previous studies was

Table 1. Categories for Multi-criteria Evaluation (East Caicos Case Study)

Category	Category Description	Sub-category	Sub-category Description
I	Endemic Species	a	Local Endemics
		b	Archipelago Endemics
		c	Regional Endemics
II	Internationally Listed Species	a	IUCN Red List
		b	CITES
		c	SPAW Protocol
		d	Other Conservation Status (e.g. USFWS)
III	Rare Species		
IV	Other Species Conservation Considerations	a	Biome-restricted species
		b	Migratory Species
		c	Range-restricted Species
		d	Other Species of Interest
V	Critical habitats	a	Migratory Pathway or Stopover
		b	Spawning Habitat
		c	Juvenile Habitat
		d	Nesting Habitat
		e	Other Critical Habitats
VI	Rare Habitats		
VII	Biodiversity	a	Biodiversity on a species level
		b	Biodiversity on a community level
		c	Biodiversity on a genetic level
VIII	Provisioning	a	Nutrition
		b	Materials
		c	Energy
IX	Regulation and Maintenance	a	Waste
		b	Flow
		c	Physical environment
		d	Biotic environment
X	Cultural	a	Symbolic
		b	Experiential and intellectual
XI	Other Variables of Interest		

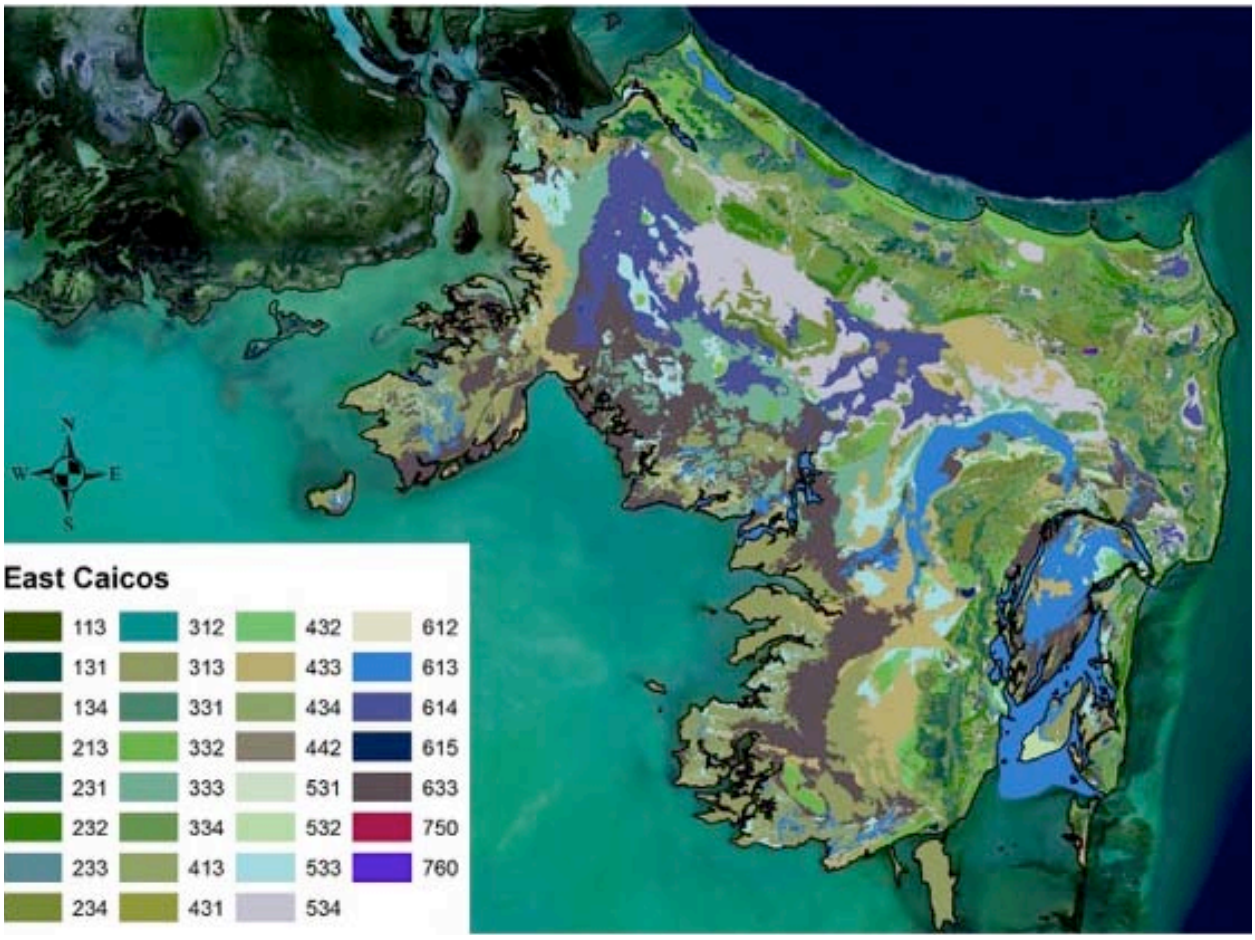
Turks and Caicos endemic orchid Encyclia caicensis

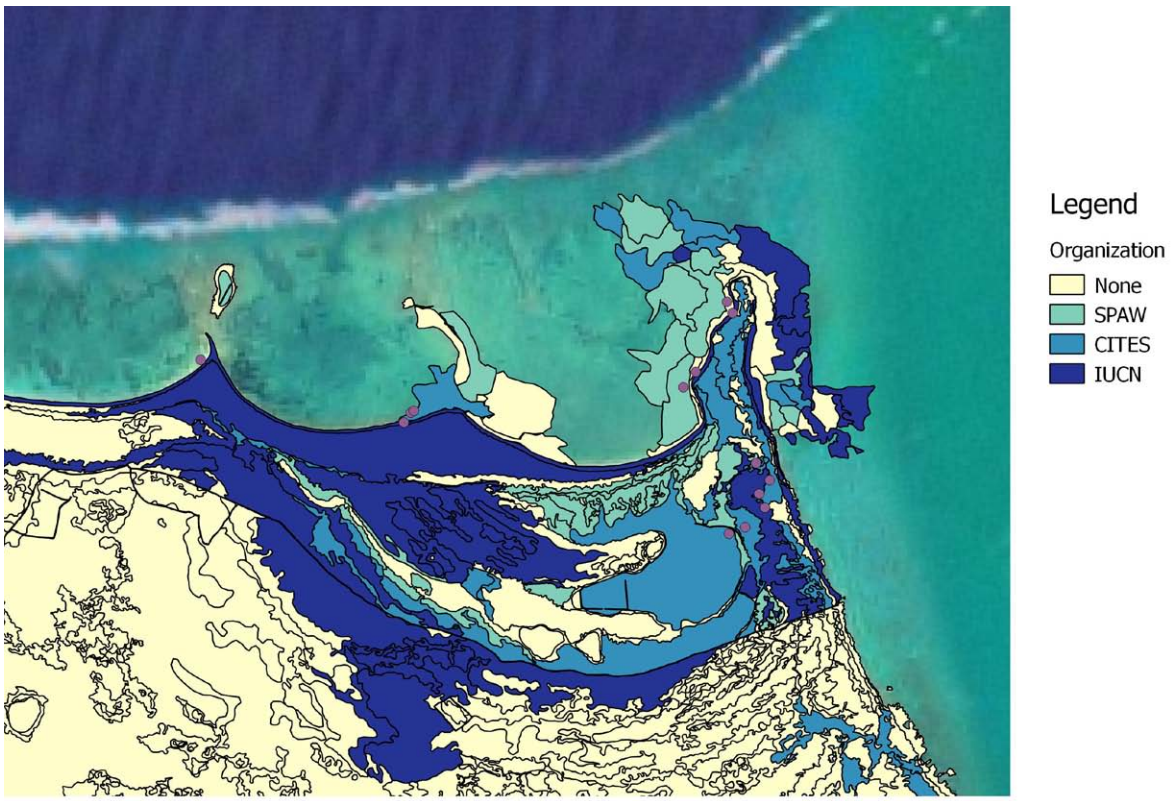
developed and used to inform sampling locations. The GIS map is currently being refined by ground-truthing.

Preliminary results indicate significant conservation values on East Caicos. These data, in addition to an introduction to the method, were presented at a workshop to stakeholders on 29 May 2015. Workshop participants from the TCI Department of Environment and Maritime Affairs (DEMA), National Trust and local watersports business operators were able to use the method in practice exercises, in addition to interpreting outputs from the study. The application of the method and training of individuals from disparate academic disciplines demonstrates the practical application of the method and confirms its ease of use and accessibility. A training session on using QGIS to map ecological criteria is slated for the end of August; however, the ease of application has already been demonstrated, as this author has limited GIS software expertise and been able to use QGIS effectively for mapping the collated data collected to date.

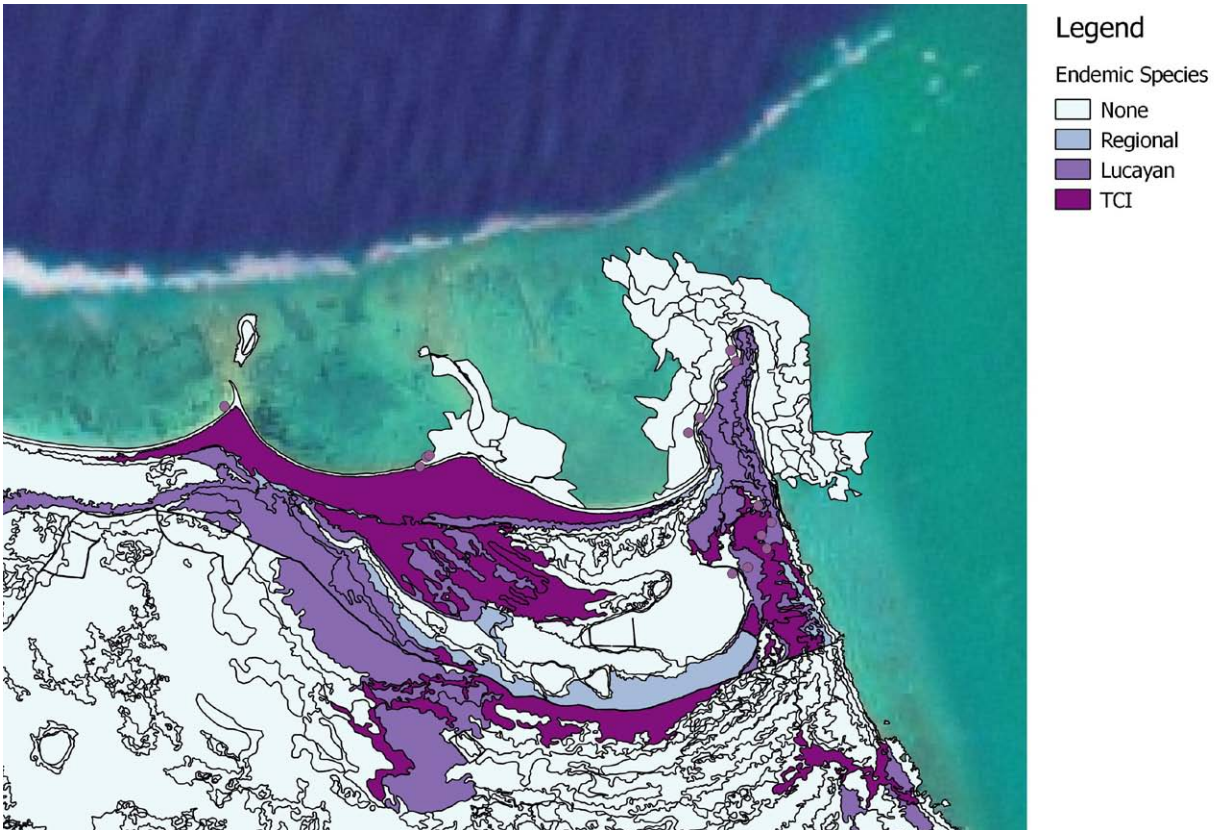
One challenge to the method has been the characterisation of biodiversity, as biodiversity is a calculated metric that does not lend itself to presence/absence measurement. Currently, biodiversity is being calculated using the Shannon Weaver Index, with resultant figures being mapped on a gradient; however, alternative approaches are being sought. A finalized version of the method will be developed upon completion of the case study, incorporating lessons learned.

Project completion is slated for March 2016. The final map will be analysed for appropriate land use management strategies, based on identified evaluation criteria. Areas for further research will be identified, and recommendations for conservation approaches will be made. The results will be presented also to TCI policy makers as a written report and through a seminar to present



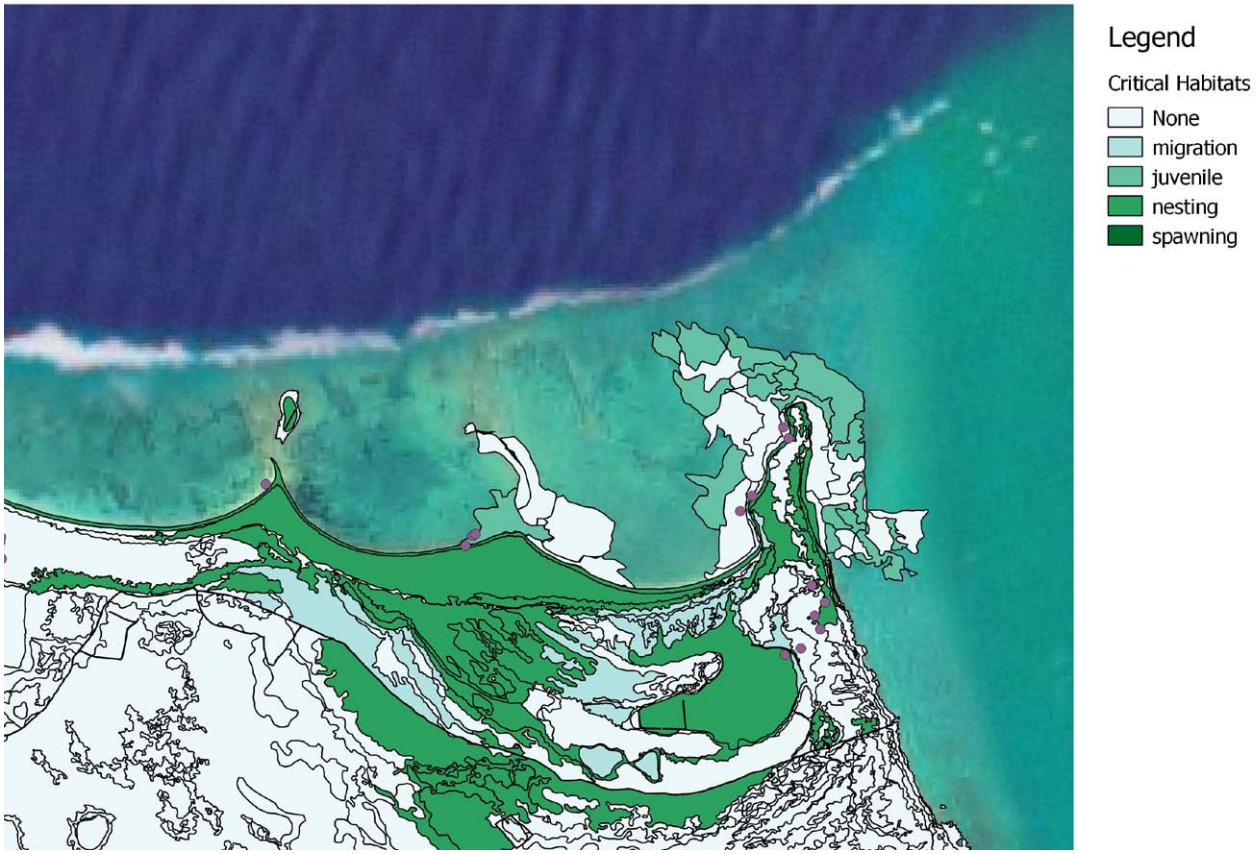


Internationally Listed Species



Endemic Species

results and provide a forum for discussion and feedback. In addition, the report and method will be disseminated widely to local, regional and international authorities and other interested parties. It is hoped that this method will prove to be a valuable tool to local governments and NGOs wishing to facilitate the sustainable development process in SIDS.



Critical Habitats

Total Ecosystem Services

Acknowledgements

The East Caicos case study and implementation of the Model for Rapid Assessment and Mapping of Ecological Criteria for Informed Land Use in Small-Island Developing States has been a collaborative effort that would not have been possible without the unselfish support of various

individuals and institutions that have assisted throughout the project process.

The method has been developed in association with the Harvard University Extension School's Graduate Sustainability and Environmental Management Program. Dr Mark Leighton advised extensively during the development of the preliminary model, and Rafe Boulton has offered technical support and practical wisdom throughout the entire project.

Although the method is designed to be cost-effective, the logistics of undertaking field work on a remote and difficult-to-access island can be costly. To alleviate this impediment, the RSPB has generously sponsored all logistical support for the project. Furthermore, RSPB's interest in conserving the ecological assets of East Caicos was instrumental in choosing this location for the case study. Its personnel have also tirelessly provided moral and technical support throughout the entire process.

The government of TCI has also offered invaluable support to the project. The Department of Environment and Maritime Affairs (DEMA) has provided research permits and regular technical feedback on the project, in addition to providing existing baseline data, Dr Eric Salamanca has been stalwart in his support of the project, and B. Naqqi Manco has provided existing data from his previous field studies on the island. The entire DEMA staff, in addition to the staff of the Turks and Caicos National Trust, has also provided the vital service of serving as test subjects for the method. The Governor of TCI, Peter Beckingham, visited the island for a first-hand view of the island's ecological assets. He has supported the research and has taken an active role in promoting the island's conservation values.

Accessing and navigating the treacherous waters surrounding East Caicos is a logistical nightmare, but this impediment was eliminated due to the incomparable expertise of boat captains Timothy Hamilton and Dolphus Arthur. These local men of the sea have been navigating the waters off East Caicos for decades and were able gracefully to avoid the coral heads, reefs and shoals that would otherwise impede access to the island. Their intimate knowledge regarding local use of the island and its surrounding waters was also invaluable to the project.

Big Blue Unlimited, guided by co-owner Mark Parrish, has supported the project since its inception. Mark, who has probably visited East Caicos more than any other living person, has provided important insight and logistical assistance, in addition to pointing me in the right direction for several possible ecological hotspots.

A special thank-you is offered to Dr Mike Pienkowski of the UK Overseas Territory Conservation Forum (UKOTCF), who took time from his busy schedule to offer insight and proof-reading of preliminary drafts of this presentation and who has been steadfast in his support for the project. The value of the UKOTCF's on-going and continuous support of TCI's conservation efforts cannot be overstated.

The project would not have been technically possible without the generous support of JNCC, who sponsored a QGIS mapping workshop in TCI, providing me with the technical foundation to be able to map the ecosystem services being measured. Dr Katie Medcalf of Environment Systems was perpetually available to answer questions about QGIS applications. Barbara Brunnick of Taras Oceanographic Foundation provided beautifully crafted existing shape files from a previous JNCC-sponsored TCI habitat mapping project, which saved endless hours of creating polygons.

Finally, tireless field assistants Laura Brander, John Brander and Simon Wood have endured heat, exposure, mosquitoes, thorn-bushes and other torments for the sake of the project, providing field support and ensuring safety while undertaking the necessary field studies for the project. For them, for the others listed above, and for those I have failed to mention due to unintentional oversight, I am truly grateful.

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Managing Marine Protected Areas in the Isle of Man in partnership with fishermen

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Gell, F., Duncan, P., McHarg, K., Bloor, I., Dignan, S., Kennington, K., Charter, E. & Read, A. 2015. Managing Marine Protected Areas in the Isle of Man in partnership with fishermen. pp 320-325 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

This presentation provides case studies of two different fisheries co-management approaches for Marine Protected Areas which have proved effective for marine conservation and sustainable fisheries in a small island context.

Ramsey Marine Nature Reserve (RMNR) was developed in a partnership between the Isle of Man Government and the Manx Fish Producers' Organisation. After an initial area and concept were agreed between the two parties, comprehensive stakeholder consultation led to the development of management zones and regulations. The zones within RMNR provide a full range of protection, from no-take through to managed use, appropriate to the features being protected. Conservation features protected include horse mussel reefs, seagrass beds and maerl (rhodolith) beds. One of the zones is a Fisheries Management Zone which is managed by the Manx Fish Producers' Organisation (MFPO). The fishermen opted to keep the zone closed to all mobile gear fishing for 4 years. In 2013 and 2014, limited fishing was permitted by MFPO members. Strict quotas were set by the fishermen based on scientific surveys carried out by the IOM Government and fishing industry surveys carried out by the fishermen. Fishing activities were timed to coincide with premium prices for scallops on the Christmas market, and fishermen co-operated to pool their individual quotas, reducing fuel costs and maximising profits. Fishermen have limited their fishing to a small proportion of the total area available to them, effectively extending the conservation zones of the RMNR. RMNR took 3 years to establish, from the start of the project to designation of the Isle of Man's first Marine Nature Reserve to statutory designation. RMNR demonstrates the benefit of investing time and resources to work in close partnership with the fishing industry and other stakeholders for conservation and fisheries sustainability outcomes.

Baie ny Carrickey Closed Area (BNCCA) grew out of a gear conflict situation and public concerns about the marine environment. The location of the closed area was decided by a community committee of stakeholders representing fisheries, recreational and environmental interests. As a result of the consensus reached by the community committee, the Isle of Man Government was able to implement rapidly the BNCCA as a trial designation with relatively little further consultation. The designation began as an area closed to trawling and dredging. The next stage was led by a group of fishermen who formed an association to manage pot-fishing within the

area. Working with the Isle of Man Government and Bangor University scientists, the pot-fishermen now carry out regular monitoring and fisheries surveys within the Bay, and have implemented stricter management controls such as increased Minimum Landing Sizes for lobster and reductions in fishing effort. New initiatives include the development of a protected zone for seagrass, a habitat survey and other proactive measures initiated by the fishermen's management association. BNCCA is an example of a community-led initiative that resulted in the rapid designation of a Marine Protected Area with fisheries and conservation benefits.

The presentation compares these two approaches and looks at how local participation and good science are both essential for well-informed management decisions to promote sustainable fisheries. The presentation looks also at the influence our status as a small island jurisdiction had on both processes.

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Introduction

The Isle of Man is a self-governing Crown Dependency of the UK in the Irish Sea with a population of over 84,000. Whilst fisheries now make a relatively small contribution to the Manx economy, historically herring and white fish fisheries were very important, and the social and cultural value of the fishing industry remains very high. Invertebrates now dominate Manx landings, primarily the king scallop *Pecten maximum*, queen scallop *Aequipecten opercularis*, European lobster *Homarus gammarus*, brown crab *Cancer pagurus*, whelk *Buccinum undatum* and langoustine *Nephrops nephrops*. A more detailed overview of the Manx fishing industry can be found in Hanley *et al.* (2013).

The Isle of Man has been using Closed Areas for fisheries management since 1989, when the Port Erin Closed Area was first established as an area closed to scallop dredging for scientific experiments. Initially, the fishing industry did not support this closed area but, after around 15 years of closure and its evolution into a fisheries management zone, fishermen began to see tangible benefits of the area to adjacent scallop fisheries. The benefits were documented through scientific surveys (*e.g.* Beukers-Stewart *et al.* 2005). Since then, a network of Marine Protected Areas for fisheries management have been established (see Figure 1).

In 2008 the Manx Fish Producers' Organisation approached the Fisheries Directorate of the Isle of Man Government to discuss the establishment of new Fisheries Closed Areas to support the fishing industry. These discussions resulted in the establishment of the Douglas Bay Closed Area in 2008. This was followed by the establishment of two Fisheries Restricted Areas at Fleshwick and Niarbyl in 2009.

The Process for Selecting a Marine Nature Reserve for Conservation

A more detailed account of this process can be found in *Gell et al.* (2013). In 2008, the Manx Marine Nature Reserve Project started. It was a three-year project aiming to collect information and engage the community in the identification of the best place for the Isle of Man's first Marine Nature Reserve. The one previous attempt to designate a Marine Nature Reserve in Manx waters, in 1992, had ended in acrimonious failure, attributed to a lack of capacity to carry out proper community engagement and consultation. Learning from this experience and from insights into approaches used successfully around the world, the new project placed great emphasis on a high level of community engagement. The project was launched with a presentation to fishermen, to ensure they were aware of the intentions and process before the details became more widely known. Assistance was sought from a team of independent facilitators to hold an initial meeting

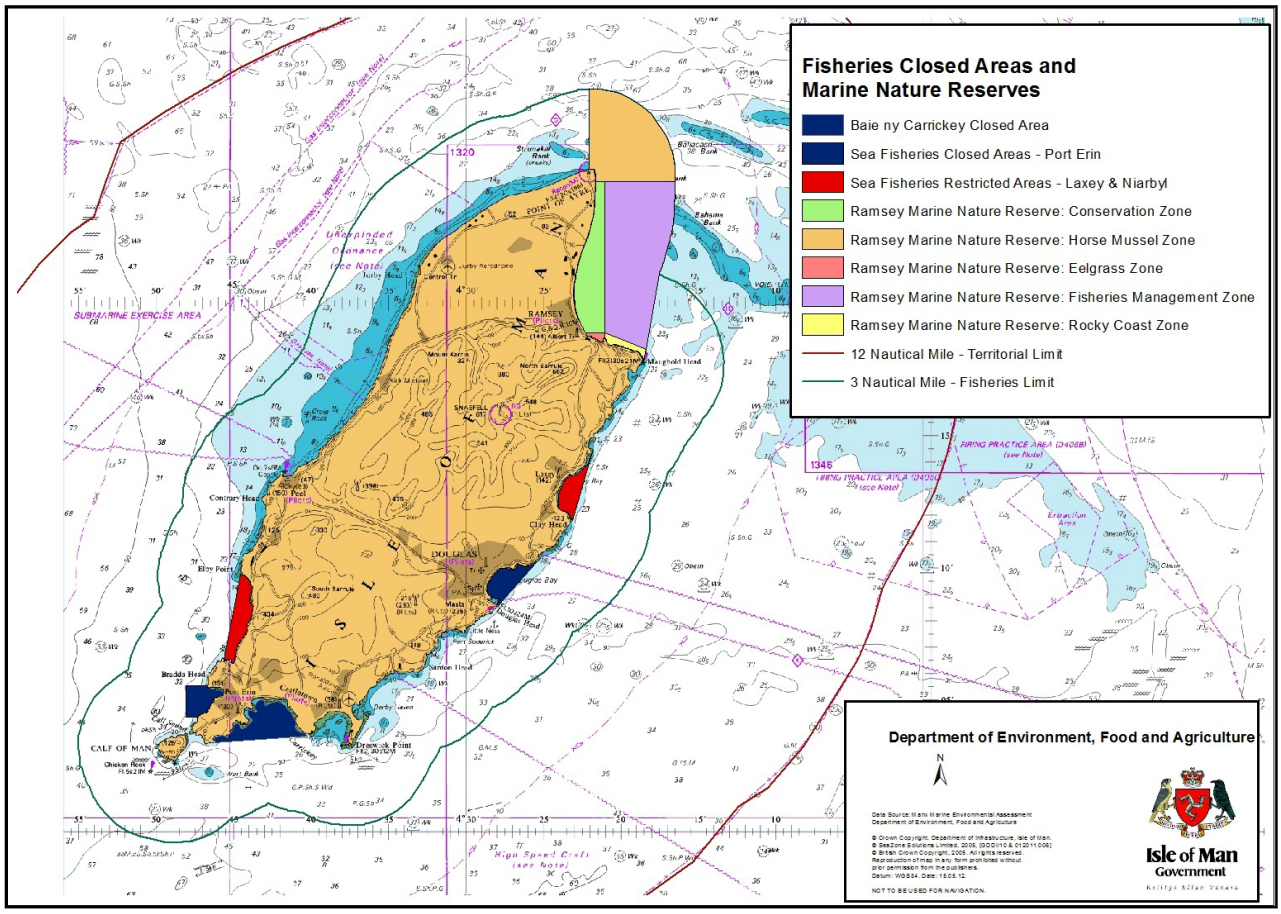

Figure 1. Marine Protected Areas in Isle of Man waters, showing Fisheries Closed Areas and Ramsey Marine Nature Reserve. Map: Isle of Man Government

and train a team of facilitators. Community meetings were held at towns and villages across the Island to make people aware of the project and to get their input. In addition to this, a range of opportunities were made available for people to learn about Marine Protected Areas and fisheries management, including community evening classes, fisheries science workshops for fishermen, visiting speakers from MPA projects elsewhere in the British Isles and internationally, and other initiatives. Figure 2 shows a stakeholder meeting and Figure 3 shows one of the outputs of a small community meeting, using sticky notes and written responses to complement verbal contributions.

Fishermen were generally unwilling to engage via the general community meetings and required separate meetings and negotiations with representatives and individuals. There was some support for the concept from the fishing industry, but the overriding concern was about the uncertainty of the outcome of the project and how

Figure 2, Manx Marine Nature Reserve Project stakeholder consultation meeting in Douglas, Isle of Man. Photo: Laura Hanley

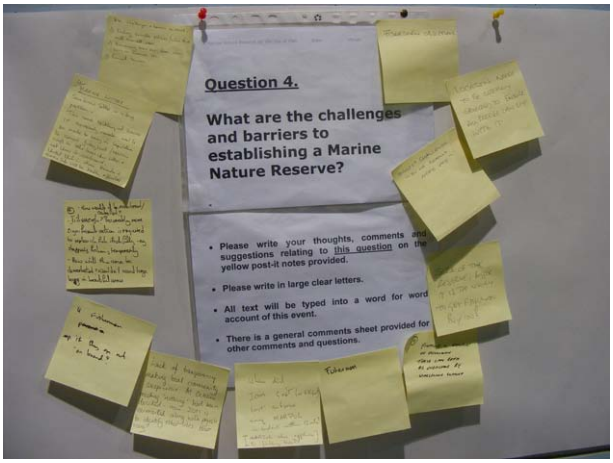

Figure 3. Responses to discussion questions at a village Manx Marine Nature Reserve consultation meeting, Isle of Man. Photo: Laura Hanley

it might impact on the fishing industry.

The first stage of the process was to identify candidate Marine Nature Reserves and collect information on their suitability from an ecological and socio-economic perspective. In 2008, Bangor University in conjunction with the Isle of Man Government carried out a survey of benthic habitats around the Isle of Man. Also, a wide range of other ecological and social research projects were carried out to gather more information about the Manx marine environment and how it is used.

In 2010, the information had been used to identify over 20 candidate Marine Nature Reserve Sites which met the OSPAR Convention guidance on the selection of Marine Protected Areas. These were a diverse range of sites, important for species including basking sharks and seals and for habitats ranging from horse mussel reefs to rocky reefs. At the same time, the Manx Fish Producers' Organisation came forward with a proposal for a site that they would support as a Marine Nature Reserve. It was the inner part of Ramsey Bay, an area previously important for scallop fishing which had been overexploited and since 2009 had been subject to an emergency closure order at the request of the fishing industry. Ramsey Bay (see Figures 4 & 5) was already on the list of candidate MNRs because of the presence of maerl (rhodolith) beds and seagrass meadows. In negotiations with the fishermen, the location of their proposed Marine Nature Reserve was extended to include a second adjacent site, the Ballacash Channel horse mussel reef. With this outline protected area agreed as closed to scallop fishing by the scallop fishermen, we were then able to take this proposal forward in consultation with the full range of stakeholders. Such was the support of the fishing industry that we (Department of Environment, Food and Agriculture) were able to issue a joint press release with the fishermen's organisation to launch the next stage of the project.

After a lot of discussion with fishermen, other users of the area and the wider community, a zoning plan was agreed for the area (see Figure 4). More information about the zoning of the MNR can be found in Gell *et al.* (2013).

Ramsey Marine Nature Reserve: The Fisheries Management Zone Approach

In negotiations with the fishermen, it was agreed that a zone outside the highly protected areas could be handed over to the fishermen's organisation for them to manage. This was initially thought of as a separate zone, outside the MNR, but soon evolved into a statutory zone of the MNR. The zone is

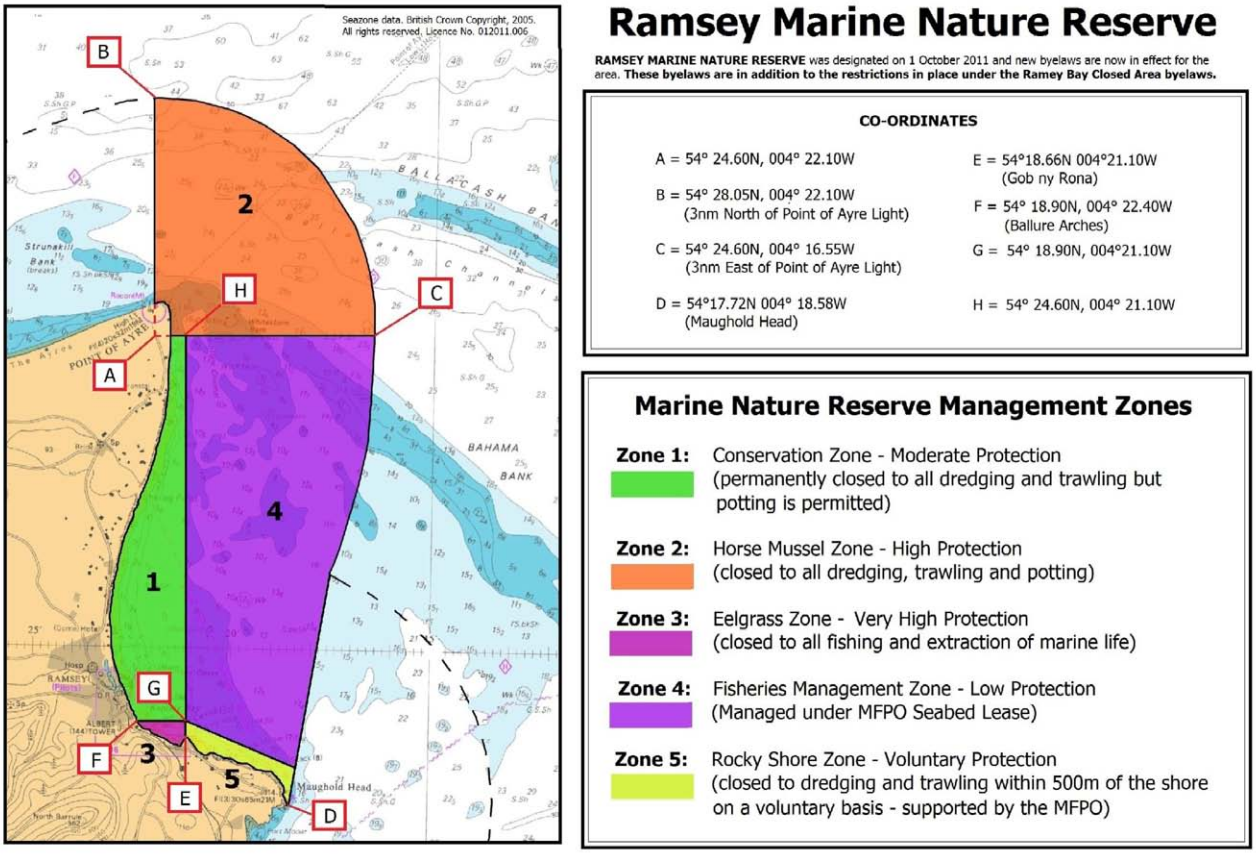

Figure 4. Zoning map for Ramsey Marine Nature Reserve. Map: Isle of Man Government

Figure 5. Ramsey Marine Nature Reserve from the top of North Barrule, Isle of Man. Photo: Fiona Gell

called the Fisheries Management Zone, and the Manx Fish Producers' Organisation have a licence agreement with the Isle of Man Government to allow them to manage it, with the condition that they "maintain the ecological integrity" of the area. After the area was designated in 2011, the fishermen chose not to fish with the FMZ for a further 2 years. In 2013, surveys were carried in the FMZ by government scientists and also by fishermen. Based on the results of these surveys, a total allowable catch was agreed for a small pre-Christmas scallop fishery. The fishermen carried out this fishery in a very efficient and co-operative way (Dignan *et al.* in prep) and the fishery impacted less than 5% of the area of the FMZ. A similar approach was taken in 2014, although this time more fishing vessels carried out the fishery, so it was less efficient and there was more impact on the seabed. However, overall the fishery within the FMZ has been very well managed and has provided a financial gain for the fishermen, whilst at the same time providing a safeguard to their wider scallop fishery as a source of larvae. As well as supporting sustainable fisheries management, the FMZ provides a buffer zone, protecting the sensitive habitats within the highly protected zones of the MNR. Including a fisheries zone within the MNR itself helped secure agreement for a significant conservation outcome, integrated fisheries management into the MNR and emphasised the fisheries management role of the wider area. It is an approach that has been used in various guises in other zoned MPAs but the level of management responsibility handed to the fishermen is thought to be quite unusual.

Overall, the Ramsey MNR case study demonstrates how investment in a long consultation and engagement phase and flexibility to change the approach to respond to development were key to establishing a successful Marine Protected Area.

The Baie ny Carrickey Approach

The Baie ny Carrickey Closed Area was established in 2012 using a completely different approach. Pot-fishermen, anglers and conservationists had all been concerned for many years about the impact of scallop dredging on the habitats of Baie ny Carrickey. A public meeting was called to discuss the problem, and the Minister of Environment asked a community committee

to be formed to come up with a solution. The committee had access to technical input from government officers if required but there were no government officers on the committee. The committee included representatives of scallop fishing, anglers, pot-fishermen, divers and other community members. In a matter of weeks the committee came back to the Government with a proposed closed area which had been agreed by the scallop fishermen. Statutory protection of the area was put in place within months of the public meeting, protecting pot-fishing and the marine environment and providing another source of scallop larvae for the fishery.

Building on this success, the pot-fishermen who had campaigned for protection developed a management association and negotiated exclusive access to the pot-fishing within the closed area for on a trial basis. The management association is supported by the Fisheries Directorate but takes responsibility for management of the lobster resource within the bay. After a slow start, the organisation is now taking proactive measures to study and protect lobsters within the bay. The fishermen have increased the Minimum Landing Size for lobsters within the area, introduced a maximum landing size and introduced effort restrictions through limits on the total number of pots fished within the area. The fishermen in the area engaged also in a wide range of research activities, including trailing onboard cameras to assist in studying catches, video surveys of the seabed from their vessels, baited underwater cameras and deployment of prawn pots to study juvenile lobsters.

This approach demonstrated how effective a bottom-up approach to local marine management can be. The success of the project depended on the dedication and commitment of the fishermen and other stakeholders involved and, as with many of these projects, relied on a small number of individuals persevering and overcoming difficulties.

Conclusions

These case studies present two very different approaches to stakeholder engagement for marine conservation and fisheries co-management. In a small island context, it seems important to be able to adapt approaches to suit individual circumstances and also to be able to be flexible and able to respond to new developments. In larger jurisdictions it is often more difficult to deviate from an agreed process, and this can mean that opportunities for agreement and success are lost.

General lessons learned include:

- Working closely with fishermen to establish Marine Protected Areas can lead to beneficial conservation and fisheries outcomes;
- Giving fishermen responsibility and co-management opportunities can build trust and ensure the success of conservation initiatives;
- International conventions, and associated guidance, play a really important role in providing a framework for conservation initiatives that can be adapted to the local situation, *e.g.* OSPAR in Europe.

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Community Voice Method - a contemporary approach to engaging stakeholders in development of marine resource conservation policy

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Richardson, P.B., Campbell, L.M., Cumming, G.B., Phillips, Q., Ranger, S. & Sanghera, A. 2015. Community Voice Method - a contemporary approach to engaging stakeholders in development of marine resource conservation policy. pp 326-331 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

The political ecology of endangered species conservation traditionally favours 'experts', who have more influence over international agreements and national legislation formulation, than the stakeholders dependent on the use of these species and their habitats. Consequently, the implementation of species conservation policies can lead to confusion, conflict, distrust and ultimately non-compliance amongst local stakeholder groups if they have not been included in the decision-making process. The Turks and Caicos Islands (TCI) Turtle Project is a multidisciplinary initiative that used biological and social research, as well as extensive stakeholder engagement, to inform the development of a contemporary management policy for the islands' traditional marine turtle fishery. In 2010, the project employed the 'Community Voice Method (CVM)', a novel research methodology that seeks to overcome barriers to meaningful stakeholder engagement in resource management decision-making and policy development. Thirty-three detailed interviews were conducted with community members representing a broad demographic in South Caicos, the 'fishing capital' of the TCI. All interviews were filmed and responses were coded and analysed. A documentary film, with a narrative entirely led by this analysis, was the primary research output from these interviews. The film was then screened to public audiences throughout the TCI (n=22) and followed by semi-structured group discussions that captured over 270 participants' views about future turtle fishery legislation options. These discussions were recorded, analysed and considered with the biological research data in the development of draft policy recommendations, which were subjected to further consultation with TCI turtle fishers (n=75) in 2011. The final recommendations were approved by the TCI government in February 2014 and came into force in July that year. CVM thus provided an engaging opportunity for hundreds of stakeholders to influence local turtle fishery policy development. This paper assesses the challenges and benefits of the CVM approach and suggests ways in which it could be adapted to contribute to biodiversity conservation in other UK Overseas Territories.

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A long-standing obstacle to the management of marine resources is often the disconnect between conservation managers and the resource users. Resources, such as marine turtles, are often protected through national legislation after scant or no consultation with the coastal communities that may be using them. Consequently, and especially within poor enforcement regimes, use continues, albeit illegally, after the resource is 'protected'. This is problematic for a number of reasons. For example, the illegal use of the resource becomes unmanageable; resource users become criminalized and subsequently disenfranchised from management processes; and the ongoing, unmanaged use may threaten the future of resource.

As a way to facilitate better communication between networks of resource users and conservation managers, Dr Gabriel Cumming and Dr Carla Norwood, of Community Voice Consulting, have designed a novel method of engaging stakeholders in discussions about natural resource use (Cumming and Norwood 2012). The Community Voice Method (CVM) was first employed in 2001 to explore land conservation issues in North Carolina USA, and was further developed with Professor Lisa Campbell of Duke University to tackle various rural and coastal land-use conflicts.

CVM uses the media of film in a three-stage process. Stakeholders representing various user-groups and interested parties are filmed while being interviewed with a structured questionnaire that explores the issue in question. CVM interview content is designed to move from the general (*e.g.* sense of place, existence value, general views on the nature and value of the marine environment) to the more specific (*e.g.* specific aspects of their activities, stakeholder relationships, specific personal experiences), finally focusing on key areas of decision-making. The footage from these filmed interviews is then manually themed and coded using NVIVO software, so that threads are identified, and the most representative expression of opinions within those threads is included in a documentary-style film.

In previous projects, the films have been approximately 30 minutes long and have included at least one contribution from every interviewee. Thus the film's narrative is guided entirely by stakeholder opinions and perceptions gathered during the interviews, with opposing opinions and views juxtaposed and contrasted. The film is then screened at stakeholder discussion workshops where the interviewees and other key players are brought together to watch the film; this stimulates structured discussions about future management scenarios. Conservation managers can then use these discussions, along with any biological data, to inform decision-making about resource management.

In 2010, the Marine Conservation Society (MCS) worked with Lisa Campbell and Gabriel Cumming to adapt CVM further, to help address reform of the management of the traditional turtle fishery in the Turks and Caicos Islands (TCI) in the Caribbean. The TCI is a UK Overseas Territory (UKOT) that lies at south-eastern end of the Bahamian Archipelago.

As with other UKOTs in the Caribbean, TCI regulates a turtle fishery that lands several hundred green and hawksbill turtles each year (Richardson *et al.* 2009, Stringell *et al.* 2013). Prior to 2014, the Fisheries Protection Ordinance (1998) included regulations originally drafted in 1976 that protected nesting females and their eggs on the beach, but protected in the water only turtles

Juvenile green and hawksbill turtles are abundant in TCI waters. Photo: Peter Richardson/MCS

A hawksbill landed for consumption in Providenciales Photo: Peter Richardson/MCS

Amdeep engaged fishers at the dockside while sampling landed turtles. Photo: Tommy Philips/MCS

Interviewees filmed on location in South Caicos by Dr Gabe Cumming. Photos: Amdeep Sanghera/MCS

with shell length of 20 inches or less. There was no closed season, so turtles larger than 20 inches shell length could be legitimately targeted at any time of year. Clearly, this legislation was not fit to protect large turtles in TCI waters, including the remnant populations still breeding in TCI waters (Richardson *et al.* 2006). This was recognised in a 2004 assessment of turtles and their use in the Caribbean UKOTs, carried out by project partners MCS, the University of Exeter, Duke University and the TCI Department of Environment and Maritime Affairs (DEMA) (Godley *et al.* 2004).

In 2007, DEMA invited the project partners back to follow-up on the recommendations included in the assessment. This led to the establishment in 2008 of the collaborative and multi-disciplinary TCI Turtle Project, coordinated by MCS and including the original partner organisations. While the University of Exeter led a comprehensive assessment of turtle fishery landings, foraging turtle aggregations and nesting populations, MCS and Duke developed an extensive programme of social science and stakeholder engagement within

TCI fishing communities to evaluate the socio-economic value of the turtle fishery. Gabriel was invited to lead the adaptation of Community Voice Method to suit the TCI Turtle Project objectives, and so CVM came to TCI in early 2010.

The CVM film was made in South Caicos, the 'fishing capital' of TCI, where 33 interviewees were filmed as they responded to the carefully designed questionnaire. The interviewee sample

Project Officer Amdeep Sanghera worked closely with fishers. Photo: Peter Richardson/MCS

Prof. Lisa Campbell and Amdeep Sanghera interview a former turtle fishermen in South Caicos during the production of the CVM film. Photo: Gabe Cumming

The CVM film was screened in varied locations. Photos: Peter Richardson/MCS

was made up largely of active and former fishermen, but also included representatives from other stakeholder groups, and included some women and minors.

The footage was coded and analysed in NVIVO, and the resultant film was edited in time for a series of 22 screenings held throughout the islands in summer 2010, some of which were followed by workshops involving 270 stakeholders. The structured discussions encouraged at the workshops focused on a series of turtle fishery management measures discussed in the film. These discussions were lively, requiring robust facilitation, but yielded highly informative conversations about what the stakeholders believed to be appropriate, practical and realistic. Marrying this information with the turtle conservation needs determined from the biological research, the project partners developed a comprehensive suite of draft proposed turtle fishery management measures.

Semi-structured workshops were held after some of the CVM film screenings. Photo: Peter Richardson/MCS

The draft measures were then taken back to TCI in 2011 for a second round of consultation, involving one-to-one structured interviews with 75 active

South Caicos pupils learn about the project research. Photo: Amdeep Sanghera/MCS

Amdeep interviews a turtle fishermen about the draft recommendations in 2011. Photo: Amdeep Sanghera/MCS

The TCI Turtle Project recommendations are presented to the Minister. Photo: Eric Salamanca

turtle fishers.

The recommended measures were finalised, taking the fisher's views into account, and finally presented to the newly appointed Minister of Environment in March 2013. By February 2014, the Minister's office had approved the measures, which came into force in July 2014 (Stringell *et al.* 2015).

CVM is not without its challenges. Many stakeholders can, at first, be wary of giving their opinion in front of a camera, and, depending on who is included in the stakeholder sample, arranging the interviews can be problematic. For example, scheduling interviews with fishermen is not easy as they are dependent on good weather for their livelihoods. In TCI, we had to be extremely flexible and reactive to the fishers' working lives to ensure we engaged our full interviewee sample. Some fishers were also wary of discussing their views in the public environment of the workshop, meaning that they preferred home-visits and private screenings. These were relatively costly in terms of time and travel, but in most cases did yield in-depth expert opinion about the TCI turtle fishery.

There is potential to adapt CVM to address other conservation issues in the UK Overseas Territories, but there may be constraints, aside from the obvious need for electricity and a level of technology required by the method. In order for CVM to inform policy, relevant authorities must commit to taking into account the information that the process delivers – there is no point in soliciting stakeholder opinion if the decision-makers do not intend to listen. Participants must also be comfortable being filmed, so the method will not work in cultures with social concerns around photography and film. Finally, the method requires a level of training in order to develop appropriate questionnaires, interview techniques, film analysis and editing, and workshop design. Fortunately, MCS can help with this, as can Dr Cumming at Community Voice Consulting.

Personally, I found CVM to be extremely useful in the TCI and a key factor behind the success of the TCI Turtle Project. It allowed us to engage stakeholders in discussions about a relatively low priority issue using television, a familiar, accessible and enjoyable format. The discussion workshops were challenging, but manageable, and provided extremely useful and insightful conversations about the use of turtles and how this use should be managed. This level of stakeholder involvement in the development of the management measures was one of the key reasons why they were approved by the TCI Government. Since this work, MCS has successfully trialled CVM in the UK for the first time, working with local regulators in Sussex to involve stakeholders in developing management measures for recently designated marine conservation zones. The methodology has proved to be a very useful tool, and MCS is more than willing to facilitate the adaptation and development of CVM, and associated capacity-building, in other UK Overseas Territories to help address other key

conservation issues.

The CVM film we produced for the TCI Turtle Project is available to download at https://vimeo.com/80982426

More information about the CVM process can be found at http://communityvoiceconsulting.com/

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Cyprus SBAs: need for measures in view of recent change of British policy

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Apostolidou, M. 2015. Cyprus SBAs: need for measures in view of recent change of British policy. pp 332-336 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

The British Overseas Territory on the island of Cyprus comprises Sovereign Base Areas (SBAs) at Akrotiri and Dhekelia. The SBAs include military bases and other land, including Cypriot villages and communities, and were created in 1960 by the Treaty of Establishment, when Cyprus achieved independence from the British Empire.

One of the Treaty's provisions foresaw that the British government would not allow development within the SBAs for other than military purposes. This has kept development within the two SBAs since 1960 to a minimum, in stark contrast to many other parts of Cyprus. This provision was lifted after the signature of a landmark arrangement on relaxing controls on non-military development in the SBAs between the United Kingdom and Republic of Cyprus, on 15 January 2014. The agreement lifts the strict planning restrictions, potentially paving the way to development in pristine areas. Conservationists are concerned about how these changes in planning development could affect the Akrotiri peninsula & Episkopi Cliffs Important Bird Area (IBA) (and Special Protection Area - SPA) and candidate Special Areas of Conservation (SACs) in the Western and Eastern Bases.

BirdLife partners in Cyprus and the UK (namely BirdLife Cyprus and the RSPB) as well as the UK Overseas Territories Conservation Forum (UKOTCF) support that planning changes should take full account of the need to safeguard the unique biodiversity in the Cyprus SBAs. It is important that the SPA status of the Akrotiri peninsula and Episkopi Cliffs be taken fully into account and that the two SAC designations are concluded before defining Planning Zones and relevant Planning Policies. Moreover, the required Strategic Environmental Assessment (SEA) should be timed in a way that the Planning Zones and Policy are subjected to a SEA at an early stage of the procedure, and also the SEA should avert future conflicts with Appropriate Assessment (AA). Large developments (*e.g.* golf course developments, marinas and large renewable energy infrastructures) have been favoured in the Republic in recent years and can have significant effects on protected areas. A cautious approach regarding such developments should be taken in the SBAs, the RSPB and BirdLife Cyprus say. In addition, planning provisions permitting isolated housing development in areas zoned for agriculture are an important threat to natural habitats across the Republic, contributing to habitat fragmentation. This provision should be excluded from the Cyprus SBAs. It is important also that BirdLife Cyprus and the RSPB are consulted during the process of formulating the SBAA Policy Statement. Finally, it is vital for some areas adjacent to protected areas and sensitive areas, to manage land planning through detailed local plans and not the more general zoning. A local plan can also help achieve land consolidation so that regulations are felt to be fair.

The preparation of the SBAA Policy Statement is still at a very early stage. However, the need for measures at such a crucial stage for safeguarding the Akrotiri IBA and the biodiversity in the Cyprus SBAs in general, is unquestionable.

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Cyprus is a large island at the eastern end of the Mediterranean covering an area of 9,251 square kilometres and with a total population of about 790,000. The British Overseas Territory on the island of Cyprus comprises two Sovereign Base Areas (SBAs) at Akrotiri and Dhekelia.







The Sovereign Base Areas (SBAs) of Akrotiri and Dhekelia, usually referred to as Western Sovereign Base Area (WSBA) and Eastern Sovereign Base Area (ESBA), are those parts of the island which remained under British jurisdiction on the creation of an independent Republic of Cyprus in 1960. Under the 1960 Treaty of Establishment, Her Majesty's Government (HMG) retained sovereignty over the SBAs, which cover 3% of the land area of Cyprus, a total of 98 square miles (47.5 at Akrotiri and 50.5 at Dhekelia). However, HMG does not own most of the land. About 60% is privately owned; some 20% is UK Ministry of Defence (MOD)-owned or leased land; with the remaining 20% being Crown land held by the Administration (including forests, roads, rivers and Akrotiri Salt Lake). (Source: http://www.sbaadministration.org/index.php/background])

About 10,000 Cypriots now live in the SBAs. In addition, approximately 3,800 military and UK-based civilian personnel and their dependants work or live on the Bases. The SBAs are retained as military bases, not "colonial" territories. This is the basic philosophy of their administration, as set out by HMG in its 1960 Declaration on the Administration of the Areas.

The Treaty of Establishment foresaw that the British Government would not allow development within the SBAs for other than military purposes. This has kept development within the two SBAs since 1960 to a minimum, in stark contrast to many other parts of Cyprus. This provision was lifted after the signature (below) of a landmark arrangement on relaxing controls on non-military development (NMD) in the SBAs between the United Kingdom and Republic of Cyprus, on 15 January 2014. The agreement lifts the strict planning restrictions, potentially paving the way to development in pristine areas.

Cyprus is a special place for birds and biodiversity in general (above), at both a European and a global scale. Justifying its status as an Endemic Bird Area, the island is host to two endemic species: Cyprus warbler *Sylvia melanothorax* (below) and

Cyprus warbler Photo: Albert Stoecker

Cyprus wheatear *Oenanthe cypriaca* (below). Cyprus has also four endemic bird subspecies.

Cyprus wheatear Photo: Albert Stoecker

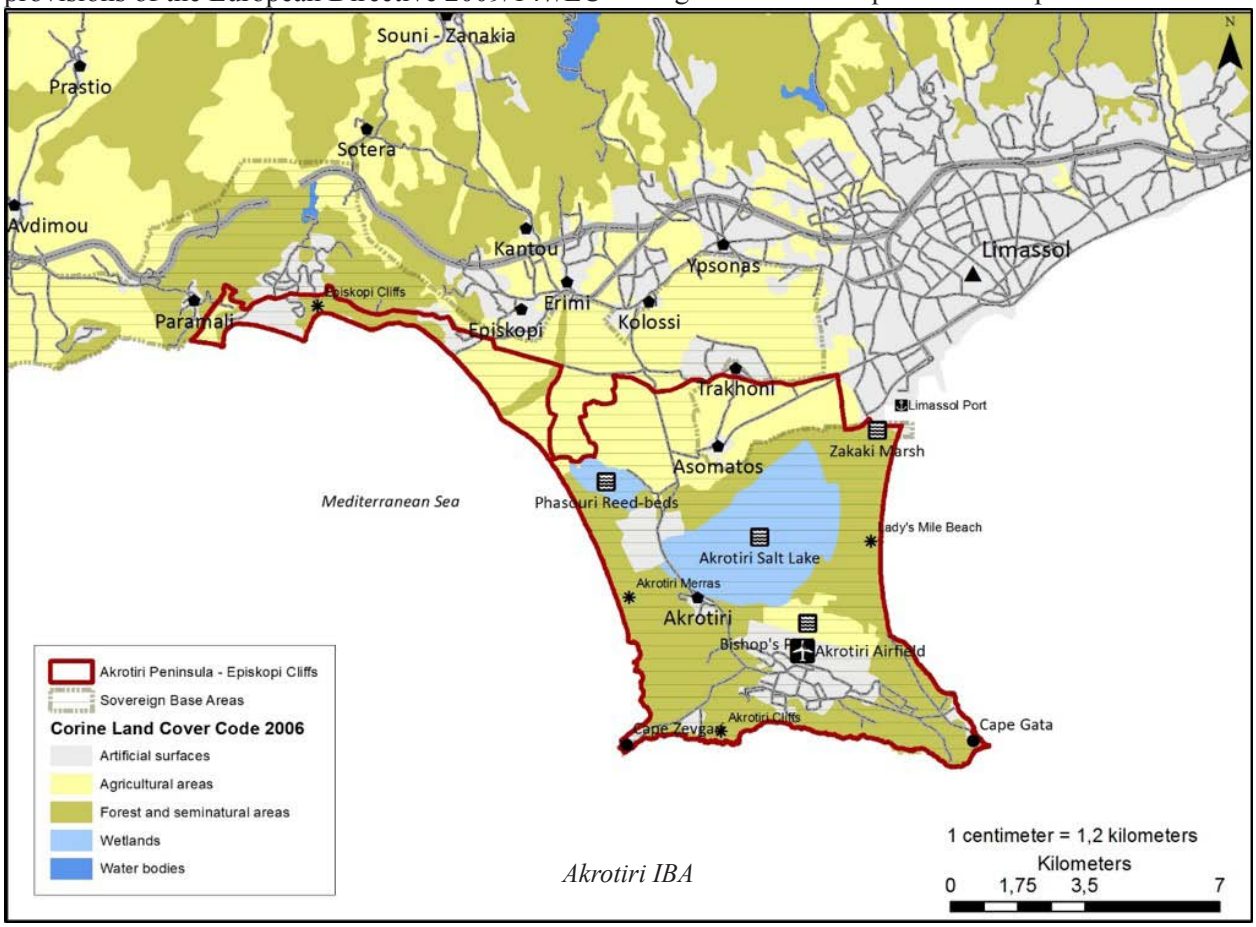
Akrotiri Peninsula is one of the most species-rich and important areas of the island for birds and other wildlife. This extensive site comprises the largest complex of wetlands on the island, as well as a mosaic of coastal scrub, dunes, agricultural areas and impressive coastal cliffs. Covering more than 7,800 ha, the 'Akrotiri Peninsula–Episkopi Cliffs' IBA is, for the most part, situated within the West Sovereign Base Area (WSBA). The site is important for holding Globally Threatened species, for holding more than 1% of global populations of species of waterbirds (more than 20,000 waterbirds) and for holding a flyway population of congregatory waterbird species. Akrotiri Peninsula is also a raptor bottleneck where more than 3,000 raptors pass during migration. Akrotiri Salt Lake is also a Wetland of International Importance designated by UK (with the support of the Republic) under the Ramsar Convention.

In 2010, parts of the Akrotiri IBA (some 60% of the 2012 IBA) were designated as a Special Protection Area (SPA)-equivalent for the protection of wild birds, under the Sovereign Base Areas' Game and Wild Birds Ordinance 2008 (21/08), which broadly replicates the Republic of Cyprus' Law on the protection and management of wild birds and game (152(I)/2003), implementing the provisions of the European Directive 2009/147/EC (Conservation of wild birds).

Flamingoes, Akrotiri Photo: A. Stoecker

Both Akrotiri and Dekheleia merit designation also as SACs under the Sovereign Base Areas' Protection and Management of Nature and Wildlife Ordinance (26/2007), which mirrors the Republic of Cyprus' Nature and wildlife protection and management Law 153 (I) 2003, implementing the provisions of the Habitats Directive 92/43/EEC. The SBAs have proposed three sites for SAC designation on 28 May 2015 and the period for objections ends on 3 August 2015 (one month extension is granted). The three sites are two in ESBA and one in WSBAS.

The ESBA, Dhekeleia, is important for its vegetation and unique limestone pavement scrub.



Akrotiri IBA

White Storks, Akrotiri Photo: M. Apostolidou

Turtles Photo: M. Apostolidou

Red-footed Falcon Photo: A. Stoecker

Stone curlew Photo: S.Christodoulides

A significant number of turtle nests (loggerhead turtle *Caretta caretta* and green turtle *Chelonia mydas*) exist on a small stretch of beach that lies within the ESBA. Though it is not an IBA, the area is also important for species like the Stone curlew *Burhinus oedicnemus* and is an important migration stopover for passerines, especially in autumn. Unfortunately, this passage of small birds attracts a large and persistent illegal bird trapping problem (see pages xxx-xxx). Related to trapping is the extensive network of acacia trees, an invasive alien species for the island that has invaded to a large extent the ESBA to a large extent.

Dhekeleia scrub Photo: BirdLife Cyprus

The recent changes in planning development have alarmed conservationists, who are concerned about how these changes could affect the Akrotiri Peninsula and Episkopi Cliffs Important Bird Area (IBA) (and Special Protection Area - SPA) and candidate Special Areas of Conservation (SACs) in the Western and Eastern Bases.

Acacia plantation, Cape Pyla Photo: BirdLife Cyprus

BirdLife partners in Cyprus and the UK (namely BirdLife Cyprus and the RSPB), as well as the UK Overseas Territories Conservation Forum (UKOTCF), support that planning changes should take full account of the need to safeguard

Blackcap Photo: Dave Nye

the unique biodiversity in the Cyprus SBAs. It is important that the SPA and SAC status of the WSBA and ESBA be taken fully into account.

BirdLife Cyprus applauds the SBAs for proposing the SAC designation before progressing with the planning zones. However, in addition we urge the SBAA to carry out the required Strategic Environmental Assessment (SEA) so that the Planning Zones and Policy are subjected to a SEA at an early stage of the procedure, and that also the SEA should avert future conflicts with Appropriate Assessment (AA). SPAs and SACs are subject to the Appropriate Assessment process, for any plans or projects not directly related to the management of the site that may negatively affect the site or the species for which it was designated.

Large developments (*e.g.* golf course developments, intense coastal developments like marinas and large renewable energy infrastructures) have been favoured in the Republic in recent years and can have significant effects on protected areas. Similar developments been proposed in the past for the WSBA. RSPB and BirdLife Cyprus strongly support that a cautious approach regarding such developments should be taken in the SBAs.,

Windfarm Oreites Photo: C.Papazoglou

Limassol port, Akrotiri Photo: Melpo Apostolidou

In addition, planning provisions permitting isolated housing development in areas zoned for agriculture is an important threat to natural habitats across the Republic, contributing to habitat fragmentation. This provision should be excluded from the Cyprus SBAs NMD agreement. It is also important that BirdLife Cyprus and the RSPB are consulted during the process of formulating the SBAA Policy Statement. Finally, it is vital for some areas adjacent to protected areas and sensitive areas, to manage land planning through detailed local plans and not the more general zoning. A local plan can also help achieve land consolidation so that regulations are felt to be fair.

The preparation of the SBAA Policy Statement is still at a very early stage; however the need for measures at such crucial stage for safeguarding the Akrotiri IBA, SPAs and SACs and the biodiversity in the Cyprus SBAs in general, is unquestionable.

Isolated house Photo: C.Papazoglou

Legal requirements for EIAs

Arlene Brock (former Ombudsman for Bermuda)

Brock, A. 2015. Legal requirements for EIAs. pp 337-345 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

This paper sets out: the genesis of the 2001 UK Environment Charters signed with each of the Overseas Territories[1] (except Gibraltar which issued its own similar Charter in 2006); the Bermuda controversy about whether or not the Charter imposes legal obligations to require EIA before approving major developments or proposals likely to have significant impact on the environment; and, jurisprudence regarding the Charter and EIA requirements.

Arlene Brock, Former Ombudsman for Bermuda. arlenesbrock@gmail.com

The 2001 UK Environment Charter Commitments

Charter Rationale

The UK is a signatory to the 1972 UN Convention on Biological Diversity (CBD) and other multilateral instruments that establish obligations to protect and sustain the natural and other environments.[2] Article 4 (re Jurisdictional Scope) of the CBD imposes accountability on each signatory for processes and activities "*carried out under its jurisdiction or control, within the area of its national jurisdiction or beyond the limits of national jurisdiction*". By 2012, the CBD Secretariat had considered this Article only with respect to waters / oceans within jurisdiction or control but had not considered land[3]. Given ultimate jurisdiction under the constitutional relationship of the UK with the Overseas Territories (UKOT) it is more likely than not that the provisions of Article 4 can be construed as applying to them as well[4].

The responsibility for environmental management in the UKOTs has been devolved to each UKOT government. The UK cannot unilaterally impose its own international environmental obligations on them, yet bears some responsibility for processes and activities carried out on these lands. The UKOTs must request to be included in the UK's ratification of the CBD[5]. By 1999, the British Virgin Islands, Cayman Islands and St Helena (including Ascension and Tristan da Cunha) had done so and other UKOTs were preparing to join. The UK Environment Charters serve as a bridge between Britain's international environment commitments and UKOT internal self-governance, especially for those UKOTs that have not asked to be included in the multilateral instruments.

The 1999 White Paper on *Partnership for Progress and Prosperity* set out recommendations of a review by the Foreign and Commonwealth Office of the relationship between Britain and the Overseas Territories with the aim of creating a "renewed contract" for this relationship[6]. The White Paper stipulates that this new partnership

1 Except Gibraltar which issued its own similar Charter in 2006; in any event, Gibraltar is subject to most European Union environmental legislation

2 The UK is bound also by European Directive 85/337/EEC regarding EIA and public consultation; and has also endorsed the 1992 Rio Declaration on Environment and Development.

3 Per personal telephone call with CBD Secretariat in Montreal, January 2012

4 This would be consistent with Article 29 of the Vienna Convention on Treaties: "Unless a different intention appears from the treaty or is otherwise established, a treaty is binding upon each party in respect of its entire territory".

5 The 1997 UN Convention on the Law of the Sea was extended to all of the UKOTs; most have joined the Ramsar Convention on Wetlands of International Importance; UKOTs that joined the Convention on International Trade in Endangered Species were required to set up a national management authority to enforce it. In 1998 the UK announced that it would ratify the Protocol concerning Specially Protected Areas and Wildlife in the Wider Caribbean Region of the Cartagena Convention and would extend its ratification, in the first instance, to the Cayman Islands.

6 The 2012 White Paper – *Security, Success and Sustainability* – states that it endorses and builds on the work of the new relationship set out in 1999 White Paper.

"creates responsibilities on both sides. Britain is pledged to defend the Overseas Territories, to encourage their sustainable development and to look after their interests internationally. In return, Britain has a right to expect the highest standards of probity, law and order, good government and observance of Britain's international commitments." (emphasis added)

The 1999 White Paper set out that – as priority actions – the UK must (and the UKOTs were encouraged to) undertake certain responsibilities to conserve, manage and protect the rich natural environment of the territories: *"These responsibilities already exist but the UK and its Overseas Territories have not always addressed these issues sufficiently consistently or systematically."* The 1999 White Paper noted, for example: *"Some OTs develop independent Environmental Impact Assessments (EIAs), ensuring that the public are fully consulted, before making decisions on new developments."*

However, in order to achieve an agreed systematic approach for all of the UKOTs, the FCO declared: *"We intend bringing together the responsibilities, common objectives and cooperative approaches of the UK Government, Overseas Territory governments, the private sector, NGOs and local communities by drafting and agreeing an Environment Charter with the Overseas Territories. The Charter will clarify the roles and responsibilities of these stakeholders, set out in a shared vision which also takes account of the wide variety of circumstances and local resources in each territory. The exact form of the Charter and variations between territories will be determined in consultation with them."*

Charter Commitments

Each UKOT negotiated and signed its own Charter. While the Guiding Principles and UK Commitments are essentially identical for all the UKOTs, each UKOT could vary its commitments depending on its particular circumstances. In June 2001, the Bermuda Government announced that the FCO sent a two-person team (one was a legal expert) to *"give tips on how Bermuda can keep in line with the CBD, talk with local officials to identify changes needed in programmes and legislation for Bermuda to comply with the fine print of the CBD, and discuss with the Environment Minister a joint charter on the environment."* Bermuda's Charter was signed on 26 September 2001 by the then Premier Jennifer Smith on behalf of Bermuda and Baroness Valerie Amos on behalf of the UK.

With respect to Environmental Impact Assessment, the Charter Commitments state:

"The Government of Bermuda will:

4. Ensure that environmental impact assessments are undertaken before approving major projects and while developing our growth management strategy.

5. Commit to open and consultative decision-making on developments and plans which may affect the environment; ensure that environmental impact assessments include consultation with stakeholders.

11. Abide by the principles set out in the Rio Declaration on Environment and Development and work towards meeting International Development Targets."

Commitment 11 was duplicated on the UK side of the Commitments equation.

Generally, Bermuda and the UK committed to the globally recognized Precautionary Principle 15 of the Rio Declaration that should underlie basic decision-making:

"in order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation".

Specifically, Bermuda and the UK committed to undertake EIA certain developments in accordance with for Principle 17 of the Rio Declaration:

"Environmental Impact Assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have significant adverse impact on the environment and are subject to a decision of a competent national authority."

Thus, Bermuda committed to EIA for two kinds of development proposals[7]:

- major projects, and
- activities likely to have significant adverse impact on the environment.

7 EIA is the appropriate tool to manage and conserve the environment as it is a *"process of identifying, predicting, evaluating and mitigating the biophysical, social, and other relevant effects of development proposals prior to major decisions being taken"*. International Association for Impact Assessment.

Bermuda did, in fact, meet some of its obligations under the Charter – in particular Commitment 1:

"Bring together Government departments, representatives of local industry and commerce, environment and heritage organizations, the Governor's office, individual environment champions and other community representatives to formulate a detailed strategy for action" (resulting in the 2003 Biodiversity Strategy and Action Plan and the 2008 Sustainable Development Strategy and Implementation Plan).

Bermuda: Is EIA discretionary rather than a legal obligation?

Land zoned for development

Bermuda's 1974 Development and Planning Act (DPA) established the Development Applications Board (DAB) to review and determine applications to subdivide and develop land that is zoned for development. The DPA provides that periodic (every decade or so) Development Plans, created after public consultation, should set out the policies and regulations that guide the decisions of the DAB.

The 2008 Bermuda Development Plan stated:

"the environmental objectives and policies of this Plan reflect and complement the goals and recommendations of other Government environmental initiatives including the Environment Charter, Sustainable Development Strategy and Implementation Plan, Biodiversity Strategy and Action Plan…It is important that the DAB has all the pertinent information relating to a proposed development in order to determine a planning application and to ensure that a development does not have an adverse impact on the natural, human or build environments…

A view over part of Bermuda

An environmental impact assessment of a project helps to determine any potential problems or risks associated with a development at the design stage. It also enables informed decisions to be made about whether a development should be permitted and what planning conditions are necessary in order to control the design, enhance the benefits of the scheme, and avoid or mitigate any adverse effects."

Notwithstanding this general principle, and contrary to the mandatory language of the Charter and the Rio Declaration, the 2008 Development Plan conferred on the DAB a discretion to require EIA for: major development proposals; developments proposed in sensitive locations; and developments which involve complex and potentially adverse environmental effects. There is no evidence to determine if the inclusion of discretionary language was: merely an oversight; a misinterpretation of the legal effect of the Charter; or a considered contravention of the Charter.

Special Development Orders

The 1983 Development Plan established conservation zoning that set aside (after a robust objection and Tribunal appeal process) approximately 1,500 acres to be protected from development as they were arable, environmentally sensitive or otherwise warranted conservation for all of time[8]. The Plan did not contemplate that such protection could be removed or whether some restrictions ought to be imposed even if development on these protected areas was ever later permitted.

As stipulated by the DPA, it is the Minister responsible for the environment, not the DAB, who determines applications to develop land that is not zoned for development. The Minister approves such development by issuing Special Development Orders (SDO). Neither the DPA nor the Development Plans provided guidance to the Minister for criteria to determine SDO applications. Most of the 50 SDO applications that had been approved by 2011 were for developments on land that had been layered with conservation zoning in 1983[9].

8 The Bermuda Court of Appeal [Min. of Environment v. Bda. National Trust (2003) L.R. 41] set aside a private covenant to protect land from development, thus leaving Development Plans as the only reliable avenue for permanent protection of land.

9 Although there were some public objections to the locations, early SDOs were for national projects such as the Incineration Plant and the Bermuda College.

On 1 March 2011 the DPA was amended to require the Legislature (rather than the Minister) to approve SDOs by the affirmative resolution procedure. This amendment changes who approves SDOs and does have the effect of bringing such applications squarely into the public eye. However, the amendment does not establish what information, criteria and standards should inform consideration of SDO applications. However, if EIA may be required for land that was zoned for development, it would be logical and consistent with the principles of both the Charter and the Rio Declaration to expect that EIA should be required before approving development on land with conservation zoning.

On 2 March 2011, the House of Assembly approved a SDO application for a purported tourism development at Tucker's Point that would remove conservation protection from arguably one of the more biologically diverse, environmentally sensitive and scientifically significant corners of Bermuda that had been protected since 1983[10]. The original 2011 application was to develop 23 acres of land and included a donation of 26 acres of conservation area to Bermuda (of which 18 acres are a lake). After two controversial Senate debates, the SDO was approved on 25 March for development of a reduced area of 12.4 acres (and an increase of the donation to Bermuda of 10 acres of land).

This development was trumpeted, not only to be major for purposes of potential construction and employment, but indeed of national priority for the purpose of revitalising our tourism industry. By removing the conservation protection from the 12.4 acres, this SDO development would – by definition – have significant adverse impact on the environment. Complex cave systems as well as endemic and native species, habitats and ecosystems are at risk. Yet, no EIA process had been conducted before approval as required by the Charter and the Rio Declaration.

The SDO permitted certain reserved matters to be determined in later applications by the DAB. These matters are subject to 13 conditions and further studies, including a geotechnical assessment to determine cave features for locations of building sites and access driveways, identification of critical habitat and limits on wells, excavation depths and a specified sewage system.

10 In 1995 and 2001, Tucker's Point received SDOs that had removed protection from approximately 25 – 35 acres of conserved land.

Part of the unique cave system potentially affected by the proposed development

Ombudsman's Own Motion Investigation in the Public Interest

In accordance with section 5(2) of the Ombudsman Act, I launched an investigation on my own motion in the public interest into – not the Legislature's decision to approve the SDO – the process and scope of analysis by the civil servants.

I also concluded that the sewage condition of the 2012 SDO was inferior to the conditions required in the 1995 SDO for the same property.

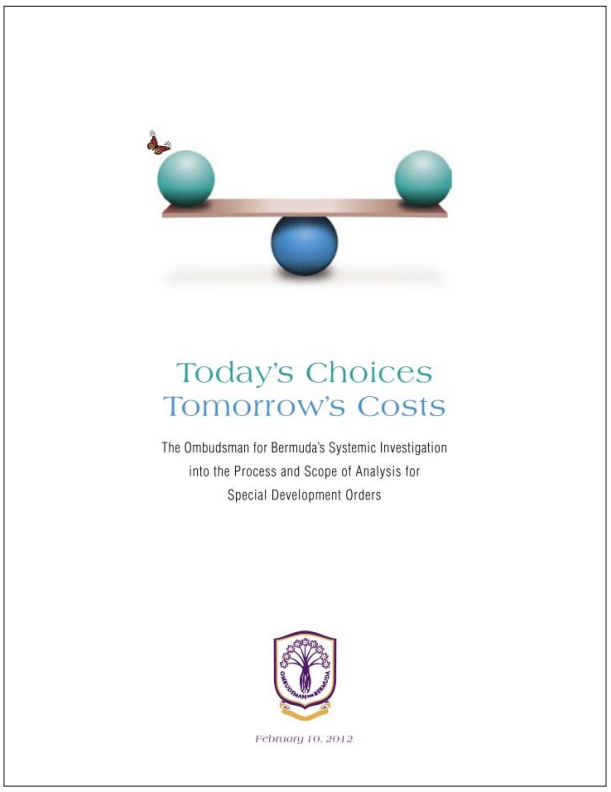
My report – *"Todays Choices: Tomorrow's Costs"* [11] – and later updates – concluded:

- as an agreement between two governments, the plain language of the Charter Commitments established legal obligations
- it was therefore a mistake of law for the competent authorities not to have required a comprehensive EIA prior to approval of the 2011 SDO
- the International Court of Justice explicitly recognized EIA as a practice that has attained customary / general international law status[12]
- the conditions for additional studies attached to the Tucker's Point SDO did not amount to an EIA; indeed, some were inadequate for their purpose[13]
- jurisprudence of the UK Supreme Court (House of Lords and Privy Council) provide that proper, comprehensive EIAs may still be conducted even after approval in principle of developments.

11 Tabled 10 February 2012; see also Diligent Development June 2012 (www.ombudsman.bm)

12 Pulp Mills n the River Uruguay (Argentina v. Uruguay), ICJ 2010

13 *E.g.* the sewage condition of the 2011 SDO was even less stringent than that of the 1995 SDO



In a press release dated 2 May 2012, the then Minister asserted: *"We have taken advice from both the Attorney General's office and the FCO via Government House, and conclude that the UK Environment Charter* ***does not constitute law****. It is unenforceable. Rather, the UK itself considers the Charter to be "aspirational".*

The key principles in the FCO's initial consultation were apparently described by its Environment Policy Department as "aspirational statements". The final, negotiated Charters are comprised of two sections: "Guiding Principles" and "Commitments". There is no evidence that either the UK or the UKOTs considered the Commitments or the final Charters as a whole to be merely aspirational[14].

Quite to the contrary:

- Among the UK's Charter Commitments are early funding mechanisms to enable the UKOTs to implement their Charter Commitments (to compensate for the fact that the UKOTs are not eligible for funding from the Global Environmental Facility and other international funds).
- In announcing the Charters in 2001 Baroness Amos, then the UK's Overseas Territories Minister, stated: the Charter sets out guiding principles and contains *"some real long-term commitments"*.
- At the 3rd UKOT Conservation Conference held in Bermuda, the then Permanent Secretary responsible for the environment in Bermuda declared: *"We all (the OTs) signed on to the Environmental Charter and that means we've signed on to a variety of commitments"*.
- A 2006-7 review by the Environmental Audit Committee of the UK House of Commons noted that to ensure adequate funding of the UKOTs, it is *"necessary to assess whether both the [UK] Government and the governments of the UKOTs have met their respective obligations under the Environment Charters and Multilateral Environment Agreements"*.
- The FCO's evidence for this 2006-7 review was that *"responsibility for the OTs is a cross-governmental responsibility so the FCO has a role in this as well as DEFRA and DFID, and the Environmental Charters provide the basis on which government departments here, individually and collectively, can work in co-operation with the governments of the OTs on implementation"*. Note: DFID requires full EIAs for major projects that it funds.
- In its January 2012 policy document – *The Environment in the UK OTs: UK Government and Civil Society Support* – DEFRA defined the Charter as *"a formal, individual agreement, listing commitments to develop and implement sound environmental management practices in the OTs and clarifying the roles and responsibilities of the UK Government, Overseas Territory Governments, the private sector, NGOs and local communities."*
- The December 2012 Communique of the Overseas Territories Joint Ministerial Council stated that as a priority action the UK and UKOT Governments agreed to *"continue to implement Environment Charters"*.

Legal requirments for EIAs

To date, the legal effect of the UK Environment Charters has been considered by just two Courts.

14 In determining what constitutes a binding agreement between governments, the International Court of Justice stated that even if a document is described as merely a "Joint Communique", it may be binding if commitments therein are (a) intended to be implemented and (b) specific (Qatar v. Bahrain, 1 July 1994). The 1999 White Paper set out the intent that the responsibilities in the Charters would be carried out. The EIA Charter Commitments 4, 5 and 11 are certainly specific.

Eastern Caribbean Supreme Court (Appellate Jurisdiction)[15]

In considering an appeal from Anguilla, the Eastern Caribbean Supreme Court reviewed the adequacy of the Charter's UKOT Commitment 5 regarding public consultation within the EIA process. The Court held that the Charter established a policy (singly or taken together with the government's environmental strategy and action plan). Therefore there was a legitimate expectation that the public would be consulted in accordance with this policy:

"Public consultation, particularly in relation to developments and projects that will impact the environment, is now practically routine in all jurisdictions. Sometimes the duty to consult is made a statutory requirement, but even where it is not it has become a policy in most quarters to observe this feature of procedural fairness".

Note: the doctrine of legitimate expectation – that is, a government is expected to do what it says it will do unless it expressly backtracks from its promises – was set out by at least two relevant Privy Council decisions:

- in an appeal from the Bahamas that public consultation for an environmentally sensitive development application was insufficient, the Privy Council affirmed: "The public had a legitimate expectation of consultation arising out of official statements recognizing the need to take account of the residents' concerns and wishes". [Save Guana Cay Reef Association v. R (2009) UK PC 44]
- if media and other public statements can give rise to legal obligations on the doctrine of legitimate expectation, then this is even more so for formal written agreements and policies such as the Charter: "The existence of a treaty may give rise to a legitimate expectation of the part of citizens that the government, in its acts affecting them, will observe the terms of the treaty." (Higgs and Mitchell v. the Minister of National Security (Bahamas) [1999] UKPC 55 at 12)

Bermuda Supreme Court (Appellate Jurisdiction)[16]

On 6 August 2014, the Supreme Court of Bermuda issued a comprehensive decision on the legal effect of the Charter, in particular the EIA commitment. This was an appeal of a decision of the Minister to approve a subdivision application made in April 2013 pursuant to the Tucker's Point SDO. As a reserved matter under the SDO, this application was determined in the first instance by the DAB. This application included access roads notwithstanding that no geotechnical study had been conducted in accordance with a condition set out in the SDO itself.

The Bermuda Environmental Sustainable Taskforce (BEST), one of the island's most active NGO watchdogs had advocated that a full and proper EIA be conducted prior to approval of the subdivision application. The DAB approved the application but, after some debate, did not require an EIA (apparently based on advice that the Charter did not impose a legal obligation to do so).

BEST appealed the DAB decision to the Minister. Quite often, when a Minister considers an appeal of DAB decisions, s/he has the benefit of advice from an Independent Inspector – an overseas, neutral planning expert. As noted by the Supreme Court, the Independent Inspector had advised that the Charter set out actual commitments by Bermuda and was not merely "aspirational". Further, he stated that the "shopping list" of studies and conditions in the Tucker's Point SDO was insufficient and that a "holistic EIA" was required.[17]

Nevertheless, the Minister did not follow the advice of the Independent Inspector and upheld the DAB's approval of the subdivision application. BEST then sought judicial review of the Minister's decision partly on the ground that an EIA should have been required and also that the financial feasibility of the development should have been considered, given the receivership subsequent to the SDO being granted.

The Chief Justice remitted the appeal back to the Minister for a rehearing. The judgment has three elements: the decision on BEST's claims (*ratio decidendi*); guidance for the rehearing as requested by the Minister (*judicial dicta*); and general, considered observations (*obiter dicta*).

The *judicial* and *obiter dicta* set out the default principles in the absence of express statutory language that disavows these principles. The *ratio*

15 Webster et al v. Attorney General (Anguilla) and Dolphin Discovery (Civ) A.D. 2010 (ECSC), paras. 45-48

16 BEST v. Minister of Home Affairs, SC 2014: No. 135.

17 As I was not privy to the BEST appeal evidence, it was not until the August 2014 decision of the Supreme Court that I learned that the Independent Inspector essentially confirmed my conclusions the Charter set out legal obligations and that the SDO conditions did not constitute an EIA.

decidendi shows that the principles had been effectively disavowed in the 2008 Development Plan (which has legislative effect)[18] :

- the Charter is a treaty obligation and cannot be construed as aspirational
- EIA has become general international law for major development projects and for those that are likely to have a significant impact on the environment
- Domestic law and policy should be consistent with both treaty obligations and general international law unless there is express statutory language signaling a departure
- Bermuda's Development Plan, which is derived from the Development and Planning Act and therefore has legislative effect, had signaled an intent to depart from the international obligations by making EIA discretionary rather than mandatory
- Nevertheless, the DAB is required by the Development Plan to obtain the best quality information to inform its decision. An EIA would normally provide the best possible information. The DAB ought to have a rational reason for not requiring an EIA.
- The Tucker's Point SDO was an "in principle" approval of the development. The SDO and conditions therein do not preclude the possibility of (a) a full EIA[19] (b) conducted at a later stage[20]
- As long as there is public consultation, other technical elements of what constitutes a full EIA should be determined by the Ministry
- The SDO does not exclude consideration of financial factors such as the subsequent receivership.

Ratio Decidendi

- Para 41: *"There is a mandatory obligation for the DAB to obtain the best quality information to enable a sound development decision to be made in relation to major proposed developments. Depending on the facts, this will usually require an EIA to be carried out (in relation to applications such as the Tuckers Point development), unless there is some rational basis for deciding that an EIA/EIS is not required*
- Para 29: *Bermudian law requires planning authorities as a general rule to conduct an EIA when asked to grant planning permission in relation to major projects such as the Tuckers Point development which forms the subject of the present appeals*
- Para. 67: *Construing the SDO as excluding the need to even consider the desirability of an EIA would be inconsistent with international obligations assumed by Bermuda which emphasise the importance of conducting an EIA in relation to major commercial projects likely to impact significantly on the environment. Clear legislative words would be required to justify the conclusion that the Minister intended to abrogate such an important international legal obligation*
- Para. 68: *The requirement to conduct an EIA <u>of some sort</u> in relation to major environmentally impactful development projects is now probably a general principle of international law…However, as Bermuda legislation has expressly dealt with the same topic of EIAs in non-mandatory terms, this finding becomes academic in the sense that it cannot be contended that a common law rule can override primary or subsidiary legislation*
- Para 116: *Under the Development and Planning Act 1974 as read with the Development Plan, there is a discretionary rather than mandatory requirement for conducting an EIA before planning approval is granted for major projects. In respect of major projects likely to have a significant environmental impact, EIA is assessment technique that should be deployed as a general rule*
- Para 87: *The Minister effectively communicated his intention of departing from the international commitments…The way in which the EIA concept is defined in the Development Plan, and the terms in which the SDO is expressed, any positive commitment to conduct a "full" EIA at the approval in*

18 This was an important finding as Planning staff had often contended to the Ombudsman for other investigations that even provisions described as not discretionary in the Plan are merely "guidance".

19 Note: EIA must be comprehensive, accessible, non-technical and involve public consultation (Berkeley v. Sec. of State for the Environment [2000] UKHL 36)

20 Note: EIA should be conducted at earliest possible stage of the planning permission process but may be conducted after permission in principle, especially if environmental impact was not known at in principle approval stage (R v. London Borough of Bromley ex parte Barker [2006] UKHL 52)

principle phase has effectively been departed from [21]

- Para 43: *The SDO did not exclude the need for the DAB to consider the desirability of an EIA/EIS at the final subdivision application stage and/or prior to the final application stage*
- Para 74: *Bermuda has committed itself in various international agreements to use EIAs (fluidly defined) before approving major commercial projects with significant environmental implications. To the extent that the SDO is ambiguous as to whether it ought to be read as either excluding EIAs altogether or retaining the regulatory power to conduct an EIA, I would resolve such ambiguity in favour of construction which is most consistent with Bermuda's international treaty obligations*
- Para 56: *The SDO did not exclude the ability of the DAB, at the final planning permission stage, to take into account any material change in circumstances of an economic or financial nature*
- Para 117: *The Minister erred in law by construing the SDO as excluding the option of requiring information in support of the applications to be presented in a manner which was not spelt out in the SDO."*

Judicial dicta

- Para. 112: *"Due consideration must be given to a full "EIA" (either before or after final subdivision approval), and the issue ought to be decided by way of a rehearing of the appeals before the Minister, because both he and the DAB erred in law by concluding that the SDO eliminated this as an option. The Development Plan creates a general policy rule in favour of an EIA for major projects, Bermuda has assumed various international commitments to positively conduct EIAs for major projects and no convincing reason for not conducting a fuller EIA was ever advanced in the course of the present appeals. Save for the fact that any EIA must provide some global overview of the impact of the Development as a whole, and that at a minimum public consultation must afford specialist interest groups such as BEST an opportunity to provide input (in addition to the Applicants), what form the EIA/EIS should take is quintessentially a technical policy matter which ought properly to be decided upon by the Minister, or his appointee*
- Para 114: *It must be remembered that approval in principle has already been granted and this may legitimately impact upon the scope of any EIA which might be formulated. An important consequence of approval in principle is that permission once validly granted cannot be revoked without triggering statutory compensation rights for the applicants in respect of any wasted costs. On the other hand, section 25(1) of the Act does empower the Minister to revoke any permission which has been granted, in fairly broad terms*
- Para. 115: *The complaint that the economic viability of the Development required some reassessment in light of the post-SDO receivership seemed to me to have considerable force… BEST is right to raise concerns about the risk of any significant physical development actually commencing in an environmentally sensitive area without any proper assessment of the prospects that the development will likely be a financial success and be likely to achieve the economic objectives which form the basis for the rezoning the SDO controversially effected."*

Obiter dicta

- Para. 64: *"The 2001 UK-Bermuda Environmental Charter was a bilateral agreement creating an international legal obligation on Bermuda's part, albeit one only enforceable by the United Kingdom Government. The Government is subject to a positive international legal obligation to carry out an EIA "before approving major projects". The precise form and content of the requisite EIA is not spelt out, save that it must include public consultation*
- Para. 65: *The Bermuda government's commitments under the Environmental Charter are very general commitments, although I tend to agree with the Ombudsman that it is diluting their legal status unduly to describe these obligations as being merely aspirational in character*
- Para. 117: B*ecause at the international treaty level Bermuda has committed to use EIAs, and their use is so widely accepted as to form a*

21 The Supreme Court did not consider whether the 2008 Development Plan had mistakenly or inappropriately not incorporated the 2001 Charter obligations to require EIA and to abide by the Rio Declaration.

general principle of international law, clear statutory language would have been required to justify construing the SDO as excluding the need for an EIA at any stage of the development project".

Todays Choices: Tomorrow's Costs and subsequent update reports provided evidence that almost every country in the world mandates EIA – either by statute, policy or practice – to assess applications for environmentally sensitive developments. In accordance with: the Charter Commitments, including the Rio Principles; general international law; and, global best practices, EIA should be mandatory for major developments and for those developments likely to have significant adverse impact on the environment.

As indicated by the Supreme Court of Bermuda, domestic legislation and policies should be consistent with treaty obligations and general international law.[22] Accordingly, future Development Plans should jettison the notion of discretionary rather than mandatory EIA. No cogent or compelling reasons have been advanced to depart from general international law, Charter obligations and global best practice.

22 Note, the Chief Justice ruled (at paras. 70 – 73) that the Aarhus Convention does not extend to Bermuda as the UK did not expressly declare in writing that it would apply: *"This practice is a longstanding one, and is a reflection of the autonomous nature of the domestic legal systems of British Territories like Bermuda".*

Environmental Impact Assessments (EIAs): what they involve and what are the benefits

Jo Treweek (Treweek Environmental Consultants)

Treweek, J. 2015. Environmental Impact Assessments (EIAs): what they involve and what are the benefits. pp 346-351 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

Good Environmental Impact Assessment should inform decision-making and improve the sustainability of development. Biodiversity is now a mainstream topic in EIA, but does EIA improve outcomes for biodiversity in practice and what are the key factors that need to be considered to make sure that it does? This talk provides an overview of recent developments in international standards and makes the case for rigorous approaches based on well-known best-practice principles. The talk is illustrated with international examples of EIAs that have addressed impacts on biodiversity and ecosystem services with different degrees of rigour and success.

Dr Jo Treweek, Partner, Treweek Environmental Consultants
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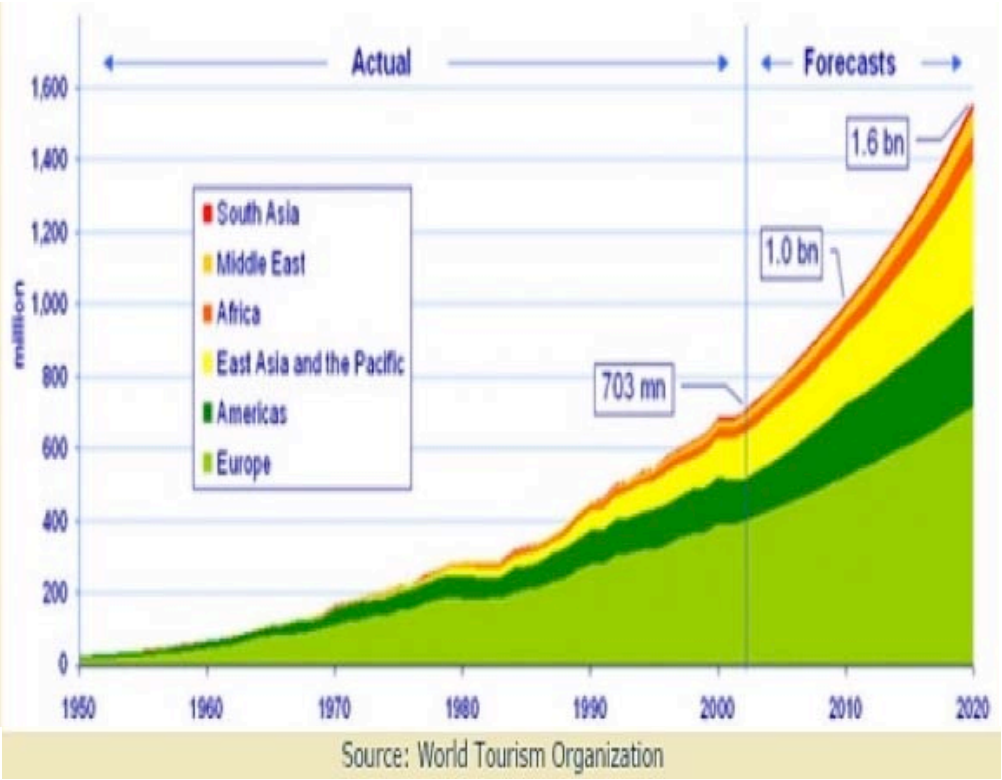
Environmental Impact Assessment (EIA) is "The process of identifying, predicting, evaluating and mitigating the biophysical, social and other relevant effects of development proposals prior to major decisions being taken and commitments made"

It is a tool to enable planning and decision-making authorities to weigh potential economic benefits (such as employment) against likely environmental impacts, to make an informed planning decision.

It was originally intended as a means of adding environmental considerations into predominantly financial, technical and political decision-making processes (US National Environmental Policy Act 1978).

The purpose and objective of impact assessment was to anticipate and avoid, minimize or offset significant adverse biophysical, social and other relevant effects, to promote development that is sustainable and optimizes resource use, to protect the productivity and capacity of ecosystems, the processes, which maintain them and the benefits they provide.



These objectives are from the International Association for Impact Assessment (IAIA) Principles for Best Practice in Impact Assessment. They were a means of encouraging some adjustments to the usual objectives in the interests of avoiding serious environmental harm. This can be for reasons of enlightened self-interest, as poor management of environmental and social impacts can affect operating costs, long-term liabilities, social license to operate.

Why is EIA important for biodiversity and ecosystems?

EIA underpins approvals processes in >200 countries and is therefore a means of mainstreaming biodiversity. In Article 14 of the Convention on Biological Diversity, Strategic Environmental Assessment and EIA are recognised as key tools for mainstreaming biodiversity in development planning decisions. Commitment 4 & 5 of the Environment Charter commitments signed in 2001 state that UKOTs would ensure that EIA were undertaken for major development projects and they would include consultation with stakeholders.

EIA is legally mandated/ governed by international norms or "general international law". The Bermuda Supreme Court held also that (independently of the Charters) the obligation to require EIA derives from general international law (see previous article).

The EU Directive now requires explicit consideration of impacts on biodiversity in EIA and strongly implies the need to consider ecosystem services.

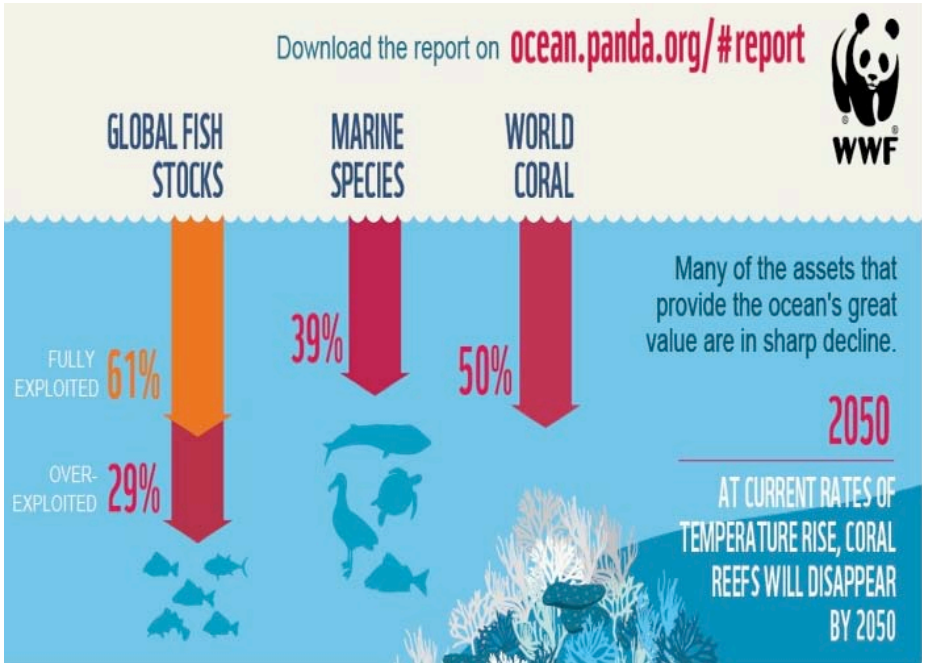
It underpins international social and environmental safeguards (new standards in 2012).

It supports evidence-based decision-making and regulation and provides a framework for commitments.

Humanity - worse than a nuclear bomb for coral reefs?

Quote: "The most publicized of the Bikini tests, 'Bravo', was a 15-megaton hydrogen bomb detonated on a shallow fringing reef in 1954. It destroyed three islands, causing millions of tonnes of sand, coral, plant and sea life from Bikini's reef to become airborne. The sediment regime in Bikini was fundamentally altered by the nuclear events because millions of tonnes of sediment were pulverized, suspended, transported and then deposited throughout the lagoon by wind-driven lagoonal current patterns (Van Arx, 1946)."

Now these are amongst the most diverse and healthy corals in the Pacific! "Richards and colleagues report a thriving ecosystem of 183 species of coral, some 8 metres high. They estimate that the diversity of species represents about 65% of what was present before the atomic tests. The ecologists think the nearby Rongelap Atoll is seeding the Bikini Atoll, and the lack of human disturbance is helping its recovery. Although the ambient radiation is low, people have remained at bay."



See: http://www.newscientist.com/article/dn13668-nuked-coral-reef-bounces-back.html, and

Richards, Z. T., Beger, M., Pinca, S., & Wallace, C. C. (2008). Bikini Atoll coral biodiversity resilience five decades after nuclear testing. Marine Pollution Bulletin, 56(3), 503–515. http://doi.org/10.1016/j.marpolbul.2007.11.018 or http://www.bikiniatoll.com/BIKINICORALS.pdf

After 20-30 years is EIA fit for purpose?

Biodiversity features in the majority of impact assessments, which is a major change in the last 15 years, but "biodiversity is not adequately considered when people take planning decisions" (Defra, 2014) and pressures and losses continue to grow.

As we are interested primarily in ecological aspects, including social/ economic uses and benefits derived from biodiversity, we need to consider the procedural effectiveness: does EIA conform to established requirements, standards and principles; and the substantive effectiveness: is the purpose of EIA achieved?

Some key procedural aspects have been addressed in recent changes to the EU Directive. Substantive effectiveness depends on several actors, including businesses and corporations. There are considerable sectoral differences in terms of corporate positions on biodiversity. Cruise companies are not global leaders in this area, despite their acknowledged dependence on marine ecosystems.

Typical steps in an IA process are listed in the Table below.

Screening	•Is EIA needed? •Identify projects with potentially significant adverse effects.
Scoping	•Key issues that should be included in the ToR. •Proposed approaches, methods and timing. •Who should be involved.
Assessment	•How proposed project activities will affect environmental components against baseline/ do nothing alternative.
Evaluation	• Consequences of the impacts identified… • The "So What?" factor…
Mitigation	•What should be done to avoid, reduce or offset significant adverse impacts for acceptable outcomes.
Reporting	•Present the findings in a clear and transparent manner.

Biodiversity is generally considered in the screening stage if highly protected areas, habitats or species are affected.

Restricted spatial and temporal scope means significant impacts on biodiversity may be overlooked

Evaluation criteria are poorly framed

Most importantly, links to management are poor and there is insufficient follow-up.

Typical EIA shortcomings are listed in the Table below.

Screening	•EIA not considered necessary for some very damaging projects and activities •"Salami Slicing"
Scoping	•Key issues are scoped out for reasons of cost or expediency •Site and "end of pipe"
Assessment	• No alternatives considered/ alternatives considered are unrealistic •Impacts assessed on the basis of old or partial information.
Evaluation	•Aversion to subjective techniques •Arbitrary significance thresholds..
Mitigation	•Unrealistic promises, no monitoring.
Reporting	•EISs impenetrable, long, expensive, unavailable, in the wrong language….who reads them?

Is EIA required for the full range of developments it should be used for?

Application of EIA is often considered un-necessary for land-use changes that are quite significant. Often, no EIA is required for the exploration phase. The argument given is that nobody has decided for sure if they want the project to proceed yet. This can mean that the interests of the developer over-ride those of local communities and the environment. Who should bear the cost of this

damage? (See above for the impact in carving up a hill just by the eploration phase.)

Road schemes may be "salami sliced" into sections that fall below screening thresholds. (See photo below for the only part of the road built!)

Importance of Baseline

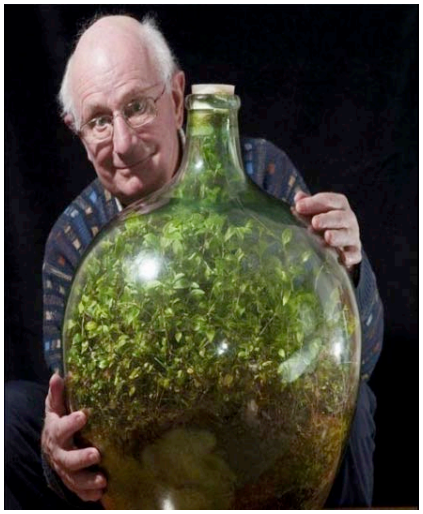
There are many high profile cases of baseline assessments (and even the entire EIA process) being started subsequent to development start. Doing a good baseline takes time and needs to cover a big enough area to understand the context of a project. Typically they are too restricted in space and time. This means that important values and sensitivities can be completely missed. Sometimes they are very costly to fix.

Mitigation

Mitigation recommendations are often partial and poorly designed. This is largely because there has been no requirement to demonstrate an effective or acceptable outcome, combined with lack of follow-up. This means that commitments made in EISs often do not match what happens in reality. Introducing offsets to the mitigation hierarchy should improve this by encouraging a more outcome-oriented approach.

Issues include: partial, unrealistic or ineffective mitigation, failure to consider beneficiaries, mitigation solutions that are divorced from beneficiary requirements.

This "Biosphere in a bottle" is 40 years old. Generally, however, it is very difficult indeed to re-engineer ecosystems once they have become degraded. Restored habitats and ecosystems are often poor copies. Mitigation suggestions are often completely unrealistic.



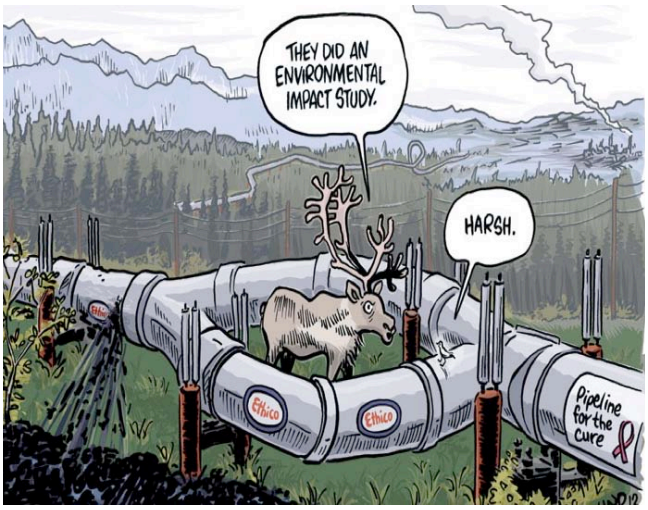
Follow up and failure

Is EIA done as well as it should be? If not, does anyone check?

The 'procedural and stepwise nature' of most EIA systems means that there is a tendency for the final granting or refusal of a development consent to be perceived as the end-point in the EIA process.

Too often, the emphasis in EIA is on the pre-decision stages and the preparation of the Environmental Impact Statement (EIS). The EIS is used purely as a means of achieving development consent rather than as tool for achieving sound environmental management (*Dipper et al.* 1998).

EU Directive Amendments



Over the last decade, environmental issues, such as resource efficiency and sustainability, biodiversity protection, climate change, and risks of accidents and disasters, have become more important in policy making. They should therefore also constitute important elements in assessment and decision-making processes

Effects of a project on the environment should be assessed in order to take account of concerns to protect human health, to contribute by means of a better environment to the quality of life, to ensure maintenance of the diversity of species and to maintain the reproductive capacity of the ecosystem as a basic resource for life.

The amended Directive has New Requirements for monitoring and a wider requirement for a compensation step as part of the mitigation hierarchy. It states that:

"Member States should ensure that mitigation and compensation measures are implemented, and that significant adverse effects on the environment resulting from the construction and operation of a project are monitored, to identify unforeseen significant adverse effects, and to be able to undertake appropriate remedial action".

Text of Directive 2014/52/EU - http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2014.124.01.0001.01.ENG

Environmental sensitivity of areas likely to be affected by projects must be considered with particular regard to the relative abundance, availability, quality and regenerative capacity of natural resources (including soil, land, water and biodiversity) in the area and its underground; the absorption capacity of the natural environment, paying particular attention to the following areas: (i) wetlands, riparian areas, river mouths (ii) coastal zones and the marine environment.

International Performance Standards

The International Finance Corporation Performance Standards were updated in 2012, with other IFIs following suit. Environmental and social impact assessment (ESIA) is the cornerstone of the IFC Performance Standards and the focus of Performance Standard 1 (see illustrated list below).

If used correctly, the ESIA helps clients to identify a project's environmental and social risks, and to develop a plan to manage or avoid those risks.

It leads to the ESMS, the basis for adaptive management throughout the lifetime of a Project ("cradle to grave")

Performance Standard 1: Social and Envrionmental Assessment and Management Systems

Performance Standard 2: Labor and Working Conditions

Performance Standard 3: Pollution Prevention and Abatement

Performance Standard 4: Community Health, Safety and Security

Performance Standard 5: Land Acquisition and Involuntary Resettlement

Performance Standard 6: Biodiversity Conservation and Sustainable Natural Resource Management

Performance Standard 7: Indigenous Peoples

Performance Standard 8: Cultural Heritage

PS1 essentially requires clients of the IFC to use ESIA to assess and manage their environmental and social risks and then to carry this through to their operations, using their Environmental Management Systems.

Requirements of other PS need to be incorporated into ESIA/ESMS and mainstreamed throughout operations. This includes PS6 on biodiversity conservation and sustainable natural resource management.

IFC "Hooks" for biodiversity and ecosystem services:

- ESIA process leading to commitments register and ESMP
- Requirements in Natural Habitat including NNL outcome
- Requirements in Critical Habitat including net gain outcome though offsets if appropriate
- Maintain supply and benefits for Priority Ecosystem Services.

Note that IFC Performance Standards apply to a small sub-set of projects.

IAIA is planning to revise and update its principles to provide greater clarity around what constitutes international best practice for other projects: more focus on outcomes, not processes, *e.g.* no net loss or a net gain of biodiversity where development might affect "critical" biodiversity; biodiversity offsets; genuine engagement with affected communities as part of a transparent approach; expanding scope, *e.g.* human rights and access to ecosystem services, cumulative affects, health impact assessment and stronger links between planning, EIA and other tools; consideration of real alternatives.

Emerging trends in practice

Some emerging trends in practice include:

- Better links between planning and IA, with EIA being one constituent step in mainstreaming biodiversity
- Stronger expectations and expanding scope, *e.g.* climate change and disaster risk management
- Stronger expectation of transparency and participation
- More emphasis on outcome (not process), *e.g.* through addition of offsets to mitigation hierarchy to achieve a NNL or a Net Gain outcome
- Stronger emphasis on post-EIA monitoring and management, liability, performance and compensation (offsets, environmental bonds…).

Discussion

Much of the discussion addressed the conclusions and recommendations. If such items are adequately reported in the Conclusions and Recommendations section later in these proceedings, they are generally not repeated here. Instead, this section draws out some other aspects for which amplification may be useful, on of the discussions and ideas put forward for consideration.

First Question Session

BVI had a lot of problems with the consultants unit that was supposed to watch the contractors. On St Helena, the team consisted of 4 engineers and 1 environmentalist. A good working relationship was developed and everyone worked well together as the environment team. There were not any problems with the unit not being interested.

With GIS software, you can have a non-profit licence; it does not have to be an expensive method. In terms of TCI, the method used was for anybody to use, including by people within Government. A non-profit licence may therefore not be available to all users.

Tendering could impact on the way in which EIA is done in terms of timing. In terms of the St Helena airport project, it was tended for the consultant to do EIA in order to get it done. The EIA was done in advance of the contractor doing the detailed designs. The results were then used to inform and influence what the contractor used.

For a proposed cruise-liner berth project in Cayman, there was also a tender for the EIA process to be done. The contractor that did the EIA was also the contractor that was hired to do the preliminary design specifications that go into the tender bid for the actual construction. It is a good recommendation for a major project, therefore, that, if there are design components that have to go out with the bid, to not have the same contractor that is doing the engineering aspect.

In TCI, EIA is not mandated under law for any projects big or small. One problem is that EIAs can end up being quite biased, *e.g.* the EIA for one project was done by the engineer who had also done the project. An example of a recommendation from the EIA process was that no mitigation for the removal of coral reefs was needed. Whilst usually the Government would make a recommendation based on EIA outcomes, following this substandard EIA, the recommendations were overridden and the project was allowed to go ahead. This is a situation to be very careful of.

A key recommendation is to find the countries that need the most serious revision of their EIA guidelines, so that this can act as an effective tool in terms of environmental impacts.

There was a similar problem in the Alderney context. Rather than defining who the developer had to use, the Government outsourced a review of all EIAs, including a review by national consultees outside of Government. A high-level environmental consultancy also reviewed the document.

It is worth carefully checking the company being used to carry out EIA to guarantee that they will carry out a good EIA in the first place.

A key recommendation would be to write into the terms of reference for EIA, that anyone can call for a review of EIA. If the contractors know that their work could be open to being looked at by other consultants, this could have an important impact.

Second Question Session

Community voice method

Peter Richardson's recommendations of priority issues include addressing fishermen's attitudes and perspectives of protected area networks, and how to diversify fisheries away from the traditional lobster and conch fisheries. You just have to ask the fishermen themselves.

As the person carrying out the interviews was embedded in the field with the community being interviewed, he became a part of that community and people respected and trusted him. He was actually in the community for 2 years prior to the start of the project. As a result, it is believed that the answers were the same on and off camera. This set the precedent so that the community now expect the consultation. In that sense it can be a double-edged sword.

Running a consultation was very important for turtle legislation. There are some fisheries that involve very few people so that consultation is not warranted.

Fishermen seen with small turtles which were definitely not in the regulations. Not following regulations that they helped to set up. This comes back to a lack of enforcement.

In terms of the preparation of the film, there was a strong male bias. Whilst there were some women, technical information related to the fishing procedures themselves (largely undertaken by males) was needed. In the workshops themselves, women did take part but they were also male biased.

A technique used in the east coast of America is to give fishermen a chance to put their points across to conservationists; that's where we had to keep working.

Cyprus SBAs

There was a reaction from the Cyprus Green Party saying that the trappers should be compensated.

Isle of Man

With a small island community, a situation/issue that people are concerned about is quite easy to solve with the right people around the table. You do have to tailor approaches to what works in different situations.

In the Isle of Man, it was difficult to get fishermen in the room when other stakeholders were involved.

Discussion

Environment Charter- Recommending people to do EIA

Different people are at all at different stages and doing different things. You therefore need a balance between the strength of the recommendations and how difficult it is for a diverse group of people to sign up to them. This is probably related to drafting issues, but is important to keep in mind.

Darwin Plus funding not forthcoming; it is the only source available for many of us.

There are several aspects of UK Government Commitments. Article 6 is there to 'Promote better cooperation and the sharing of experience between and among the Overseas Territories and with other states and communities which face similar environmental problems.' This is why UK Government should continue to fund conferences of this sort.

Other funding, such as BEST, should only complement Government funding and not be the main source. These are things that should have been honoured under the Charters.

The conference is mostly in agreement that there is a need to recommend to Ministers to look to Charters for some of the support that they need.

Stakeholder Issues/Aspects

Stakeholder participation should be done in all cases. However, there is a need to be careful with how we define all cases. Where stakeholders are negatively affected they should be consulted.

Must be careful when saying that, as the EIA process should address both negative and positive effects.

UK Government Commitment no. 5 of the Environment Charters is to 'Help each Territory to ensure it has the legislation, institutional capacity (technology, equipment, procedures) and mechanisms it needs to meet international obligations.' There is an International Association for Impact Principles as well as EIC-Biodiversity specific consultation.

On a small island state, everyone should be considered to be a stakeholder.

Opinions of stakeholders from outside a territory may also want to be considered, *e.g.* people that regularly come to Cayman Islands to dive. A suggestion in this case is that they are stakeholders as they pay for the use of a particular resource. What constitutes EIA has to be left up to relevant authority. You can decide to have two layers, *e.g.* a resident layer; there may be a different levels of commitment to a site, but this does not mean that you should not listen to this other community of divers.

The whole point of a public consultation is to make the project better and so you want anybody's view.

One recommendation is that Interested and Affected Parties (IAP), could be a good alternative term to use instead of 'stakeholder'. This is often used in St Helena.

People who can pay lobbyists are often the ones that get the first say; we need to overcome this somehow.

It is important for territories to have a process that is going to work for them. You need a logical, coherent and consistent process and to decide what works locally. For example, in the Falkands, everyone is on Facebook, so that is a useful communication tool. However, this might not work everywhere.

One recommendation is that if you want to consult people, they need to know that they can contribute to a consultation.

Material related to a lot of EIAs can be very long and terms can be very technical. This information should be understandable for different audiences. It is also useful for local people to know very early on what the issue is.

There is a House of Lords case which says that these documents should be written in a fashion understandable to different audiences. These are not 100% binding.

Planning processes ought to be fairly standard and people ought to have access to them. In the UK, you do have other more complex procedures.

There are emerging standards on human rights and how these have to be respected when EIAs are done. EIA emerging human rights considerations include FPIC Free Prior and Informed Consent.

The last thing we want to do is discourage consultation with disappointments. We need the scope of the consultation to be understood by all participants. There needs to be a structure in place so that participants understand what their role is and that their contributions are considered.

Are there any grievance mechanisms in place in territories? Transparent grievance mechanism? Montserrat Physical Planning Act have an appeals tribunal and complaints tribunal. This is one thing to consider.

You need to distinguish between the complaints process and "please unmake decision and completely remake it and you can appeal to council" processes. The public sometimes get confused between the two things.

Environmental Review, EIA

BVI has a requirement for EIA in the Physical Planning Act 2004 but no regulations. There are some issues with the scale of development for which EIAs are done. Technical Officers look at every single development application and decide which ones requires EIA. Where they stumble is when numerous EIAs come in but they do not have a huge number of scientists and technicians to review all of these. The Physical Planning Act is supposed to require a register of people who can review EIAs, but not sure whether they have a register or not. There is a need for more people who are qualified and who can watch what the developers are doing. Some of the capacity issues need to be addressed: *e.g.* more people trained to deal with the large volume of development that are coming in.

People look at the impact as the development is happening but the long-term effects also need to be considered.

All data should be gathered into a digital format to enter into GIS, including all the species lists. It would be helpful to be given in a format whereby it can be updated. There are many small organisations that are gathering data and information.

Valuable experience in Cayman regarding reference and coping. Process in Cayman will go into EIA regulations. Cabinet have approved this to be drafted into regulations.

Planning process is politically charged in most of the territories. In Cayman, they took a conscious decision to move the EIA process out of the planning law and put it into conservation law. It is the Conservation Council that require EIAs.

You can define scope of EIA quite easily using scoping opinion.

The Environmental Assessment Board in the Cayman Islands has to review applications by the developer. They review and say whether people can meet terms of reference and have ability to carry out EIA or not, and then developers can choose. At least then there has been some kind of vetting process. This is a process that could be used in other territories as well.

It is a problem during development and having Environmental Management Plan to decide who is going to report to Government.

We have to be wary of paper processes which are not actually implemented.

Environmental bond in BVI did not work that well, as developers did not give it to the Government; it was insurance and when it came to claiming it, it was not very easy to do. A recommendation is that the bond would need to be in the right hands and independently dispersed.

With the airport in St Helena, one of the huge responsibilities after the airport construction is the Environmental Management System for operation stage. Will have to work to International Environmental Standard. Biosecurity Policy has been developed and now establishing regulations as well.

Workshop on Ascension Island looking at

biosecurity issues for South Atlantic Territories later this month (July 2015).

EIA needs an Environmental Management Plan or system for independent audit against procedures.

One recommendation for EIA is for a group to put together a list of all the regulations and derive a set of best practices that we could all ultimately aspire to. This should be done with at least one representative for each Territory.

It would be good to have statements from across the territories and see what issues come up in common.

RSPB carried out governance review in 2013 and now working towards doing an update of that. This is a resource that they are very happy to share with whoever is interested.

It is important not just to assume that control over something is not being exercised; it may be that it is something that cannot be controlled under current legislation.

CITY SCENES: Top: views from the Rock, (left) northward over airport from the north end, and (right) northwestward from west side over town centre and dock.
Middle: typical main street scene, with background montage of swifts over the conference hotel. These birds sweeping low and high over the buildings, streets and courtyards as they hunt insects are one of the characteristic birds of Gibraltar in summer. They land only to nest.
Bottom: Europa Point: Sikorski Memorial, Mosque, and World War 2 gun.
Photos: Dr Mike Pienkowski

Session 13: Environmental Education and Awareness

Chairing & facilitating team: Ann Pienkowski (UKOTCF), Sarita Francis (Montserrat), Andrew Dobson (Bermuda), Stephen Warr (Gibraltar)

Introduction to Environmental Education and Awareness Session – Ann Pienkowski (UKOTCF)
Schools curricula: Tristan da Cunha – Jim Kerr (Tristan da Cunha Government)
Schools curricula: Wonderful Water Curriculum Development in the Turks and Caicos Islands (TCI) – Ann Pienkowski (UKOTCF)
Using local broadcast media (radio): Montserrat – Sarita Francis (Montserrat National Trust) and Stephen Mendes (Montserrat Department of Environment)
Using wider broadcast media: *Britain's Treasure Islands* – Stewart McPherson, Redfern
Field trips and open-days: Promoting the Natural Environment in Small Territories, with Gibraltar as a Case Study – Keith Bensusan (Gibraltar Ornithological & Natural History Society/Gibraltar Botanic Gardens)
Multi-media apps in environmental education – Stephen Warr (Department of Environment, Government of Gibraltar)
Still Linking the Fragments of Paradise: Public Awareness and Project Collaboration through Social Media in Turks & Caicos Islands – B Naqqi Manco (for Turks & Caicos National Museum; Department of Environment & Maritime Affairs (DEMA))
Public awareness raising actions: How a small NGO, with limited capacity, can deliver a wide range of activities to promote environmental education and awareness. Andrew Dobson (Bermuda Audubon Society)
Discussion

From left: Ann Pienkowski, Stephen Warr, Sarita Francis and Andrew Dobson

Introduction to Environmental Education and Awareness Session

Ann Pienkowski (UKOTCF)

Pienkowski, A. 2015. Introduction to Environmental Education and Awareness Session. pp 358-360 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

A key multilateral environmental agreement for conservation is the Convention on Biological Diversity. Not all UKOTs are currently signed up to CBD, but inclusion is a goal of UK and UKOT NGOs, and of some of the governments. CBD has some very clear statements about the importance of environmental education and public awareness.

Even for those territories not currently included in UK's ratification of CBD, most are signed up to similar commitments in other conventions and in the Environment Charters. The Environment Charters signed in 2001 between UKOT and UK governments has a firm commitment on environmental education.

A JNCC-commissioned report noted that governments should ensure that the significance of local and global biodiversity should be widely discussed in the education system. The same report identified also, as key threats to biodiversity, lack of public awareness of biodiversity concerns and lack of political interest and support for conservation and wildlife issues.

Environmental Education and Awareness need to address different audiences in different ways. The presentations in this session give practical examples of work going on in the UKOTs and CDs on schools curricula, using broadcast media, multi-media apps and other public awareness raising actions, including field-trips and outdoor classrooms. In fact, the subheadings of the presentations relate to the sections of UK's latest report to the CBD.

The Environment Fund for Overseas Territories and then the Overseas Territories Environment Programme initially supported environmental education and public awareness projects, but such projects were excluded from funding in the last few years of OTEP, and such projects are also excluded from Darwin Plus funding.

Some environmental and public awareness aspects can be included as part of other biodiversity projects funded by Darwin Plus, but where is the major funding needed to address the threat to biodiversity identified in the JNCC report of May 2013 to come from? Also, to be effective, how do we address integration into the school programmes? Experience has shown that it is essential to design courses integrated into the curricula; if education is simply attached to other projects, it will not be effective however good the products.

And how do we address the key questions:
Why don't politicians and decision makers know about biodiversity in their countries / regions?; and
If they do know, why do we hear of so many examples of inappropriate and unsustainable built development?

Ann Pienkowski, Honorary Environmental Education Coordinator; Secretary Wider Caribbean Working Group, UKOTCF apienkowski@ukotcf.org

Introduction

A key multilateral environmental agreement for conservation is the Convention on Biological Diversity. Not all UKOTs are currently signed up to CBD, but inclusion is a goal of UK and UKOT NGOs, and of some of the governments.

The inhabited UKOTs and CDs to which CBD has been extended are the British Virgin Islands, Cayman Islands, Gibraltar, St Helena, Ascension, Tristan da Cunha, Isle of Man and Jersey. Recommendation 10 of the Environmental Audit Committee Inquiry into Sustainability in the UK Overseas Territories (http://www.publications.parliament.uk/pa/cm201314/cmselect/cmenvaud/332/332.pdf) said:

> "The UK must fulfil its core environmental obligations to the UN under the CBD in order to maintain its international reputation as an environmentally responsible nation state. The FCO must agree a timetable to extend ratification of the CBD with all inhabited UKOTs where this has not yet taken place. That may entail preparations in the UKOTs, which must be clearly timetabled. The FCO must immediately extend ratification of the CBD to all uninhabited UKOTs." (Paragraph 19)

So it is very positive that, on 27th March 2015, the Government of South Georgia and South Sandwich Islands announced the declaration of the extension of the Convention on Biological Diversity (CBD) to South Georgia and the South Sandwich Islands. The EAC made some other very significant recommendations, including:

> "Defra must restate its commitment to Environment Charters and use them to deliver its CBD commitments in the UKOTs. Darwin Plus funding should be linked to compliance with the terms of Environment Charters."
>
> [noting that Defra has increased spending on protecting biodiversity in the UKOTs since 2007-08] "a further step change in Darwin Plus funding is required adequately to address the scale of the UK's international responsibilities to protect biodiversity."

CBD and the Environment Charters have some very clear statements about the importance of environmental education and public awareness.

Even for those territories not currently included in UK's ratification of CBD, most are signed up to similar commitments in other conventions and in the Environment Charters.

Article 13 of CBD is Public Education and Awareness. It states:

> "The Contracting Parties shall:
>
> (a) Promote and encourage understanding of the importance of, and the measures required for, the conservation of biological diversity, as well as its propagation through media, and the inclusion of these topics in educational programmes; and
>
> (b) Cooperate, as appropriate, with other States and international organizations in developing educational and public awareness programmes, with respect to conservation and sustainable use of biological diversity."

CBD's Communication, Education and Public Awareness programme (CEPA) was established to support Article 13.

The Aichi Biodiversity Target 1 relates specifically to Article 13: "By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably."

Aichi Target 19 is about improving, sharing and applying knowledge. For example "There is a need to make better use of biodiversity information in decision making."

In UK's fifth national report to CBD (JNCC 2014) includes Appendix 4, where those UKOTs signed up to CBD report on progress towards the implementation of their strategic plan for biodiversity and its Aichi Biodiversity Targets. (Appendix 4 can be viewed at: http://jncc.defra.gov.uk/pdf/CBD_UK5NR_ConsultationDraft_Appendix4.pdf).

Strategic Goal A (Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society) consists of 4 targets which UKOTs had to report on: Awareness, Integration, Incentives and Subsidies, Sustainable production and consumption.

JNCC commissioned a report (Kinnersley 2013) which included a breakdown of CBD's Aichi goals, and the requirements to deliver effective nature conservation and meet CBD's Aichi goals, prepared by the Isle of Man Government. This states that governments should:

> "Ensure significance of local and global biodiversity, the impacts of our activities and lifestyles on them, and what we can do to minimise this are widely discussed in:
>
> Government at all levels;
>
> The local media;

The education system; and

Other social groups."

The JNCC report identified also key threats to island biodiversity, two of which were:

- Lack of public awareness of biodiversity concerns;
- Lack of political interest and support for conservation and wildlife issues.

Environmental Education and Awareness need to address different audiences in different ways. The presentations in this session give practical examples of work going on in the UKOTs and CDs on schools curricula, using broadcast media, multi-media apps and other public awareness raising actions, including field trips and outdoor classrooms. In fact, the subheadings of the presentations relates to the sections of UK's latest report to the CBD:

- Schools curricula
- Using local broadcast media
- Using wider broadcast media
- Field trips and open-days
- Multi-media apps in environmental education
- Social media
- Public awareness raising strategies
- Wider public awareness actions and engagements

The Environment Charters signed in 2001 between UKOT and UK governments had a firm commitment on environmental education:

> UK Government commitment 8: Use the existing Environment Fund for the Overseas Territories, and promote access to other sources of public funding, for projects of lasting benefit to the Territories' environments.
>
> UKOT Government commitment 9 (for inhabited UKOTs): Encourage teaching within schools to promote the value of our local environment (natural and built) and to explain its role within the regional and global environment.

The Environment Fund for Overseas Territories and then the Overseas Territories Environment Programme initially supported environmental education and public awareness projects, but such projects were excluded from funding in the last few years of OTEP, and such projects are also excluded from Darwin Plus funding.

Some environmental and public awareness aspects can be included as part of other biodiversity projects funded by Darwin Plus, but where is the major funding needed to address the threat to biodiversity identified in the JNCC report of May 2013 to come from? Also, to be effective, how do we address integration into the school programmes? Experience has shown that it is essential to design courses integrated into the curricula; if education is simply attached to other projects, it will not be effective however good the products.

And how do we address the key questions: Why don't politicians and decision makers know about biodiversity in their countries / regions?; and If they do know, why do we hear of so many examples of inappropriate and unsustainable built development?

References

JNCC. 2014. Fifth National Report to the United Nations Convention on Biological Diversity: United Kingdom, Peterborough: JNCC

Kinnersly, R. 2013. No. 489 – A generic guide for small islands on the implications of signing up to the Convention on Biological Diversity, May 2013. Document no. 489. (This is no longer available for download form the JNCC website, but I am happy to email a pdf to anyone interested.)

Schools curricula: Tristan da Cunha

Jim Kerr (Tristan da Cunha Government)

Kerr, J. 2015. Schools curricula: Tristan da Cunha. pp 361-365 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

1. Introduction to Tristan da Cunha – its remoteness and small population
2. Introduce St. Mary's School, only school on the island, catering for pupils from 3yrs-16yrs; approximately 30 pupils.
3. Tristan Studies introduced into the curriculum in early 1980s as a Mode 3 CSE covering all aspects of life on the island, including topics such as history, climate, vegetation and wildlife. Pupils were taught about the importance of conservation.
4. Up to 1992, when I left the island, students were directly involved in monitoring a colony of yellow-nosed albatrosses and counting penguins. The data from these projects were shared with the Percy Fitzpatrick Institute of Ornithology, Cape Town University.
5. When CSE examinations ceased in the late 1980s, Tristan Studies continued and a local certificate was awarded to successful students (not recognised in the outside world).
6. From 1992 to 2009, there was no expatriate support for education on the island and understandably standards declined.
7. I returned in 2009 as Education Adviser to assist in getting the school back on track. By then, the island had a Sustainable Development Plan with education as one of the highest priorities. Tristan Studies had continued through the intervening 17 years but had changed little and the teachers had lost enthusiasm for the subject. The island's conservation department were continuing to monitor seabird colonies but the school was rarely involved.
8. Some students who were involved with the albatross project in the late 1980s and early 1990s are now in positions of authority in the Tristan Government and have a good understanding of the need for conservation and sustainability.
9. When I last left the island in October 2014, a decision had been made to replace Tristan studies with Geography GCSE, although most topics within that curriculum would be related to Tristan whenever possible.
10. It is the long-term aim that students aged 16 will have the opportunity to gain the equivalent of 5 GCSE examinations that would enable them to access further education overseas.
11. Sustainability, particularly in terms of renewable energy, and conservation to protect the environment including two UNESCO World Heritage Sites, are two of the most important topics that will be taught as part of the new Geography/Tristan Studies Curriculum.

Jim Kerr, UK Adviser, Government of Tristan da Cunha
(Head of Education, Tristan da Cunha 1985-1992; Education Adviser, Tristan da Cunha 2009-2014) ukadviser@tdc.uk.com

It is important to set the context for conservation in the schools curricula on Tristan da Cunha. Tristan is the most remote inhabited island in the world, situated in the mid South Atlantic, 1500 nautical miles west of Cape Town, South Africa. There is no airport and the nine ship sailings to the island per year take anywhere between seven and ten days to get there. The population is small, numbering approximately 270 and everyone lives

in the settlement of Edinburgh of the Seven Seas (above) located on a narrow plain on the most northerly point of the island.

With the population being so small, there is only one school (St Mary's School, above with The Base – see below – towering behind). It caters for children between the ages of 3 and 16 (below).

In recent years, there have been just under 30 pupils attending the school, and these are divided into five classes and a pre-school playgroup. Three classes cover the infant and junior part of the school (5yrs-11yrs) and two the secondary (11 yrs-16yrs). It is unusual to have more than 6 pupils in

a class (above: Class 2) and there have been times when some classes only have two or three pupils!

When I last left the island in October 2014, there were seven island teachers, none of whom have formal teaching qualifications. Some have lengthy experience in the school; some have benefitted from training in the UK; and all have received ongoing professional development on the island since 2009. Currently, there is an expatriate education adviser on the island specialising in the teaching of science and a recently recruited expatriate teacher who specialises in primary education. The recent increase of expatriate support has been necessary as two of the most experienced island teachers have retired and another will retire within the next three years. Recruitment of new island teachers from such a small population has been very difficult.

Conservation was first introduced into the island school's curriculum in the early 1980s, at a time when the island had been supported for several years with at least two expatriate staff. The subject of 'Tristan Studies' was devised and taught to the 14 to 16 age range by an expatriate geography specialist, Richard Grundy. The subject sought to teach the children about all aspects of life on the island, including its history, climate and weather, topography, geology, governance, vegetation and wildlife. An important part of this curriculum was developing an understanding of the need for conservation. This was an examination subject, mode 3 Certificate of Secondary Education (CSE), the highest grades of which were considered the equivalent of a GCE 'O' Level.

One of the most successful features of Tristan Studies was the direct involvement of students in conservation projects. When I first arrived on the island in 1985, pupils were involved in a project to monitor a colony of yellow-nosed albatrosses (top of next page) and I continued this until I left in 1992.

The albatrosses we studied nested on the mountain behind the settlement and getting there involved a strenuous climb on narrow pathways to The Base, a plateau approximately 1800 ft above the village. (View from The Base below).

The youngsters were involved in finding the nest sites, reading and recording the ring numbers of adult birds, monitoring the growth of the chicks (below) and ringing them. A computer, the first one to be used on the island, was used to record the data and a map of the area was made to record the location of nests. All these data were shared with the Percy Fitzpatrick Institute of Ornithology, University of Cape Town who found it useful to compare with data they were collecting on Gough Island, 223 nautical miles to the SSE of Tristan.

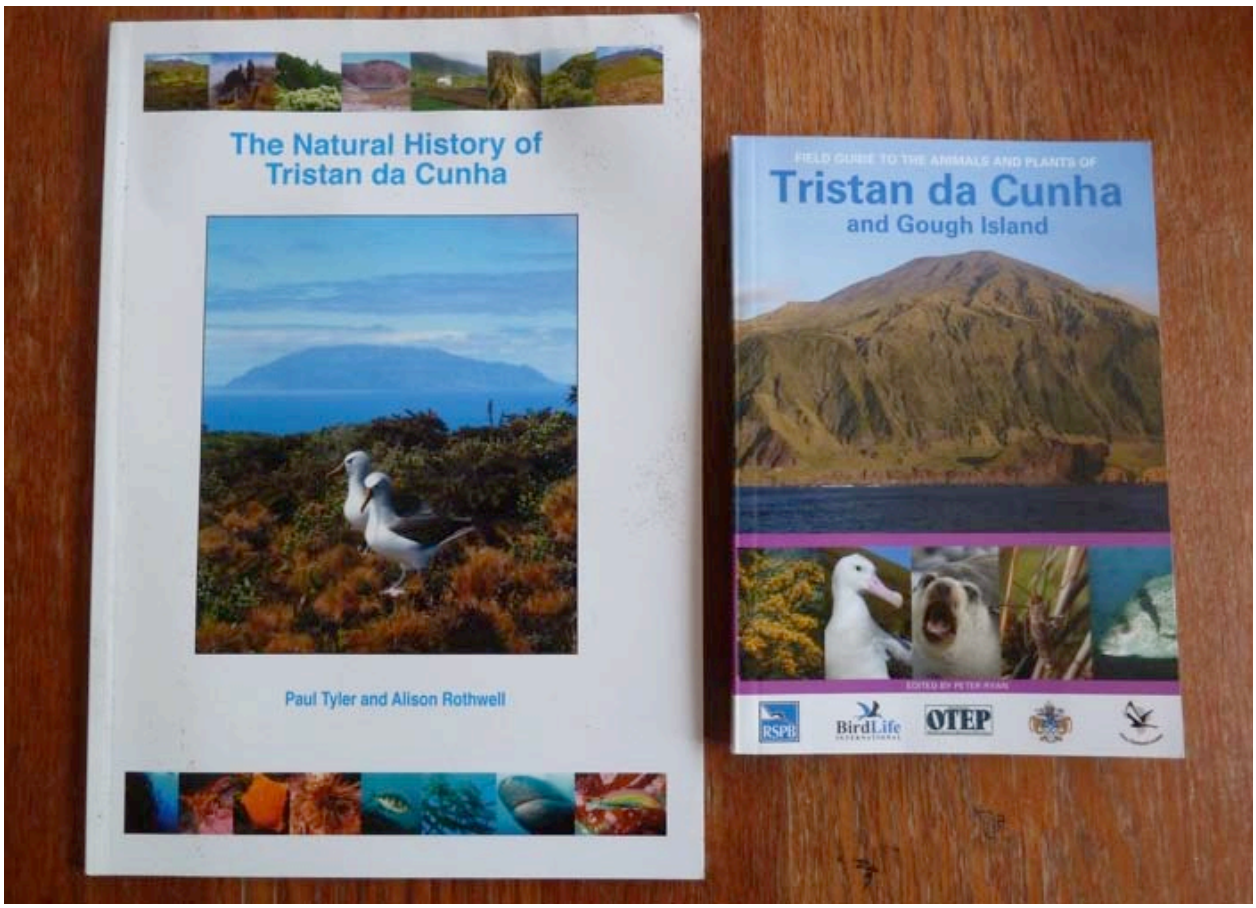
Most of the children enjoyed these activities and developed a keen interest in the seabirds of their island; some began to see these birds as beautiful creatures to be protected. At the time, many older members of the community regarded the albatross as tasty protein and resented the fact the birds had recently been protected by law. In the last season that I involved the students in these activities (1991-1992), we found a pair of breeding adults one of which had been ringed as a chick by my predecessor 7 years previously.

Unfortunately, in the late 1980s, the CSE examination ceased, so pupils were unable to get a recognised qualification in Tristan Studies. The subject continued to be taught and a local certificate was awarded.

I left the island in 1992 and returned to the UK. DFID, then the ODA, had withdrawn funding for expatriate teachers, and education on the island was left under local control. This was the start of a seventeen-year period when island teachers had little support from the outside world. No expatriate teachers were employed on the island during this time and, although some island teachers visited the UK for training, this was inadequate to meet all their needs, and educational standards understandably began to fall. Tristan Studies continued throughout that time but the direct involvement in studying seabirds ceased and there was far less fieldwork related to the subject. There was no formal conservation department in the 1990s, so the teachers had no one to turn to whoever could help with fieldwork and conservation activities.

In 2009, it was recognised that Tristan education desperately needed expatriate support and I returned to the island as Education Adviser. As expected, standards had fallen and much work was needed to improve the 'basics'. Tristan Studies was still being taught but had not developed in any way; the teachers were still relying on notes that I had made in 1991! It was still regarded as an important subject but the teachers involved had less enthusiasm and it was clear that the subject needed a whole new approach.

There were, however, two resources that the teachers were making good use of: the *Field Guide to the Animals and Plants of Tristan da Cunha,* edited by Peter Ryan of the Percy FitzPatrick Institute, University of Cape Town; and the *Natural History of Tristan da Cunha*,



byPaul Tyler and Alison Rothwell that was funded by the UK Overseas Territories Conservation Forum. A combination of these publications was enabling students of all ages to develop a better understanding of Tristan's habitats and related wildlife.

By then, the island had a conservation department and it was part of their remit to involve the school in projects such as counting penguins and monitoring other seabirds. Unfortunately school involvement was rare partly due to the dangerous nature of accessing seabird colonies. Both parents and professionals were more health and safety aware and were far more anxious about youngsters climbing the mountain or travelling round the islands in small boats. Equally, very few of the island teachers were willing to leave the settlement plain on expeditions due to a fear of heights or seasickness. While I was working in the school during the last few years, we organised some fieldwork based on the Settlement Plain, a visit to Nightingale and Inaccessible for four students using the fishery protection vessel (much safer), and a trip round the island looking at volcanic features in the cliffs (see photos below). In all of these activities, we were able to access the expertise of visiting experts and scientists.

Many of the students that had been involved in the albatross project in the 1980s and 1990s now hold positions of authority in the Tristan

Government and some are island councillors. (See photo of 2009 Island Council above.) I think that their early experiences helped them to have a good understanding of the need for conservation and sustainability, and they were involved in the writing of the island's first sustainable development plan in 2009.

When I worked in the school last year, we made a decision to add IGCSE Geography to the school curriculum and align Tristan Studies topics to those of the IGCSE course. IGCSE Geography has three main themes, population and settlement, the natural environment and economic development and the use of resources. Specific case-studies are not included in the syllabus, so the teachers can select Tristan-based studies to illustrate the themes. Within the third theme, economic development and the use of resources, pupils need to:

- Demonstrate the need for sustainable development, resource conservation and management in different environments.
- Identify areas at risk and describe attempts to maintain, conserve or improve the quality of the environment

This was very much welcomed by the local staff and, fortunately, my successor is a Geography, as well as Science, specialist and he has been able to take it forward.

It is a longer-term aim of Tristan's Education Department that students at the age of 16 will have the opportunity to gain the equivalent of at least 5 IGCSEs including Maths, English, Geography, Science and IT. This would enable some of them to access further education in the UK or South Africa; very few have had that opportunity in the last 20 years. (Some of the students overseas shown at the top of next column.) Currently there is one Tristan student attending a private secondary school in Cape Town, working towards her Matric (equivalent of A levels).

Both sustainability, particularly in terms of renewable energy and conservation to protect and improve the environment (Tristan has two UNESCO World Heritage sites), are vital for Tristan's future. The Island Council, in their Sustainable Development Plan, recognise the importance of education in these areas and are supportive of the school making Conservation and Sustainability a high priority in the school's curriculum.

Schools curricula: Wonderful Water Curriculum Development in the Turks and Caicos Islands (TCI)

Ann Pienkowski (UKOTCF)

Pienkowski, A. 2015. Schools curricula: Wonderful Water Curriculum Development in the Turks and Caicos Islands (TCI). pp 366370 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

The objective of this project (partly funded by the Overseas Territories Environment Programme - OTEP) was to develop curriculum-linked teaching materials on the importance of wetland ecosystems and the vulnerable natural freshwater systems in the Turks and Caicos Islands. The project arose from the concerns of the Director of Education in TCI that students were not aware of the biodiversity importance of their local natural wetland and freshwater systems, and that rapid and uninformed development was damaging these, particularly cave systems with endemic species. .

The project developed curriculum-linked teaching materials, using local examples. The materials were targeted at the upper primary / lower secondary level, but have been shown to have wider application. Workshops for teachers were held in TCI in 2011 and 2012, to introduce the project, traal the materials, and get local feedback.

Each teaching unit consists of a pupils' text and teachers' guide, with full colour illustrations, and suggested activities. Most units have supporting Powerpoint pdf presentations of the illustrations in the pupils' text and teachers' guides. All the materials were produced electronically, so that teachers could use them flexibly, for example via computer projection. This also meant that materials could be updated fairly readily, and avoided the expense of printing text books.

TCI Director of Education, Mr Edgar Howell, examines rock structure in cave.

A grant from the Royal Bank of Canada's Blue Water programme enabled further teaching materials to be developed, concentrating on the natural freshwater systems in TCI. Much more could be done, but lack of funding has currently put this project on hold.

The Deputy Director of Education in TCI, who took the lead in establishing the Wonderful Water curriculum in TCI, has reported that teachers and students like the materials, and delivery via computer projection is effective.

Ann Pienkowski, Honorary Environmental Education Coordinator and Secretary Wider Caribbean Working Group, UKOTCF apienkowski@ukotcf.org

This talk explains how the Wonderful Water Curriculum Development project developed curriculum-linked teaching materials to address lack of knowledge of the importance of TCI wetlands and the natural freshwater systems, in a country with very low rainfall.

A key factor throughout this project was to produce materials which teachers could use in delivering the learning objectives that were already part of their required teaching, particularly those aspects required for statutory assessment at the end of the

primary phase.

The teaching materials being used at the time of the project development were adequate for delivering required learning objectives, but used examples from elsewhere in the Caribbean, for example Jamaica which is very different geologically and ecologically from TCI, and even some materials from UK!! So students were not learning about the importance of their own environment.

The objective of this project (partly funded by the Overseas Territories Environment Programme - OTEP) was to develop curriculum-linked teaching materials on the importance of wetland ecosystems and the vulnerable natural freshwater systems, as well as the need to conserve water, in the Turks and Caicos Islands, using only TCI as a source for the teaching materials.

It was also important that the teaching materials included suggestions for active group work, and activities outside of the classroom. Students need to experience their environment if they are to value it, and engage actively in their learning, rather than have a diet solely of "chalk and talk".

The project arose from the concerns of the Director of Education in TCI, Mr Edgar Howell, that students were not aware of the biodiversity

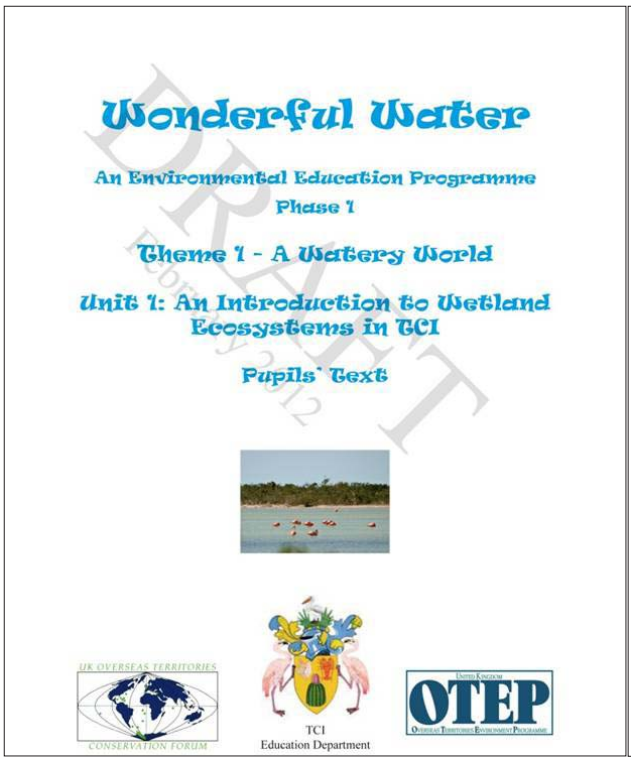
importance of their local natural wetland and freshwater systems, and that rapid and uninformed development was damaging these, particularly cave systems with endemic species. Mr Howell and I jointly developed the project proposal, and worked together to bring the project to a successful conclusion.

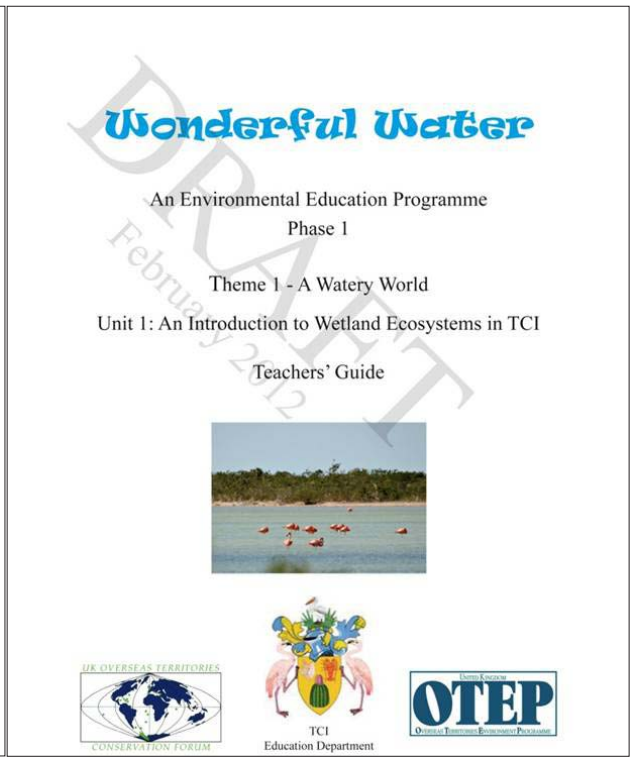
The project developed curriculum-linked teaching materials, using local examples. The materials were targeted at the upper primary / lower secondary level, but have been shown to have wider application.

An advisory group was established in TCI, consisting of teachers, representatives of the Department of Education in TCI, and other local stakeholders. As the materials were drafted, they were sent to the advisory group for comment and revision.

Workshops for teachers were held in TCI in 2011 and 2012, to introduce the project, trial the materials, and get local feedback.

Each teaching unit consists of a pupils' text and teachers' guide (see top of next page), with full colour illustrations, and suggested activities. Most units have supporting Powerpoint pdf presentations of the illustrations in the pupils' text and teachers' guides. The Turks and Caicos Islands have many contract teachers, from around the Caribbean and even further afield, such as the Phillipines. These teachers will not have local knowledge of TCI ecosystems, so one of the objectives of producing





the teachers' guides was to give further background information on TCI's wetland environments, and suggest activities. All the materials were produced electronically, so that teachers could use them flexibly, for example via computer projection. This also meant that materials could be updated fairly readily, and avoided the expense of printing text books.

The first stage of the project was Curriculum Development. The steps taken here were to consult the TCI education department and teachers on the existing curriculum teaching materials currently in use in schools. It was important to include in the WW materials the learning objectives needed for statutory assessment at the end of primary school if teachers were going to be able to include the WW materials in their teaching.

A curriculum framework (below) was developed, based on current practice in TCI and the English National Curriculum. The curriculum framework was for both primary and secondary students, and covered Living Things, Materials and Scientific Enquiry. One of the main aims of producing the framework was to give an overview which linked desired learning outcomes to activities and tasks for students, together with statements

Draft Curriculum Framework for Wonderful Water: Science and Geography, Phase 1 Living Things– February 2012

Science Curriculum Programme of Study	Other Curriculum Links	Learning Outcomes	Themes / Activities / Tasks	Assessment Criteria / Statements of competency (Levels 2, 3, 4, 5)
Living things in their environment	**LINK WITH SCIENTIFIC ENQUIRY – SEE ABOVE**			
Ecosystems				
What an ecosystem is.	English Art	- Find out about some of the different wetland ecosystems in TCI - Be introduced to some of the wide variety of plants and animals which are found in wetland ecosystems. - Find out about some of the ways in which wetland ecosystems are balanced.	Theme 1 – A Watery World Unit 1: Wetland Ecosystems in TCI Unit 2.1 Mangrove Ecosystems	**L2**: Match animals and plants to a wetland ecosystem using pictures or photographs. **L3**: Know that a healthy ecosystem is balanced (enough food and water for the plants and animals to live and reproduce successfully) **L4**: Know that an ecosystem is a community of living things that sustains itself. **L5**: Recognise that a healthy ecosystem supports a wide variety of living things, not just large numbers of individuals (biodiversity).
Why ecosystems are important.	English Art	- Discover some of the ways in which wetland ecosystems are important. - Find out about different zones in a mangrove ecosystem. - Find out about different mangrove tree species in TCI - Find out about different living things in the mangrove ecosystem - Find out why mangrove ecosystems are important	Theme 1 – A Watery World Unit 1: Wetland Ecosystems in TCI Unit 2.1 Mangrove Ecosystems	**L2**: Know one reason why a wetland ecosystem is important. **L3**: Give at least 2 examples of how wetlands benefit people **L4**: Give at least 3 examples of how wetlands benefit people. **L5**: Discuss what the effects would be, on people living nearby, of losing a wetland

of competency to guide progression. There was never any intention that the WW materials being produced would cover the whole curriculum. But the framework does allow any future development of environmental education materials to be linked to a structured curriculum.

The second stage was the production of the teaching materials, both the pupils' text and teachers' guides. Here is an example of the page from the Pupils' text which gives students the objectives for the unit *An Introduction to Wetland Ecosystems in TCI*. It says:

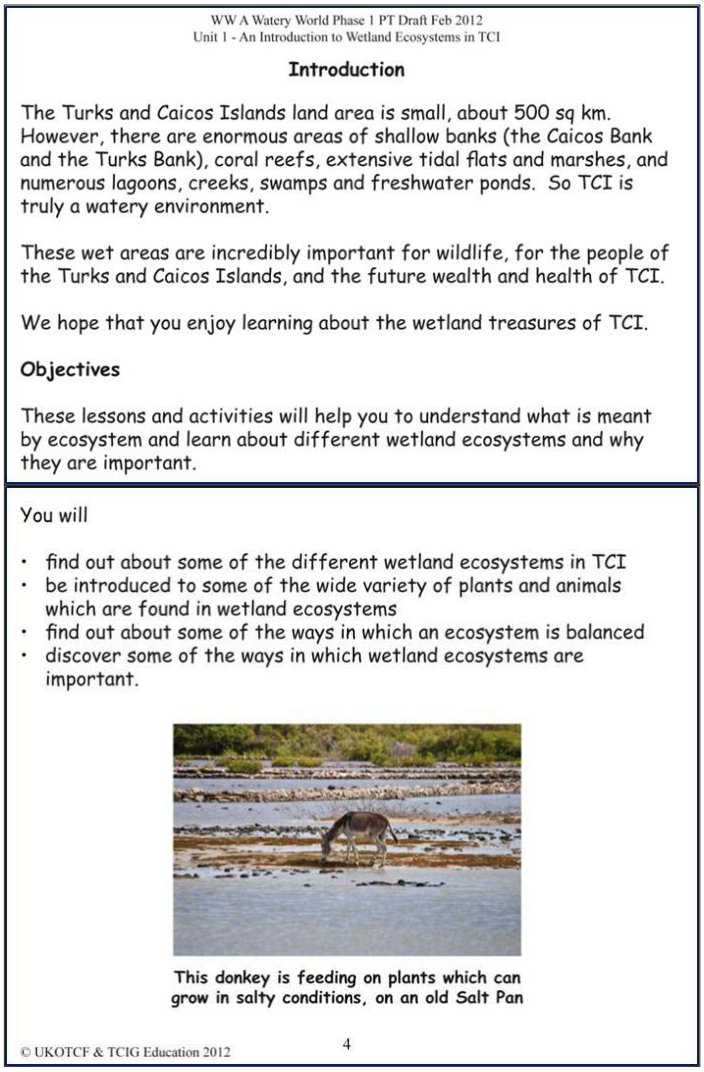
- You will find out about some of the different wetland ecosystems in TCI,
- be introduced to some of the wide variety of plants and animals which are found in wetland ecosystems,
- find out about some of the ways in which an ecosystem is balanced,
- discover some of the ways in which wetland ecosystems are important.

The development of the teaching materials involved ongoing consultation with educators in TCI, and workshops for teachers, one set in the first year of the project, and another in the second year.

The workshops included presentations, demonstrations of group teaching, and teachers trying out practical activities. The presentations were given by people in TCI with expert knowledge, for example from the water company, the Department of Environment and Coastal Affairs (now DEMA, Department of Environment and Maritime Affairs), and the Department of Culture. The demonstrations of group teaching were given by a TCI senior biology teacher with a group of her own students. The practical investigations involved teachers trying out, and reviewing, some of the practical activities suggested in the teachers' guides.

During the 2-year part OTEP funded stage of the project, as well as the curriculum framework, teaching materials were produced on:

TCI Wetland Ecosystems, including their biodiversity importance and the Mangrove Ecosystem. The latter was a particular request of TCI teachers during the first series of workshops held in TCI.



WW A Watery World Phase 1 PT Draft Feb 2012
Unit 1 - An Introduction to Wetland Ecosystems in TCI

Introduction

The Turks and Caicos Islands land area is small, about 500 sq km. However, there are enormous areas of shallow banks (the Caicos Bank and the Turks Bank), coral reefs, extensive tidal flats and marshes, and numerous lagoons, creeks, swamps and freshwater ponds. So TCI is truly a watery environment.

These wet areas are incredibly important for wildlife, for the people of the Turks and Caicos Islands, and the future wealth and health of TCI.

We hope that you enjoy learning about the wetland treasures of TCI.

Objectives

These lessons and activities will help you to understand what is meant by ecosystem and learn about different wetland ecosystems and why they are important.

You will

- find out about some of the different wetland ecosystems in TCI
- be introduced to some of the wide variety of plants and animals which are found in wetland ecosystems
- find out about some of the ways in which an ecosystem is balanced
- discover some of the ways in which wetland ecosystems are important.

This donkey is feeding on plants which can grow in salty conditions, on an old Salt Pan

The Mangrove Ecosystem unit (see top of next page) has sections on:

- Mangrove ecosystems and their importance
- Adaptations of mangrove species
- Feeding relationships in a mangrove ecosystem
- Threats to mangrove ecosystems
- Climate change and mangroves
- Caring for mangroves
- Classification of organisms in a mangrove ecosystem.

These sections specifically addressed the curriculum requirements of the GSAT assessment which students in TCI have to take at the end of the primary phase.

The materials are still labelled "draft", together with the date of their production. This is to remind people that they can be updated without too much cost, and the date of production allows as assessment of how up-to-date they are.

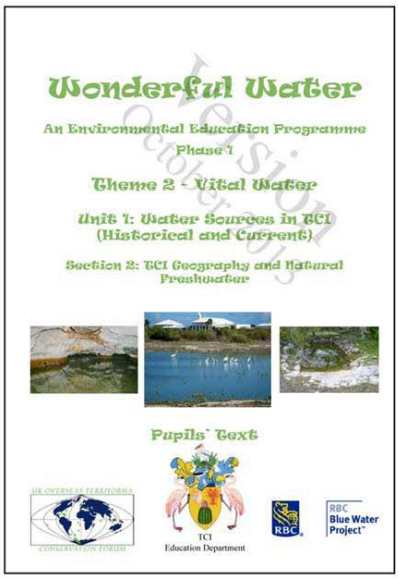
A grant from the Royal Bank of Canada's Blue Water programme enabled further teaching materials to be developed,

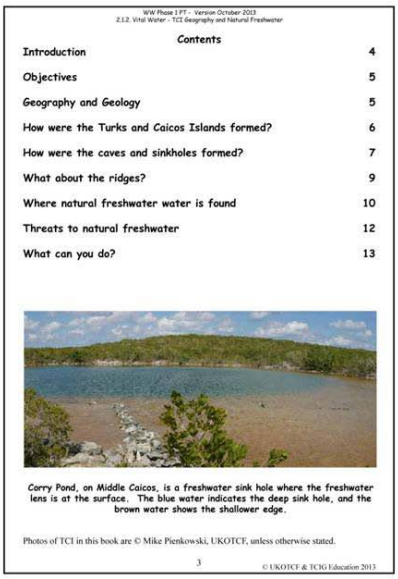
concentrating on the natural freshwater systems in TCI. This was for the second theme of the Wonderful Water materials, titled "Vital Water." A unit was produced on TCI geography and natural freshwater, and included information on the freshwater lens and cave systems, threats to these and actions which the students themselves could take.

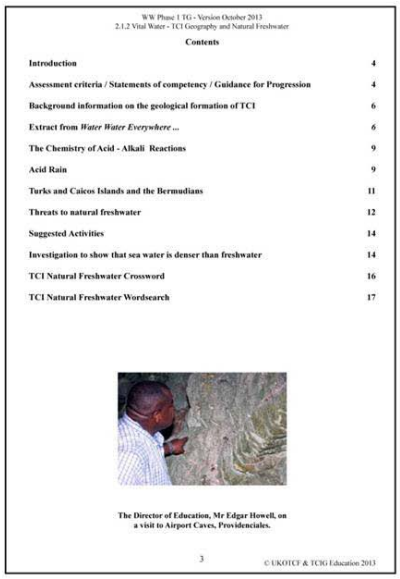
Much more could be done, but lack of funding has currently put further production of materials for this project on hold.

The Deputy Director of Education in TCI, who took the lead in establishing the Wonderful Water curriculum in TCI, has reported that teachers and students like the materials, and delivery via computer projection is effective.

The Director of Education, at the end of the part-funded OTEP stage of the project, commented: "the relevance of the project is in sync with the realities of life in the TCI and small island states. In addition, I am pleased that teachers, other stake-holders and private sector partners are engaging with the curriculum materials as they are being developed, and are providing critical feedback to move the work along. This will definitely help to ensure that the notion of conservation and sustainability become entrenched in the attitude and behaviour of children and the people of TCI."







Using local broadcast media (radio): Montserrat

Sarita Francis (Montserrat National Trust) and Stephen Mendes (Montserrat Department of Environment)

Francis, S. & Mendes, S. 2015. Using local broadcast media (radio): Montserrat. pp 371-373 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

Traditional forms of disseminating information to communities and seeking their involvement to protect natural and cultural heritage are varied and time-tested. The proliferation of new media (internet, smart phones, and websites) should not and cannot replace some traditional methods of engaging stakeholders. In Montserrat, given our experiences over the last forty five years, we therefore must have at our disposal a range of approaches to environmental education which must have at its core the broadcast media. The volcanic eruptions started in 1995, and the radio became the lifeline of the population as far as safety was concerned. In addition, the Diaspora (most of whom evacuated) continue to rely on ZJB Radio Montserrat (which is carried over the internet) to inform on the events in the country.
It is therefore obvious that the radio is an important key resource in promoting environmental education and cultural awareness on Montserrat. On Montserrat, there are many examples where radio has been used for motivating the populace to be involved in owning and protecting the heritage over the years.

Sarita Francis, Executive Director, Montserrat National Trust
mnatrust@candw.ms
Stephen Mendes, Environment Technician - Education, Montserrat Department of Environment mendess@gov.ms

The variety of techniques used by the Ministry of Environment, the Montserrat National Trust and other partners include:

- Internet: Website, Facebook
- School and group visits to Montserrat National Trust, Museum and other sites
- Special programmes where different stakeholders are targeted
- Visit to schools and communities to promote projects
- Fun-days
- Competitions.

However, traditional forms of disseminating information to communities and seeking their involvement to protect natural and cultural heritage are varied and time-tested. Radio, reaches a wider audience locally and can motivate the population to action.

Radio broadcasting in Montserrat started from about 1952 with the start of a Radio Station (Radio Montserrat, now ZJB) at the residence of the Manager of the Montserrat Company (now Olveston House, owned by Sir George Martin). The station was eventually taken over by Government of Montserrat and relocated in the Botanical Station Compound at the Grove.

In the late 1960s, Montserrat became the Caribbean Primary Radio Broadcasting Centre, with the advent the Giant Big RA (Radio Antilles)

Rose Willock and Children's Hour on Radion Antilles 1976

Radio Antilles

broadcasting on 100,000 watts of AM power. This Station, owned by a German and French company, broadcasted throughout the northern Caribbean down to South America in English, Spanish, German and French. The announcers came from Montserrat and across the Caribbean and Europe, and were trained at a high standard. One of these persons still resides on Island and produces the very popular 3-hour Cultural Show every Saturday.

Antilles TV, developed by the owners of Radio Antilles started operations around 1980 and provided a nightly local news broadcast and relayed limited international news. Prior to this, Montserrat was able to access only ABS TV in Antigua, using the individual outdoor TV antennae. Cable TV provided the avenue for local TV broadcasting but this, to a large extent, was one of the casualties of volcanic crisis.

The volcanic eruptions started in 1995, and the radio became the lifeline of the population as far as safety was concerned. Radio broadcast on ZJB broadcast 24hrs a day since the height of crisis, when scientists would give updates at least three times a day with special emergency announcements as changes occurred at the volcano. The population depended on this source to make decisions on life and business. In addition, the Diaspora (most of whom evacuated) continue to rely on ZJB Radio Montserrat (which is carried over the internet) to inform on the events in the country.

Although there has been a period of quiet at the volcano for the last four years, it is very common to hear radios in offices and homes, playing throughout the day as this was the way of life of the island for over fifteen years. More recently, there has been the gradual use of the internet and social media which carry items on Montserrat. However, radio is still the popular media to convey messages on-island and off-island, with ZJB Radio on Montserrat the preferred medium of the masses.

It is therefore obvious that the radio is an important key resource in promoting environmental education and cultural awareness on Montserrat.

On Montserrat, there are many examples where radio has been used for motivating the populace to be involved in owning and protecting the heritage over the years:

University Voice 1970s promoting history and

Sydney Mendes reading a poem on radio

environment by Montserrat National Trust (MNT) Committee Members

National Bird, Flower, and Tree Competition, 1970-80s – MNT Environmental Education (EE) Committee

Best Village Competition 1988-91 – MNT EE Committee

Montserrat Oriole Campaign 1992 – RARE, Rose Willock, MNT EE Committee

Centre Hills Reserve Project 2008 – Centre Hills Project

Montserrat Mountain Chicken Project – Stephen Mendes, DOE

Farmers Corner – Agriculture Department

The Cultural Show (Interviews with local and visiting specialist, publicising special environment and cultural events such as Cleanup Campaigns,

Former head teacher, Rev Morgan, and MNT Executive Director, Sarita Francis, on MNT Heritage Show

ZJB Radio/Department of Environment Education and Awareness – from 2008: 27 public service annoucements written and aired, 10 quiz weeks, 25 radio programmes, 40 press releases, 33 radio interviews, an environment jingle still in use in 2015, sponsored junior calypso.

Festivals etc, engaging with the Diaspora) 2010 – Rose Willock

Montserrat National Trust Heritage Show, Promoting the work of the Trust, Interviewing persons 2013 – MNT

Radio Announcers, call in programmes, news items – Radio Montserrat ZJB

Radio has a powerful influence in Montserrat and the Diaspora. Its use in disseminating information and creating change must not be undervalued. Therefore, a comprehensive strategy must be employed by Government and NGOs to coordinate, collaborate, improve and utilise this medium for maximum effect.

Rose Willock interviews Jo Treweek, Catherine Wensink and (behind the camera) Mike Pienkowski after the UKOTCF-supplied EIA workshop, January 2015

Using wider broadcast media: *Britain's Treasure Islands*

Stewart McPherson (Redfern)

McPherson, S. 2015. Using wider broadcast media: *Britain's Treasure Islands*. pp 374-375 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

Over three years, all the UKOTs have been visited for filming, resulting in 4 1-hour films for broadcast internationally within the next year. UKOTCF, and many of those at the conference and other in the UKOTs, have helped in this. A special compilation video of about an hour from these films was shown at the conference. Stewart, UKOTCF and others are collaborating also in the production of a series of short videos, one for each UKOT and several on cross-territory issues, incorporating video and still material from the filming for this project, supplemented by material made available by others. When editing is complete, these will be available freely in several places, including www.ukotcf.org. UKOTCF and other partners are working with Stewart also on a book.

Introduction to the video
Ann Pienkowski

Stewart McPherson cannot be here for the conference and sends his apologies – and his video! I am here to introduce his video on *Britain's Treasure Islands*.

I have been asked to introduce this video for several reasons.

First, it fits logically within the session on Environmental Education and Awareness. Most of this occurs tomorrow morning, and I will put this item in more context when I introduce that session then.

Second, I was rather pleased – if not surprised - that, for some of the videos being produced (not that being shown shortly), video material that I recorded in some of the territories is being used!

UKOTCF has been trying for many years to get TV programme-makers to take more interest in the UK Overseas Territories and their amazing treasures, both natural and cultural. So, we were delighted that Stewart McPherson had decided to do this. Stewart had, like us, been unsuccessful in getting any of the networks to commission this, but decided to go ahead and do it at his own expense (or rather by taking out lots of loans!), and then try to sell the result to the networks.

UKOTCF has tried to help Stewart in whatever way it could. This includes:

- Technical advice and providing contacts throughout the project
- Helping to raise funds for extra products
- Organising, with the help of HM Government of Gibraltar, London meeting rooms to allow Stewart to give updates to stakeholders.
- Commenting on draft story-board texts
- Commenting on draft video programmes
- Provision of wildlife and other stills from the UKOTs for the video programmes and related book
- Provision of wildlife video material from UKOTs for the video programmes.
- Commenting and supplying texts and photographs for the book.

Many people in the territories and in other organisations, especially Royal Botanic Gardens Kew, have also provided lots of help and advice.

The good news is that the main TV series is complete, and we will see one of the 4 full episodes shortly. This is a special one-off preview, because TV broadcast will not happen until late this year or next. Obviously, the negotiations with networks are confidential – and Stewart's recovery of his financial outlay, and presumably the future wellbeing of his family, depend on this. However, I can say that a major Australian network will be screening the series in prime time, several major UK networks are interested and we hope close to agreement, and there is interest too in North

America and mainland Europe.

A beneficial consequence of the series not being commissioned in advance is that Stewart can use the rest of his excellent video taken by professional cameramen – with gaps filled by amateurs, such as me – to make a series of short videos of about 10 minutes each, one for each UKOT and about the same number of cross-territory short videos on various taxonomic groups.

Our own Catherine Wensink, UKOTCF Manager, provided a lot of help and advice to Stewart on setting up the crowd-funding exercise which raised the funds for professional editors to work on these, and the Government of Gibraltar contributed also.

These short videos, once ready (we hope later this year) will be freely available for wide use, and we will certainly have links from the UKOTCF web-site, including from our Virtual Tours.

We are working with Stewart also on the other main product, a book to go with the series. I know that Mike has spent more time on sorting out his UKOT wildlife photos on this than for any other project!

As I mentioned, Stewart sends his apologies for not being here. Being an explorer, he is currently in Greenland. How we got the video from Stewart, whose normal base is Sydney, Australia, is a story in itself. Suffice it to say that it involved:

- A 48-hour upload by Stewart on to a web file-transfer site
- Mike staying up all night just a day before he had to travel here, to download 75% of it before the system failed 18 hours in.
- Stewart couriering it to me as he passed through Heathrow on his way from Sydney to Greenland; and
- Mike later discovering that he and Stewart were in different parts of Heathrow Terminal 3 at the same time as each other!

The 1-hour video that you are now going to see includes 3 parts:

1. A message from Stewart
2. A compilation of about 5 minutes of clips from all of the 4 videos of the main TV series – with some rather strange juxtapositions of shots.
3. The whole of the first of the 4 films of the TV series. As Mike mentioned in the Southern Oceans Working Group, the folk from Ascension were the first to sign up for this conference, but a happy event about now has prevented their attending. So we are very pleased that this episode covers Ascension, as well as St Helena and Tristan da Cunha.

The whole video including those three parts lasts 1 hour – so let's get started.

Field trips and open-days: Promoting the Natural Environment in Small Territories – Gibraltar as a Case Study

Keith Bensusan (Gibraltar Ornithological & Natural History Society/ Gibraltar Botanic Gardens)

Bensusan, K. 2015. Field trips and open-days: Promoting the Natural Environment in Small Territories – Gibraltar as a Case Study. pp 376-379 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

Effective public engagement and understanding are essential in conservation. This is particularly the case for smaller territories and organisations, which need to articulate clearly how their small communities and territories can and do contribute to global biodiversity and its preservation. Although such organisations often have limited resources, a grass-roots approach can often achieve good results without a significant financial burden. Public activities, in which individuals are brought closer to nature, are effective means with which to achieve these aims. Small territories can promote conservation particularly effectively by joining international non-governmental organisations (INGOs), demonstrating the global relevance of smaller territories to biodiversity conservation and participating in large, well organised and international public engagement initiatives. Through their receptiveness to new ideas and their influence on parents, children can often be catalysts of changes in attitude, and it is important that such programmes make an effort to offer activities that either have appeal for children, or are specifically aimed at them. The use of social media, such as Facebook and Twitter, can also enhance an organisation's educational outreach effectively and at no additional cost. This talk will illustrate how both GONHS and the Gibraltar Botanic Gardens use a combination of all of the factors summarised in order to educate the public and promote the conservation of Gibraltar's important terrestrial and marine habitats and species.

Dr Keith Bensusan, Council Member & Head of the Strait of Gibraltar Bird Observatory / Gibraltar Ornithological & Natural History Society kbensusan@gonhs.org

The UK Overseas Territories and Crown Dependencies are all small at a global scale. Their natural resources are managed or promoted by small governments and organisations, often with limited resources.

All of the UKOTs and CDs have natural features that make them special. In fact, 94% of unique species that the United Kingdom is responsible for are found in the UKOTs and CDs.

It is important to make local communities aware of their natural assets, including their global relevance and communicating this is key.

Engaging the public

There are several ways in which small organisations can engage the public and increase understanding of their natural assets. These include: appealing to people's sense of identity, bringing people closer to nature, joining international initiatives, using publications, embracing social media and targeting children.

In Gibraltar, the Department of the Environment and Environmental Safety Group also do important work in this regard.

Gibraltarians have a strong sense of identity see photo at bottom of next column).

Montage of Gibraltar wildlife

The public seems to respond best to conservation initiatives when species are seen as 'Gibraltarian' and when the public has a sense that Gibraltar punches above its weight internationally in terms of its contribution.

Forming partnerships with other bodies

Plenty of opportunities exist for affiliation with International NGOs (for example, UKOTF, Birdlife etc). These often organise their own regular,

international activities. Participating in these gives small organisations an opportunity to engage with the public. They are ideal opportunities to explain the relevance of global issues to small communities, and the contribution of small places to global issues. Some examples include: Birdlife EuroBirdwatch, International Bat Night, World Ocean Day (see montage above).

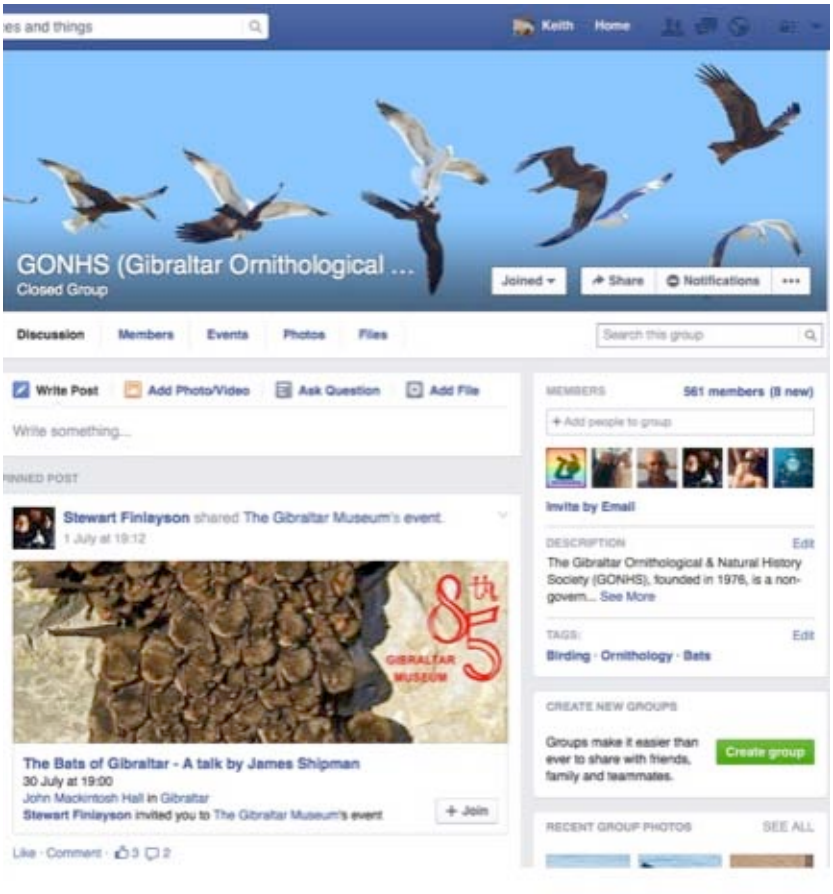
Communications

Publishing newsletters is an important part of the

Engage the Little People

Enthusiasm for the natural environment is often strongest among children. Parents and other family members will usually accompany children on outings. It is often children's charm which is enough to convince adults to change their opinions or habits. When this fails, the energy with which they deploy their whining can be an effective substitute! Children can be catalysts of changes in organisations outreach.

Combined with the use of social media, which is more instant, it allows the public to be part of the discussion by asking questions, posting comments and spreading messages (see below).







attitude, especially towards the environment.

A good example of this has been the Alameda Gardening Club (see montage above). Green space in Gibraltar is very limited. Most children in Gibraltar have no access to gardens. Thus, some have little contact with the natural environment. The Alameda Gardening Club introduces children to themes such as: horticulture, importance of plants in peoples' lives, ecology, including pollinators, conservation and recycling. The initiative is supported by the Department of Education.

In conclusion, education is key to conservation. Most of us live in small, tightly knit communities where word of mouth can be an effective means of disseminating news. Communication can be enhanced via activities. Social media are an extremely useful tool that must be harnessed. Children should be targeted. Effective public engagement shapes conservation policy and makes it inexpensive.

Photo credits

- Andrew Abrines
- Paul Acolina
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- Clive Finlayson
- Christine Gilder
- Gilbert Gonzalez
- Phil Gould
- Rhian Guillem
- Leslie Linares
- Antonio Verdugo
- Albert Yome

Aerial view from the north, of Gibraltar with the Straits behind; in the distance, Morocco, and to the right, Spain.

Multi-media apps in environmental education

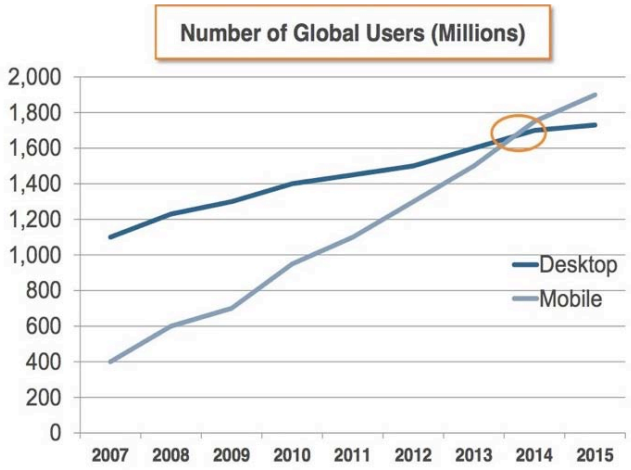
Stephen Warr (Department of Environment, Government of Gibraltar)

Warr. S. 2015. Multi-media apps in environmental education. pp 380-384 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

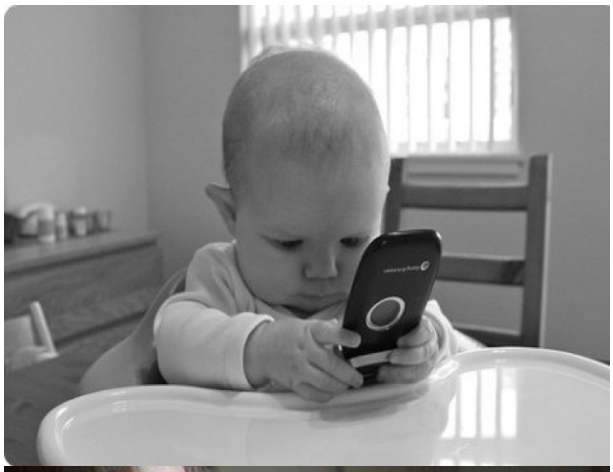
As we have learned to connect through technology, awareness of social and environmental issues continues to grow and evolve. Green applications or 'eco apps' and social media have essentially turned mobile devices into portals for environmental education and sustainable development. From apps that catalogue biodiversity to games that encourage recycling or even live webcams of underwater environments, these platforms are clear examples of how the power of technology can work for students, educators and the environment.

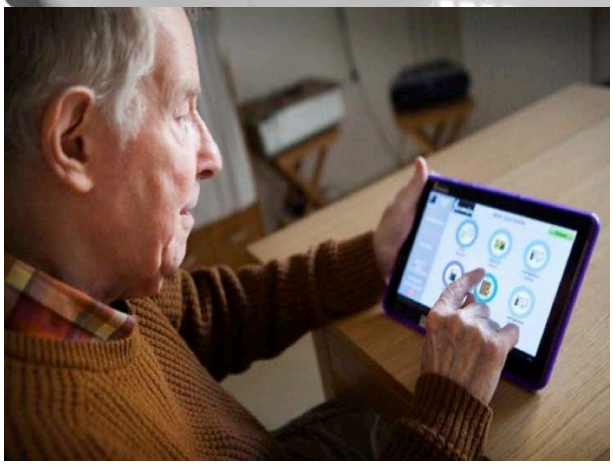
Stephen Warr, Senior Environment Officer, Gibraltar Department of the Environment. stephen.warr@gibraltar.gov.gi

There has been a sharp rise in mobile communications since 2007. Source: Morgan Stanley Research, 2014. http://www.businessinsider.com/mobile-web-vs-app-usage-statistics-2014-4.

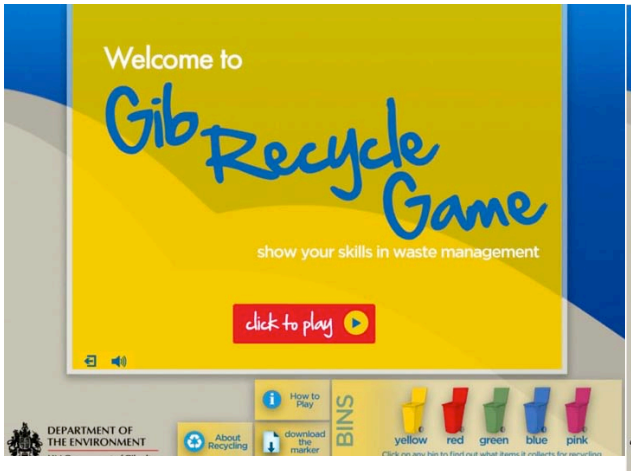


This involves a wide range of ages:





Environmental themed applications have turned mobile devices into portals for environmental education and sustainable action.

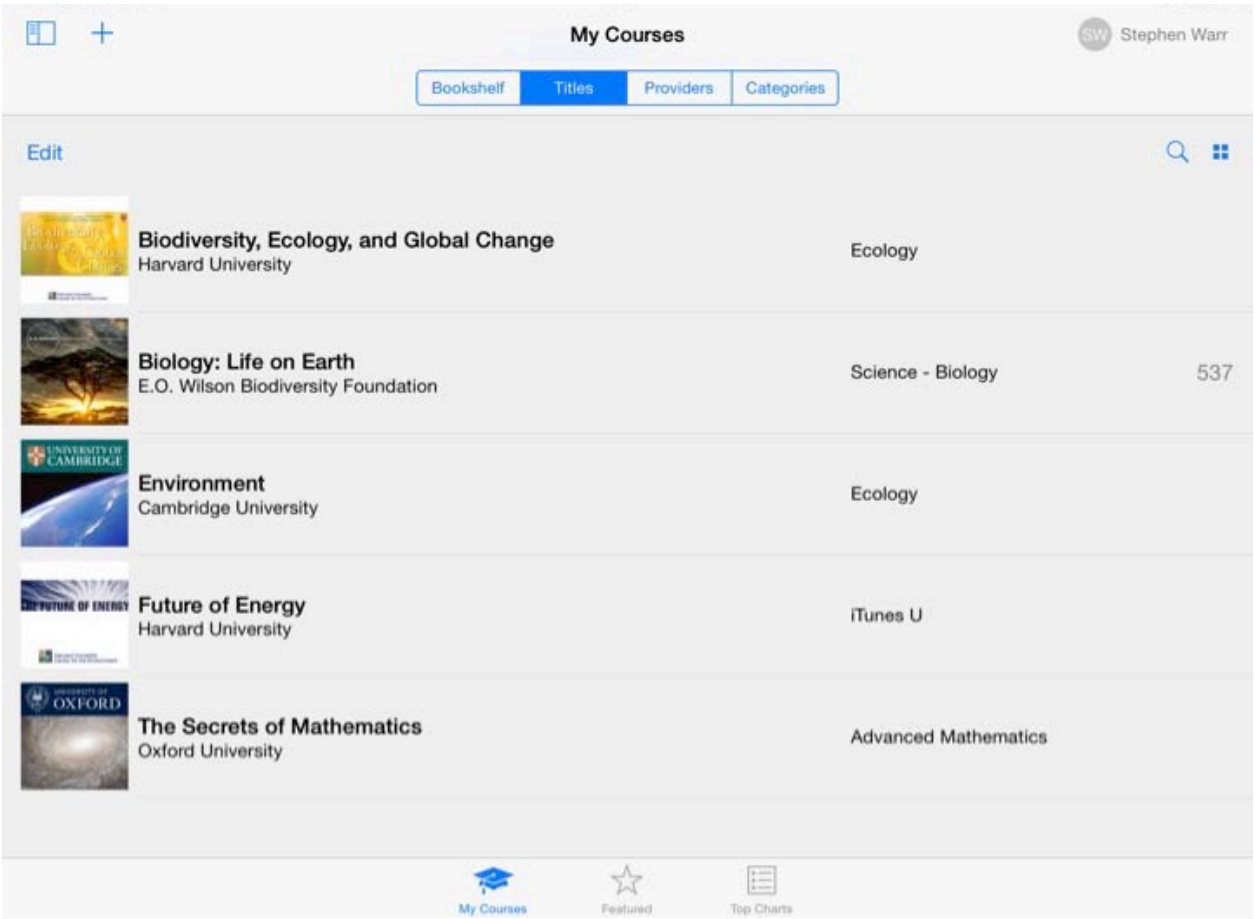


Teaching Tools – Grassroots Environmental Education

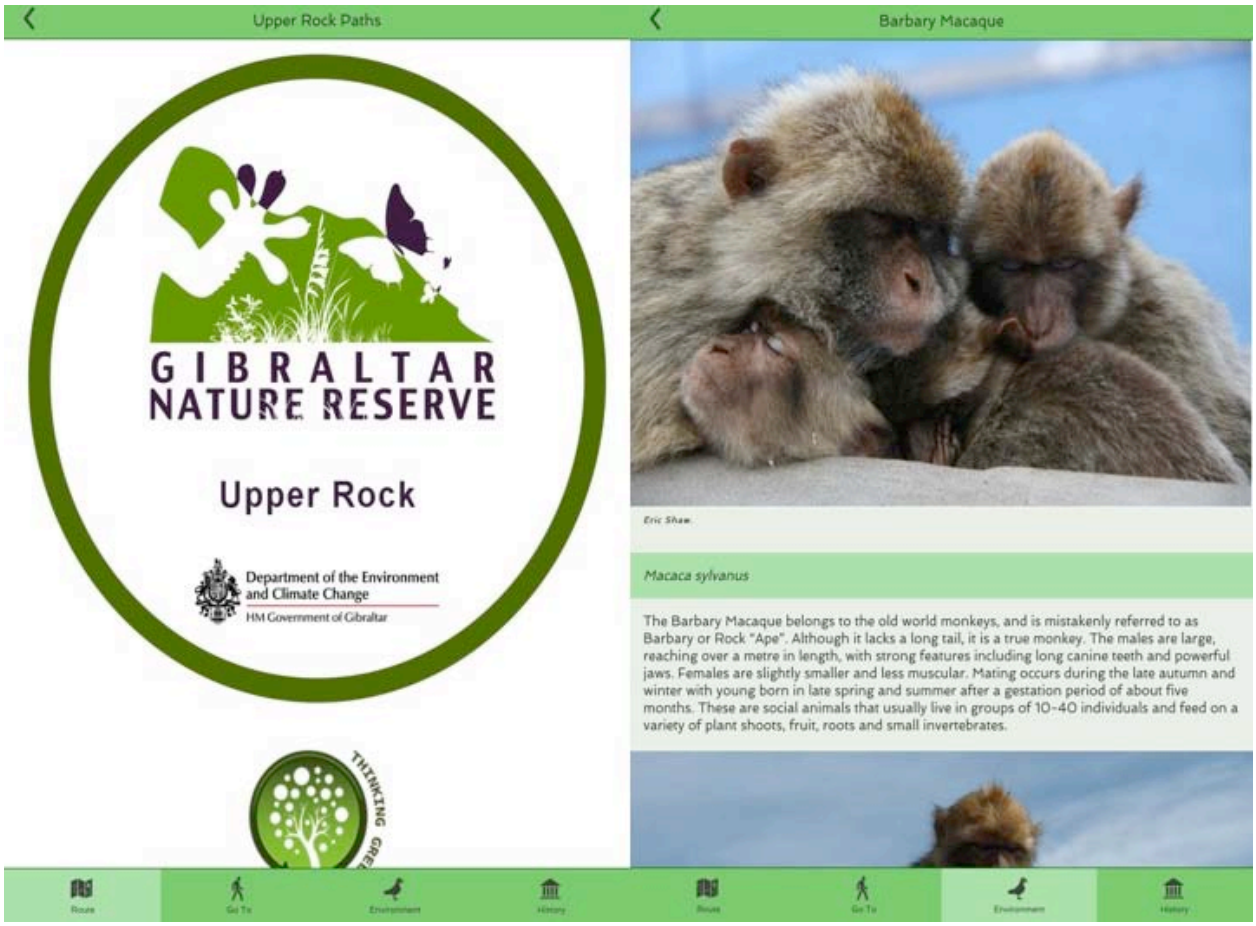
In 2013, the Department of Environment launched the *Thinking Green* website (above and right) with a kids zone as well as apps and E games. All of these portray local environmental resources which children not only from Gibraltar but from all over the world can download and learn about as they play.

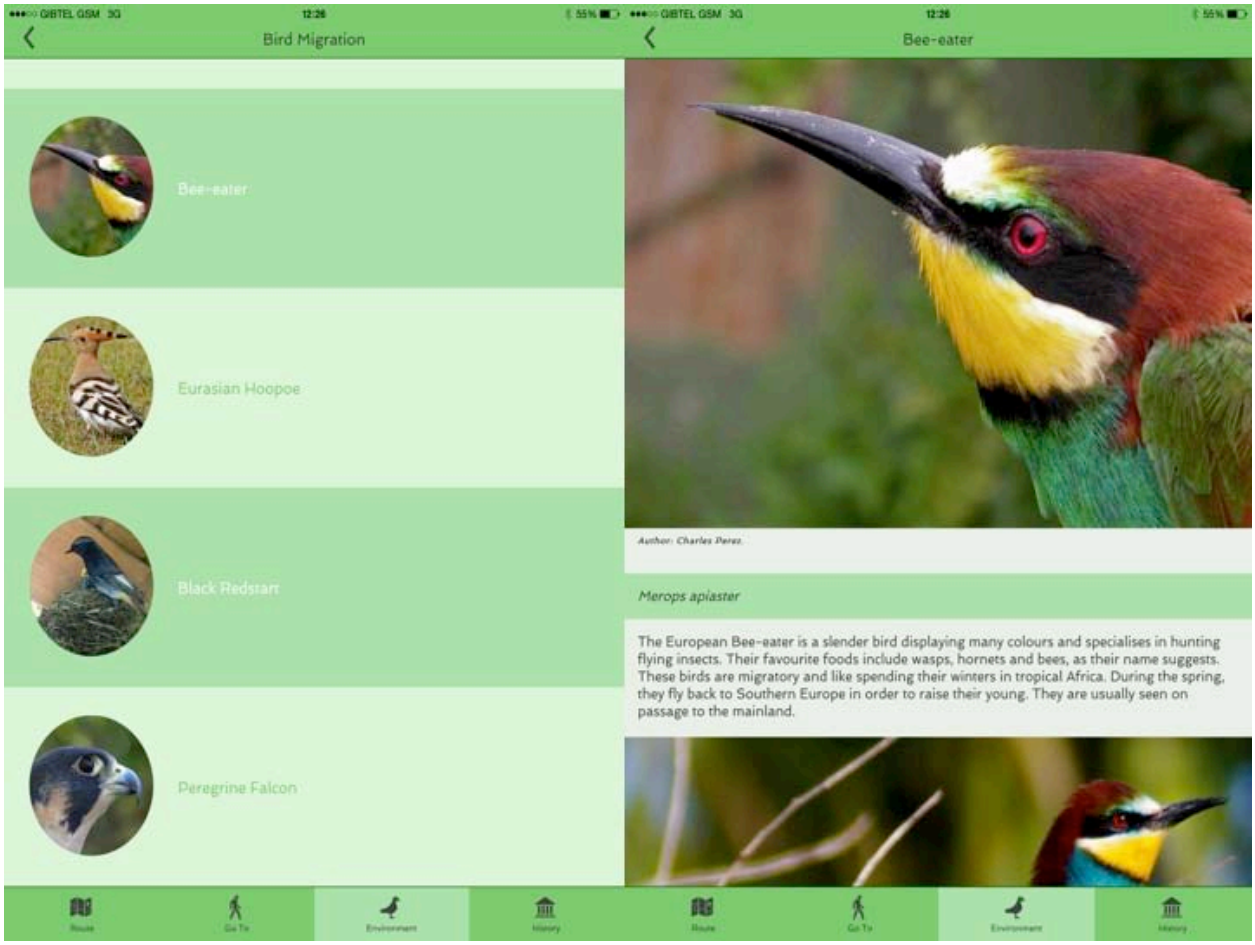
Teaching tools – Higher Education

Many training courses text and reference books are now available online (below).

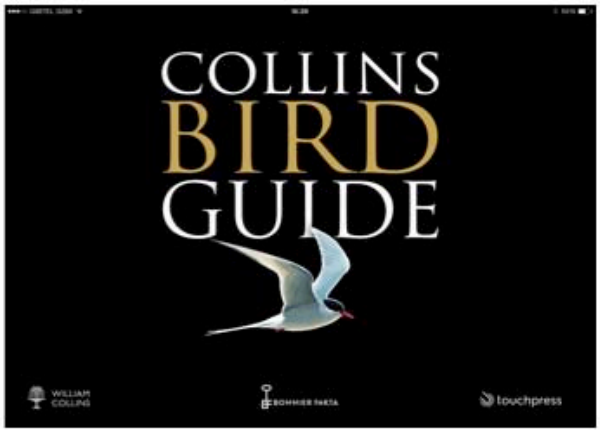


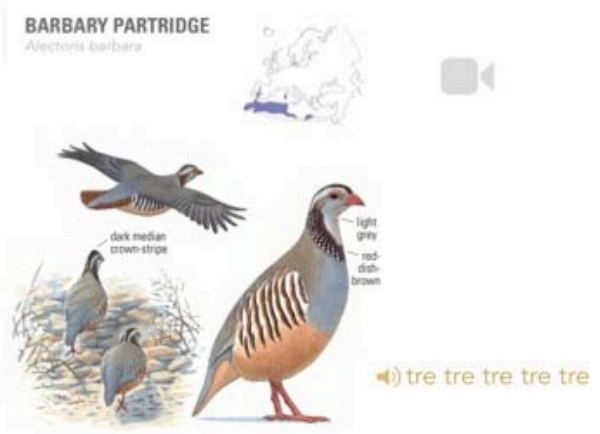
Interactive Environmental Guides

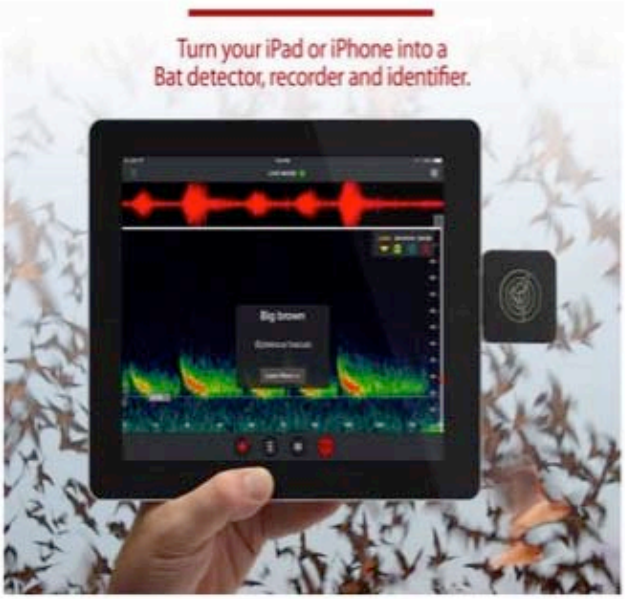


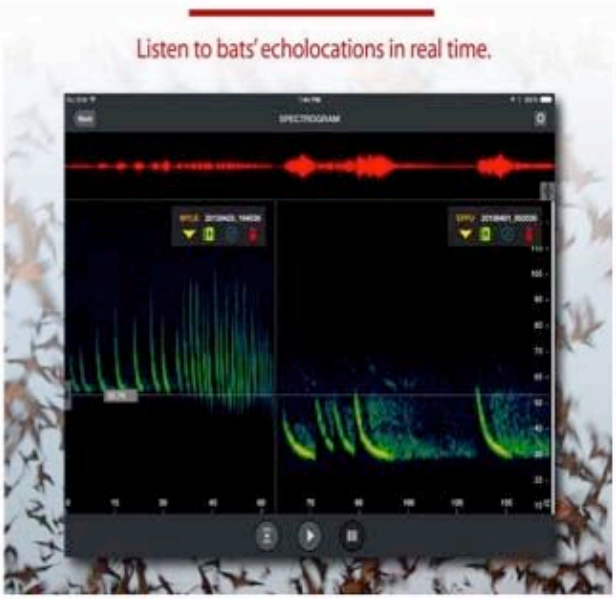


Field Guides



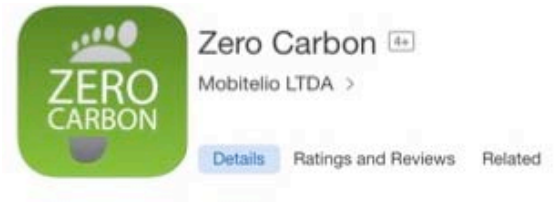


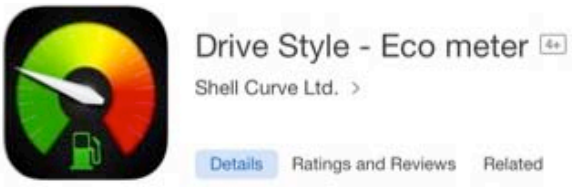




Data entry, Research & Monitoring

Environmental education– Lifestyle changes





Still Linking the Fragments of Paradise: Increasing environmental awareness and public engagement through social media driven activities, TCI Environmental Club & Turks & Caicos National Museum/UKOTCF Wise Water Project

B Naqqi Manco (for Turks & Caicos National Museum; Department of Environment & Maritime Affairs (DEMA))

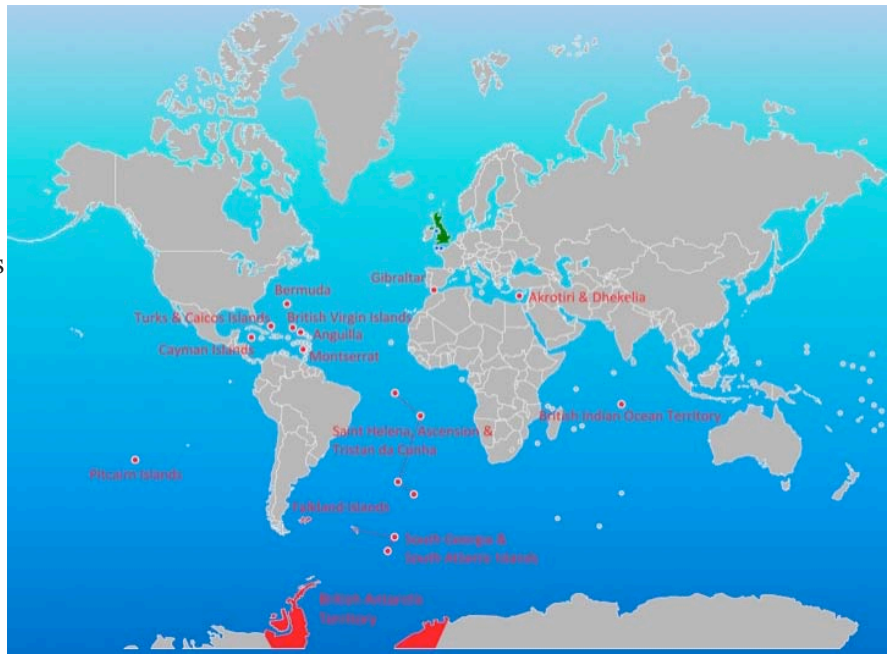
Manco, B.N. 2015. Still Linking the Fragments of Paradise: Increasing environmental awareness and public engagement through social media driven activities, TCI Environmental Club & Turks & Caicos National Museum/UKOTCF Wise Water Project. pp 385-389 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

Fifteen years ago, UK Overseas Territories Conservation Forum held its conference in Gibraltar themed *Linking the Fragments of Paradise*. The Turks & Caicos are a fragmented paradise, comprising ten inhabited islands. In 2010, DEMA formed the TCI Environmental Club as a group meeting on the most populated island. Within one year of opening the Club as a Facebook Group, it had over 700 members and has become an important online (and physical) presence in TCI conservation. Through this new network, other organisations like the Turks & Caicos National Museum have been able to collaborate on projects including the RBC Bank-supported Wise Water Project. The network also encouraged other NGOs and conservation projects to use social media as a way to gain support and raise public awareness on a number of conservation issues.

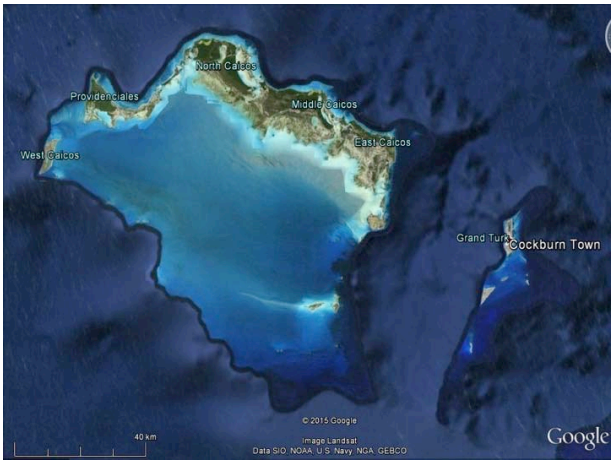
B Naqqi Manco (for Turks & Caicos National Museum; Department of Environment & Maritime Affairs (DEMA)) bnaqqimanco@gmail.com
Facebook: B Naqqi Manco Twitter: @Bnaqqi

Fragmentation of UKOTs is a recognised problem (map). In a post-presentation discussion at the previous UKOTCF Conference held in Cayman in 2009, social media came up as a potential solution. The UKOTCF Facebook group was created during the discussion (see image next page). However, at the same time, internet accessibility in some Territories was brought up as a challenge.

The Turks & Caicos Islands is itself a fragmented paradise – with a big online population!



UKOTCF Facebook page



TCI - a fragmented paradise

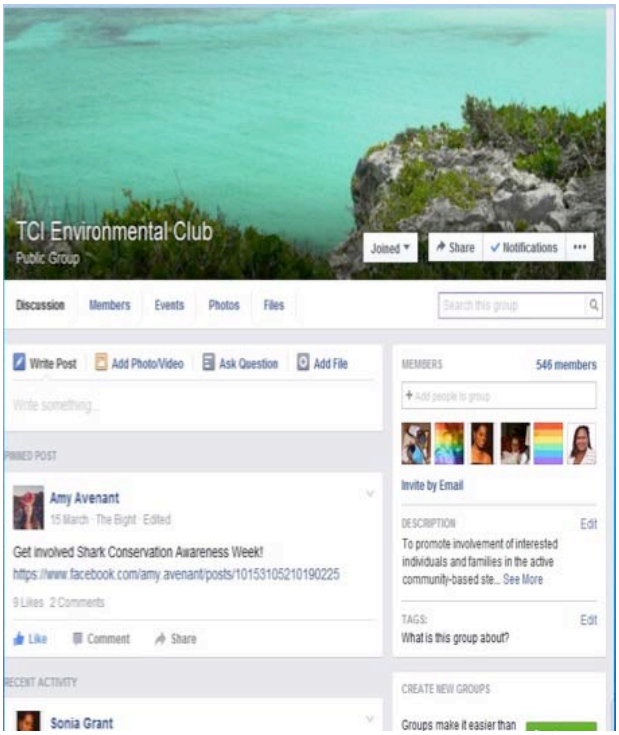
In March 2010, the Turks and Caicos Islands Environmental Club was launched by the Department of Environment & Maritime Affairs to provide a platform for conservation networking.

Turks & Caicos Islands
Environmental Club
In Appreciation of Beautiful by Nature

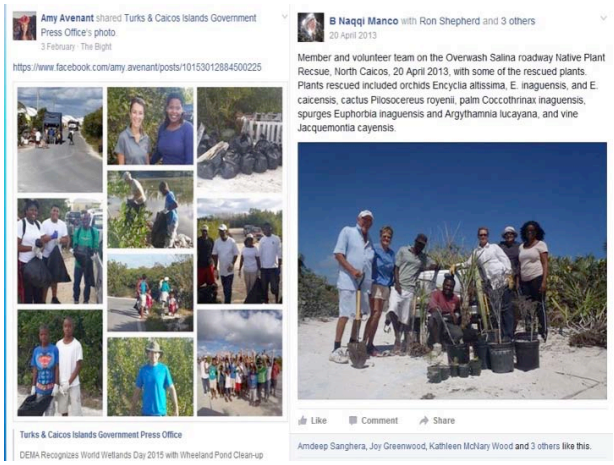
It was founded as an informal club with no designated leadership, dues, legal recognition, or funding.

Monthly meetings were held, featuring speakers and discussions on solutions to environmental challenges. However, the TCI Government staff reduction in 2010 made meeting management difficult.

In 2011, the club was transferred to a Facebook group for organisation and discussion, and regular meetings were stopped. Some feared this would be the end of the club, but activities didn't stop. The Facebook Club group grew to 300 members within first year and increased attendance of events like community clean-ups, plant rescues, environmentally-themed programmes and days.



Some examples of the instance impact of the group were: in 2011, the Environmental Club Native Plant Rescue which was organised with very short



notice. Again in 2012, the Environmental Club Native Plant Rescue continued with rescued plants installed in Turks & Caicos National Museum Botanical & Cultural Garden.

The Club group is also used to share environmental news and ideas as well as a forum for identifying local wildlife and a place to share observations of endemic and invasive species.

With the TCI Environmental Club functioning as a virtual meeting ground to organise actual events and to share information and ideas, the Turks & Caicos National Museum (below) recognised that their social media was not working so well. It is a popular destination for international and in-country tourists and school groups, but museum staff were largely unfamiliar with social media use and benefits, and their social media was in a shambles.

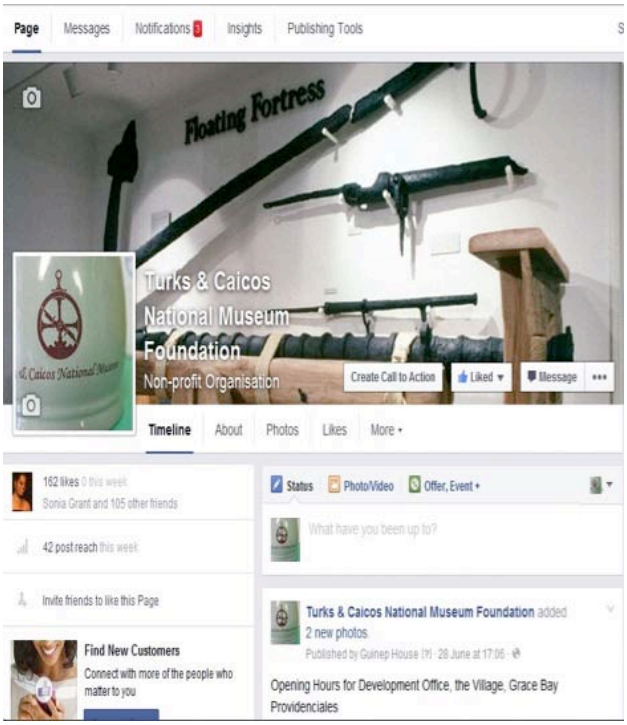
An exciting project was coming to the museum: The Wise Water Project, funded by the RBC Foundation's BlueWater Project and collaboratively managed between the Turks & Caicos National Museum and the UK Overseas Territories Conservation Forum. The project was largely based around public engagement on water conservation – a perfect platform from which to launch the Museum's outreach through social media.

The Wise Water Project converted the Turks & Caicos National Museum's Providenciales facility by:

1. Redeveloping the water catchment and grey-water recycling systems
2. Installing native plant gardens and low water use cultural gardens around the Caicos Heritage House (1800s Caicos homestead replica)
3. Producing display boards on water conservation methods and water-wise agriculture (image of 2 of the set at bottom of page).

Following the 12 June 2014 launch overseen by H.E. Governor Peter Beckingham, where the project and water conservation were explained and tours of the site were given (photos above), the news of the site spread mostly through social

media (the Governor's and Premier's Offices have Facebook and Twitter, Tourist Board has a blog). Following the launch of the project, and seeing the exposure they got from others' social media, the Museum re-launched its Facebook page and took tutorials and volunteer guidance in managing its



social media. The Museum has since been able to manage its own Facebook page (and by extension manage its TripAdvisor site), as well as link back to TCI Environmental Club group by cross-posting.

A number of other social media pages on TCI Conservation have been established and remain active and linked with TCI Environmental Club. These include: the Caicos Pine Recovery Project, TCICS Turks & Caicos Conservation Society, South Caicos Nature Club, Turks & Caicos Reef Fund and the TCI Dolphin Defence Fund.

Caicos Pine Recovery Project began using Twitter (which is much faster than website which have to be updated by a webmaster) to give live updates during controlled burns and other fieldwork.

Social media use demands some caveats including: careful selection of venue (Facebook, Twitter) based on audience and type (page/ group) on use. Not everyone uses social media – so keep traditional media in mind. Administrators should be chosen carefully. Ground rules and a way to moderate posts must be established based on them. Forge links with important social media sites in your territory and worldwide. Be prepared for outright abuse – names without connections are easy targets (and don't feed the trolls!). Be careful what you write. It never goes away!

Using social media as an organisation and discussion forum has worked well for TCI Environmental Club. And is proving increasingly useful for the Turks & Caicos National Museum (below).

If you need help navigating social media, feel free to ask me or any toddler!

Public awareness raising actions: How a small NGO, with limited capacity, can deliver a wide range of activities to promote environmental education and awareness

Andrew Dobson (Bermuda Audubon Society)

Dobson, A. 2015. Public awareness raising actions: How a small NGO, with limited capacity, can deliver a wide range of activities to promote environmental education and awareness. pp 390-394 in *Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 16th July 2015* (ed. by M. Pienkowski & C. Wensink). UK Overseas Territories Conservation Forum, www.ukotcf.org

The Bermuda Audubon Society is an environmental NGO established in 1954. It faces serious challenges with no physical office, no paid staff, a need to maintain 16 nature reserves and attracting dedicated volunteers. Despite the lack of capacity, the Society offers a wide range of educational programmes. Outreach to students includes an annual natural history camp, guided field-trips, school talks, art competitions and bird nest-box construction. A varied programme of events is offered to members and the general public, including lectures, field-trips, and introductory birdwatching courses. Opportunities are offered to volunteer on nature reserves and to participate in citizen-science projects. Creating partnerships has been the key to sustaining the Society in its ability to offer these programmes. Many events are run jointly with other NGOs while local businesses have sponsored costly reserve maintenance and student camps. A close relationship has been established with the Department of Conservation Services (Bermuda Government) in assistance with reserve management. Effective communication with all stakeholders has been a key feature of the Society's success.

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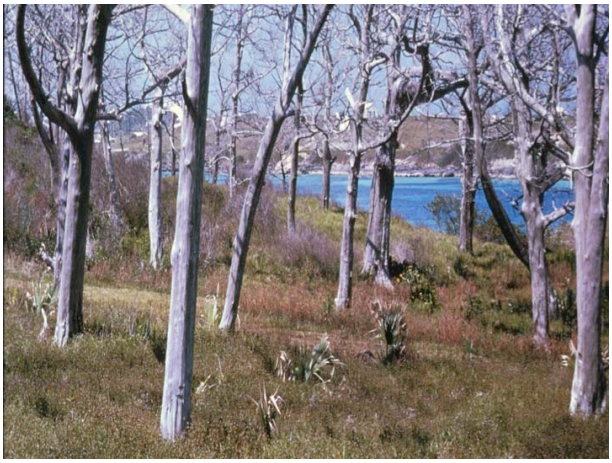
andrewdobs@gmail.com

Introduction

The Bermuda Audubon Society is a membership society run by an executive committee of volunteers. It is a non-profit registered charity with no premises or paid staff, and relies on voluntary assistance from members and the corporate community. The island's oldest environmental organisation, it was established in 1954 to address two growing environmental concerns. Firstly, the threatened extirpation of the eastern bluebird (below) on Bermuda following the loss of the cedar forest and the removal of the dead trees, which contained the natural cavities in which it nested. Secondly, to restore wetland habitat as the official Government policy of the time was to fill in Bermuda's marshlands and ponds for mosquito



Seymour's Pond was our first nature reserve in 1964, a former dump.

Seymour's Pond nature reserve today: it has recently been enlarged and a bird blind (hide) fitted (see photos below also).

control by using them as dumping grounds for garbage.

Today, the Society owns and maintains 16 nature reserves and offers a wide range of educational programmes throughout the year.

The programmes we offer:

- Nonsuch Natural History Camp – a one-week residential course for teenagers, focusing on Bermuda's terrestrial and marine environment;
- Talks on bluebirds for primary school students;
- An 'Introduction to Birdwatching' course;
- Teacher workshops;
- Lectures;
- Guided fieldtrips to nature reserves and pelagic birding;
- An annual birdwatching camp on Paget Island;
- Special school events and competitions to encourage an interest in birds and the

Outreach to school students

Teachers' workshop on birds

Active in community events

environment, including an annual bluebird nest box competition;

- Fostering citizen science through eBird, as well as participation in annual birding events such as the Christmas Bird Count, Caribbean Endemic Bird Festival and International Migratory Bird Day;
- Educational resources through our website;
- Working parties on nature reserves;
- Construction and installation of bluebird nest boxes and tropicbird 'igloo' domes (below).

The challenges:

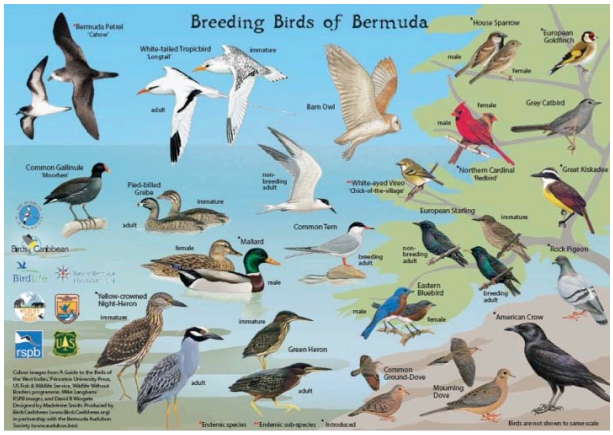
- Reliance on dedicated volunteers with no paid staff;
- Maintaining 16 nature reserves covering 60 acres;
- No physical office;
- Finance;
- Finding volunteers with the required skills.

The solutions:

Creating PARTNERSHIPS - the key to sustaining the Society. Examples of recent and current partnerships have included:

- Annual student natural history course run jointly with the Bermuda Zoological Society (which has paid staff and access to boats!) – sponsored by local business.
- Bluebird box construction and education sponsored by PartnerRe for over 5 years.

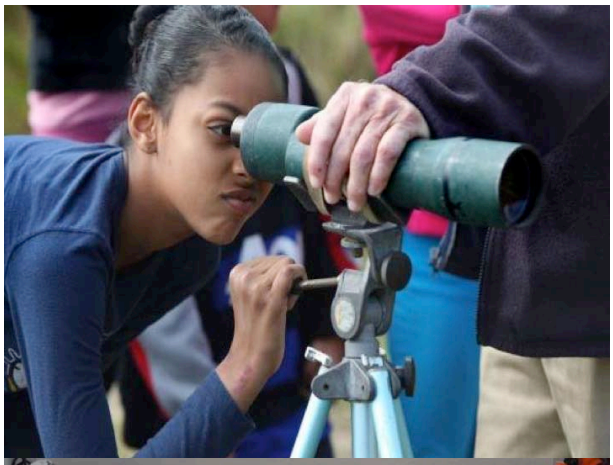
- Aberfeldy garden centre which hosts the society's bluebird nest box workshops.
- Bird identification cards (below) with Birds Caribbean. Sets will be provided free to schools with additional retail sales to generate income.



- Jointly promoted lectures with the Bermuda Underwater Exploration Institute – Audubon and BUEI share the proceeds.
- Bird art opportunities with the Bermuda Society of Arts, including student art competitions, bird art exhibitions and a nest box auction (photos at top of next page).
- Production of DVD bird documentaries teaming up with local and international

film crews (below). Sponsored by local business.

- Buy Back Bermuda, a joint initiative with the Bermuda National Trust, which has created three new nature reserves by public subscription.
- Develop a good working relationship with the Department of Conservation Services (Bermuda Government) who provide assistance with reserve management.
- Fieldtrips held jointly with other NGOs such as the Bermuda National Trust and the Bermuda Zoological Society (including pelagic trips in search of the Cahow – below).



2. Fostering links with local business

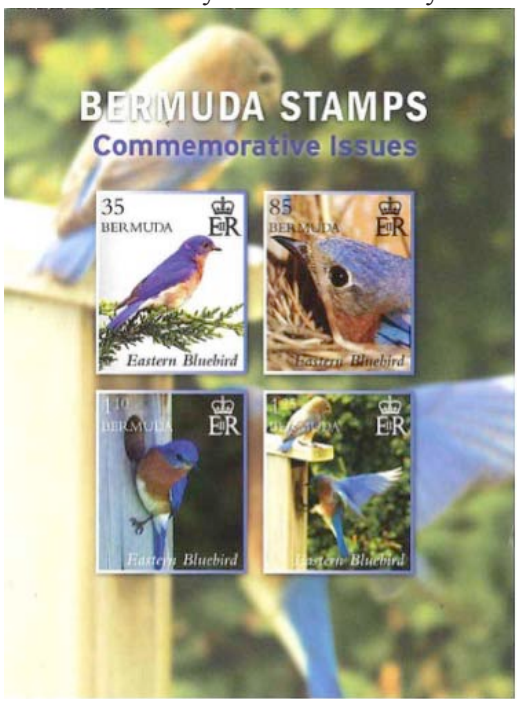
- Donations towards reserve purchase and management.

- Corporate volunteer days on nature reserves and tropicbird igloo preparation above).

- Landscaping companies' volunteer days following Hurricanes Fay and Gonzalo, 2014 (above).

3. Using free promotional opportunities

- Commemorative postage stamps (below) for the society's 60th anniversary.



- Press releases to printed and online media.
- Interviews on local TV and radio.

- Special newspaper features such as those on bird migration.

4. Actively involve members

- Offer a range of activities from working parties to lectures.
- An informative website which engages members.
- Regular newsletters which can also be read online.
- A facebook page providing members with the opportunity to contribute.
- Invite members with the required skills on to the committee!

Discussion

Much of the discussion addressed the conclusions and recommendations. If such items are adequately reported in the Conclusions and Recommendations section later in these proceedings, they are generally not repeated here. Instead, this section draws out some other aspects for which amplification may be useful, on of the discussions and ideas put forward for consideration.

School curriculums

The importance of relating school curricula to local examples was noted. On Tristan, they are in the early stages of developing a school curriculum. They are looking at the IGCSE and matching all parts of Tristan studies to that. There is scope to use case studies of Tristan.

Some school curricula are very strict. For example, on Montserrat, there is no room in it to talk about climate change. That is why they are trying to introduce it in to nursery and primary education as there is more scope to include there.

Another example cited was that of a trained teacher who volunteers to look through the whole curriculum including literature and maths, which was then used to report back to the Department of Environment.

On Tristan, they found that involving fieldwork and practical activities keep interest going and will lead to benefits later when they become leaders themselves.

At the end of 2006 and 2009, the conferences discussed needs for schools across territories. As well as pushing with governments, there is a need to get schools getting in contact with other schools. There are no volcanoes or mangroves in Jersey, but there are some great examples from the UKOTs, which should be used. Sand-dune systems might not be there in others but there are many in Jersey. More talking between territories and their Education Department is needed.

Environment must be fully integrated and included in those lessons which take place regularly such as personal, social and health education (PSHE)

Teachers workshops and training days are a useful way to engage with those delivering the school curriculum, and this has worked well in several territories. If templates are created on how to do this, then we can raise a generation of environmentally aware people. It is important to raise the confidence of teachers to deliver and introduce topics.

One suggestion was that, when giving talks in schools making use of pictures and maps, leave a copy with the class teacher. They appreciate that and can go back. A stockpile of presentations given in BVI are available. This has given opportunities also to talk about use of techniques such as GIS in to schools. Students are keen and have taken GPS equipment, although teachers are more afraid. They the students go away to capture data. They were really quick to learn. Learning about careers in government as GIS across departments.

World wide web

Most thought that the availability of material on the public internet, particularly Wikipedia, was more or less accurate. There was a facility which enables administators to update/amend data if it is not.

The digital revolution may mean that public use environment in a different way; rather than going out in nature, they may want to experience it from their homes via things like virtual tours, underwater movies etc.

Keeping up with current trends and new innovations is important, *e.g.* applications, geocache, website improvements which mean they can be viewed on other devices (smart phones, tablets etc.) .

Social media

Sharing information on social media is instant and free.

Field workers can open up their albums to Facebook users to share photos etc. This has led to a lot of interest in TCI on identifying species by location and providing a sort of information service.

Opportunities

It is important to be proactive and involve children from a young age. On Bermuda, children are taken out to do field-work. They collect data and this helps engage them and shows them career options.

On Alderney, they have been developing on-island resource webcams. They use these to link with

schools. The programme depends on birds that are there. There is scope for this to be used elsewhere. Project is called *Living Islands*

In order to share information, the UKOTCF Environmental Education web-database (via www.ukotcf.org) could be populated further. Social media could be used to share learning practices and techniques. Could also be used to store useful weblinks.

General points

Important to raise awareness of the Environment Charters, as one of the commitments was education. It is a legal commitment of some Departments of Education.

Regular briefing to Permanent Secretaries and civil servants generally, as well as politicians, is needed.

The traditional use of radio to engage with the public should be continued. This has been very successful in Montserrat. In addition, in TCI it was used to talk about the planned controlled burns as part of the Caicos pine recovery programme. They used radio which made people supportive of burns etc. 30% of the community is Haitian and so, in order to engage them, radio shows are done in Creole also.

Darwin Plus fund should be encouraged to reinstate education into eligibility of UK funds for UKOTs.

Funding and resources

Missing corporate funding sources. Marks & Spencers (large chain store) is charging for plastic bags but are funding education programmes with proceeds. This ticks so many boxes for them under corporate strategy that it is a no-brainer. Go to corporates and pitch to them as they can be a good source of funding. When tech is involved, branding can be used readily. For NGOs, this is really important for funding. Corporates need environmental ticks next to their names.

Corporate days can be very effective for getting things done.

This would be difficult on very small islands where there are no corporations except one or two businesses that may provide other resources or where there are several organisations bidding to the same company.

There is already a small pot for Education in UK. Education budget £57 billion. There is not really much scope in UK budget. The Joint Ministerial Council does discuss Education, and so perhaps this is something that could be explored.

The Tristan Council recognise the importance of education in the sustainable development plan. In last few years, they have had a good budget and the fishing company do put some money in there. They are looking for future employees and so are investing in well educated individuals.

Perhaps there is should be an approach to big publishers?

Don't be afraid of looking outside, *e.g.* renewable energy companies.

In Bermuda, there is a 5-year agreement with power supplier to support Nonsuch Island nature reserve solar panel to provide power. This provides so much cannot use it all. Can now stream from a camera; they paid for an additional cahow video. Provided for the holiday camp. It has opened up more doors on how we use island for education.

Students and recent graduates might be able to help with some of the work. Coding is on the curriculum.

Session 14: UKOTCF's Europe Territories Working Group

Chairman: Keith Bensusan

Secretary: Emma Cary

The discussions at the Europe Territories Working Group contributed to the Conclusions and Recommendations, and relevant points are incorporated in that section. Other discussions have been reported in the minutes of the meeting, circulated to participants and other members of ETWG.

From left: Emma Cary and Keith Bensusan

Above and next page:ETWG in session

Session 16: Workshop on Environmental Impact Assessment (EIA) principles and practice

Chairing & facilitating: Jo Treweek (Treweek Environmental Consultants)

Attending

Sarah Barnsley	UK Overseas Territories Conservation Forum
Emma Cary	UK Overseas Territories Conservation Forum
Natasha Bull	Gibraltar Ornithological & Natural History Society
Liz Charter	Isle of Man
Tim Earl	Isle of Man
Gina Ebanks-Petrie	Cayman Government
Sharmer Fleming	Anguilla Government
Janine Galliano	Gibraltar DoE
Roland Gauvain	Alderney Wildlife Trust
Fiona Gell	Isle of Man Government
Stephanie Gillywater	Gibraltar DoE
Jane Gilmour	La Société Guernesiaise
Jeremy Harris	St Helena National Trust
Katharine Hart	Turks and Caicos Government
Lyndon John	RSPB
B Naqqi Manco	Turks and Caicos Islands
Stephen Mendes	Montserrat Government
Farah Mukhida	Anguilla
Iain Orr	UK Overseas Territories Conservation Forum
Isabel Peters	St. Helena Government
Mike Pienkowski	UK Overseas Territories Conservation Forum
Elizabeth Radcliffe	RSPB
Don Stark	Turks and Caicos Reef Fund
Jo Treweek	Treweek Environmental Consulting
Catherine Wensink	UK Overseas Territories Conservation Forum
Kathleen Wood	Turks and Caicos Islands

Introduction

Jo Treweek, of Treweek Consulting, welcomed participants to the workshop and encouraged them to introduce themselves and inform the group of their experience with EIAs. This ranged from none at all to those sitting on an environmental advisory board, those conducting EIAs and those doing scoping, screenings and reviews within Government departments.

Ice-breaker (balloon) exercise

Depending on the colour of the balloon received, the participants had to consider beneficial impacts of EIA from a social, development, or environment perspective.

Some points noted from this exercise were that:

- Social/community values often get left without being considered
- The overriding assumption is that development will happen
- Regardless of this, EIA is a useful framework for including environmental considerations within development which tries to go for a win-win solution for everybody.
- It is also important to consider the impact of the environment on development as well.

Overview of EIA purpose, objectives, steps, definitions, new standards.

Jo gave a brief presentation on the EIA process. The Powerpoint slides from this are shown on the following pages, before returning to this report of the workshop.

Presentation 1: An overview of the purpose and value of Environmental Impact Assessments

1

Introduction

- What is EIA?
- Why is it important?
- Some examples
- Emerging trends

2

What is EIA?

the process of identifying, predicting, evaluating and mitigating the biophysical, social, and other relevant effects of development proposals prior to major decisions being taken or commitments being made

Decision support or planning support tool… informs decisions

3

Objectives of impact assessment

- ensure that environmental considerations are explicitly addressed in development decision making;
- anticipate and avoid, minimize or offset significant adverse biophysical, social and other relevant effects;
- protect the productivity and capacity of natural systems and the ecological processes which maintain them; and
- promote development that is sustainable and optimizes resource use and management opportunities.

Originally intended as a means of adding environmental considerations into predominantly financial, technical and political decision-making processes (NEPA 1978).

These objectives are from the IAIA Principles for Best Practice in Impact Assessment (International Association for Impact Assessment)

A means of encouraging some adjustments to the usual objectives in the interests of avoiding serious environmental harm.

4

Now done in > 100 countries..

- As a legal requirement
- To secure finance (new lender requirements)
- Voluntarily, to:
  - identify cost savings and efficiencies,
  - improve design,
  - ensure sustainable operation,
  - secure license to operate, manage reputational risks

The International Finance Corporation requires its clients to do EIA.

Many companies see ESIA because they see it as the best way to identify environmental and social risks to their operations.

5

Why is it important?

- Underpins approvals processes worldwide.
- Underpins international social and environmental safeguards.
- Supports evidence-based decision-making and regulation.
  - framework for imposing conditions and to support adaptive management
- A tool for sustainable development
  - Deals with complex and emotive trade-offs

6

International Finance Corporation Standards

Environmental and social impact assessment (ESIA) is the cornerstone of the IFC Performance Standards and the focus of Performance Standard 1.

If used correctly, the ESIA helps clients to identify a project's environmental and social risks, and to develop a plan to manage or avoid those risks.
It leads to the ESMS.. the basis for adaptive management throughout the lifetime of a Project ("cradle to grave")

PS1 essentially requires clients of the IFC to use ESIA to assess and manage their environmental and social risks and then to carry this through to their operations, using their Environmental Management Systems.

Requirements of other PS need to be incorporated into ESIA/ESMS and mainstreamed throughout operations.

7

Is all well in the world of EIA?

- In South Africa (Ridl, 2012) "*Officials from KwaZulu-Natal Wildlife openly obstruct the EIA process, refusing to adhere to statutory time frames for responses*".
- in Nigeria, Yusuf (2008) "*the EIA practice has become a showcase for corruption… there is blithe disregard for EIA regulations*".
- EIA is used to "*lull government agencies and the public into thinking all's well with a proposed project, while serious environmental impacts are swept under the rug*"

Ridl, J. (2012). "Ezemvelo KZN Wildlife on Its Knees." The Nation. Available from http://www.witness.co.za/index.php?showcontent&global%5B_id%5D=88784

Yusuf, T. A. (2008). "The Environmental Impact Assessment Practice in Nigeria: The Journey So Far." Available from http://www.nigeriansinamerica.com/articles/3105/1/The-Environmental-Impact-Assessment-Practice-In-Nigeria-The-Journey-So-Far-/Page1.html

8

Limited Application

Is EIA required for the full range of developments it should be used for? Application of EIA is often considered un-necessary for land use changes that are quite significant. Often, no EIA is required for the exploration phase. The argument given is that nobody has decided for sure if they want the project to proceed yet? This can mean that the interests of the developer over-ride those of local communities and the environment. Who should bear the cost of this damage?

9

Assessment of alternatives should be an integral part of EIA but investigating feasible site alternatives is often lacking and generally sites are allocated or purchased by project proponents before the EIA commences.

This can mean expensive developments that fly in the face of common sense and environmental sustainability.. Eg potentially stranded ports in Turkmenistan due to dropping sea levels in the Caspian. In this country the interests of a dictator have replaced a communist system. It is challenging to evolve a planning system that can accommodate these ends of the spectrum. In this case, doubts about the environmental sustainability of the project may have been one factor in ongoing reluctance of IFIs to finance a new deep water Port. Lender may not have been convinced that the development was necessary or appropriate.

10

It is not unusual for development to start before EIA is done, or for EIA to start too late to have any influence on choice of alternatives. Example of Kihansi Spray Toad (Credit to CBBIA project, Southern Africa). The EIA was not a legal requirement and was done in parallel / after decisions had been made to authorize a large hydro scheme in a particular location – that is, it did not inform the decision. Once construction started, it was too late to change the course of development. Had the existence of the Toad been picked up earlier on, the Upper Gorge could have been developed for the hydropower scheme, enabling water to be returned to the river above the Lower Gorge so that the habitat for the toad could have been maintained. This would have been just as effective and also cheaper…

'96 - Kihansi Spray Toad discovered during planning for construction. Occupies unique spray habitat.

'99 - turbines operating. > 95% spray lost, major impact.

2000-'01, emergency spray irrigation to restore spray habitat…partly successful but Toad succumbed to fungus? Pesticide from dam? Extinct in wild.

11

Doing a good baseline takes time and needs to cover a big enough area to understand the context of a project.. Typically they are too restricted in space and time. This means that important values and sensitivities can be completely missed. Sometimes they are very costly to fix.

Wiithout a good baseline it may not be possible to show that something isn't an issue. For Projects attempting to comply with international/ lender standards, this may mean highly precautionary assumptions must be used to identify mitigation.

12

Development without EIA on the expectation of future development, without funding or proposals being fully in place.

13

Quotes

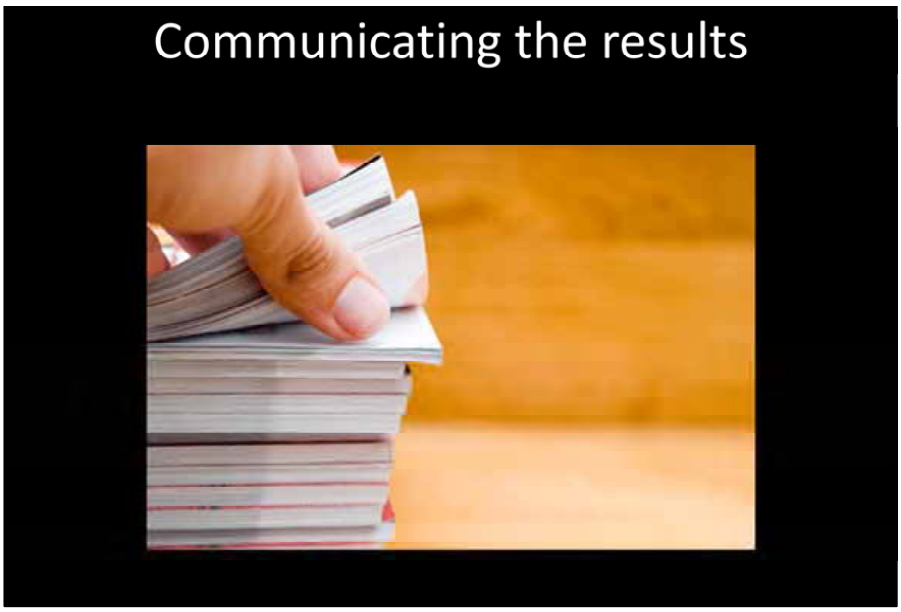
- "We didn't see any birds
- Species seen on the site included white rhino
- "The removal of the mountain is not a significant landscape impact"
- " Tell me where the bird is and I will shoot it"
- "Can't the birds use another habitat?"

14

Partial or unrealistic mitigation

The whole ecosystem is important, not just separate components of it.. This mitigation means there are still some mangrove plants present, but these will not develop into a fully functioning mangrove wetland ecosystem

15



A good Environmental Impact Report should focus on key issues and present them in a clear, transparent and digestible manner

Examples are legion of poor reporting, including failure to specify the location of the proposed development, when it is planned to happen, the scale of proposed activities..

According to UN/ECA et al. (2007), some EIA reports are of very low quality and may also be excessively long and hard to understand regardless of the reader's level of education or expertise. For instance, the EIA for the Tana Delta Integrated Sugar Project in Kenya is 412 pages long and couched in turgid technical and scientific language, with extensive chemical equations, complex economic graphs and Latin binomial species nomenclature (Mumias, 2007).

It is common for Environmental Impact Reports to present vague and qualitative impact predictions, extrapolation from little or no baseline monitoring or an absence of rigour in describing projects and their impacts

Mumias, S. (2007). "Environmental Impact Assessment Study Report for the Proposed Tana Integrated Sugar Project in Tana River and Lamu Districts, Coast Province, Kenya." Available from http://www.tanariverdelta.org/tana/967DSY/version/default/part/AttachmentData/data/MUMIAS_Tana_EIA_part1.pdf

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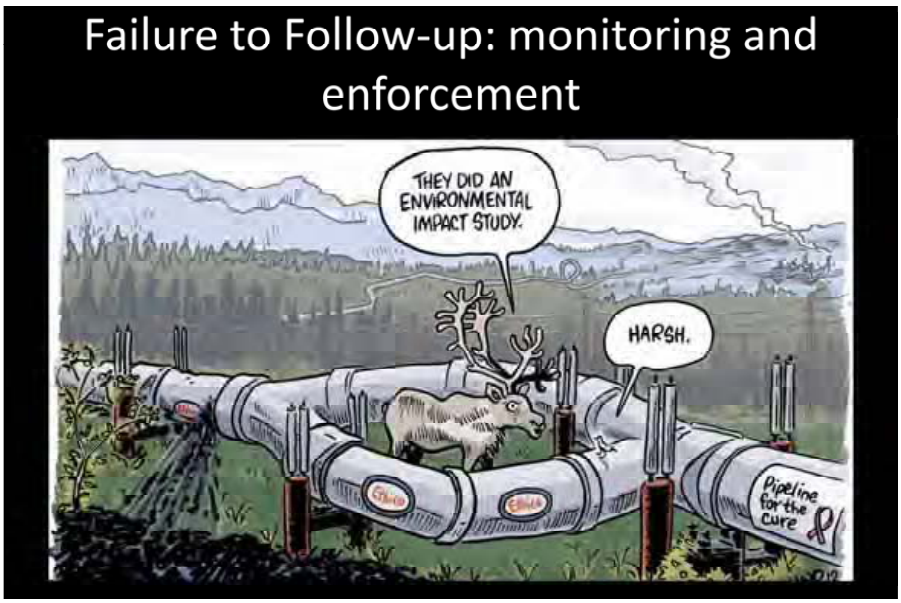
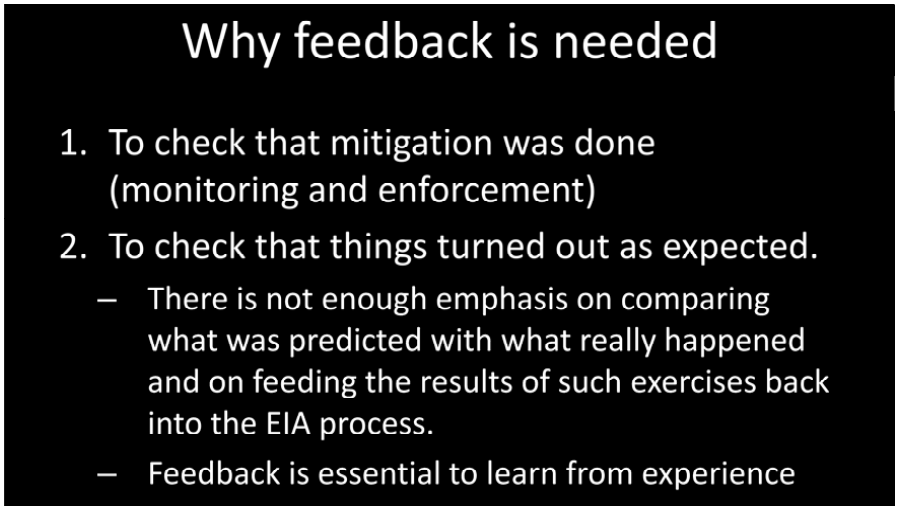


IS EIA done as well as it should be? If not, does anyone check?

The '*procedural and stepwise nature*' of most EIA systems means that there is a tendency for the final granting or refusal of a development consent to be perceived as the end point in the EIA process.

Too often, the emphasis in EIA is on the pre-decision stages and the preparation of the Environmental Impact Statement (EIS)
The EIS is used purely as a means of achieving development consent rather than as tool for achieving sound environmental management (Dipper *et al* 1998)

18

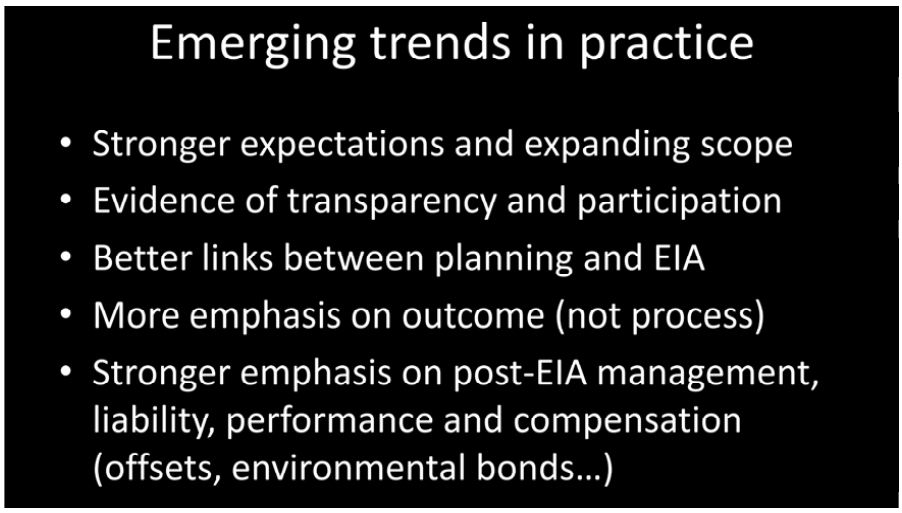


The paradox of EIA is that very little attention is paid to the environmental effects, which actually result from the development.

Follow-up is needed:

- ensure that terms and conditions of approval are met.
- monitor impacts of the development.
- monitor effectiveness of mitigation measures.
- strengthen future EIA applications and mitigation measures.
- undertake environmental audit and process evaluation to optimise environmental management (IAIA 1999)
- Strengthen future EIA applications by establishing limits/ required outcomes

19



Outcomes, not processes, eg no net loss or a net gain of biodiversity where development might affect "critical" biodiversity; biodiversity offsets
Genuine engagement with affected communities as part of a transparent approach
Expanding scope, eg human rights and access to ecosystem services, cumulative affects, health impact assessment..
Stronger links between planning, EIA and other tools; consideration of real alternatives

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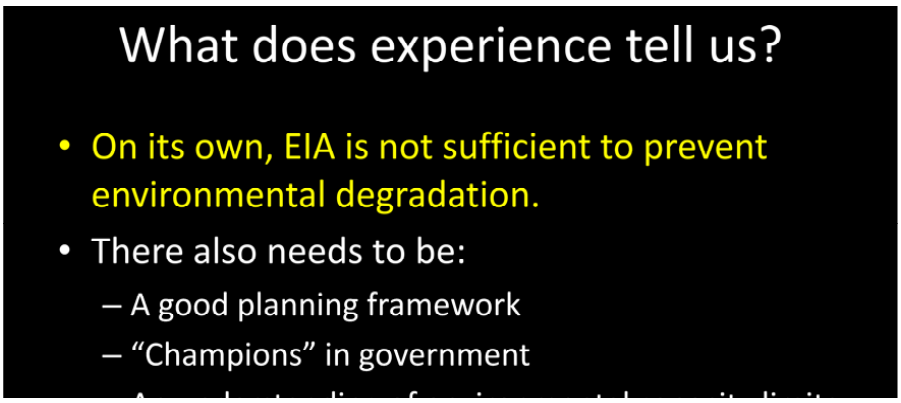


Abaza (2004), environmental impact management is not solely for future reward; it can also cut current costs dramatically and improve stakeholder relations.

If managed appropriately, EIAs can provide for a healthier environment and sustainable economic growth, benefiting both present and future generations.

21

Public participation based on "Engage, Deliberate Decide", not "Announce, Discuss, Defend" Those familiar with public participation will recognize that there is nothing new in the approach. It:

•Reflects good practice

•Moves away from the decide – announce – defend

•Brings the community with you on the journey.

The following recommendations/comments were noted in the discussions:

- Just because an island is small does not mean that it is not influenced by the global stage.
- Investment risk is connected with EIA
- There is an issue around educating developers as well.
- Jobs provided by EIA/ development- It is important to consider who are the beneficiaries of the job?
- It is not unusual for businesses to create a system within which they function operationally.
- Cumulative impacts must be considered through cumulative case assessments, as these can creep up. You need to have a good understanding of what these might be.
- Must always look in EIA process at decommissioning stage.
- There is an increasing interest in environmental bonds. However, some proponents don't have cash until they start working which can cause problems.
- EIA is not cost-recoverable.
- Strategic Environmental Assessment (SEA) is carried out for different policy/programs/plans e.g. a transport plan for the country or flood capture management plans. The strategic stage is often missing.
- The more project level you go, the less movement you have.
- If SEA is done as an objective-led process, it can be very powerful. SEA must be reviewed and updated.
- In many situations, there are no guidelines for strategic environmental and social assessment

Dr Treweek then gave a second presentation, for which the Powerpoint slides are shown on the following pages.

Presentation 2: How does EIA relate to other tools for sustainable development?

1

2

3

Increasingly decision makers are being expected to make costs that were previously hidden explicit. Environmental goods and services do not come free.

4

sustainability requires a balanced approach to management of social, economic and environmental issues

People may not agree about which values should be sustained or about how values should be quantified… $ values is one way, but there are also other values that should be captured in decision making, for which $values are not easily quantified.

5

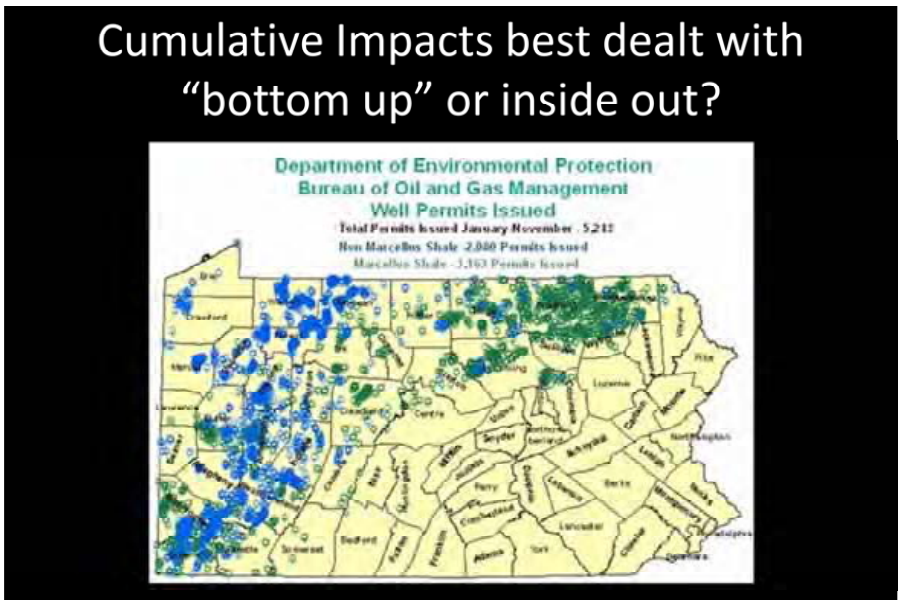
Tools for sustainable development

- EIA/SEA
- Sustainability Appraisal
- Ecosystem Services Review
- integrated coastal zone management
- the ecosystem approach
- …a host of others…..
- Or good planning and enforcement!

Many attempts have been made to develop tools that will ensure sustainable development. These often fail… they are often seen as “all talk” and are highly subjective and dependent on the viewpoints of those who were involved. This makes well designed participation essential.

EIA practitioners and developers are not always good at working outside their comfort zone or core area of business… sustainable development planning requires holistic thinking and a lot of interaction between players.. Eg social specialists, biologists, engineers and economists.

6



Impacts of multiple projects or activities in combination with each other tend to create a cumulative impact greater than or different to that of each individual project.
Environmental and social receptors are exposed to incremental impacts over time which mean critical tipping points are reached.

Despite this , Proposals and Permit applications are often reviewed on a case-by-case basis. Even in cases where cumulative effects are considered, they are often identified from the inside out, not the outside in. This means the fact that critical tipping points are approaching is often missed until it is too late.

7

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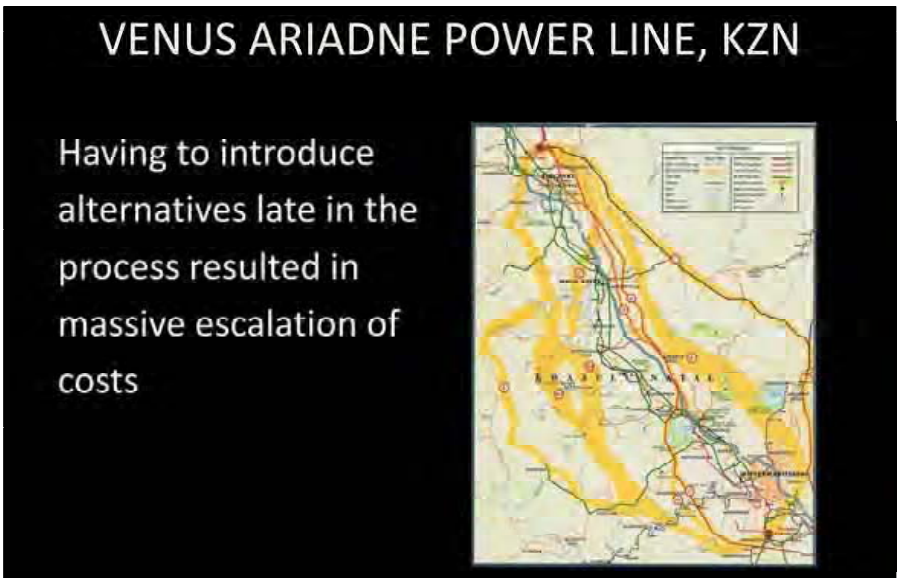

7 different corridors were assessed in great detail and compared. Very controversial, ended up having to use an independent panel to select the best corridor, which was a combination of different corridors! Would have been preferable to use a landscape-level approach, look at opportunities and constraints, and homed in on optimum corridors – at most two, perhaps even one....then assess impacts in greater detail! Sometimes using SEA or a landscape-level approach is more efficient and effective. It can also be more cost-effective. However it can't replace detailed assessment of impacts because the scale of assessment is usually too broad.

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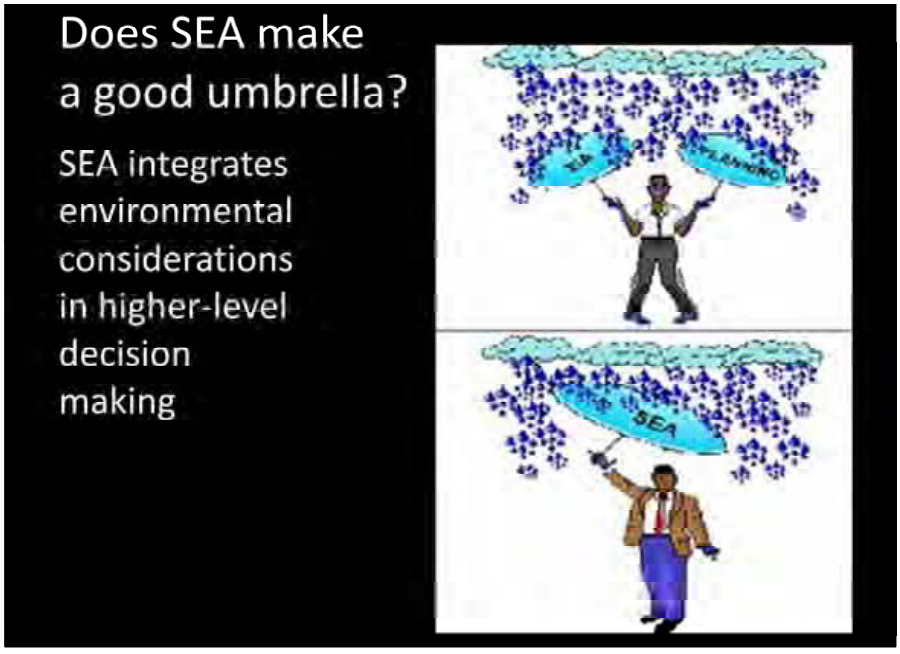
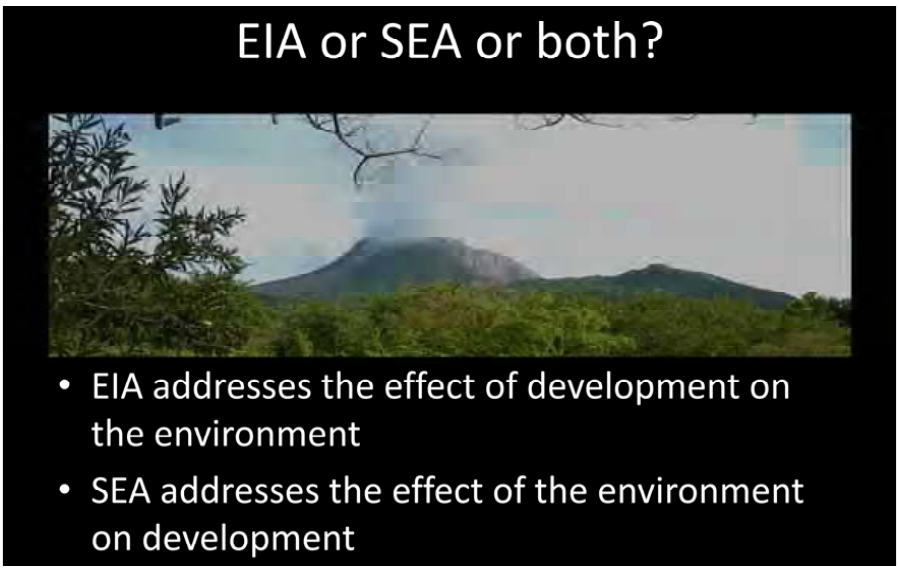


Eg to understand consequences of dredging and reclamation activities on the integrity of entire coastal and marine ecosystems or to predict effects of multiple development projects within a sectoral programme.. It is one way to anticipate and manage cumulative impacts. This can be difficult to do at project level, through EIA: In reality, most sites are already allocated by government or purchased by the project proponents before EIA commences.

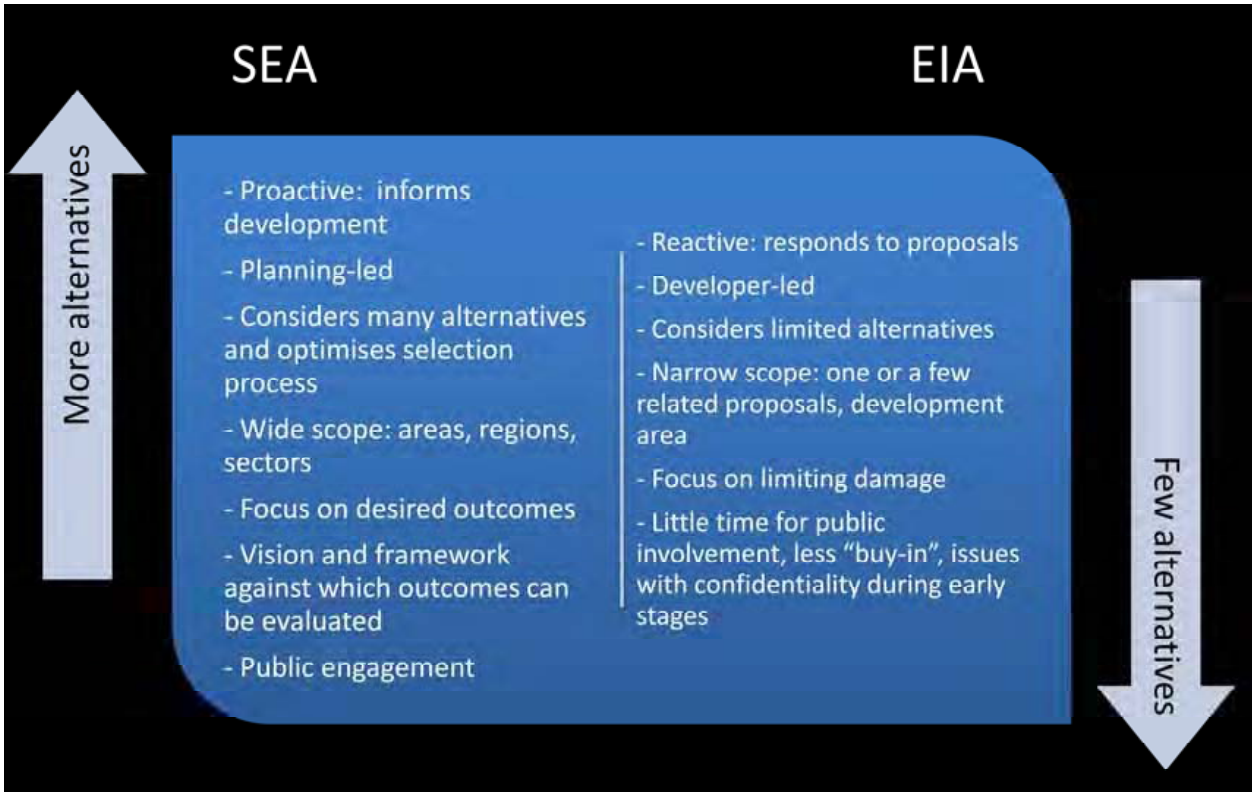
10



Both are important in sensitive environments, islands, areas prone to natural hazards or disasters

SEA may not be formally done, but a strategic overview of risks to the environment and of the environment to people is needed for safe planning.

11



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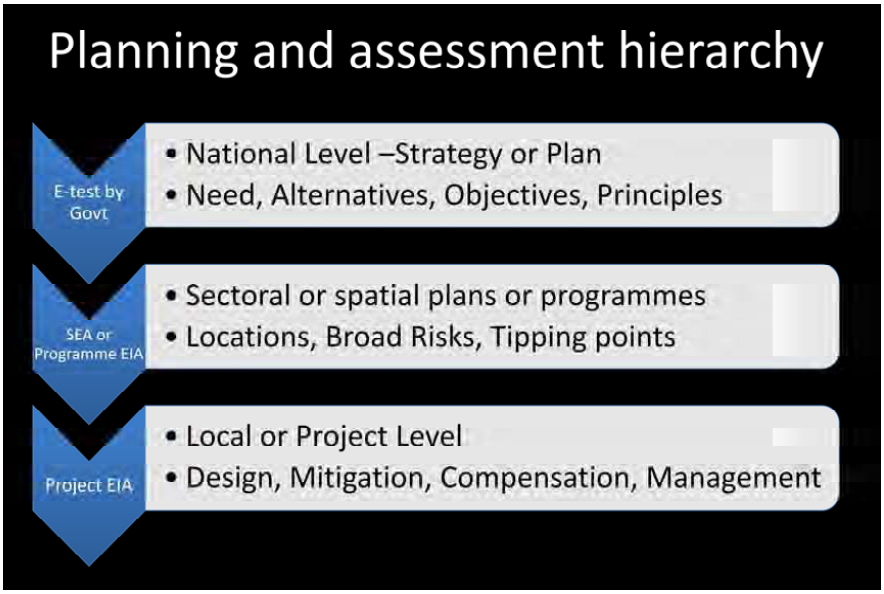
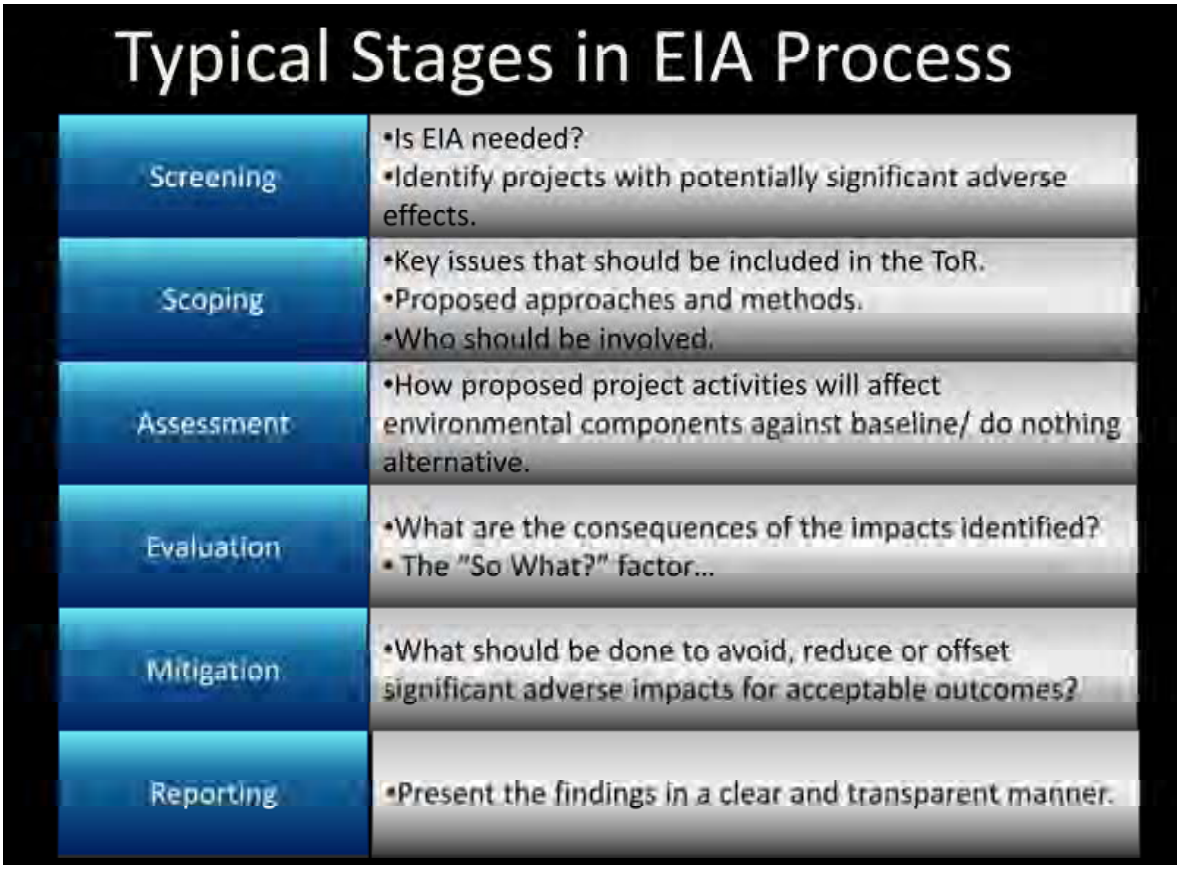


Jo Treweek then gave a presentation on:

Presentation 3: What does a good EIA look like?

1



2

Good EIA

- Follows these steps in an open way
- Has checks and balances to ensure the process follows is in line with international best practice principles
- Is fit for purpose… a good EIA is not necessarily a big expensive one.

3

Discussion around key steps

- Scoping done well promotes good EIA..

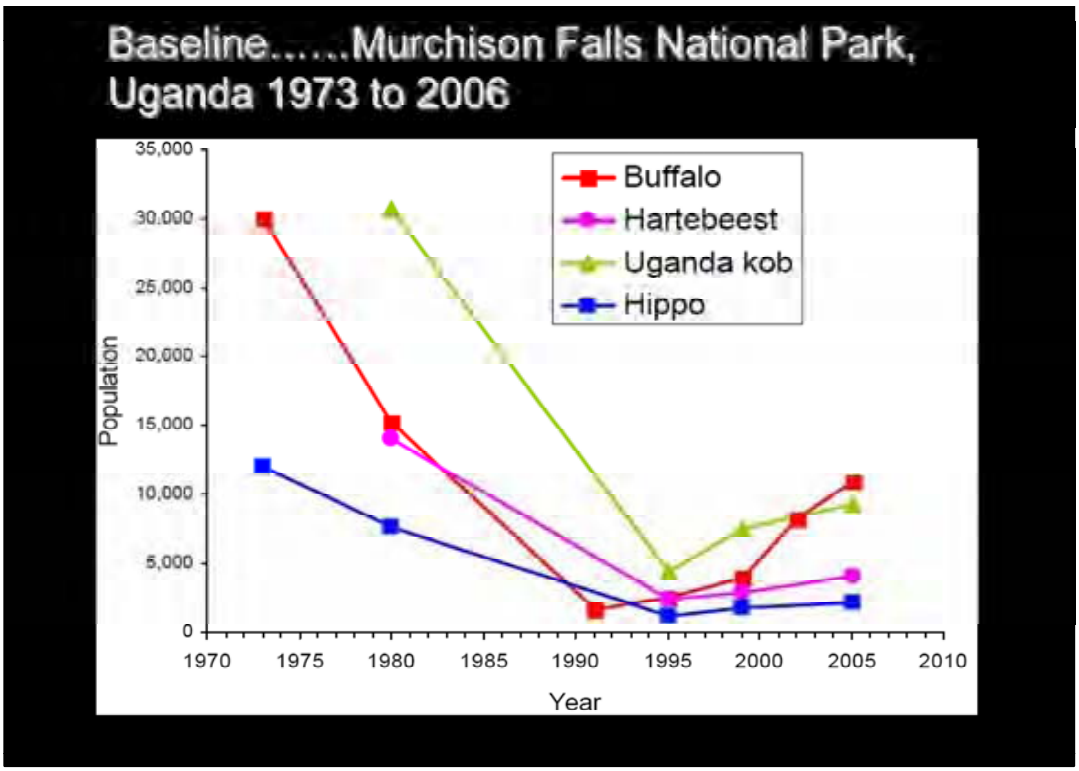
4

Scoping

- Scoping : in cases of uncertainty, results in a decision about the requirement to do an EIA
- Otherwise results in decisions about what issues the EIA should cover, who should be involved, timeframe etc
- Getting the developer to issue a scoping report can improve incorporation of environmental issues in design.

Some systems have an explicit scoping stage, including public participation. Others don't, but scoping workshops can do a lot to ensure that a good EIA is done.

5



Impacts cannot be assessed without a good baseline.. Baselines and impacts are completely inter-related.

For biodiversity, baseline assessments are usually done within a year at most. This can mean that fundamental patterns and time-series are completely missed. There could be 30,000 buffalo in MFNP or 300… how would the surveyor know what constituted the average population size, or more importantly, whether the population was healthy and viable or potentially crashing towards terminal decline?

6

Mitigation hierarchy

- The mitigation hierarchy is really important and underpins good EIA.
- It is included in international performance standards as a keystone.

7

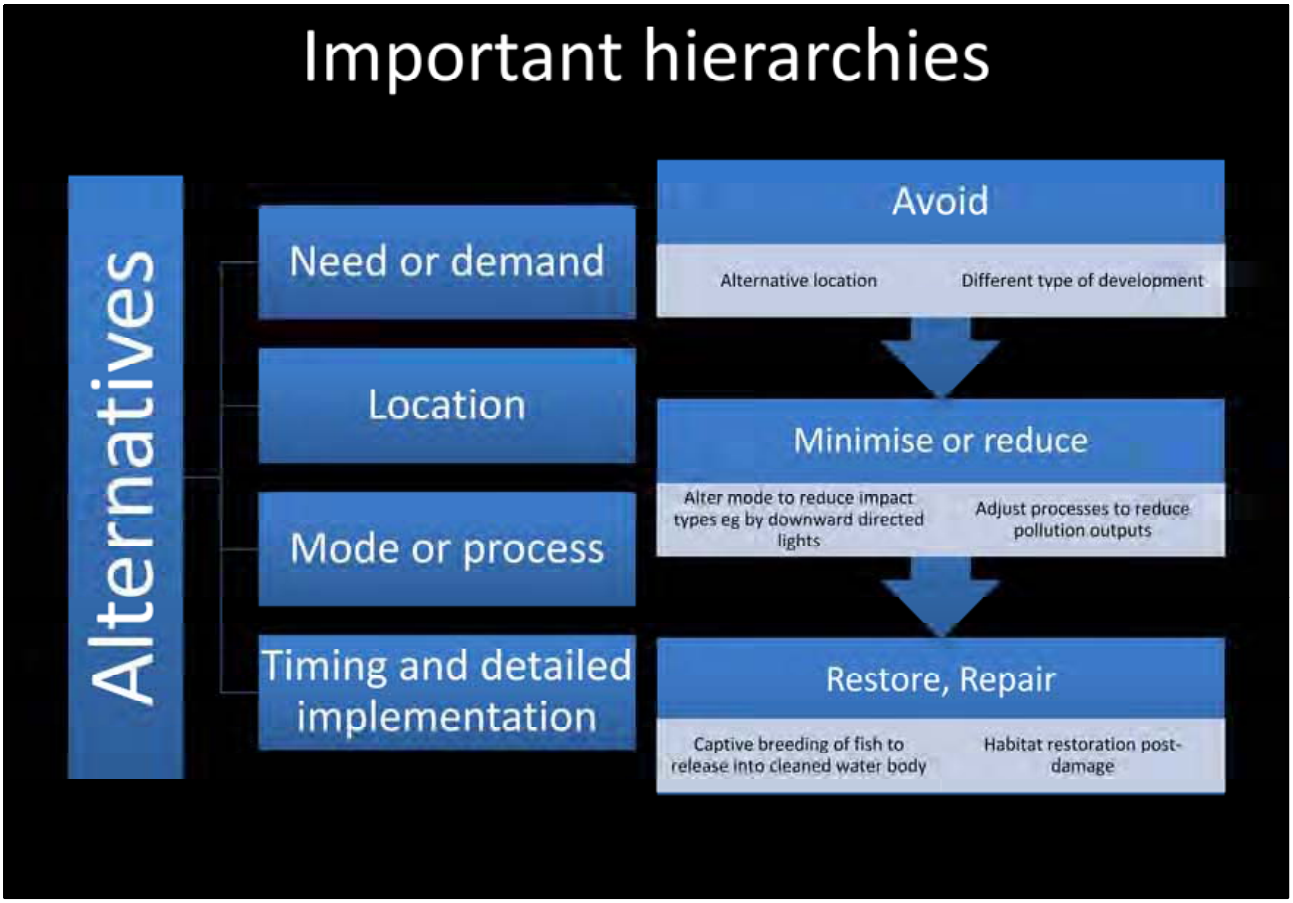
Mitigation hierarchy

- **Avoiding** the impact altogether by not taking certain action or parts of an action.
- **Minimising** impacts by limiting the degree or magnitude of the action and its implementation.
- **Reducing or eliminating** the impact.
- **Rectifying** the impact by repairing, rehabilitating or restoring the affected environment.
- **Compensating** for the impact by replacing or providing substitute resources or environments.

[US CEQ 1978]

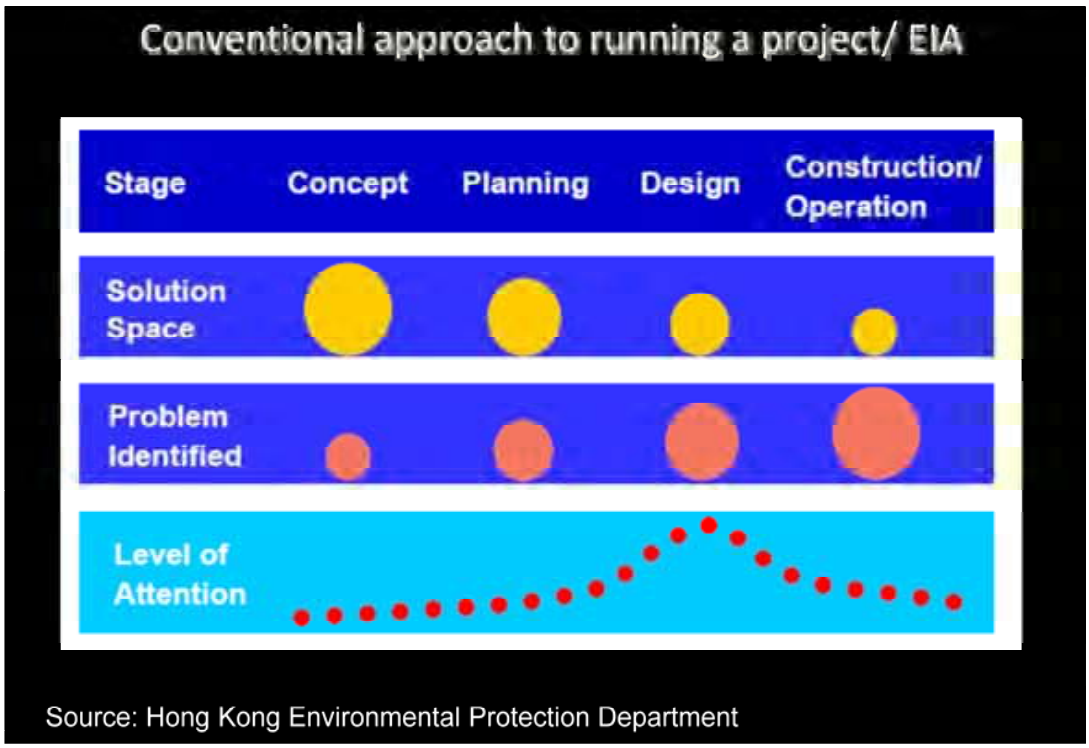
Mitigation hierarchy is key to good EIA and is now at the forefront of international standards… it governs consideration of alternatives and is intended to ensure that irreversible damage is avoided.

8



Mitigation hierarchy underpins the ESIA process as envisaged by IFIs in their performance standards. It is seen as one way to achieve an appropriate emphasis on avoidance of impacts through design. The mitigation hierarchy depends on appropriate consideration of alternatives, otherwise there will be impacts that it becomes impossible to avoid, even if better alternatives may have been available.

9



Solution space decreases over time in project planning hence a need for early focus. Usually more attention is devoted to the detailed design stage of a project. It is not unusual to discover environmental or social issues at this stage that have not been detected before. This can delay construction. It is often more cost-effective to front-load the assessment process, so there are no nasty surprises later on.

A change in mindset might be needed, with more focus on alternative solutions and avoidance of damage at an early stage, followed by investment in proactive management. This is a shift in emphasis from traditional approaches which were generally about damage limitation.

10

International standards relating to EIA

- IFC Performance Standards revised in 2012 with other IFIs following suit.
- Institute of Environmental Management and Assessment (IEMA) (2004) *Guidelines for Environmental Impact Assessment,* IEMA, UK
- International Association for Impact Assessment (IAIA) (1999) Principles of Environmental Impact Assessment Best Practice
- BBOP Principles and Standard on Biodiversity Offsets

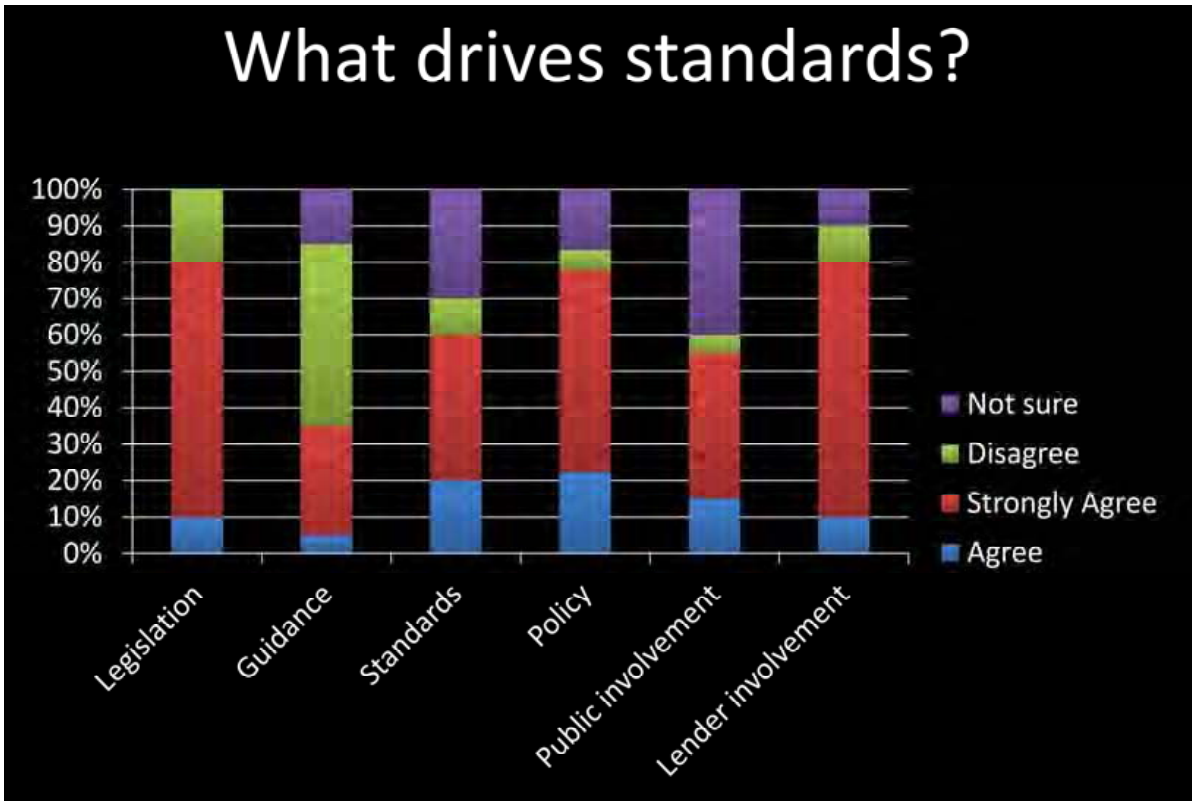
11

What might block effective EIA?

- Poorly framed legislation?
- Compartmentalised governance?
- Bureaucratic processes?
- Lack of standards?
- Lack of guidance for practitioners?
- Lack of capacity?

The scientific and technical aspects of EIA are rarely the issue. They have been extensively researched over decades and there is general agreement about what constitutes a good EIA in theory. The challenge is how to achieve good practice given real world constraints. A rigorous, but practical approach that will satisfy potential financial lenders to a project that environmental and social risks to their investment will be managed or put the minds of affected stakeholders at rest.

12



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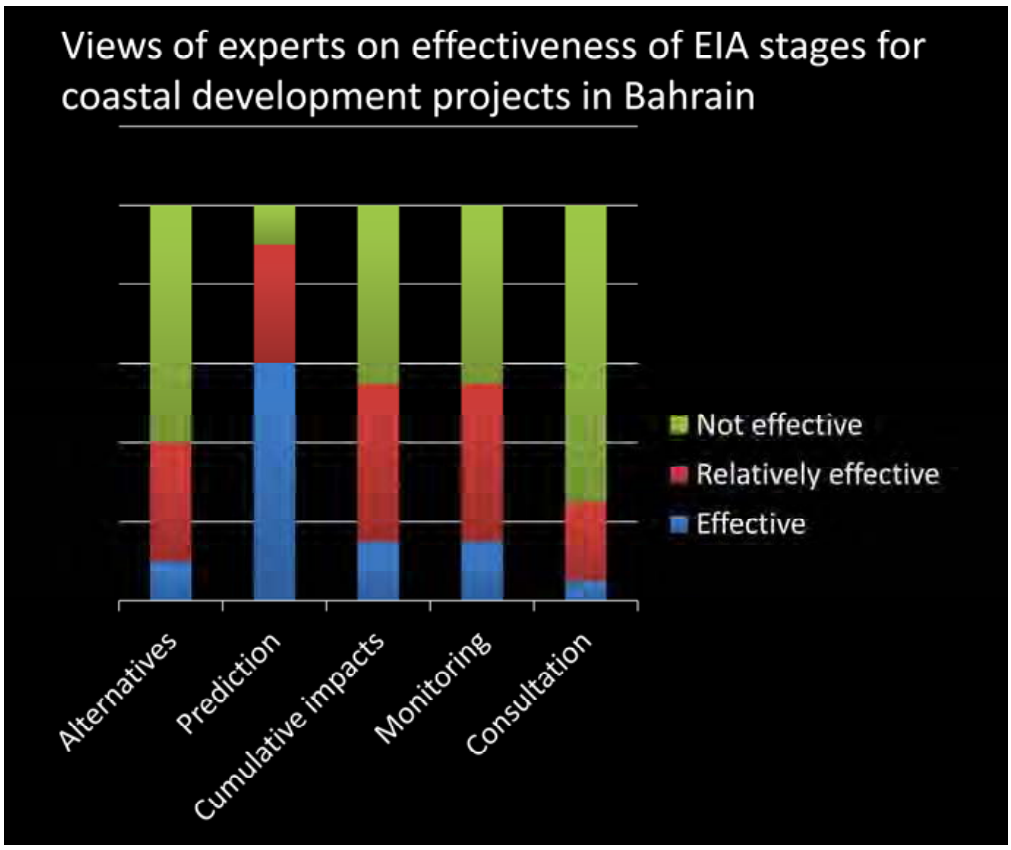


The EIA process

Who should lead?

Screening is done in some administrations by the Planning Development Authority which is slightly different from most other set ups. This step considers whether EIA should be done. It would be good to have a list of project types so that you can quickly determine whether projects should have EIA. Some countries do identify permitted development rights.

Generally, if there is a congregation of protected species, regardless of whether these are in a protected site or not, you would hope that this would trigger the EIA process.

Cayman Law states that guidance notes must be produced.

Scoping In general, the Terms of Reference (ToRs) for EIAs are made public. The EIA regulator might not be involved in their drafting.

When you have limited capacity, you can hold a scoping workshop/event which is very cost-effective.

The people involved should be informed at an early stage. However, proponents are often nervous of getting information out at an early stage.

Statutory consultees in the UK have to be consulted at the scoping stage. Note: the Netherlands have an EIA commission.

Assessment Through listing potential impacts, you can get a highly speculative matrix.

Where you put the threshold between minor, moderate and major can have a huge impact on whether work gets done or not. You also want to know why.

Evaluation

Mitigation In some instances, it could be important to do this step first.

Reporting

Mitigation Hierarchy

It is important to have an Environmental Management Plan. Ultimately you are aiming for no net loss of biodiversity. Things should be no worse off from when you started.

You should have performance standards. Note: There are differences between the definitions of natural and critical habitat.

Nobody is required to wait until the EIA process is finished before opposing a project.

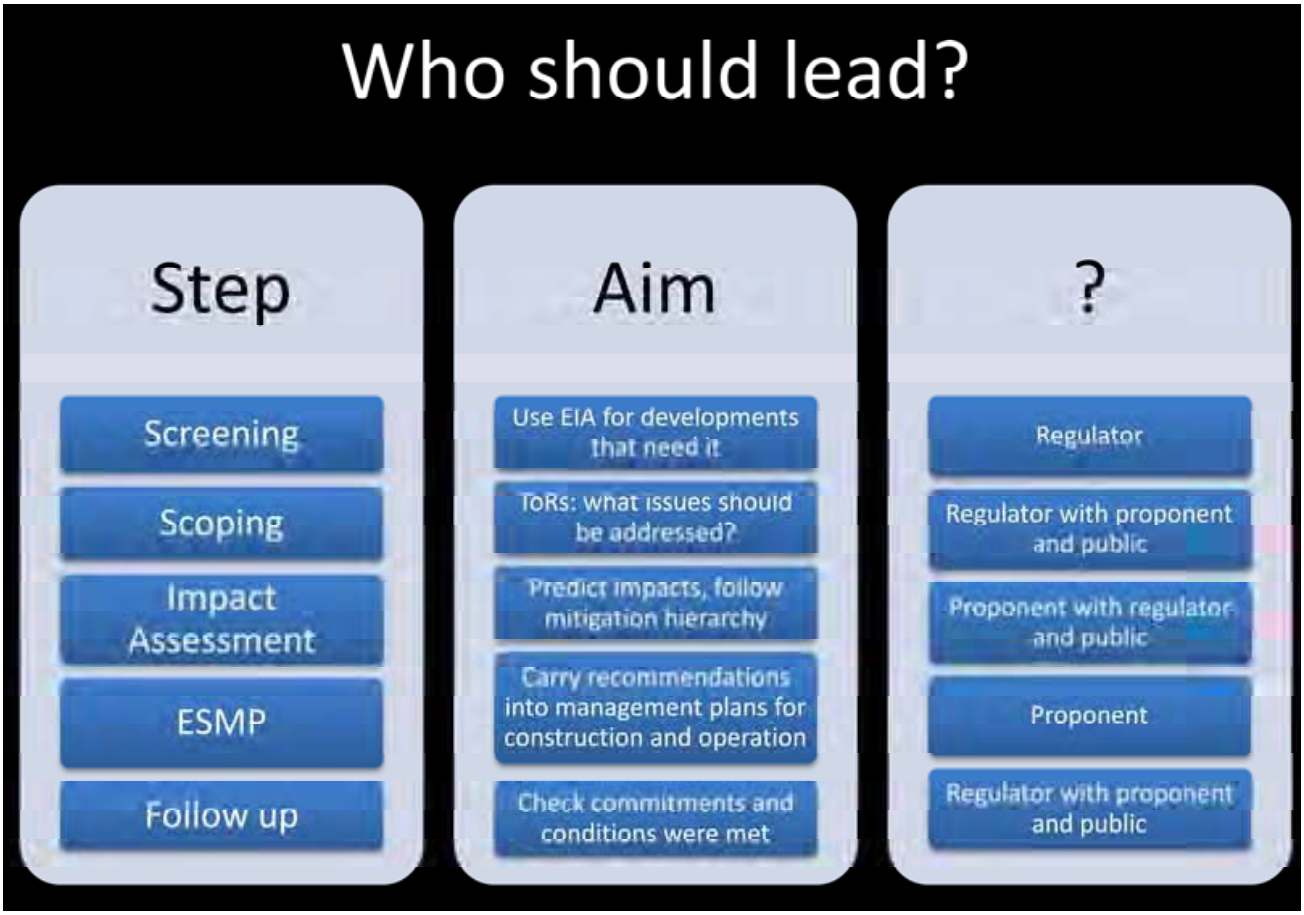
The process involves adaptive management as EIA leads directly into the Environment Management Plan/System.

Jo Treweek then gave the next presentation:

Presentation 4: EIA – Roles, Responsibilities and Participation

1

2



3

Scoping matrix

Environmental aspect	Construction Phase	Operation Phase
Landscape		
Cultural Heritage		
Flora, Fauna, Biodiversity		
Air quality		

4

More detailed

Receptor	Dredging	Buildings	Road upgrade	
Flora, Fauna				
Corals				
Galliwasp				

5

- Brief description of the project including any timescales (e.g. for construction), ancillary features (such as pipelines or highway improvements), plans/maps/photos to aid description of the site and the proposal;
- Feasible alternatives and others that have been discounted;
- Strategic background, for example, development plans and other related projects;

6

Scoping Checklist

- List of stakeholders and how they might be involved in the EIA process;
- Methodologies to be adopted for the assessment of each issue;
- Extent of the study area considered for each issue;
- The time horizon for which predictions are made;

7

- Key environmental constraints and opportunities;
- Likely key impacts, both positive and negative;
- Gaps in information;
- Proposed further surveys;
- Preliminary mitigation and enhancement measures;
- Proposed EIA programme, including timescales and milestones (e.g. consultation exercises and production of the ES).

8

- Preliminary mitigation and enhancement measures (if we are going to rely on mitigation for a good outcome, is it likely to work?)
- a scoping report can also be used in the subsequent review of an ES to check that the issues considered significant at the outset of the EIA process have, indeed, been addressed. It is good practice for an ES to include a section that sets out where each issue identified in the scoping opinion is dealt with in the ES – this may be summarised in a table

9

Using a risk assessment approach

- When considering the aspects of the environment likely to be significantly affected by a development, a risk- assessment approach can be used. For an impact to occur, all three of the following criteria must be present:
- **source,** i.e. activity that may be harmful;
- **pathway,** i.e. the route by which a harmful action or material is able to reach the receptor;
- **receptor,** i.e. humans, property, ecology, habitat, landscape, atmosphere, water, etc.

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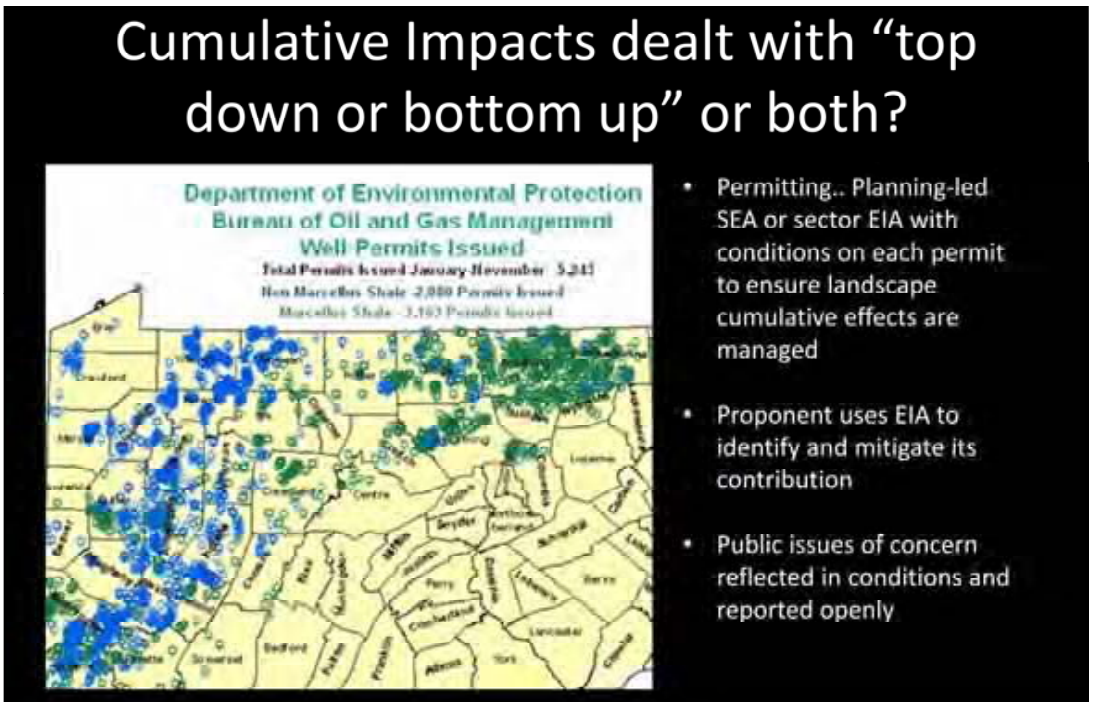

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Environmental and social receptors are exposed to incremental impacts over time which mean critical tipping points are reached.

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11

A good Environmental Impact Report should focus on key issues and present them in a clear, transparent and digestible manner

Examples are legion of poor reporting, including failure to specify the location of the proposed development, when it is planned to happen, the scale of proposed activities..

According to UN/ECA et al. (2007), some EIA reports are of very low quality and may also be excessively long and hard to understand regardless of the reader's level of education or expertise. For instance, the EIA for the Tana Delta Integrated Sugar Project in Kenya is 412 pages long and couched in turgid technical and scientific language, with extensive chemical equations, complex economic graphs and Latin binomial species nomenclature (Mumias, 2007).

It is common for Environmental Impact Reports to present vague and qualitative impact predictions, extrapolation from little or no baseline monitoring or an absence of rigour in describing projects and their impacts

Mumias, S. (2007). "Environmental Impact Assessment Study Report for the Proposed Tana Integrated Sugar Project in Tana River and Lamu Districts, Coast Province, Kenya." Available from http://www.tanariverdelta.org/tana/967DSY/version/default/part/AttachmentData/data/MUMIAS_Tana_EIA_part1.pdf

12

Those familiar with public participation will recognize that there is nothing new in the approach.
It:
•Reflects good practice
•Moves away from the decide – announce – defend
•Brings the community with you on the journey.

Martin, T. (2007). "Muting the Voice of the Local in the Age of the Global: How Communication Practices Compromised Public Participation in India's Allain Dunhangan Environmental Impact Assessment." Available from www.bicusa.org/proxy/Document.10857.aspx

13

Level of consultation needed

- The level of consultation should be proportional to the potential significance of the project's impacts.
- This will be related to the nature, scale, location and perceived importance of the project.
- Those undertaking consultation should identify stakeholders and the most effective means of eliciting responses from them, draw up a communication plan and gauge public concerns.

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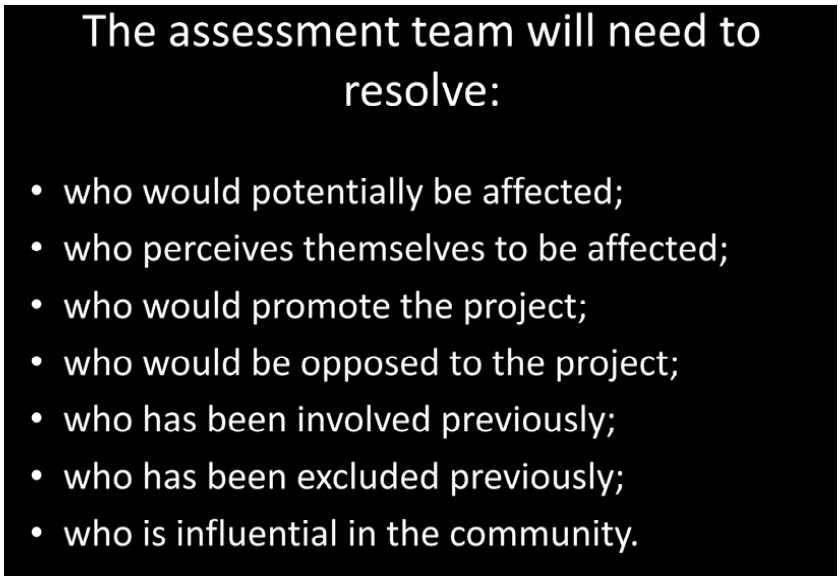

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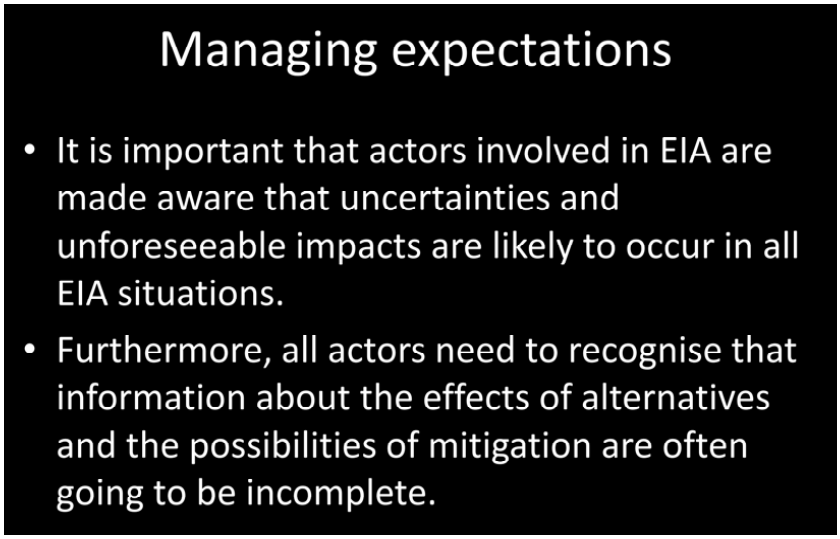


Diamond ranking exercise

The participants were split in to two groups. They were given a number of statements about EIAs, and they were asked rank them according to how strongly they agreed or disagreed with them.

Statements to review in the diamond ranking exercise

A. EIA is used for all developments likely to have significant effects on the environment

B. If EIA is done well, development will be sustainable

C. The EIA process balances economic, social and ecological considerations

D. The EIA process allows full and appropriate participation of consultees and stakeholders

E. EIA results are publically available and transparent

F. EIA results in better designed projects

G. EIA adds costs to development

H. EIAs are the best way to identify mitigation measures and manage project impacts on the environment

I. The EIA process is independent and unbiased

J. EIA always starts before development does

K. EIA results in no net loss of biodiversity and ecosystem services

L. EIA balances alternatives, including the no-development alternative

M. The EIA process allows time for full consideration of relevant impacts

N. EIA influences planning decisions

O. Effective EIA is constrained by lack of capacity and resources.

P. Good Environmental Impact Statements are more than 100 pages long

Discussion from Group 1:

The group approached the exercise by looking at a best case and a worst case scenario. In the worst case scenario, they agreed strongly with statement O that effect EIAs are constrained by lack of capacity and resources. They agreed slightly with H, although they thought that EIAs are one way to mitigate for impacts, but there are others, for example tight planning.

The group neither agreed nor disagreed with statements B, F, G, L or P. They did comment that a good EIAs is based on quality not how long it is.

The group disagreed slightly with C, J and N. Noting that EIA is supposed to influence planning decisions but it often does not.

The group disagreed with statements A, E, M, I, D and K adding, that social aspects are overlooked often, they are always under tight deadlines to be completed and are often rushed.

Under a best case scenario, of which Cayman is often a good example, the group agreed strongly with O, J and E, noting that there is are robust consultation mechanisms. Agreed with A and D. Agreed slightly with N and H. The group neither agreed no disagreed with B, F, G, L and P as in the worst case. They disagreed slightly with C, disagreed strongly with K and M.

Discussion from Group 2:

The group decided to look at intermediate ground. They decided that, in all cases, they agreed strongly with O. They agreed with A, N, D, E, F. They neither agreed nor disagreed with B, H, I, J. They disagreed with G,M and L. Disagreed strongly with, C and K and with P that good EIS are defined by their length.

General comments:

It was interesting to note that both groups were aligned in their disagreement of statements P, and in their agreement that lack of resources and capacity limits the effectiveness of an EIA.

The Cayman Islands Government Department of Environment has a substantial amount of information at www.doe.ky.

Group exercise Terms of Reference for a new development

1. Proposal - spatial scope
2. Baseline - spatial scope
3. Current State (What is there? Socially community sense of space, quiet, inventory of noise level, population)
4. Form a matrix to make sure have all components such as receptors and rank these with exposure, sensitivity, and magnitude. Include EU Directives, which require EIAs to include: soil, water, air, flora, fauna, human health, light, legal and policy obligations, national and international obligations, such as MEAs (*e.g.* CBD, CMS, CITES, Ramsar). It is important to show how your proposal complies with these things.

The TORs can be useful public documents and that is what Cayman has done.

This is a full cycle of development, through to decommissioning. For example, in the case of the St Helena airport, what would happen if it were to be closed down in future?

Social factors need to be included. There are issues with gender, schools; who would be impacted if drugs and crime went up?

There are WHO standards on human health, which might be used: for example, noise limits.

There should be requirements to consult. What happens when consultants come from outside a territory without any prior knowledge of the sites and ask for the data for free? There may be only one person with the knowledge and skills to review an EIA. The TOR for the cruise terminal on Cayman was 143 pages long.

When carrying out TORs, as much information as possible about development should be gathered. It may be that this becomes a hybrid with a scoping document.

TORs should specify what you want to know about the proposed development and any resource use that goes with this. For example, how many jobs will it create? What skills will be needed for these jobs? Are they available locally? What materials will be needed? How long will the proposed development take? What are the potential impacts of different receptors? What are the potential impacts of potential lost income as a result of loss of pristine habitat due to development?

Are you potentially displacing people who have no

alternative?

The Cayman document might be a very useful resource for those conducting similar exercises in other UKOTs. It may be that the Cayman document is too general and, ideally, it could be more specific. For example, air quality is mentioned but this could be more specific by saying the air quality affecting who?

Guidance TORs could be developed for the group following the workshop. Participants were encouraged to supply materials to share with the group. These would have to be quite generic as the TORs would depend on the stage in the process with the proponent.

Sea-level rise and hurricanes and the displacing of people if they loose their jobs are important aspects, as you must consider social consequences further down the line.

UKOTCF, Jo and others would look at ways of sharing relevant sources of information , EIA reports, literature, etc. One way of doing this could be within the existing UKOTCF database or immediately on Dropbox.

Above and next page: EIA Workshop in session

Speeches by Ministers or their equivalents in the conference closing sessions

Hon Claude Hogan, Minister of Agriculture & Environment, Government of Montserrat

Dr John Cortes: It's not often that we have Ministers from the UKOTs represented at Forum meetings and I think this is a wonderful thing to have and so relevant. As I said in my presentation a couple of days ago, Ministers shouldn't consider environmentalists a threat, nor should environmentalists, if I can use that term loosely, and organisations consider Ministers a threat. And the more we talk to each other and the more we engage with each other, the better. I believe that, before the break, the Honorable Minister of Montserrat and the Chief Executive of Alderney agreed to say a few words. Therefore, I call on the Honourable Claude Hogan, who is my counterpart from the beautiful island of Montserrat.

Hon. Claude Hogan:

Thank you very much, Mr Chair and thank you for your warm hospitality here in Gibraltar. Indeed it is my first visit and let me salute you and let me also salute you ladies and gentlemen, the Chair of the UKOTCF, also my good friend Dr Mike Pienkowski, who you know encouraged me to be here. I can tell you why, but that would be a long story!

As you know, politicians usually have something to say, but then in my country if you give us a mic, you can't stop us from speaking, so that will be the end of the conference. So bear with me. They're timing me? Really? [Laughter]

So thanks, Ladies and Gentlemen, for bearing with me for a few moments. I usually rely on my technicians to tell me what to say. First of all, and I hope you will be able to discern when I have departed from the text, because I always depart from the text. But I am promising and committing to be a champion for environmental issues in Montserrat, and I'll take back to my cabinet the issues that have been unfolded here, so brilliantly. I refer to it as my University in the environment, but my background was really from High School in sciences. I was planning to be a doctor. My geography teacher was actually Mrs Sarita Francis, and I did chemistry, physics, biology, and everything else, but then you know that was not my real wish; that was grandparents and parents wanting you to be more than what you wanted to be, if I can put it that way. I really wanted to be a political scientist and a lawyer, and I ended up changing colleges about 3 times until I found my place. So in 2001, I actually ended up in politics. I was a former Radio Antilles and Radio Montserrat reporter, and Stephen Mendes' daddy taught me to operate the console. But, seriously, we need to look and grasp the need to build capacity in our small islands because we experience extreme conditions.

We are the least contributors to the problems that are in the world in relation to carbonisation, sea-level rise and all the other threats. I really applaud the conference for having taken a hands-on approach to dealing with conservation mitigation and the issues of protecting our environment. I

think in fact it is wonderful that we are continuing, as small island territories, to make such a really valuable contribution to global affairs. And I want to borrow the phrase from my Gibraltarian friend that, in fact, all the UKOTs are "punching above their weight."

We could have been like the other SIDS countries complaining to Britain and all of the first world countries to stop your emissions. We could have been complaining to China and India and all of these countries which are reticent to the damage that their continued use of global resources to promote industrial development is causing. But what we are doing is that we are conserving, protecting and mitigating damage to what God has given us as our natural attributes, and I really want to applaud us and applaud you on leading us in that direction.

In Montserrat, we have basically a mirror of what is going on here. I have come to be able to appreciate it that much more and I see clearly now the light on why we have the Conservation and Environmental Management Act (CEMA) legislation that was passed. We have been a little slow in enacting regulations and to get it into force. But that is also because the CEMA, which is our Environmental Act, requires levels of capacity which we have not yet been able to draw on from any of the funding agencies around us, DFID included. I want to commit, to Mr Mendes and the Environmental Department and the National Trust, that I will now with alacrity seek to get that done. We have begun since I returned to office in September last year when, at that point, I was clearly negatively moved by the fact that the previous Government had demolished a hill that we called Gun Hill, which was a sort of a fortification. (The English weres beaten by the French in Montserrat twice, and so we have gun batteries and Gun Hills and so on.) I really loved this hill and then they demolished the hill at the cost of £3 million dollars, and a further $4 million was used to fill a pond. And I spoke to my friend Mike and I said "Mike, what do you think we should do about this? I mean, you know, can we, you know, excavate it all back out and restore biodiversity there. He said that it might be possible to restore the pond; it would be expensive, so perhaps it might be better not to build on the site so as to keep options for restoration open. And he asked me the other question. What would I think about local attitudes to that spend immediately after the big spend to do the damage? Well, I am looking for the answer, and I said I think the infilling is a disgrace. I was called in to meet the Governor and to look at the solution to the disgrace. We have not found a solution but we are still intending to build a town in that area, and you can be assured that we will build it taking full account of nature. I want Montserrat to be the way the Caribbean used to be.

We have had the most devastating natural disaster in this century in the Caribbean but I will continue to worship my home town because, in this 21st Century, we have been able to do what our people took 300 years to do, to build a town and to continue a sense of civil society there in north Montserrat. We have been able to do that in 20 years. We are celebrating 20 years since we had our volcano. And when I arrived here, and I saw us approaching this great big rock in the middle of this country I thought, if they can celebrate this in Gibraltar, then I can say celebrate mine in Montserrat, and continue to build our land that was there.

So certainly all of you I consider scientists, and I want to, as a politician, respect the work of scientists. I am a little bit taken aback that the British seem to have a position similar or akin to that of the US where they are not believing the scientists. Something is wrong when we are still debating at this time whether a Charter on the environment is legally binding or not. This, in fact, would be a pre-requisite for the type of commitments we need to make to ensure that we clean up and protect our environment. So certainly, that is a deficit we have.

I have actually researched some texts for you, that I think we should take to the British Government, and we shouldn't be saying just "can you please accept this"? And I was well schooled about this Charter while I was here, in the corridors, so I went back to my room and looked at my texts, and I think we should tell the British Government we need enhanced provisions for supporting the adaptation needs of our vulnerable countries, including provision of adequate, predictable, new and additional finance, technology and capacity building support and the strengthening of the institutional arrangements that we need to do the work that we are doing.

[Interrupted by applause]

Thank you. I also want to encourage you to let us look also at where we have come from. I am sure that you have established baselines in relation to the work that you are doing in the various territories and I want us to do measuring, reporting

and have institutional arrangements in place with the UKOTCF, which I continue to think is going to have an indefinite role to play in this exercise. In verification of the performance of what we are doing against these commitments and against those commitments that we shall agree, our main thrust is that the UK government shall finance this. And we will put in place with them a compliance regime. Not compliance just for us, because we are going to be performing against our targets. We are going to make sure that there is a compliance regime that they respect in regard to the work that we are doing in fulfilling the international obligations of our entire United Kingdom and its Territories.

Now we also in Montserrat, as I said, have been exposed to some very difficult times. Our entire town was destroyed by a volcano, and indeed I think that, if some of these things that are predicted to happen, and some of the things that could happen, if you did not take the steps you are taking now, that you are going to have to look seriously at other issues, such as insurance. I remember that, at the height of the volcano, the insurance companies which were based in London, came in and reduced our insurance coverage and paid us out at 40% of the value of the insurance, and left us with 60%. Now these are matters that you cannot leave hanging, and we have to look at some of those issues.

Recently, I was in Guadeloupe when the French President convened a meeting of all of the Caribbean countries, and I noticed that he did not discriminate between the independent and non-independent countries, so we were all invited. He has now unveiled a number of projects that include the Overseas Territories and they are looking at possibly a window for the French Overseas Territories who will collaborate with the other Overseas Territories to access the Global Climate Fund. We still don't know how that will work, and there will be discussions in Paris in December 2015. I invite member states here to keep an eye out on that, because I honestly believe that we need to work with all our partners in dealing with this environmental issue. It is a really big problem that we are facing. So certainly I will encourage you to join with us, and let us look at something which I heard my good friend Lyndon raised in passing in a meeting which I wanted to underline: that, in addition to the sub-regional efforts that we are making in our own regions, we need to also cross-collaborate and cross-fertilise with the other countries in our regions. This is because some of these issues are best challenged and best handled when we also work with our neighbours. In Montserrat, we have Antigua, St Kitts, Nevis, as well as other OCTs close by. Some of the issues of climate change we cannot fix at the domestic level, we are going to have to find regional solutions or sub-regional solutions, so I applaud that as an outcome from this conference. I hope that we, as UKOTs, extend it to include also our other neighbouring countries in the areas in which we are resident.

I wanted to comment very briefly on some of the topics that we have discussed here, and I am particularly pleased at the discussion, and not just the discussion. I was able also to realise that some of you have marine assistance, in work in the marine part of your Exclusive Economic Zones. We have been trying to grapple with providing resources for our marine division and our environmental department and fisheries unit to work together, and it just occurred to me that this is the very essence of why I will not say I am here to represent the Government. I am actually here today representing the island of Montserrat. We have several key parts in this room. I am starting to think that the Environmental Department and Fisheries could actually be outsourced to the Montserrat National Trust because they are working so well together and all they need from us is certification and financing. So this is how I want to view it. I have learnt the lesson that I should let them work closely together and pool their resources wherever possible. I am sure the National Trust would love to hear that!

We have had some lessons that we are learning and I have learnt here on the question of the geothermal exploration. All of these things sound very good but, when I heard the discussion on the approaches of countries like Gibraltar, I am thinking in my own country that maybe haste is going to make waste. This is because we are working on two tracks and I can assure you that we certainly do not have the capacity to deliver the policy, the legislation and the operational arrangements that would deal with the environmental consequences from geothermal operations in Montserrat. But everybody is very delighted to hear that there is going to be less carbon used and the electricity is going to be cheaper – and I am not even sure about that because the level of investment that has to be made in the capacity that we need to get it operational – we are going to have to go back to the drawing board with the British Government. It is not just about building a plan, it is going to be a

weighty issue going forward and I have taken note of that.

I want to applaud the BEST project on invasive species. They have been doing a wonderful job in feral animal and invasive species control in Montserrat, a culling programme to be exact. When I first came into office, I was told that the programme included the culling of donkeys. And Montserrat is a Christian society; we have every Christian denomination on Montserrat – Catholic, Anglican, Methodist, Baptist, Pentecostal and I might have missed half of all these. I told the people from BEST "the donkeys have the cross on their back; don't you recognise it? That donkey carried Jesus into Bethlehem, is it Bethleham or Jerusalem? There was a crucifixion again. [Laughter] So we can't be culling donkeys." I started over the programme and I cut out the culling of donkeys. And I'm afraid that the situation has gotten so bad that people have been injured, there have been car accidents, people are afraid to come out of their houses at night in certain villages because the donkey population has gotten well out of hand. So I am asking BEST, Elizabeth [Radford], Lyndon [John] and company, to come back and talk to the people, and do what they say. [Laughter]

Thank you for that.

Lastly, let me congratulate you all, and pay tribute to the work on Environmental Impact Assessment. I should tell you that, ahead of this workshop I was very grateful, to have invited UKOTCF at very short notice to help. I mean, I met Mike and, within two days, we had agreed he is coming to Montserrat [in January 2015], and bringing two colleagues with him, including an EIA consultant. We are going to embed EIAs in planning approvals in Montserrat. And all that has happened between September and now. So, Mike, thank you very much for finding Jo Treweek [applause]...Jo is here somewhere, and yes I want her to come and live in Montserrat – everybody knows that [laughter].

So that being said, I just wanted to pay tribute to everyone.

There is one last part of the puzzle which I did not quite get in a question earlier in the conference. But I did some research on the Blue Halo Initiative in Bermuda and I found out that it was not implemented by Waitt, as is the one that I am having such wonderful experiences with in Montserrat, partly facilitated by UKOTCF. The Bermuda initiative of the same name was apparently implemented by Pew.

The situation is with us, as the session reporters highlighted, information sharing, cooperation and an appreciation of the cultures and so on. I think that maybe that subject area is a good subject area on which this Forum should advise on a standing operating procedure for incoming philanthropists who want to do work in the environment. It is very useful that we capture all that we are able to capture. Maybe Stephen Mendes and Mrs Francis, and with a little minor help from me, can start to put something together in terms of standing operating procedures: what did we do?; what are our experiences?; what do we expect?; what do you expect?

Thank you all very much. I really appreciated being here. I really want to reflect also that I heard everything and I have a photographic memory too. I want to really empathise with BVI on their experience. I did have that similar experience when I was dealing with the airport in Montserrat, which is, they say it is a bit short, but we have a modest airport; they use an Islander service and it is extremely capable, and I want you all to feel welcome to come there, we also have a ferry service. I am putting the entire Forum on notice that the next conference shall be held – God willing – in Montserrat in three years' time, as well as the next Environment Ministers meeting in May or July next year.

Thank you

[Applause]

Victor Brownlees, Chief Executive, States of Alderney

John Cortes: I have now the pleasure and honour of asking the Chief Executive of Alderney, Victor Brownlees, to address us.

Thank you very much indeed, Minister, and very many thanks to Mike and to you for giving me an opportunity to be here.

I'm the guy with the wife with the broken wrist, ... she didn't break it here, and she didn't want to miss it, so she had her operation on Monday, and she begged the doctors to let her leave, on Friday, from Alderney. Many of you will probably know my son, Alexander, much better than you know me. [laughter] Those of you who haven't seen pictures of Hector, his new puppy, he'd be more than happy to show them to you. [laughter]

Anyway, why am I here? I'm not a directly elected politician. I feel a bit of a fraud, following someone like Claude. I am a mere functionary. A bit like Bill [Samuel], however, I'm a recovering accountant, I haven't touched a set of accounts in 1846 days, and I don't want to start again!

My job in Alderney is to assist, support and give advice to the ten elected members of the States of Alderney, and then to make sure that things happen. I am here because we're a small community, but we have a very big heart, and huge hopes for the future, for the island. And I'm glad to be here with my friend, I'm glad to say, and colleague, Roland [Gauvain], who runs the Alderney Wildlife Trust. Like Claude, I'm quite hopeful that I'll be able to outsource a lot of the activities of the States to Roland and his team.

I suppose for me, what have I learnt from this, are three takeaways which have huge resonance in terms of the things we are trying to do, in Alderney. The first one is that – I can't remember which one of you said it, but it's absolutely wonderful and I'm going to steal it – to avoid the cookie-cutter approach. That's hugely important for those of us who live in small communities that are very very assured of their own identity. Outside pressure does not work. I'm fairly new to Alderney and I have to be sensitive to this every day: "what do I know" is the constant question of me. I'm from the outside; I'm not from Alderney. So I get it. It doesn't work if it's seen to be driven from the outside. And it's important to have local champions, the Blue Halo was something that I think will stick in my mind. Linked to that, however, there's this sense that there's an immense wealth, knowledge and experience . I looked at the posters and listened to what you've all got to say, and I've had conversations with a number of you. The experience is huge. It's not called "Sustaining Partnerships" I guess by mistake; it's about sharing the knowledge. People talk about knowledge being power. Knowledge is definitely at its most powerful, in my view, when it is shared. What I would like to take away from that for me is how can we do better in Alderney, in learning from the rest of you. Why is that important? We have tried in the past to bring about a marine park, a marine protected area, and it failed diabolically because we didn't use the engagement processes which people like Fiona [Gell] and Peter [Richardson] talk about. So I will take that away so we can do it better in the future. And the other bit that's important to us, that's a reasons why I've had a conversation with Tom [Appleby], in Alderney we do own our territorial waters and the seabed out to 3 miles. We want it out to 12. Again, how we can better sustain that huge resource for the island.

So, no cookie cutters; got to get local champions.

The next thing is, and it's a bit of a creative tension here between the two concepts, one that we are a relatively closed system so we can experiment, we can try things out, but – and I take the point – we cannot be guinea pigs. We shouldn't be somebody else's lab rat; we've got to understand the risks

that go with trying new things out. Why is that important to us? Because renewable are huge. The tidal energy project in Alderney can make us completely free of fossil fuels; it can hugely reduce the cost of living in Alderney. Electricity costs, for instance, and oil costs round to about 15+% of the living wage in Alderney. So it's got huge potential, but, and Roland keeps reminding me of this, what about the environmental impact: "Victor, you have these negotiations with these developers; how can we better protect, if you like, the environmental resource that is ours?" So I'll take that away: it's right to take a risk; it's right to try things; it's right to experiment; but don't be somebody else's lab rat.

The third one is that I was hugely inspired when I heard somebody talk about this the other day, that we need to capitalise – and I'm going to talk like an accountant now, I'm sorry – on balance sheets collectively. The value of our natural and historic heritage: I believe that's hugely important. Why in Alderney?, Because we are special. We talk about being unique. I don't like that word; we're special: there's things about Alderney that will attract people to come there. Hence, our *Living Islands* project, and I think I've spoken to a number of you already about what we're doing there. That's about recognising those things, and then going after tourism. I say that, unashamedly, there's two sides to what we want to do with *Living Islands*. One is to conserve and protect; the other is to achieve sustainable economic growth, and we're going to do that through niche and targeted tourism.

So those are my three take aways, the things that I'll go back and hopefully work on closely with Roland in the future.

One of the things I do want to do. I came here with very little knowledge about the work of UKOTCF, the Forum. I applaud you. I am absolutely astounded by the work that you have been doing, and the work all of you have been doing individually and collectively. I will take that back.

I promise that Alderney will be much more closely engaged in the work of the Forum, and in working with our friends and colleagues right across the CDs and the UKOTs, wherever you may be. I am delighted that Claude has invited us to Montserrat, next year and beyond. I was going to invite you to Alderney, but we'll leave that for the next round. [laughter]. So again, huge thanks to you, Mike, Minister, to all of you for giving us a chance to be here – and also for putting up with pictures of Hector. Thank you.

[Applause]

Dr Hon Kedrick D. Pickering, Deputy Premier and Minister for Natural Resources & Labour, British Virgin Islands

In the British Virgin Islands, the Environment is not just any old subject; in the British Virgin Islands, the Environment IS the subject – because, despite the fact that we are involved with international events such as financial services, tourism is our main bread-earner and our tourism is largely based on the fact that our environment is so special. We did a study with the University of Amsterdam two years ago. The study showed that about 90% of all the visitors coming to the BVI come because of the environment. In the same study, 90% of visitors said that our beaches are our number one assets and, if we destroyed these, there wouldn't be anything for anyone to come to the BVI for. You extend that discussion; most is based on our marine environment. 75% of visitors come to sail so it is a major part of our industry, as well as snorkeling, scuba-diving and other water-related activities. These are what our tourism is all about."

Minister Pickering noted that BVI's term as chair of OCTA (the Overseas Countries & Territories Association, representing the Overseas Territories of the UK, the Netherlands, France and Denmark) ended in February this year. As part of this, he had addressed the United Nations meeting in Samoa on behalf of OCTs during the UN Year of the Small Islands Developing States. He noted that he is an environmentalist at heart, and that involvement in the Environment and issues surrounding the environment are more than political. He tried his level best to attend meetings trying to raise the voice of the environment, and was pleased to be here to show the BVI's support of the environment on behalf of BVI as well as all of the Eastern States? He noted that all must be prepared to raise our voices on these issues: people take you seriously if you are present.

He described also the role of the BVI in the Caribbean Challenge Initative, spearheaded by local businessman, Sir Richard Branson, and the former Prime Minister of Grenada. It was a coming together of businesses and political leaders from the Caribbean region to discuss various environmental issues. He noted that Maya Doolub has been a force working with Carbon War Rooms Initiative.

There were three broad issues that were agreed on. Firstly, that countries of the Caribbean should work desperately to give a commitment to protect 20% of their national marine areas by 2020. Secondly,

all countries should endeavour to work towards renewable energy and should have at least a 50% commitment by 2030, and then the third issue, all countries should work desperately hard to protect sharks and rays.

He noted the importance of governments taking responsibility for ensuring environmental sustainability even when decisions are unpopular; they had taken these necessary actions as fisheries are so important for BVI.

The BVI marine environment and our fisheries are extremely important to us. All the scientific studies have shown that, if you are going to protect coral reefs and ultimately protect and sustain your tourism product and your fisheries, you have to protect the coral reefs. Two things are important in that context, one is the parrot fish and the other is the issue of ghost traps. Former Governor Boyd McCleary worked diligently with me to get the British Ministry of Defence to send a team to the BVI to help us with the removal of ghost traps, because the tradition of fishing in our country is ghost traps and because the material that our fishermen use is non-biodegradable. During storms these fish traps are lost and they remain on the ocean floor and continue to kill fish.

Minister Pickering referred to the studies from Belize, which have shown that parrot fish have an important role to play in coral reef ecosystems. They are natural grazers and prevent the build up of algae on reefs. However, they are being caught in the ghost traps.

We have a commitment [as part of the Caribbean Challenge] to protection of the environment for

generations to come. We understand the value of what we have. In my lifetime I don't want to see the mistake of seeing the environment in the BVI destroyed because we don't recognize the value of it. I have a commitment to do what I can, not only locally and regionally, but internationally to be a champion for the environment and to ensure that my children and my children's children will inherit the environment as we have it, in a better state. We, as a government, have bought back some important real estate and we are going to transfer them to the National Parks Trust.

Minister Pickering acknowledged the level of representation at the meeting, three from NGOs and three representing the government of BVI, showing a high level of commitment to the environment and engaging with other partners.

We believe that overseas countries and territories working together can raise the alarm and can raise their voices to ensure unwanted destruction is something of the past.

[Applause]

Hon Richard Ronan MHK, Minister of the Department for the Environment, Food and Agriculture, Isle of Man Government

We have a complex political system in Isle of Man. I personally got in this job through a desire to see food industry grow. I know that our team at DEFA are incredibly passionate in their work. We value the opportunity to take time out and share perspectives and learn from each other through this honest and very open Forum. We are all from relatively small jurisdictions and can often be seen as insular by others and, of course, no one of us has big teams. So this is a chance rapidly to gain understanding and new ideas, and we will go back to our homes with a new perspective. The exciting part is that we may be small but we are nimble and we can genuinely make a difference, very quickly. So this provides us with an opportunity to make a real difference to climate issues around the world.

One of the special aspects of the event is governments and NGOs working together, and I will work hard to get more Isle of Man NGOs involved as we have seen this week. I know I have already been tasked by the Parliament at home to make this happen more on the Isle of Man.

Environmental Impact Assessment is a very current topic for us. We are currently working with a commercial partner to develop an off-shore wind-farm which will contribute to sustainable energy production, but more importantly to our island economy. EIAs always create tension, as we all work together to consider and identify the very fine balance between our environment and the economy. I feel it is important for you to note that we are a Crown Dependency, not part of UK or EU and therefore not bound by their EIA standards, so the tension and debate is a massive challenge for us politically and financially. For that reason, I note that the RSPB proposed to lobby the UK regarding their role in supporting the UKOTs to achieve these balances and, from that perspective, we are jealous, I suppose, as we are entirely self-funded with no legitimate right to seek UK support. So against that backdrop, I know the Manx team here benefited and enjoyed from the conversations about EIAs and we thank you all for that.

I would like to say a few words about climate change, where I have deliberately worked to change its perspective on-island to climate challenges and here is why. We have made rapid progress recently by focusing on efficiency and policy for future direction. I have just passed two

policy statements on mitigation and adaptation through our parliament, Tynwald (which is the longest continual parliament operating in the world today).

I know the BVI Minister gave a great plug to the islands before; we all cherish where we live and where we are from and we all live in very special places. We have moving away from trying to bring in legislation and moved to the area of trust and common ground with our evolving population. . I note in the summaries today that legislation is important. However, I would like to observe that the use of policies not legislation has allowed us in the IoM to move faster and lower the evidence threshold. We are making quicker progress this way, which surely is good news. I believe this is a win for everybody, both environmental and financially which is critical if we are going to meet our ongoing emission targets and carry the Manx population with us.

If I could now discuss our hosts in Gibraltar, having spoken to our team about what they have heard, I look forward to hearing about the exciting progress in Gibraltar. I hope that this will be a platform and look forward to building strong relationships with not just Gibraltar, but the other UKOTs.

Finally I would like to give a special mention to Liz Charter, who has given so much to this Forum, chairing working groups, and now UKOTCF itself, and of course bringing back all that she has learned

to the Isle of Man. May I say, Liz, thank you very much.

I am also glad that. as part of our team here, Dr Fiona Gell will be our future representative of the Isle of Man.

We are delighted to be here this week and we look forward to having conversations with as many delegates as possible. Can I also extend an invitation to this Forum, that if you wish we will only be too happy to accommodate any future conservation forums because please let me reassure you all that the IoM takes conservation very seriously. In fact, we are hoping to be able to show this to the world, as we hope within the next few weeks to show an application to UNESCO for Biosphere accreditation. If successful, we hope to be the first island nation in the world, to receive recognition for our country.

For 30 plus years, the Isle of Man has enjoyed an excellent economy, driven by the outside financial world, but like anywhere in the world, there are financial pressures and the Isle of Man is suffering as many right now. To carry people with you on the environmental argument is about doing what is right and I will finish on this. I am a passionate Liverpool football supporter. Looking at what they have done since the 90s is remarkable. How they have done this is unlocking their treasures. We have unbelievable treasures in our islands. If we are going to win the climate change argument, we have to bring everyone with us and to do that we have to recognize what is in our lands. We are very keen to do this on the Isle of Man. To achieve anything like that, we have to work closely with our neighbours and we will achieve so much more as small nations and jurisdictions by learning from each other and gaining from experiences, good or bad. Forums like this are critical. Sometimes we can be too insular. Those days are gone forever so it is important we all engage. Thank you again, Minister, Mike, for the opportunity; you have done a wonderful job here and I congratulate you all. “

[Applause]

Closing of the main conference sessions

Hon. Dr John Cortés, Minister for Health, Environment, Energy and Climate Change, H.M. Government of Gibraltar; and

Dr Mike Pienkowski, Honorary Executive Director, UK Overseas Territories Conservation Forum

Dr John Cortés:

It's really wonderful to hear the words that we've heard today from senior executives and politicians. I'm really looking forward to the Ministerial meeting tomorrow, I think that on the back of this meeting that will be extremely productive, in fact, it's already been, and we haven't even started.

It now falls upon me to make some closing remarks. I'm not going to keep you for very long; you've heard rather a lot from me this week and there will be more this evening, as I say a few words at the dinner.

Today is a rather interesting day for me. Not only did I have to interrupt proceedings to talk to the Chief Minister. Also, I had a letter published in the *Chronicle* yesterday about LNG and today the Opposition – and I've kept out of politics today – questioned my environmental credentials. I almost invited the Leader of the Opposition to attend this afternoon's session. [laughter] He said I'm no longer an environmentalist; I'm a politician. Clearly, he can't understand that you can be both! And also today my team, most of my team, is not here, because they are answering parliamentary questions. We sit next week, so we got the opposition's questions today. I used to get 50 or 60, but we got 7 this time; so obviously we've answered most of their questions. That's all the politics you are getting from me today!

I'm not going to summarise everything that's happened in the conference; you heard that earlier today. But I did pick up a few points and before highlighting one or two points from each of the summaries, I'd just like to take ourselves, Mike and I, and our teams, back to the genesis of this conference. This was probably at least 6 years ago in Cayman, when we were all wondering where the next conference would be, and where the funding would come about. As a member, an active member, of the Forum Council then, there were concerns about, not just that, but the whole role of the Forum. It went through a little bit of a critical moment, and we had reviewed – some of you will recall, we sent questionnaires – how we were going to run ourselves. I was always confident that we were doing things right, but I was worried about when and who would fund the next conference. The British Government, about whom a bit more later, didn't respond to numerous requests to different departments to assist, so I decided to stand for election, so I could provide funding. [laughter] So that's the real reason ..... oh that's a bit of a joke, of course, but it did

make a difference, and I committed, on day one, that we needed to use UKOTCF Forum more, to strengthen what we are doing in the Territories and the Crown Dependencies, and I remember, an early meeting in Gibraltar House, with Mike and Liesl and others of the team, we decided to go ahead. I immediately got the heads up, the approval of the Chief Minister. All I had to say is "I want an environmental conference on the OTs" and he said, "John, of course, go ahead with it." So that was absolutely wonderful, and we were able to run from there. Gibraltar House has almost become the headquarters of the Forum and, as long as I'm in Government they can continue to use it [*Mike: thank you*] as can anybody else. If anybody ever needs a meeting place in London, please get in touch with Gibraltar House, Mike has all the contacts and then you are all very welcome.

I'm not going to thank people by name, other than Mike and his team and Liesl and her team in the Department of Environment and Climate Change. The only other people I'm going to mention, because they are very easily forgotten. (My son is a theatre technician and, very often at the end of performances, people will actually forget to thank the techies. Have you ever been in a theatre in London, and everybody applauds the cast and have standing ovations and curtain calls and so on, and nobody thanks the techies. So, if I'm on the right level, I go to them and I say thank you very much, I really enjoyed it, you made the show.) So I think I've got to thank Ian McClaren and his colleagues. I think they've been absolutely wonderful. [applause]

I will go now through some of the main points that I have picked up from the summaries. So this is almost a summary of the summaries. Just one or two points.

The first one on Biodiversity Action Plans: a couple of the points here. The danger of short-term projects resulting in the loss of expertise in the land, and that's very important; people come and go. We've got to do things in a way that things stay, people stay, information stays. Secondly, we've really got to make sure of the importance for national accounting systems to give the environment its economic value – a huge challenge, even in Gibraltar, where an environment minister really pushes this agenda, but even here, the financial sector and so on always lag behind. We have to make sure that they actually recognise this.

On the session on Terrestrial Resources, crucially this: competition within and among territories means that many needs stay unmet. We've really got to get our act together. Maybe that's a role for the Forum, to try to co-ordinate. We really must make sure that we work together and, where different organisations want to bid for something similar, let's get together and bid together, I think we've got to make sure that we don't fall into a trap. The role of NGOs continues to be critical, regardless of how environmentally minded the government might be.

On the session on Marine Resources, how limited resource sharing must be maximised, similar to the point I've just made and, very important, the need to understand the local sensitivities. People who come from abroad to the territories really have to recognise local sensitivities and work with people locally, otherwise we go back to the old colonial way of doing things, and that's crucially important.

From my own experience, if I may digress a bit, I worked together with Keith [Bensusan] and others on our Interreg project in Morocco. I mentioned this in my talk, the way we tackled working with our Moroccan colleagues. We came there as partners; we were there to work with them. Very often in Morocco they've had visits from abroad, from France, and particularly Spain, where the visitors have come almost as colonial overlords again, trying to run projects and tell them what to do. It's important that people who go to the territories really are aware of local sensitivities, not just with NGOs but also the community as a whole, otherwise you won't get the acceptance that is needed.

On Renewable Energy, I'm really glad, I hope you are too [turning to Mike, who signifies agreement] that we included this, because I think this is no longer going to be a new thing for the Forum. I think this should now be mainstream Forum policy, that we have to work on renewables, because it links so well with other environmental considerations. The need for energy transition in territories crucial. Each territory will be different but I've learnt a lot, a lot, in this week. There is a need to focus on the long-term aims, but grab the quick wins; that's very very important. And I think forming a working group across the Territories to work on renewables is also a very interesting idea.

Funding. Specific UKOT funding support is needed, and I share the concerns about Darwin Plus. If it had gone to a show of hands yesterday, I would have raised my hand.

On Decision-making and Planning, there is

structured devolution from UK Government on environment, so the UKOTs get the defined powers that they have and they should have, but the UK continues to keep to its commitments and its responsibilities – so structured devolution is very, very important. And again, ring-fenced funds for the UKOTs is something that came up there.

Also the importance of EIAs, including supporting legislation, public participation in decision-making, is absolutely crucial.

And on the question of education and awareness, the importance of involving the whole community from children to the elderly, but also that the environment needs to be part of the curriculum with examples from within territory. I remember, when I was at school in history, I learnt about 1066, the Magna Carta, and the Battle of Bannockburn, but I didn't know anything about the Romans or the Phoenicians in Gibraltar, the Neanderthals or anything like that. So really, we have to have local emphases in running the curriculum. I think that's particularly important because every community in the UKOTs is a very special community and I think that the UKOTCF reflects what is essentially a community of communities, and I think that's a very important message that we need to take back.

Then there were a few comments that I took down from the regional working groups. The more thematic approach, which is necessary across the board, establish closer links with universities, and research institutions, I think that's very important. In the Southern Oceans "there's a lot going on, and we need more of a mechanism to interchange information." And also the need to respond to threats and opportunities and to have the capacity to do so. From the European side, the need to focus more on the Crown Dependencies and again the thematic approach. And if there's 3 main themes that I picked up from all these summaries, these are: a need for dedicated funds, that kept coming up; the need for capacity building; and the need for a thematic approach. I think those are very important things.

Just to round off some more thoughts. I think the words "it's been such a busy conference" are absolutely wonderful and really reflects the reality of what this is, but I think that what's happened here is that UKOTCF has confirmed its role as a Forum, and the word Forum with all its connotations. It doesn't really matter what you do between times, as long as you can get people together every now and then, and if you can get it more often, all the better. But UKOTCF has to be a Forum, so that people can get together, exchange views, exchange understanding, and progress, so I think this conference has achieved that.

I was very impressed with Stewart McPherson's film yesterday; it really has captured so much in such a short time, and is going to really do a lot for our work when it goes on air on national and international television. We must be ready to hit it while it's still hot. We really must, all of us, prepare to use that for our benefit and I am sure that Stewart will be delighted to hear that.

Just to round up then, my overall conclusions. I think a lot of people here who may not have understood, now understand what UKOTCF, the Forum, is and means to be, and understand what it is to be a UKOT and to live in a UKOT. How important it is for us to keep our identity, to develop our identity and to evolve as communities and small nations, while keeping our links to each other and to the UK, particularly I think to each other.

We've heard a lot about punching above our weight, and I have to take the cue from the Minister from the Isle of Man. I am also a football fan. Unfortunately for him, I support the other red team, but we won't talk about that. To punching above our weight, apart from the fact that we actually scored against Scotland in Hamden Park. You may not be aware, Gibraltar's Champions have to go to the European Champions League through the preliminary qualifying stage. So, two weeks ago, we drew 1-all with the Champions of Andorra, at home, and we defeated them 2-1 away, so we got through. Last night we were in Denmark, playing against the Danish Champions, and we only lost 1-0, so I suspect that next time round, we may well, when we play the home match, we still have a chance of qualifying against the Danish champions. Think of the differences in scale, Gibraltar punching above our weight if not kicking above our weight. If we get through there, we actually go into the qualifiers with the big guns, but it's another red team, I'm sorry, but not Liverpool who we might face there. Sorry, I couldn't resist that one, and I hope we're still talking, Richard!

It's so important that we are able to make our voice heard. And some people may not want to hear what we have to say. Alderney wants a 12-mile limit, So do we. We don't really mind if Spain has something to say about that but some other people, who aren't here, may not want to hear

that either. So I am disappointed: I said it again, I said it the other day, I say it again now and I will also say it again this evening, I am disappointed that Her Majesty's Government did not manage to send a representative because it's important that they should listen to the kind of things that have been said here. In fact, I think that we should call on, and I'll take this up again tomorrow, on Her Majesty's Government, to really do something directly to compensate for not having been here and offer to fund the next Forum conference. It's the very least that they could do! [laughter]

Has the conference been a success? I think you'll all be thinking: yes it has, but why do we think it's been? Well I think it's been a success because it's made a difference, and that's what it's all about. It's made a difference to us as individuals, a difference to our perception of each other, what the Forum is, what the Overseas Territories are, and what we can achieve at our scales and make an impression at a global level. If we all get these things right collectively, we really have such a strong case study to present to the rest of the global community. So yes, I think that we have all consolidated our roles, whatever those roles may be.

The conference has been good for UKOTCF, great for the understanding between the Forum and NGOs and UKOT Governments. So I really look forward to welcoming you to St Michael's Cave this evening – which, if you haven't been to, is really a marvellous cavern, and I'll have a few stories to tell about St Michael's Cave and me, but you'll have to come to the dinner to hear them.

So thank you all very much. you've been absolutely wonderful, a tremendous turnout, tremendous contributions, and it's going to be really really sad to see you all go. Thank you very much.

[Applause]

Dr Mike Pienkowski

There is no way that I am going to try to follow John - and, fortunately, I am not scheduled to do so, apart from making my usual set of organisational announcements. However, I must slip in just a few comments.

I am not going to express UKOTCF's thanks now, as I am pleased to say that our Chairman, Liz Charter, will be doing that this evening. On a personal note, however, I would like to add my thanks to John's for his team, led by Leisl and Stephen (as well as himself). I must also say a word of thanks to mine, particularly Catherine, Emma, Sarah, Jamie and Ann. Several participants have already kindly said to me how well things have gone, and I thank them for that acknowledgement. It does mean, I am pleased to say, that our acting role also has been well fulfilled! There is no way that an enterprise on this scale can proceed without a number of problems – and, indeed, some crises – arising. The fact that we overcame these, generally, it seems invisibly, is due in large part to the hard work, dedication and skill of my largely unpaid team - who have quietly put up with a string of extreme and unreasonable requests from me, and delivered uncomplainingly. So, I both thank and apologise to them most deeply! I owe them a few drinks.

I wanted to say too how valuable we have found the involvement of the political leaders, making a superbly complementary contribution to that of the specialists. We had hoped to involve such leaders in at least one earlier conference but elements outside our control prevented this. We are so pleased that our joint working with John led to success this time, and hope that this can be maintained in the future.

I dare hope that our political friends found it valuable: they have just said so and, in several cases, backed this up with offers of hosting future conferences - despite my dire warnings to them of the financial implications inherent in hosting such conferences! I look forward to following this up - and, more immediately, to tonight's festivities in St Michael's Cave.

Thank you, everyone, for your participation.

[Applause]

Speeches at the closing Conference Dinner

Vote of thanks on behalf of UKOTCF, by Chairman Liz Charter

Ministers, distinguished guests, ladies and gentlemen.

When I sat in this cave enjoying the first Gibraltar UKOTCF conference dinner in 2000, I could never have guessed I would be standing here giving the vote of thanks as chairman of the Forum.

A great many people and organisations have been involved in ensuring this conference has been a success.

First, I must thank Her Majesty's Government of Gibraltar for hosting and financing the 2015 conference. In addition to this prime resourcing, we acknowledge and thank:

Defra for support for some of the preparatory work,

JNCC for supporting many of the participating UKOT government officers, and

Jo Treweek of Treweek Environmental Consultants who will be sharing *pro bono* her expertise in the EIA workshop tomorrow.

Our partners, the Gibraltar Ornithological and Natural History Society have played a major part in the conference.

We are particularly grateful to all of you for coming and participating so actively, especially in giving papers and posters. Your presence is the reward for we organisers.

And we thank also those back home in the Territories who were involved in working with you all to help prepare talks and posters, helping organise your attendance, or covering work in your absence.

The support and presence at various events of Gibraltar Government's ministers is a great boost to the conference:

The Honourable Fabian Picardo QC, Chief Minister

The Honourable Dr Joseph Garcia, Deputy Chief Minister

and

The Honourable Joe Bossano, Minister for Economic Development & Telecommunications.

We are hugely grateful to have had present The Hon Dr John Cortés MBE, Minister for Health, the Environment, Energy and Climate Change. He has been at many conference sessions ,as well as supporting and advising throughout the preparations. Thank you John.

We are very pleased to have with us this evening Alison Macmillan, Deputy Governor of Gibraltar.

We have Ministers or their equivalents from several territories joining us today, including:

my own Minister, the Honourable Richard Ronan, Minister for the Environment, Food and Agriculture from Isle of Man; and

The Honourable Kedrick Pickering, the British Virgin Island's Deputy Premier & Minister for Natural Resources & Labour.

Thank you for joining the conference.

The conference has enjoyed the lively presence throughout of the Honourable Claude Hogan, Monserrat's Minister of Agriculture & Environment, and

Victor Brownlees, Chief Executive, States of Alderney, who is with his son Alex and wife

Jinna., also attended the whole conference. As you heard earlier, Jinna suffered a painful broken wrist shortly before the conference and we wish her a speedy recovery.

The competition for the most remote island is still open. Perhaps we should ask Key Travel to be the judges. Many of us wouldn't be here without their careful arrangements. Parody, the coach company, transported us around the Rock!

All the staff at the Elliot Hotel have been excellent, and I will mention particularly the breakfast team who got up early so that some of us could start our programme at 7.

We say thank you to our excellent voluntary guides, Keith Bensusan and Charlie Perez from GONHS, Liesl Torres, Stephen Warr and colleagues from DoE, and Eric Shaw & Bryan Ritchie at the Ape's Den. Many of us had an excellent trip with Dolphin Safari and their crew, Captain Tony Watkins, Angie Watkins and Rothio Espada with specialist interpretation from Stephen Warr and Keith Bensusan – who, with Rhian Guillem and Natasha Bull, also wrote the restaurant guide. Thanks also to the dolphins for keeping their appointment with us, in the absence of whales!

We thank all those who worked so hard in chairing, facilitating, drafting, editing and recording the conference sessions and regional Working Groups, making a special mention of our volunteers, Emma Cary, Sarah Barnsley, Jamie Woodward and Phoebe Carter. Emma, Sarah and Jamie have played an important role in the preparations and, I hope, the follow up after the conference.

On a personal note I'd like to thank Clare Hamilton of DEFRA and Jen Lee of the Government of South Georgia & the South Sandwich Islants, for their valuable contribution to my workshop on MEAs, and Jo Treweek for the EIA workshop tomorrow.

Ann Pienkowski has made a video of our discussions among many other tasks. Thank you Ann.

Juan Carlos Teuma, from the Gibraltar Government Press Office, made a valuable contribution taking the official photographs. Other photos were taken by Piers Sangan, Jamie Woodward and Mike. We wish to use lots of pictures in the Proceedings, so would welcome any of your snaps. Please send these to Mike or Catherine.

Thank you to our team with the roving microphones, which included Catherine, Sarah, Emma, Jamie, Natasha, Esme, Bill, Ann, Piers and Daniel.

We have had an excellent audio-visual service from Ian Maclaren and his team, especially Louis, at SRS. They even solved the mystifying screen behaviour!

A big vote of thanks goes to the organising team in Gibraltar, particularly Government officers Jessica Alecio, Lian Camilleri, Sera Fromow, Liesl Torres and Stephen Warr. Thank you to the members the Gibraltar Ornithological and Natural History Society, some named already, and my colleagues in the Forum Council.

A very special thank you to Mike Pienkowski and Catherine Wensink who have put in the lion's share of the work.

My last personal thank you is to Tim Earl, my partner, for his help, cups of tea and supportive hugs.

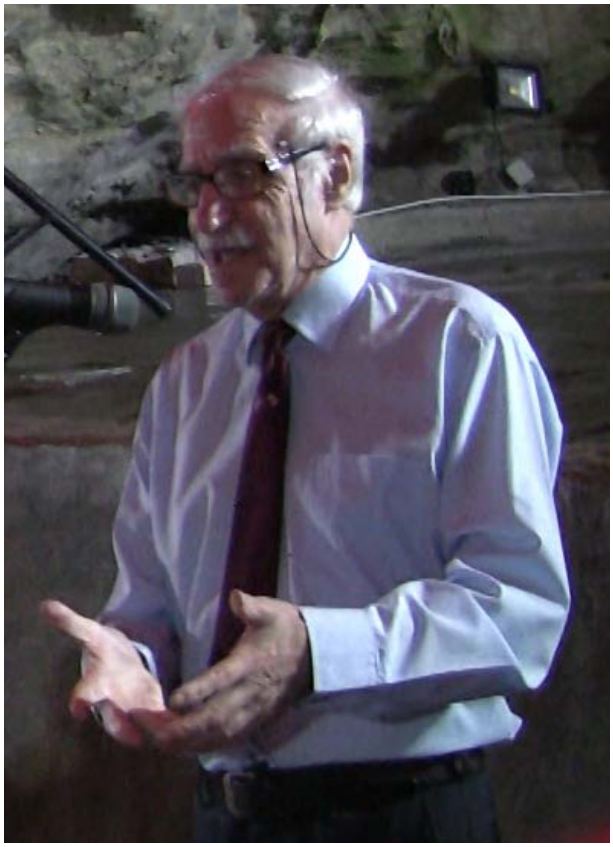
Finally once again, thank you Gibraltar. Your hospitality has touched us all.

This conference has indeed proved the value of sustaining partnerships.

[Applause]

Above: St Michael's Cave plaque. Photo: Mervin Hastings
Below: Pre-dinner gathering in the Cave. Photo: Bryan Naqqi Manco

Hon. Joe Bossano, Minister of Economic Development, HM Government of Gibraltar



Dr John Cortes: It gives me particular pleasure to introduce the Honourable Minister for Economic Development, Joe Bossano, who, as I mentioned the other day, is a key component of what is happening here today, because it was during his tenure as Chief Minister that our Nature Protection Bills were passed, that GONHS was given premises and credibility, and we had the first Minister for the Environment. A lot of other things happened when he was Chief Minister, like free grants for students which has completely changed the whole way that Gibraltar has developed, we've brought inward investment from other areas, we've reclaimed new land without negatively impacting the environment, all sorts of things happened then, and so he is a key figure in the development of environmental governance in Gibraltar, and I must say, I don't know whether I actually told him this before, and I did work with him in another life, as Manager of St Bernard's Hospital when he was Chief Minister, but I've always seen him as somebody who I love and admire, and as a role model. We work extremely well together. Recently we've had one or two skirmishes, but it won't surprise you because Joe is as resilient and persistent on the economy, as I am on the environment, so I can understand that, and we understand each other. But I want to make a commitment to him now, because the problem is that, as Joe works in bringing in more money, I try and spend it quicker that he brings it in. So I now commit myself to try to spend it more slowly than he brings it in. So the bank roll will increase. I really had to say that, but I certainly I gave you some economic figures the other day, and Joe is our economic guru and a lot of what Gibraltar is doing is thanks to his wisdom and indeed his years of experience. Joe is always a wonderful person to listen to: not easy to follow him, but I give way to that, and I introduce to say a few words my friend and colleague Joe Bossano.

[Applause]

Hon Joe Bossano:

Clearly I have already made some money tonight with the commitment John has just made.

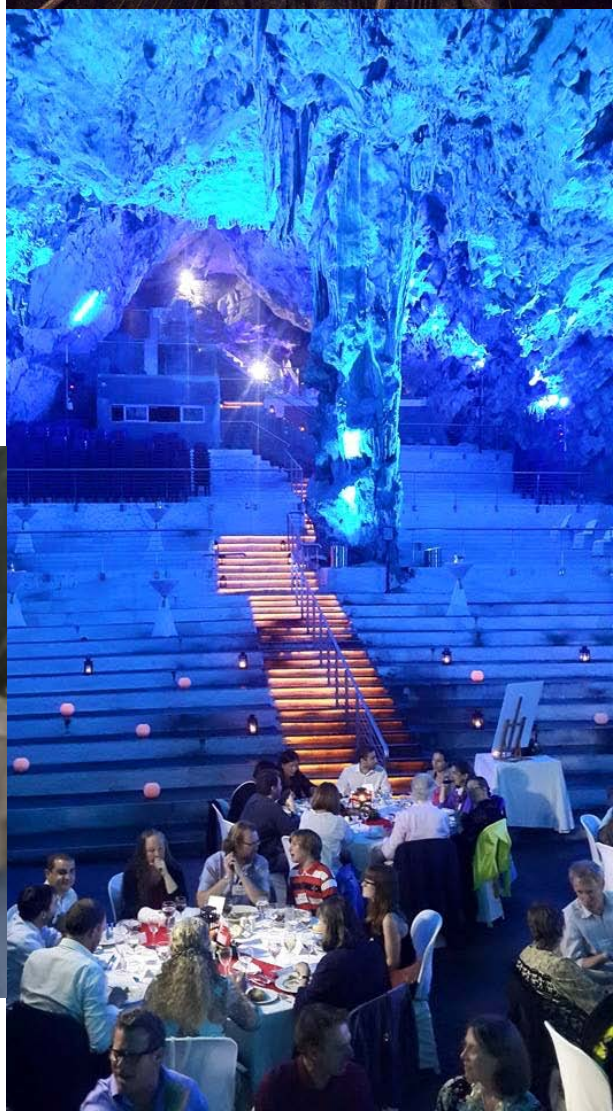
I've been a long time in politics. I started campaigning for the right of self-determination in the defence of our people in 1964, 51 years ago, at the age of 25, and I've been continuously involved in politics since then. I was first elected to Parliament in 1972. I have fought 13 elections. I have been re-elected every time, and I'm now in my 43rd year in Parliament. The one fundamental thing really that brought me was a threat to our survival as a people, and I think, if you come from a small place and you are very conservationist and a protector of the biodiversity of the planet, then you need to think of it in terms that would be very easy to convince others. Small societies like the ones we've got in the Isle of Man, the Channel Islands, the small Caribbean Territories, and different parts of the world, are like special life-forms in danger of extinction, because there are so few of us, and we each have a particular finger-print that distinguishes us from all the rest. And we all fight to keep what we've got alive. When we do that, we have to be consistent and therefore not just protect the Gibraltarian on the Rock that happens to be a representative of the human species, but the Gibraltarian on the Rock that happens to be a representative of the macaques, and the Gibraltarian that is a lizard, and the Gibraltarian that is a plant.

And therefore living in symbiosis with the planet is the only thing that will save our species. I was asked a few years ago to address a conference in the north of China, on sustainable development. And I just said one sentence. I said "Look, if all we do is we talk a lot of things in this conference, and we go away and nothing changes, then the reality of it is that the writing on the wall is very clear, and the fate of mankind is very clear: everything points to the human species becoming extinct. If that happens it will be very bad news for our species, and very good news for our planet." [laughter]

So I think, as an economist, I believe in economic growth, but I believe in economic growth not at the expense of future generations, not that we consume more than we are producing, and pass the bill on to our grandchildren, and therefore there are clear-cut simple messages that we can make everybody: so that being committed to preserving this planet; so that we pass on to the next generation something better than we had; so that we don't make it worse than it was made by the industrial revolution, but go back to what it was like before we started interfering with natural processes, because we've got the audacity to think of ourselves as advanced, and to think of indigenous peoples as primitive. Well we've got to learn from them, because they lived in harmony with nature, and we have to learn to do that again. And if we don't do that we'll pay a high price.

I'm happy to have you here, and I look forward to your helpful contribution to saving our people and our planet.

[Applause]



At the closing conference dinner in St Michael's Cave. Photos: above: Chris Tydeman; right: Mervin Hastings

Conference Closing, by Hon. Dr John Cortés, Minister for Health, Environment, Energy and Climate Change, H.M. Government of Gibraltar

Thank you, Joe, who never, ever disappoints. So now I have to follow that, I'll do my best. I don't have the wisdom of Joe, but there is something very important, that when he was Chief Minister and I was manager of the hospital, there was quite an age-gap between us. But now I'm catching up, because Joe doesn't age but the rest of us do. [laughter]

St Michael's Cave: some of you have remarked the beauty of this natural asset that Gibraltar has. I have lots of memories of St Michael's Cave. I grew up in Gibraltar and I remember as a very young child. My father was very active in the Scout movement, bringing me here for some camp-fire or something that they did before the stage was built,. It really grabbed me and inspired me as a very young child, as you can imagine would be the case.

I have done lots of things in this cave; I won't go through all of them. I've actually played the bugle up on that stage, I haven't brought it today but I could have done a fanfare. My hobby is the stage, amateur dramatics, so I've taken part in the Scottish Play here, where I played the part of Macbeth, and sometime last year I almost thought that Scotland would be joining the Forum quite soon [applause and laughter], but that never quite happened – it might yet! They've certainly turned around the fox hunting issue.

I've also played King Herod, in *Jesus Christ Superstar*, so I've sung and danced; I can do that too. I don't know why I always get the part of the bad guy, but there we are. One memory that I must share is this: this is actually where I met my wife. During rehearsals for Macbeth, I was Macbeth; she was a lady in waiting, and I didn't keep her waiting long! [laughter]

I've got to thank, I'm just going to mention two names, because everybody's thanked everybody and the teams have been wonderful, but this evening has been put together by Sera and Lian and it's wonderful and well done [applause]. I'm sure everybody here tonight would like to thank you for all that you've done.

A special welcome of course to the high-level government representatives who have already been mentioned in the Chairman's address. And one other thing I'd like to say: at the last

conference here in 2000, the then Minister for the Environment, of another party – although, as Ministers for the Environment of another party go, he was actually not the worse one... In fact, talking about politics, the response that Joe and I have had today, it is tempting to call a general election here and now, Joe, because generally the polls say we've got around 60-70%, but here we got to 99%! But anyway, the Environment Minister at the time cited the successes of GONHS as a key mover in the environmental movement in Gibraltar and I never thought I'd get two Environment Ministers to say the same, but I would like to acknowledge the vital work of GONHS. They have carried on through the last 3 years as if I hadn't left, and that is the most wonderful thing that you can leave behind in an organisation. And more than that, they have stuck to their professionalism and, when they had to criticise any actions that I or others have taken, they have done so (it hasn't been very often) totally professionally. I totally support their freedom of speech, and the professionalism that continues to be at the core of the Gibraltar Ornithological and Natural History Society. One of the things that made my going into politics the hardest thing, was to have to leave my active role there.

I would just like to pick on a couple of things

that have come up from the conference. The questions of renewal of what I now think the core of UKOTCF, and of environmental governance in the territories. And we really have to use this and encourage our environmental governance and green initiatives to develop green governance and to introduce new drivers in the economy, making financial services and the private sector embrace the development of a green agenda. And give a value to the environment that recognises an international accounting system.

I have to mention again something I mentioned earlier today in the conference room, and that is the series of programmes by Stewart McPherson. I repeat that, when that series airs on national and international TV stations, it's going to really bring the UKOTs into people's homes. We really have to make use of that. And I think that all the territories must also get that series shown in their national television stations because we all know about each other but a lot of people out on the street don't. So we really have to use that to get the people from here to understand the people out there. As I said earlier, we are a community of communities.

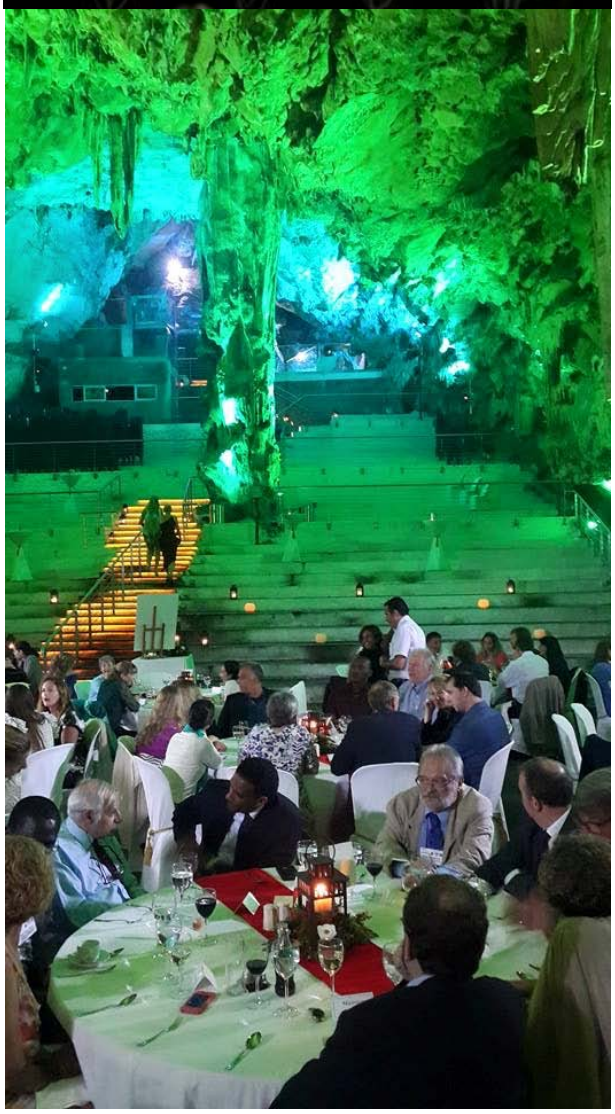
I think this conference has achieved a lot, coming together from NGOs and Overseas Territories Governments, and that theme will develop tomorrow. I would like to take this opportunity to call on those NGOs, some from the UKOTs but particularly some from the UK, who have fallen by the wayside in the UKOTs Conservation Forum movement, to engage with us again, because I think we've proved today that we really have the standing and that we deserve their engagement.

So, a community of communities. Somebody else said that we are small but we are important. Sadly somebody in this hall is lacking. I recognise the presence of Defra and JNCC, and particularly thank them for their financial contribution, in bringing many of you here. This is greatly appreciated, but the absence of DFID, MOD and of the FCO, I think is sad. There's also been an absence at Ministerial level. I believe that there are good reasons for that, but as the adage goes, they don't know what they are missing. The trouble is: that they should. I think that there should have been a bigger effort, at some level in Her Majesty's Government of the United Kingdom, in bringing somebody to this conference, and I think that they are going to realise that they should have done.

Ladies and Gentlemen, friends and colleagues, Ministers, representatives, members of UKOTs, something is happening in the Overseas Territories. You can feel it here and, if they are not careful, if they are not ready to respond, the UK Government is going to be left behind. So I ask them to sit up and take notice.

Enjoy the evening, it's been a pleasure having you.

[Applause]



At the closing conference dinner in St Michael's Cave.
Photos: above: Mike Pienkowski;
roght add upper on previous page: Chris Tydeman;
below and lower on previous page: Mervin Hastings.

Conference conclusions and recommendations

of **Sustaining Partnerships: a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities, Gibraltar 11th to 15th July 2015. Organised by: UK Overseas Territories Conservation Forum and HM Government of Gibraltar Department of Environment, with the support of Gibraltar Ornithological & Natural History Society**

A. Contents

B. Introduction

It has been recognised, not least by the sponsors, that the value of conferences such as this is in open discussion and providing some clear conclusions and recommendations. Here those recommendations and conclusions are presented. They are based on a draft circulated in advance and then modified by subsequent discussion sessions (see Annex 1 for more information on the process).

In order to minimise any constraints, a common structure was not imposed on developing discussion points and draft conclusions and recommendations prior to the workshops. However, subsequent to the drafting, some formatting and numbering were added to aid reference in subsequent discussions. The session coordinators and the conference organisers used the discussions from the conference, written inputs and comments on a final draft circulated to conference participants to amend and extend the draft conclusions and recommendations.

It is important to note that not all conclusions and recommendations will apply to every territory. They all differ and any kind of "one-size-fits-all" approach would be unlikely to be successful.

The Conference was extraordinarily valuable to UKOTCF itself and the Forum will clearly take note of the recommendations addressed to it. The wider value of the Conference is witnessed by the presence of Territories' Ministers (or their equivalents from territories with non-ministerial systems), their statements and offers of future hosting and resourcing.

The conclusions and recommendations have been grouped into sections, some fairly closely related to the conference sessions, but others cutting across several. The categories of organisations to

which recommendations are directed are indicated in bold italics in the text or after it. The session(s) in which the conclusion or recommendation arose is indicated by the session number(s), as indicated in the programme.

The following document is the full version. At Appendix 4, recommendations for particular categories of stakeholders are extracted separately.

It is clearly not possible for one conference to address all matters, nor to come to perfect conclusions and recommendations. However, it is hoped, indeed anticipated, that that they will be of practical use.

C. Environmental Education and Awareness

C1. Requirements of CBD and other MEAs, and influencing decision makers

Conclusions

001. Environmental Education is one of the most important elements of environmental protection and management. (13)

002. CBD and other MEAs (including the Environment Charters) have very clear statements and targets for environmental education for all aspects of civil society and governments (for example, CBD's Communication, Education and Public Awareness (CEPA) programme, which supports CBD article 13 and Aichi Target 1). (13)

003. Key threats to island biodiversity have been identified as:

- Lack of public awareness of biodiversity concerns
- Lack of political understanding, interest and support for conservation and wildlife issues; this relates directly to political actions for sustainable development. (13)

004. Some UKOTs/CDs already have Sustainable Development Plans with education as one of the highest priorities (e.g. Tristan da Cunha). (13)

Recommendations

In accordance with the UK Environmental Charters Article no. 8 and CBD Article 13, the following recommendations are being put forward.

005. Sustainable Development Plans (or their equivalents) should include environmental education and public awareness. (To: UKOT/CD Governments) (13)

006. Government Ministers and senior officials throughout the UKOTs/CDs should receive regular briefings from ecologists with local knowledge about issues relating to the Environment Charters and their commitments, the importance of their local biodiversity, and specifically threats to local ecosystems, international and globally important species and populations (e.g. endemic species). (To: UKOT/CD Governments, including Departments of Environment) (13)

007. Government Departments and agencies with responsibility for the environment should be adequately funded by territory governments. (To: UKOT/CD Governments) (13)

008. Actions of NGOs which deliver important conservation work should be supported by governments. Partnerships, either informal or via Memoranda of Understanding or Co-operation are effective, both for cash-strapped NGOs and Government Environment Departments. (To: UKOT/CD Governments and NGOs) (13)

009. UKOT/CD Governments need to arrange for providing training for teachers and developing teachers' education materials (e.g. resource guides on various topics including biodiversity conservation, sustainable use, climate change and renewable energy). (13)

C2. Resources and funding opportunities

Conclusions

010. Despite specific requirements and targets for environmental education and public awareness (e.g. CBD Article 13 and Aichi target 1), there are very limited funding opportunities for this, for example CEPA programmes are specifically not eligible for funding from the Darwin Plus programme. Funding to Education Departments and NGOs promoting Environmental Education and Awareness is critical and should be given priority. (13)

011. Territory government departments with responsibility for the environment often

have an education officer (or support one in an environmental NGO), and undertake school visits. This is a valuable role, but needs adequate resourcing. (13)

012. NGOs play an extremely important role in public awareness raising and environmental education, but have limited and often unpredictable funds for this work. NGOs are normally very effective with their limited resources, frequently relying on a lot of volunteer effort. However, some hard cash is needed to support their CEPA programmes. (13)

Recommendations

013. UK Government should end urgently its 5-year block on grant-funding for environmental education and awareness for the UKOTs. (We recognise that consultants are expensive, but NGOs, like UKOTCF doing this work with local partners, are good value for money.) (To: UK Government) (13)

014. Territory Governments should set up and manage, jointly with local NGOs, a dedicated Conservation Fund (e.g. through tourist landing fees) to which NGOs can apply. (To: UKOT/CD Governments) (13)

C3. Schools Curricula

Conclusions

015. Much good quality and attractive environmental teaching material is produced and available. However, much of this is not used effectively, mainly because the statutory programmes of study need all of the teaching time available. Therefore material needs to be designed to be integrated with the curriculum. Materials in electronic form offer greater flexibility than paper-based materials, are more economic, and can be updated more readily. (13)

016. It is often unclear how territory education departments and people producing environmental education materials liaise. Involvement of local teachers in the development of environmental education materials is effective. (13)

017. Children have a great interest and curiosity in their environment, and are often the most receptive to new or life-changing ideas. Simple children's activities can cover a surprising range of facets of environmental work. (13)

018. Sustainable development education offers opportunities for locally-based environmental education. (13)

Recommendations

019. Attempts should be made to integrate Environmental Education topics into the National Curricula at all levels. Environmental Education materials need to be curriculum-linked, and included in the assessment process. Consider introducing a certificate of achievement which recognises student achievements and can assist with job applications. (To: UKOT/CD Government Departments of Education and of Environment, NGOs and project designers and managers) (13)

020. Investigate linking a locally assessed environmental certificate of achievement to more widely recognised qualifications. (To: UKOT/CD Government Departments of Education and examination boards) (13)

021. Classroom-based activities need to be supported by hands-on involvement and investigation, including outdoor classrooms and field-trips. (To: UKOT/CD Government Departments of Education and of the Environment, project designers and managers, NGOs) (13)

022. There should be clear methods of communication between education departments, and those people producing environmental education materials for schools and colleges. Local educators and teachers should be involved in the development of environmental education materials. (To: UKOT/CD Government Departments of Education and of the Environment, project designers and managers, NGOs) (13)

023. It is important that environmental education activities are included in schools' programmes from the start. (To: UKOT/CD Government Departments of Education) (13)

C4. Using broadcast media, social networking and multi-media apps (games)

Conclusions

024. TV, radio, and social networks are very

effective at reaching a wide public audience. Multi-media apps (e.g. for smart-phones, tablets) could be a very effective tool for engaging and informing the wider public, especially young people. (13)

025. Social networking is effective at reaching a wide audience, and engaging interest. Effective public engagement and understanding is essential in conservation, especially for small organisations with limited resources. (13)

Recommendations

026. Opportunities for using TV, radio, social networking and the development of Apps should be considered when planning future environmental education and public awareness programmes. (To: NGOs, project designers and managers, UKOT/CD Government departments) (13)

027. Share what is going on in UKOTs/CDs using the Forum Website or Facebook page and other media (as stated in UK's Commitment 6 in the Environment Charter). (To: NGOs, project designers and managers, UKOT/CD Government departments) (13)

C5. Other public awareness raising actions (including field trips, outdoor classrooms, exhibitions and open days)

Conclusions

028. Environmental initiatives are often best tackled at the grass-roots level. (13)

029. Environmental camps, competitions, etc. are a great way to engage young people (and their parents).

030. Outdoor classrooms and exhibitions, with guiding possibilities and interpretive signage, provide an attractive opportunity to engage and inform the wider public. (13)

031. Volunteers can deliver effective and low cost conservation work, and are good for raising public awareness. (13)

032. Creating partnerships is a key way in which under-resourced NGOs can deliver their public awareness and education programmes. This includes establishing NGO/government partnerships.

033. Effective communication with all stakeholders is a key feature of success. (13)

Recommendations

034. Identify opportunities for open days, outdoor classrooms and activities, and timetable these into the work programme. Link where possible with internationally designated days, such as biodiversity day. (To: NGOs, UKOT/CD Government Departments of Environment and of Education) (13)

035. Plan and run a volunteer programme, but identify the human and cash resources available for this to ensure that the programme runs smoothly and effectively – work within your means. (To: NGOs)

036. Reach out to possible partners. (This could / should include developers.) (To: NGOs) (13)

037. Communicate regularly with stakeholders. (To: NGOs, UKOT/CD Government Departments of Environment and Education, Project designers and managers, Governors' Offices) (13)

D. Renewable Energy

As Hon. Claude Hogan, Minister of Environment for Montserrat, noted in the conference closing session, "we are the least contributors to the problems that are in the world in relation to carbonisation, sea-level rise and all the other threats and I greatly applaud the conference for having taken a really hands-on approach to dealing with conservation mitigation and the issues of protecting our environment. I think in fact this is wonderful that we are continuing as small islands in our territories to make such a really valuable contribution to global affairs."

Dr Hon Kedrick D. Pickering, Deputy Premier and Minister for Natural Resources & Labour, British Virgin Islands, recalled the Caribbean Challenge Initiative spearheaded by Sir Richard Branson and in which BVI had played a leading role. He noted that all countries in the Caribbean region should endeavour to work towards 50% renewable energy.

A key message emerging from the discussions was that there is no shortage of 'salesmen' offering technologies and specific technological expertise, but there is a lack of understanding (not just in the territories) as to what offers the best solutions. There is a need to ensure that soundly based and well-rounded advice is provided and that expertise

and support is developed to ensure the options are well evaluated and the best combination taken forward.

The conclusions from this session are expressed as recommendations in respect of areas in which the listed groups of stake-holders (e.g. Territory governments, UK Government, NGO community, private sector and utilities) need to take action.

D1. Territory Governments

Policy

038. Political will needs to be bolstered and demonstrated by commitment to address need for policy change, incentives. (10)

039. For those territories which have committed to energy transition, ensuring the right legislative framework is in place is key; knowledge sharing and support is critical. (10)

Planning

040. When setting the vision for energy transition, UKOTs/CDs should identify and involve partners early on in the process and create a vision in which each person living in a territory can clearly see and define their role. (10)

041. Vision setting for energy transition should be followed by assessment of renewable opportunities, including comparing current energy system with the vision, developing a roadmap for renewable penetration and detailed integrated resource planning-technical assistance required. (10)

042. There is a need to focus on the long-term energy transition process whilst identifying also the quick win opportunities, e.g. LED street lighting, energy efficiency in government buildings, solar on schools, hospital retrofits. (10)

People

043. UKOTs may need:

- Technical assistance to support fielding and evaluation of technology proposals;
- Expertise on regulatory framework reform;
- Assistance on commercial services (understanding the go-to market strategy for projects; developing technical specifications, contracts etc). (10)

044. UKOTs should pool resources on a regional basis, if appropriate also with non-UKOTs, e.g. Caribbean to apply for support required. (10)

Pathways

045. UKOT Ministers are invited to discuss the support provided by France for its overseas territories to explore whether similar (technical) support can be provided for UKOTs/CDs. (10)

046. It would be wise to focus on sustainable growth of all sectors – many territories have 5* star hotels, but far from 5* hospitals and schools. (10)

Partnerships

047. Establishing Working Group across UKOTs/ CDs (and possibly on regional basis) might aid sharing knowledge/ practice, planning and resource requirements, e.g. similar to working groups established for Eastern Caribbean States. (10)

048. There is a need to establish (stronger) relationships with NGOs/research institutions such as IRENA to benefit from current initiatives, knowledge. (10)

049. Support is needed to assist governments in working with their utilities to plan future energy systems and identify clearly the value proposition for utilities. (10)

050. It would be wise to engage the private sector within territory to drive a more sustainable framework for industry with local operating costs reduced. (10)

D2. UK Government

051. Capacity building, including ensuring that soundly based and well-rounded advice is provided and that expertise and support is developed to ensure the options are well evaluated and the best combination taken forward (10)

052. Assistance with policy and development of an enabling regulatory framework (10)

053. Technical expertise and support – providing feasibility studies, grid integration studies, thereby de-risking projects for the market (10)

054. Business advisory services – developing the go-to-market strategy for projects (10)

055. Communications and marketing, noting the points at 051 (10)

056. A possible role in progressing the economic viability of other technologies such as Ocean Thermal Energy Conversion (OTEC) (10)

057. DECC should follow up on the post-JMC Renewable Technologies workshop, with a view to developing renewable roadmaps for all interested UKOTs/CDs. (10)

D3. NGO/Multilateral Community

058. Capacity building, including ensuring that soundly based and well-rounded advice is provided and that expertise and support is developed to ensure the options are well evaluated and the best combination taken forward (10)

059. Sharing best learning outcomes, e.g. work in the Eastern Caribbean on regulatory reform (10)

060. Coordination of regional programmes, e.g. in the Caribbean, Pacific, to enhance the potential for scale across a number of islands (10)

061. Development of island-specific templates to support the development of bankable projects, e.g. Power Purchase Agreement (PPA) templates, bankable criteria (10)

062. Development of territory-specific guidelines for retro-fitting buildings, e.g. schools, hospitals (10)

D4. The Private Sector

063. Development of tailored financing solutions to support project implementation (10)

064. Capacity building, ensuring that training is included in the implementation of solutions on island, including ensuring that soundly based and well-rounded advice is provided and that expertise and support is developed to ensure the options are well evaluated and the best combination taken forward (10)

065. Programmatic approach to building solutions that enable the development of on territory businesses (10)

066. Ensure that investment supports/enhances local infrastructure (10)

067. Engage with utilities and governments to define the clear value proposition of renewables beyond cost per kw/h (10)

D5. Utilities

068. Working with governments to develop operational plans in line with a low-carbon vision (10)

069. Developing a business model that focuses on reducing the level of diesel-generated energy and the amount of energy used on island, taking into account other relevant factors including population size and trends, starting point, etc. (10)

070. Supporting governments to develop well informed projects that are ready to move now, with competent grid integration studies – doing what can be done now (10)

071. Working inclusively with governments and others partners so that all can understand the needs of utility business models, including ensuring that soundly based and well-rounded advice is provided and that expertise and support is developed to ensure the options are well evaluated and the best combination taken forward. (10)

E. International agreements

Conclusions

072. MEAs are an important part of transparent and accountable governance, demonstrating the territories' – and UK Government's – environmental credentials. (4)

073. The Environment Charter commitments and the Aichi goals and targets should be linked to actual working examples and successes. Promoting implementation of the Environment Charters, best practice and sign-up to MEAs, and demonstrating value in doing so, will be good things. (4)

074. Environmental Charters are an agreement between UKOT Governments and UK Government. Monitoring the progress should be collaborative process, involving also civil society, and using appropriate indicators of progress. (4)

075. As Hon. Claude Hogan, Minister of Environment for Montserrat, said in the conference closing session: "I want us to do measuring, reporting and have institutional arrangements in place with the UKOTCF which I continue to think is going to have

an indefinite role to play in this exercise. Verification of the performance that we are doing against these commitments and against those commitments that we shall agree, means that our main trust is that the UK government shall help finance this. And we will put in place with them a compliance regime. Not compliance just for us, because we are going to be performing against our targets. We are going to make sure that there is a compliance regime that they respect in regard to the work that we are doing in fulfilling the international obligations of our entire United Kingdom and its territories." (15)

076. Biodiversity action plans may fit into more than one commitment/ goal/ target. (4)

077. The language of MEAs can be a bit daunting and even vague, and so specific examples can assist in better understanding them. The more familiar people are with them the better. www.cbd.int/nbsap/training/quick-guides/ provides new quick guides to the Aichi targets. (4)

078. Past and current projects will already be working toward these commitments/ goals/ targets without having planned it. Furthermore, by quoting which targets being met by a project being done, or a bid being made, it should help in securing support. Also as a result, decision-makers tend to see that they are already doing so much that signing up is not too daunting. (4)

079. Within the Aichi Targets, the value of 'ecosystems services' are emphasized, which can provide a valuable tool for communicating biodiversity conservation and a sound justification for those less naturally inclined to be enthusiastic about biodiversity conservation. However, this is a double-edged sword and sometimes the intrinsic value, and status, of biodiversity may be undermined because of this. Thus promoting approaches that generate benefits for people alongside real gains for biodiversity (including the weird, wonderful and slightly obscure), for example consideration of 'favourable status' for species/ habitats, could be a useful ambition. (4)

080. Wide consultations across all sectors (in this case including: Government; NGO, farmers/ land owners; research community – both local and international; wider society) are important to developing locally-owned priorities. (4)

081. Integrating evidence and outcomes into existing Government planning systems is important. This approach enables better implementation of existing national and international commitments. (4)

082. NGOs can be more effective by quoting the agreement being breached if something is happening which is damaging biodiversity. (4)

083. There are measures for both 'implementation' and for the 'outcomes' – which reflect a little how the European Commission has been monitoring the Habitats Directive. The initial assessment was 'Has the Directive been implemented?', 'Are measures in place?' 'Have sites been designated? (indirect measures)' The next stages started to look at status of species and habitats, and subsequently aimed to assess trends in these species and habitats (direct measures). Whilst the Directive is hard law and backed by European Court action, softer approaches to assessment are likely to be appropriate where these firm obligations are not as apparent; e.g. measures that looks at presence/ absence of a charter, identifies tangible actions that match the Charter's aim (or can be linked to progress on Aichi targets). (4)

Recommendations

084. It is recommended that the UK Government promotes the value of the Environmental Charters especially in relation to the MEAs and continues to support monitoring of progress, such as that in progress by UKOTCF, but also links the commitments to CBD monitoring and achievement of the Aichi targets (as the current UKOTCF exercise incorporates). (4)

085. The conference offered encouragement and support to all territories considering having further MEAs extended to them. (4)

086. UKOTCF was asked:

i) to compile a list of benefits of association with MEAs and

ii) examples of positive outcomes and activities associated with each of the Convention on Biological Diversity's (CBD) Aichi targets. (4)

087. It is not always easy to get the word out on

progress in monitoring the implementation of the Charters and CBD, if, for example, (1) the progress is published in scientific journals to which not all other UKOT stake-holders subscribe and (2) because it is very easy for there to be impediments to progress in those UKOTs where a change in staff of one person can mean the end of a biodiversity programme actually functioning (and thus there being nothing more to report or monitor). The first point is often satisfied through the Working Groups and Forum News, but perhaps this can be expanded. As for the second point, again a more programme-based, rather than project-based, method may result in a better way to report and monitor progress. (Part to UKOTCF; part to UKOT Governments and programme & project managers) (4)

088. Everyone in the Territories (UKOT Governments, NGOs) is encouraged to identify how their existing and proposed activities meet CBD's Aichi targets (including via UKOTCF's current exercise). This will

i) assist in the completion of National Reports for those territories that have had the CBD extended and assist in preparing encouraging evidence for those territories still considering extension,

ii) support and demonstrate relevance in funding applications, and

iii) identify gaps in delivery. (4)

F. Using informed decision making to manage development sustainably, including Environmental Impact Assessments

F1. Legal Status of Environmental Impact Assessments, and of Environment Charters

This section lays some emphasis on EIAs because of the content of the contributions. It is important to note that EIAs are very useful but only one part of the picture in planning considerations. Some aspects of the conclusions and recommendations may be relevant to other elements of the planning process. The effectiveness of EIAs is, of course, tied to where something requires a development consent (i.e. if it does not require a consent then there is no opportunity to ask for EIA). Therefore, the question of the scope of such a requirement is a relevant consideration in the planning process. Also, EIA is about understanding the impact and so is separate from then determining whether that impact is acceptable when weighed against other considerations (which is presumably a decision based on a policy position, which itself is another factor in the planning process). In terms of implementation, it is helpful to think about what each statutory regime is for, what the impact is and what the best mechanism is to control it (e.g. a landfill in the UK would probably require an EIA through the planning process, but the management of operation of the site would be largely through the EA and IPPC permit). It is important to note that there is not necessary regulatory control over some actions; dependant on the potential impact of any unregulated actions, it may be that new legislation is needed.

Conclusions

089. The two Courts (Eastern Caribbean Court of Appeal and Bermuda Supreme Court) that have considered the Environmental Charters have determined that they establish clear and binding international treaty obligations (unless signatory governments expressly disavow the commitments therein). (12)

090. In some territories, EIA is not mandated under law for any projects big or small. In others, there is a requirement in law but no regulations to implement. In some cases in which EIAs are undertaken, they can end up being quite biased e.g. the EIA for one project was done by the engineer who had also done the project. An example of a perverse recommendation from an EIA process was that no mitigation was needed for the removal of coral reefs. Also, whilst usually a government official would make a recommendation based on EIA outcomes, in some instances the recommendations were overridden and the project was allowed to go ahead. There are some issues with the scale of developments for which EIAs are done. Technical Officers may look at every single development application and decide e.g. which one requires EIA. They may stumble when numerous EIAs come in but they do not have a huge number of scientists and

technicians to review all of these. There is a need for more people who are qualified and who can watch what the developers are doing. Some of the capacity issues need to be addressed e.g. more people trained to deal with the large volume of developments that are coming in. (12)

Recommendations

091. Fulfil UK's Environment Charter Commitments 2, 5 and 11, under which the UK Government must assist the UKOTs to review and update their environmental legislation, institutional capacity and mechanisms (including regulations and policies) to reflect the mandatory components of the Charters, including EIA as well as the Principles of the Rio Declaration on Environment and Development. (12)

092. Fulfil UK's Environment Charter Commitment 7, under which the UK Government must give technical assistance to enable (amongst other things) the UKOT governments to (a) establish best practice EIA protocols and (b) assess EIAs submitted by proposed developers. (12)

093. Fulfil UKOTs' Environment Charter Commitments 4 and 11, under which UKOT governments must require EIA for all major development proposals and for those proposals likely to have significant environmental impact. (12)

094. Fulfil UKOTs' Environment Charter Commitment 5, under which UKOT governments must require consultation with stakeholders as a component of EIAs (and other plans and developments). It would be worth thinking also about the concept of FPIC (free, prior and informed consent). (12)

Conclusions

095. We have heard a great deal about the fact that responsibility for the environment has been devolved to the Territories. But we tend to overlook the basis on which this devolution is founded. In 1999, the White Paper recognised that, under the CBD and other MEAs, Britain has responsibility for the UKOTs meeting standards for caring for their environments, and therefore developed the Environment Charters which lay out what each territory must do, and also specifying what the UK would commit to do in support. The Charters were signed by UK and UKOTs in 2001. (12)

096. The Ombudsman for Bermuda had occasion to review the question of whether the Environment Charter commitments to carrying out environmental review and public consultation in approving a development proposal which would have significant environmental impacts applied in Bermuda, where they were not required by legislation. She determined that they did, and was supported subsequently by the Bermuda Supreme Court. She referenced also a number of other sources to support the conclusion that the Charters are binding international agreements, and not "aspirational" as the government asserted. The Charters have thus been validated by courts. They are valid, applicable and enforceable agreements between the UK and the UKOTs, so if UK is not living up to its obligations or the Overseas Territories are not living up to theirs, there is a mutually enforceable treaty. (12)

097. The Bermuda Supreme Court held also that (independently of the Charters) the obligation to require EIA derives from general international law. Domestic statutes, regulations, policies and guidelines ought not be inconsistent with general international law. Further, the Court held that, given that Bermuda's Development Plans are mandated by the Development and Planning Act, they have legal effect. Therefore, such UKOT Development Plans cannot countenance or retain the current discretionary language that would permit the Development Applications Board to dispense with EIA for major development proposals and for those proposals likely to have significant environmental impact. (It is important to note that the bilateral Environment Charters for the various UKOTs are similar.) (12)

098. The UKOT and UK Ministers actually identified implementation of the Charters as a priority in 2012 – see p.3 of the linked communiqué: "We have agreed to work together on the following priority actions... To continue to implement Environmental Charters, and to work towards the full implementation Of Multinational Environmental Agreements where these

have been extended to the Territories..." (12)

099. As Hon. Claude Hogan, Minister for Environment for Montserrat, said in the final session of the conference, "Something is wrong when we are still debating at this time whether a Charter on the environment is legally binding or not. This, in fact, would be a pre-requisite for the type of commitments we need to make to ensure that we clean up and protect our environment." (15)

So the conference decided to urge the Ministers of the UKOTs to rely on the Charters when seeking the support they need for environmental work, as follows:

Recommendations

100. UKOT Ministers, while recognising the commitments of their own governments under the Environment Charters (agreed with the UK Government in 2001), should continue to press the UK Government to fulfil its commitments under the Charters, including in relation to:
    - Technical assistance, especially regarding technical and scientific issues like renewable energy, fulfilling commitments numbers 1, 5 and especially 7;
    - Use UK, regional and local expertise to give advice and improve knowledge of technical and scientific issues. This includes regular consultation with interested non-governmental organisations and networks.
    - Assistance with updating environmental legislation, fulfilling commitments 2 and 5
    - A ring-fenced fund to support 'projects of lasting benefit to the Territories' environments' (commitment 8). (This is worth a note. When the Charters were written in 1999, environmental projects in the UKOTs were funded by the FCO Environment Fund for the Overseas Territories, so the treaty referred to that fund. By the time we met in Bermuda in 2003 that fund had been cancelled, to universal consternation. So, as a result of the Forum conference in 2003 in Bermuda, the Overseas Territories Environment Programme was started, with funds from FCO and DFID. This fund provided an accessible, ring-fenced fund for projects in the UKOTs, was managed initially through an open process through in which experienced NGOs and local Governors' offices played an important role, involved a level of bureaucracy that was suited to the UKOTs and provided funding for small-scale projects which were manageable by individual UKOTs. This was cancelled unilaterally by FCO in 2011 and replaced, after a year without a fund, by Darwin Plus (Defra/FCO/DFID), whose decision-making process is less open.)
    - Facilitating Territories' inclusion and compliance with Multilateral Environmental Agreements (commitments (3 and 4).
    - Promoting cooperation and sharing of experience/expertise among the Territories (including by helping to fund regular UKOTCF conferences like that hosted by Gibraltar in July 2015) (commitment 6: to 'Promote better cooperation and the sharing of experience between and among the Overseas Territories and with other states and communities which face similar environmental problems.') This is why UK Government should continue to fund conferences of this sort. (12)

101. UKOT governments should implement their commitment to ensure that future development plans must provide for mandatory EIA as required by the Environment Charters and general international law. In accordance with Environment Charter Commitment 2, the UK government must assist the UKOTs to review and update environmental legislation to be consistent with general international law. (12)

102. With respect to the particular challenges of Small Island Developing States (SIDS), the UK and UKOT governments should draw upon, second or otherwise leverage the technical and broad SIDS expertise of the Commonwealth Secretariat, the UNEP and other multi-lateral institutions in accordance with Environment Charter Commitments 4, 5, 6 and 7. (12)

F2. Requiring EIAs and standards of best practice

Conclusions

103. Recognising poor integration of biodiversity and ecosystem services in decision-making, together with ongoing damage and loss of ecosystem resilience throughout the UKOTs/CDs, UKOT Ministers should take action to ensure that EIA-related commitments in the Equator Principles, the Rio Declaration and the Environment Charters are met. These promote use of EIA as a tool for sustainable development as part of strategic planning processes that mainstream biodiversity and ecosystem services. Some of the features to address are:
    - carefully checking the company being used to carry out EIA to guarantee that they will carry out a good EIA in the first place;
    - looking at the impact as the development is happening but noting that the long-term effects also need to be considered;
    - wide public consultation which is to make the project better; ("Interested and Affected Parties" (IAP), could be a good alternative term to use instead of 'stakeholder'; this is often used in St Helena.)
    - emerging standards on human rights (including FPIC, Free Prior and Informed Consent) and how these have to be respected when EIAs are done;
    - whether there are any transparent grievance mechanisms in place in territories; (Montserrat Physical Planning Act has an appeals tribunal and complaints tribunal. This is worth considering elsewhere.)
    - distinguishing between the complaints process and "please unmake decision and completely remake it and you can appeal to council" processes; (The public sometimes get confused between the two things.)
    - whether there is a vetting process; (The Environmental Assessment Board in the Cayman Islands has to review applications to the developer. They review and say whether people can meet terms and reference and have ability to carry out EIA or not and then developers can choose. This is a process that could be used in other territories as well.)
    - to be wary of paper processes which are not actually implemented;
    - that EIA needs an Environmental Management Plan or system for independent audit against procedures. (12)
104. Material in terms of many EIAs can be very long and terms can be very technical. Information should be understandable for different audiences. It is also useful for local people to know the issues very early on. What is now the UK Supreme Court (i.e. House of Lords + Privy Council), the highest UK court and binding on the UKOTs, decided (Berkeley v. Secretary of State for the Environment (2001) 2 AC 603 H.L.) that EIA documents must be "comprehensive, accessible, non-technical." The scope of the consultation needs to be understood by all participants. There needs to be a structure in place so that participants understand what their role is and that their contributions are considered.
105. The conference appreciated the recognition of UKOTCF's contribution by Hon. Claude Hogan, Minister of Environment for Montserrat, who said in the conference closing session: "Since I returned to office in September last year, I was negatively moved by the fact that the previous Government had demolished a hill that we call Gun Hill, which was a sort of a fortification. I really loved this hill and then they demolished the hill at the cost of £3 million dollars and then a further $4 million was used to fill a pond [Montserrat's last mangrove wetland]. We have not found a solution yet but we are still intending to build a town in that area, and you can be assured that we will build it taking full account of nature. I want Montserrat to be the way the Caribbean used to be." "Let me congratulate you all, and pay tribute to the work on Environmental Impact Assessment. I should tell you that ahead of this workshop ... I met Mike [Pienkowski, UKOTCF], and within 2 days we had agreed he would be coming to Montserrat, bringing two colleagues with him, including an EIA consultant, all on a pro bono basis. We are now going to embed EIAs in planning approvals in Montserrat. And all that has

happened between September and now. And thank you very much, Mike, for finding Jo Treweek." (12)

Recommendations

106. UKOT governments should require EIAs for all (including both governmental and private) major development proposals and for those proposals likely to have significant environmental impact, and make them transparent and open (with copies readily available on-line) to local persons and outside experts to comment on, and allow reasonable time for this. (12)
107. UKOT governments should make provision for open and independent scrutiny and review, and should write into the terms of reference for EIA, that anyone can call for a review of EIA, as established by the Privy Council in Belize Alliance of Conservation NGOs v. Department of the Environment (2004) UK PC 4. If contractors know that their work could be open to scutiny by other consultants, this could have an important impact. Mindful that participation in decision making is embedded in the Environment Charter commitments, this should be happening anyway. During the sessions there were some excellent examples of the use of public participation to aid decision-making – but also some examples of disastrous decision making when the public were not consulted. So the Conference recommended that informed public participation by interested and affected parties be central to decision making in the territories. (12)
108. UKOT governments should put in place appropriate and effective legislation requiring EIAs that meet accepted best practice standards and make them available to guide practitioners undertaking EIAs and regulators who need to review them and act on their findings when determining development consent. (12)
109. UKOT governments develop follow-up and enforcement mechanisms and allocate the resources needed. (12)
110. UKOT governments should approach this strategically, so that environmental planning, monitoring and mitigation measures etc are in place well in advance of development proposals. (In this context, it would be useful to make a distinction between EIAs and SEAs (strategic environmental assessments) and what the role of each might be.) (12)
111. UKOT governments should ensure that the EIA process is embedded in, and forms part of, the planning/ development consent process. This ensures that it is considered as part of the decision-making process, in accordance with the Privy Council decision in Save Guana Cay Reef Association v. R (2009) UK PC 44. Any recommendations/ mitigation measures from the EIA can then form planning conditions. (Here and elsewhere, there are references or implications indicating EIAs considering socio-economic impacts. It might be helpful to think about what is the expected scope of an EIA and whether there are other complementary assessments that could pick up socio-economic issues.) (12)
112. To enable this, UKOT Governments should have:
    - appropriate supporting policy and legislation in place regarding required outcomes for ecosystems, habitats and species
    - State of the environment reporting or strategic baseline data in place so developers, planners and EIA practitioners are aware of issues they will have to address to comply with this.
    - Assistance and capacity-building from (or resourced by) UK Government in line with Charter commitments to develop strategic sustainable development plans and devise effective impact assessment processes commensurate with significant threats and pressures. (12)
113. UKOTCF should investigate putting together a list of all the regulations and derive a set of best practices that we could all ultimately aspire to. It would be good to have statements from across the territories to see what issues come up in common, and to identify where the most serious revision of their EIA guidelines are needed so that this can act as an effective tool in terms of environmental impacts and better planning. (12)

F3. Importance of appropriate and effective legislation, and that EIAs are supported by policy and appropriate established standards

Recommendations

114. UKOT governments should put in place appropriate and effective legislation requiring EIAs that meet best practice standards, and proper enforcement mechanisms, and allocate the resources needed to do this. Such legislation should make provision for the role of NGOs in the assessment process. It would be worth considering "fit-for-purpose" approaches, that are robust, but not necessarily so resource-hungry that the system is set up to fail due to lack of resources. (12)
115. UKOT governments should have clear policy on biodiversity and ecosystem services in place, to underpin standards and requirements. (12)
116. UKOT governments should have appropriate supporting legislation in place (e.g. protection of species and habitats) in order to create enforcement mechanisms during the development process. (12)
117. UKOT governments should ensure good baseline data exists, so that developers, planners and EIA practitioners are aware of what is present on site and the species/ habitat issues they will have to address, as well as wider environmental effects on humans. (12)

F4. Importance of a model for sustainable development planning

Recommendation

118. UK Government should fund the development of a model that addresses the needs of UKOTs for sustainable development planning. This is urgently needed if biodiversity and ecosystem losses are to be slowed. Such a model should be inexpensive, easy to implement and readily accessible to decision makers of all technical capacities. (12)

F5. Role of Civil Society

119. UKOT Governments should ensure, by appropriate support and encouragement to civil society organisations, that decisions are informed by a wide range of information – scientific information, local knowledge, resource use information etc. – using just one of these sources in isolation can be counterproductive. (12)
120. It is worth NGOs, UKOT Governments and others investing valuable time and resources in informing and engaging stakeholders to assist in decision-making. Their input can really influence the outcome of a project. A good way to ensure a high level of stakeholder engagement in decision-making is to offer a variety of ways to get involved. If stakeholders can be given more responsibility, e.g. fishermen given a role in managing a particular fishery or site, they are more likely to become actively involved. Sometimes small jurisdictions are able to be more flexible in their approach to accommodate stakeholder input and achieve good conservation outcomes. (12)
121. Managers must develop creative ways to engage the public, and to make complex technical information accessible to both the public and decision makers. (12)
122. UKOT governments should ensure that civil society feels that their input will be taken seriously and considered carefully in the decision process. (12)
123. Small jurisdictions can sometimes face particular challenges in making the best use of science and other information for decision-making. Staff in government and NGOs are often particularly stretched, with very diverse roles and may lack technical expertise across the whole range of issues. Help is needed from umbrella and linking NGOs to facilitate exchange of experience on how to rise to these challenges. (12)
124. Organisations that bring together UKOT and CD representatives and member organisations and individuals could help with informed decision making by sharing case studies of good and bad practice, and UK & UKOT Governments and other funding bodies should resource this. (12)

F6. UK Government should address its priorities:

125. The key to sustainability is in ensuring that development in UKOTs is appropriate to a country's needs, while maintaining the ecosystem services on which economic growth depends. This cannot be accomplished without adequate development

planning, based on environmental variables and followed up with a rigorous environmental impact process. Given this reality, the UK Government should prioritise assisting UKOTs with developing strategic sustainable development plans and devising effective environmental impact assessment and other planning processes. An audit of existing policies for all UKOTs would provide a starting point for this, which could be followed up with assistance for filling gaps. This would lead to a much more effective use for Darwin Plus funds than the current basis on which funds are currently allocated, which has been described by reasonable people as piecemeal and unintelligible. (12)

G. Stakeholder and User Stewardship

Conclusions

126. Government has assumed (by default) the role of environmental steward in almost every situation; however, stakeholders and users also have an interest (in some situations, a greater one in practice) in ensuring that environmental values are maintained. The onus of stewardship could therefore fall on those who benefit the most from resource use. (7)
127. As Mr Victor Brownlees, Chief Executive of Alderney, noted in the closing conference session: we have "got to get local champions." (15)
128. Government must also be accountable and transparent. A proposed Natural Resource Management Bill, being drafted in the BVI, allows for the public to sue the Government or a landowner if the environment is damaged in a way that has not been permitted. The emphasis on making Ministers accountable for their actions is key if public/private partnerships are to function optimally. (7)
129. Public registries of decisions made in Government that impact the environment are needed (e.g. in the BVI, the draft Natural Resource Management Bill requires a Certificate of Environmental Clearance before certain types of development can occur or for developments in environmentally sensitive areas). (7)
130. Stewardship roles can be shifted from the public to the private sector by incentivising good behaviour with green certifications, competitions and publicity. (7)
131. The transference of stewardship roles is one means to mitigate the economic and resource constraints often faced by Territories, and also ensures on-going stakeholder buy-in to long-term projects. (7)
132. Through project development and implementation within the UKOTs, UKOT-based organisations and linking bodies have developed their capacity in environmental/ natural resource management. UKOTs are in a position to export this knowledge to and share their experiences with others who are engaged in similar work. Examples were given from both terrestrial and marine situations. (7 & 8)
133. The profile of citizen science should be raised and more widely accepted and used within natural resource management. Such integration of citizen science could increase community buy-in in conservation management because of their direct involvement in the management process. (7)
134. Citizen science must also be used with a precautionary approach. In some cases, data obtained through this means is reliable, but other times, it is not. It can be a useful tool when used to augment an existing knowledge base but should not be relied on to be the exclusive source of information. (7)
135. On this occasion, the conference had little content on cultural heritage, although it is noted that this forms an important part of the work of many organisations in the UKOTCF network. It was pleasing to have the opportunity to link with Heritage People. As Mr Victor Brownlees, Chief Executive of Alderney, stressed in the closing session "How can we balance the value of our natural and historical resources?" (15)

Recommendations

136. A model of a systematic approach for engaging the community in stakeholder stewardship is being devised, e.g. with TCI's Community Conservation Partner Program and UKOTCF; however, initial funding is needed to establish project protocols, procedures, legislative framework and

training for all participants. Once developed, this model can be applied across territories. Funding could be provided by UK or UKOT governments or other funding agencies. (7)

137. NGOs working in and for the UKOTs should come together to develop cross-territory sustainable tourism guidelines/certification programme for tourism operators (for example, dive operators, tour guides, etc.), and take advantage of the IUCN publication Guidelines on development in sensitive areas. Such a certification program will have wide recognition and could prove to be more successful than single-territory certification schemes. NGOs can play a key role in building capacity and training. (To: NGOs and Funding Agencies) (7)
138. Anguilla's Constitution gives significant rights to land-use, which brings frequent legal challenges by stakeholders in relation to what and how they can use their registered land. This can be detrimental, economically and socially, but on the other hand it can be beneficial. UKOTs' Constitutions should be amended to ensure that environmental management and conservation of ecosystems and their services are enshrined in their Constitution. Furthermore, it should be the Constitutional Right of Nationals to ensure that this happens. Hence, the Nationals will be held accountable for their practices on each parcel of land. (To: UKOT and UK Governments) (7)
139. Management roles should be enshrined in law for accountability. (7)

H. Legislative Framework

Conclusions

140. The Cayman Islands model for National Conservation Law provides a framework from which other UKOTs can adapt conservation legislation. An emphasis on stakeholder and public consultation in the development of legislation is critical for long-term success. (7)
141. Greater judicial awareness is sometimes needed – as criminal cases may take precedence over the environment (e.g. it has been suggested that some judges do not take environmental cases as seriously as would be appropriate, and may not be as familiar with the issues at stake). (7)
142. Implementation and enforcement of existing legislation and policies play a critical role in ensuring that natural resources are used in a sustainable manner. However, this can be done only once there is a strong sense of political will and support for the assigned officers to carry out their duty without fear or favour. (7)
143. In the BVI, the National Parks Trust Act was updated in 2006, and a Natural Resource Management and Climate Change Bill is now being redrafted. During this process, advice was sought from throughout the Caribbean region, with resultant overwhelming feedback. Legislation from all over the region was shared, and the interaction with Conservation Departments in these countries on what worked and what did not was fed into the process – why re-invent the wheel? (7)
144. Conservation and planning/development legislation need to work hand-in-hand. (7)
145. People and organisations need to be engaged in the development conversation in ways that are meaningful and effective. This may mean that stakeholders and resource users may need to become more familiar with legislation and policy frameworks that guide planning and development decisions. (7)
146. Effective enforcement of conservation legislation is often hindered by a lack of economic and human resources. (7)

Recommendations

147. NGOs, such as UKOTCF, can assist (as above) in the development of legislative frameworks by bringing UKOTs together (e.g. in the WCWG) to discuss what has worked and what has not worked. (7)
148. It is important that amendments are made to the building codes and Physical Planning Acts to factor in climate change as a means to build resiliency in the Small Island Developing States. Some countries have outdated pieces of legislation, which have not taken into account this growing issue. These necessary alterations are vital if we are appropriately to build resiliency and alleviate loss and damage. (To: UKOT Governments) (7)
149. Stakeholder participation and transparency should be mandated in legislation. (7)

150. Cross-territory experiences with Environmental Funds should be mapped, shared, and used as examples of frameworks for environmental conservation revenue generation. (?UKOTCF) (7)

I. Economic and Intrinsic Value of Sustainable Use

Conclusions

151. Environmental assets have economic values, and sustainable management of ecological and historic features represents economic opportunities that are often overlooked in the decision-making process. Non-monetary values are rarely considered. We need to move beyond solely economics when we value our natural environments; cultural and intrinsic values of natural environments need to be integrated into ecosystem valuation discussions. Greater emphasis should be placed on identifying non-monetary values and cultural services of the natural environment. Understanding non-monetary values and services helps to promote environmental conservation amongst decision-makers, resource users, and communities. An understanding of ecosystem values, both monetary and non-monetary, would inspire conservation ethics amongst resource users, decision-makers and communities. By strengthening ties between organizational structures, including NGOs, government and community stakeholders, such values can be brought to light with resultant multiplier effects across economic and social gradients. (7)

152. As Dr Hon. Kedrick D. Pickering, Deputy Premier and Minister for Natural Resources & Labour, British Virgin Islands, said in the closing conference session: "The environment in BVI not just any old subject, it is the subject. Tourism is the main bread earner and largely based on the fact that the environment is so special. Study that showed 90% visitors to BVI come because of the environment. ... We have a commitment to protect the environment for future generations, and understand the value of what we have. We don't want to make the mistake of seeing environment in Virgin Islands destroyed. We want to be locally and internationally a champion for the environment." (15)

153. For effective results, UKOTs and CDs (in common with Small Island Developing States - SIDS) must integrate development and wise use of natural resources; however, they are often hobbled by economic constraints. To ensure sustainable use, environmental considerations must be mainstreamed into the decision-making process, with valuation of economic and non-economic ecosystem services serving as a foundation upon which development decisions are made. (7)

154. Stakeholders should be involved in the decision-making process, with regard to ensuring public awareness of ecosystem values and services and the trade-offs that occur with development. In this regard, banking and insurance institutions can have a very influential impact on Governments. (7)

155. Unfortunately, economic valuation of ecosystem services is usually costly and some results have been criticised for subjectivity. Alternative, objective, easy-to-implement, cost-effective options are needed. (7)

156. Creating integrated land-management systems using GIS is a good way of getting the environment into the sustainable development discussion and planning process. GIS is very visible and projects can be phased in to gather the necessary base-map information (e.g. critical habitats, location of endangered species, lands prone to natural hazards, etc.). (7)

157. As in the BVI (and other localities), GIS can be used for the further development of integrated land management as a "joined-up" approach that includes cooperative efforts by Town Planning, Ministry of Natural Resources and other government agencies. Cooperative effort ensures ownership of results by disparate interests and reduces cost factors. (7)

158. Different methods are available for economic valuations. It is the country's decision to determine the methodology that is most suitable for their circumstances: that is, the methods which will enable them to collect the appropriate information needed. Frequently, monetary values cannot be attached to each service and the services are of a large scope. This is one of the

factors that limits effective use of ecosystem economic valuation. (7)

159. Small island states should keep an open mind regarding the hard science and methodologies used in the developed countries. Due to small economies and resource bases, territories need to become more resourceful with determining methods that will work best for us. (7)

160. The ANEA approach in Anguilla focuses on specific ecosystem type values as well as the key services they provide to the Anguillian economy. As a part of Anguilla's process, the National GIS Unit hosts the various maps that have been produced as a part of the economic valuation studies. In addition to this, the National Ecosystem Assessment project aims to produce a protocol for the sharing of GIS data in the Government system. This will further enable the incorporation of environment into the decision making process, even when environmental bodies are not represented at any particular development meeting. (7)

161. The capacity within UKOTs should be developed to enable them to continue analyses on their own. This will alleviate the need to import consultants who may lack detailed and intimate knowledge of the issues facing the country of concern. Many of the social and cultural issues are hidden below the surface and can be addressed only within the respective system. (7)

162. In the Anguillan scenario, a comprehensive environmental legislative package ("green", "brown" and "blue") has been drafted in a way that allows the Executive Council body to designate appropriately to relevant agencies. Although the legislation is under the Department of Environment, the skillsets to enforce the law already exist in respective departments. This is done to enable environmental management in Anguilla to be done in a holistic manner. (7)

Recommendations

163. Economic and intrinsic valuation can and should inform the development of what some territories term National Sustainable Development Plans (but note that such terms may have different meanings in different places); however, such valuation is costly. A gap analysis of where such information is needed in UKOTs would be a good subject for Darwin Plus funding. (To: UK Government) (7)

164. Gap analyses, economic valuation and sustainable national physical development planning (noting again that precise terminology may vary between different territories) are primary components of sustainability and should be prioritised by the UK Government for funding purposes. (To: UK Government) (7)

165. One way to get Governments to address actively issues of environmental degradation is by having stakeholders being the advocates for the change in commonly used practices. For example, the loaning regime now being implemented by the World Bank, through its lending agencies such as the Caribbean Development Bank, requires the governments/countries to have in place key policies/legislation focused on the environment and factoring in some element of climate change. This is a condition under which a loan is given. The UK Government could institute similar conditions, but such conditions should be coupled with economic and technical assistance where needed. (7)

166. In the Eastern Caribbean Region in particular, there is much concern about the sharing of information in the Government agencies. The UKOTCF has played a leading role in information sharing. It will be beneficial if this Forum designates some time to discussing establishing protocols for data-sharing. (7)

167. NGOs, such as UKOTCF should be resourced so as to be able to continue to play the role of sharing positive outcomes, new methods and lessons learned among territories. (To: UK Government and other funding bodies) (7)

J. Invasive species

Conclusions

168. The conference emphasized that Invasive Alien Species (IAS) have been identified as one of the leading threats to global biodiversity recognized under the Convention on Biological Diversity (Article 8(h)), and this is especially so to highly vulnerable endemic species on these small islands. Also, invasive marine species are

threatening local and regional ecosystems. (4 & 8)

169. IAS have had significant negative impact on "human health, the economy (i.e. tourism, agriculture), and native ecosystems. These impacts may disrupt the ecosystem processes, introduce diseases to humans or flora and fauna, and reduce biodiversity." In recognition of this and that IAS can also be vectors of diseases or directly cause health problems (e.g. asthma, dermatitis and allergies) and can damage infrastructure and recreational facilities, hamper forestry or cause agricultural losses, as well as their cost to the European Union of at least € 12 billion per year, continuing to rise, the European Parliament adopted legislation to tackle invasive alien species at EU level on 16 April 2014. Some key points are:

- 67% of threatened birds on oceanic islands are affected by invasive species.
- Feral cats have contributed to at least 14% of all known bird, mammal and reptile extinctions.
- IAS are identified as one of the major threats to biodiversity in the UKOTs. (4)

170. Whilst some previous and current eradication projects have provided superb examples, some other previous ones have been ad hoc, with no analysis of benefits, feasibility or sustainability. Controlling and eradicating invasive species populations can have unforeseen consequences, as invasive species, such as cats and reindeer, often function as control mechanisms themselves. Control must therefore take an ecosystem approach to management. (4 & 7)

171. An RSPB study has proposed a top 25 priority islands (in the UKOTs) for invasive species eradication that together would benefit extant populations of 155 native species including 45 globally threatened species. (4)

172. Many projects are currently being undertaken in the UKOTs on many different scales. (4)

173. Prevention is the most cost-efficient and effective method against invasive alien species. Halting the establishment of potentially invasive species in the first place is the first line of defence. (4)

174. NGOs can play an important and efficient role in the control of invasive species, which is resource intensive. Partnerships are essential in many situations but governments need to take a lead role in biosecurity, especially in preventing the arrival of new invasive species, by development and implementation of IAS policy and management frameworks (e.g. conduct customs checks, inspect shipments, conduct risk assessments and set quarantine regulations to try to limit the entry of invasive species), (4)

175. Eradicating damaging invasive species is not the sole preserve of Governments, although their collaboration and consent are essential if others are taking the lead. NGOs can and should think big about what can be achieved to increase biodiversity in the UKOTs, especially where Government is unable and/or unwilling to take the necessary steps. Conservation NGOs have a role also in conducting independent scientific field-based and policy research and collaborative partnerships with governmental environmental departments, and facilitate capacity building. A key lesson is that the most effective eradication projects need to be taken in context and be part of an island (or territory) plan which accounts for the interactions between species and eradication methodologies. (4)

176. Partnerships with other sectors and stakeholders are also critical, (e.g. the private sector be proactive in supporting and enforcing policies and measures that support Government efforts to combat the spread of IAS). Such partnerships can work in monitoring of vulnerable pathways and implement measures where possible (e.g. horticultural trade, pet trade, agricultural produce, maritime industry etc.). (4)

177. Stakeholder involvement is vital for the success of alien invasive species management, not only preventing invasive organisms from reaching territorial borders, but also mitigating the risk of alien invasive species already within its domain. (7)

178. Cultural implications of invasive species eradication projects also need to be considered. For example, in the BVI a lot of negative feedback from the local community resulted from killing goats, as they are culturally a food source. This needed to be balanced with huge environmental damage resulting from destruction of vegetation

and resultant erosion. Involving the local community to some extent can help (e.g. hire local goat-herders first to reduce the population before bringing in the shotguns and FERA/AHVLA). (7)

179. Similarly, as Hon. Claude Hogan, Minister of Environment for Montserrat noted in the closing section, the BEST-supported work is "doing a wonderful job in feral animal and invasive species control in Montserrat, a culling programme to be exact." He noted that there are cultural problems in the culling of donkeys. He continued, however, "that the situation has gotten so bad that people have been injured, car accidents caused, and people are afraid to come out of their houses at night in certain villages because the donkey population has gotten well out of hand", so that he is asking the team to talk to the people further and agree actions. (15)

180. Dog Island Rat Eradication project (Anguilla), though technically challenging, can be used as a model to highlight that rodent eradications can be used as a mechanism for conserving biodiversity on larger remote islands. (7)

181. More capacity-building in-country on how to conduct invasive species removal is needed. Bringing in overseas volunteers and consultants is very costly and can be sporadic, so species can get reintroduced and are not quickly addressed as the local capacity does not exist to remove them. However, by their very nature, eradication projects are finite and, depending on the nature of the territory, the project and the methodology, bringing in external experts may actually be a cost-effective solution. (7)

182. Such complex management approaches are often costly and highly technical, making them beyond the economic and human resource capacity of UKOTs. Where significant biodiversity threats are at risk, such as with Critically Endangered Turks and Caicos rock iguanas that are being consumed by cats, international funding agencies and NGOs have been playing a leading role. (7)

183. Ideally, multi-year baseline data should be collected prior to an eradication programme. If this is not possible, data collected during one field season is better than no baseline data. (7)

184. When establishing monitoring programmes (pre- and post-eradication), ease of replication should also be considered. (7)

185. Promotion of inter-island collaboration between UKOTs and independent states (e.g. within insular Caribbean) and inter regional capacity building for IAS eradication or control (e.g. Pacific Invasives Initiative (PII)) would be valuable. (4)

186. Results of eradications and monitoring should be disseminated to the public – and also through UK resources (for example, DEFRA and other UK-based organisations that have larger media teams that have access to large audiences). Public consultation is critical. (7)

187. Project implementers should take advantage of technology that is currently available, relatively affordable, and provides useful information (for example, remote sensing and camera traps). (7)

Recommendations

188. Develop/implement suitable IAS policy and regulatory framework to prevent, control and manage IAS, as well as IAS strategies at the local and regional level, including the elaboration of IAS alert-lists, control methods (including "eradication", promoting of assessment and feasibility studies for eradication or control of IAS, communication and outreach…). Where an NGO shows interest in eradicating an invasive species, the territory Government should generally support and encourage that initiative, and employ expert advisors to monitor and assess the proposed work on its behalf throughout its duration. Governments should ensure that eradication operations are carried out professionally, safely and effectively, but UKOT Governments may need to seek external advice to ensure that international best practice is followed in both the planning and implementation. (UKOT Governments) (4)

189. Greater public awareness and increasing the community's role in controlling invasive species can be effective. UKOT Governments can also improve conditions by strengthening development agreements and legislation to prohibit importation of soil, landscaping materials and other biosecurity threats. (7)

190. UKOTs governments should acknowledge that invasive species are a global threat, and therefore should be encouraged to prioritise a list of the top ten alien invasions and develop invasive species strategies to manage their impacts. (7)

191. Develop early warning and rapid response systems at the local and regional levels to prevent introduction and spread (i.e. biosecurity). Expert advice must be sought, considerable thought given, and action taken in regard to preventing the re-introduction of an eradicated invasive species before the eradication has taken place. (UKOT Governments) (4)

192. It is essential to prioritise within each territory the most vulnerable places and threatened species as control of invasives is resource intensive. There are tools and examples of ways to do this. (UKOT Governments and NGOs) (4)

193. Promote prioritising system(s) to determine which islands or areas across territories have the highest priority for eradication as this is of strategic importance to determining the allocation of limited resources to achieve maximum conservation benefit. (NGOs, UK Government & other funding bodies) (4)

194. UKOT/CD Governments should strengthen protection against invasive species introductions, and implement invasive species culling of established invasive species (e.g. lion-fish), recognising that in some cases a regional effort (at both the preventative and culling levels) will be needed for such action to be effective locally. UKOTs should establish lists of species of regional concern and current status. (8)

195. Secure funding to conduct eradication/ control of invasive species that are impacting on key biodiversity sites and endangered species, and to develop/enhance capacity in the UKOTs to manage such invasive species. (UK Government and other funding bodies). (4)

196. UKOTCF was recommended as a focal point for sharing ideas, information and experiences of invasives management. (4)

K. Biodiversity data

Conclusions

197. There is a dearth of scientific data in many of the UKOTs, and that which exists is often highly fragmented, resulting in ineffective management. (8)

198. The need for good quality biodiversity data for decision-making and monitoring progress emphasise the need for survey and on-going monitoring (this has implications for capacity building). (4)

199. Many and various sources of biodiversity data are available, remembering that:

i) specialists may be willing to offer expertise for free or at very low rates, usually plus costs,

ii) all existing sources may not have been tapped into, and

iii) organising these data in an easily useable and accessible form is essential for all partners.

More could be made of the increasing opportunities through remote sensing, technology and partnership collaborations to develop mere effective data-collection and analysis. Many of these data need to be collected for other socio-economic reasons too. Data-collection through academic research, citizen-science and developing expertise through specialist organisations (including ecotourism opportunities), ensuing data-availability from EIAs, and other survey related to development/ private sector investment could play a significant role. The key argument against this is cost – and traditionally people have argued that money spent on monitoring is money not spent on conservation action; we need to demonstrate that well-planned monitoring can help reduce overall costs, and use other opportunities to source funds and resources (e.g. education, tourism). (4)

200. There are benefits to Red-listing species for particularly vulnerable flora and fauna. (4)

Recommendations

201. Development of biological indicators to measure progress. The UK indicators tend to focus on certain groups (farmland and woodland birds, bats and butterflies) where there are well defined monitoring schemes, but historically 'BAP reporting' used a slightly more subjective 'expert view' approach to assess the priority species. A

basket of key species and/ or habitats could be selected and trends measured using various surveillance approaches. An example of such surveillance is remote sensing. Assessment of whether trend analysis would be useful and, being really ambitious, 'target statuses' could be set for a range of species against which progress could be assessed. UK and UKOT Governments and NGOs need to discuss and research what could be considered achievable short term, and what might be needed to develop more ambitious approaches could be instructive. (4)

202. It is recommended that territories' data are shared with UK, regional and global databases, particularly in relation to the highest priority species such as endemics. (UKOT and other Governments, NGOs, other researchers) (4)

203. There is a need for partnerships, collaboration and information-sharing to progress priorities for action. UKOTCF may be able to play a role in this. (4)

204. UKOT/CD and regional scientific capacity should be strengthened through the establishment of, or support for, existing scientific centres, which can also help promote/coordinate regional data sharing; existing centres/institutions should be approached to assess interest/capacity. There is a need for quality assurance of data and standardised metadata, and it is recommended that UKOT governments adopt ISO 19115 as the framework for their metadata standards. UKOT governments need to strengthen requirements for sharing of scientific data by visiting scientists (perhaps tying this as a condition of research permit). (8)

205. Under the UN Law of the Sea, UKOTs/ CDs are entitled to access data collected within their EEZs and UKOT governments should establish the necessary mechanisms for accessing this data with the UK Government. UK Government should provide guidance/advice as to how international legislation (e.g. UNCLOS) may provide UKOTs with access to scientific data within their EEZs. (8)

L. Other aspects of Conservation and Sustainable Use of Marine Resources

Conclusions

206. The diversity of the UKOTs and CDs (resources available, socio-economic circumstances, level of self-governance etc) should be considered by the UK and overseas entities when planning research and conservation initiatives; a standard approach is rarely appropriate and, to be effective in most UKOTs, solutions need to be developed from within the UKOT with local buy-in. Quantifying the monetary and non-monetary value of marine ecosystem services (e.g. fisheries, marine habitats) and integrating these into policy making is important. (8)

207. Whilst some UKOTs/CDs have scientifically based marine resource management resulting in MSC-certified fisheries, there is a history in some others of failed management action or attempted action being made in the absence of sound scientific data and without clearly defined objectives. (8)

208. Management action proposed in the absence of clearly defined objectives undermines community confidence. (8)

209. There is a general lack of resources necessary for undertaking scientific research and monitoring, and a need for capacity building within the UKOTs and improved information sharing amongst UKOTs/CDs. However, there are established regional institutions, which are starting to address this and can serve as coordination centres for better information sharing (e.g. SAERI). (8)

210. Threats to marine mammals, which are multiple in nature, are on the rise in certain regions. New approaches are required to address these, as existing measures are insufficient (e.g. marine mammal sister sanctuaries are being established employing marine spatial planning methods). (8)

211. Some UKOTs/CDs have achieved effective management; in some others overfishing, particularly of predator species, continues to be a problem, and is creating ecosystem imbalance. Illegal fishing remains a major issue, and monitoring capacity/surveillance is limited in some UKOTs. Highlighting cases where additional support is required could be useful, as well as those where these problems have been overcome. (8)

212. Climate change, particularly ocean

acidification, is an increasing concern. (8)

213. There are many management/conservation success/recognised best practice stories and valuable lessons have been learned which should be shared, and can in some cases be applied to other UKOTs/CDs. (8)

214. Both the Chagos MPA and Bermuda Blue Halo initiative demonstrate, in different ways, the importance of identifying and consulting all stakeholders in the process of MPA planning, as well as the need to manage information dissemination. Both examples provided lessons to overseas agencies of the need for understanding local sensitivities within the UKOTs, over and above outside political influences. Projects need to be 'owned' by the territories themselves. The negative ramifications of poor MPA process to longer term marine management initiatives in the UKOTs was sobering. (8)

215. As Dr Hon. Kedrick D. Pickering, Deputy Premier and Minister for Natural Resources & Labour, British Virgin Islands, noted, "all countries in the Caribbean region should work towards the protection of sharks and rays." He recalled that, to do this, the BVI Government took charge and took responsibility, generating some unpopularity because of this decision but he is happy that they took it, as fisheries are so important for BVI. He noted also that we have to protect the coral reefs, and to think ahead to achieve this. (15)

Recommendations

216. UKOT/CD governments should manage their marine resources on the basis of sound scientific data, i.e. evidence-based decision-making. Management objectives, based on sound science, should be clearly defined and articulated by UKOT/CD governments, so that management tools (e.g. minimum size, seasonal closures, MPAs, gear-restrictions, catch-quotas, rights-based management, etc), tailored to address the specific, often unique, local or regional marine environment, can be applied. As a safeguard, it was agreed that the precautionary principle should be applied to resource management where there is insufficient data. (8)

217. Recognition by international bodies of often limited resources in the UKOTs/CDs is critical, and the need for the UK Government and international institutions to engage in full dialogue with UKOT governments and NGOs to understand priority issues and align research with the specific environmental needs of the territories is essential. UKOTs/CDs to develop catalogue of data needs and disseminate (through UKOTCF). (8)

218. The socio-economic vulnerabilities of small island communities need to be understood, and responsibility for ensuring full stakeholder consultation in the management of the shared marine resources must be taken by UK and UKOT Governments (i.e. a transparent 'EIA' approach should be adopted when seeking to implement significant conservation measures to ensure environmental and socio-economic impacts are widely understood and assessed). (8)

219. UKOTs/UKOTCF should explore opportunities for establishing/strengthening existing regional/international collaboration (e.g. 'sister' sanctuaries being established by French MPA Agency), particularly where migratory species are concerned, and the possibility of whale sanctuaries linked to those of neighbouring territories and countries should be given some priority. (8)

220. UKOTs should consider establishment of coral nurseries as species banks and development of artificial reefs. (8)

221. UKOT/CD Governments should strengthen/share with other UKOTs contingency planning (with support from the UK Government where relevant with regards to international relations) for major marine incidents. (8)

222. UK and UKOT Governments, supported by NGOs and others, should continue to explore ways of strengthening surveillance of illegal fishing activities for resource-poor UKOTs, investigating a range of methods, such as satellite-tracking, use of UK Government naval or other resources etc. (8)

223. Mechanisms should be developed or established and resourced for easy, effective sharing of examples of value/success of multiple management tools (e.g. UKOTCF conferences and website). (8)

224. Prompted in part by concern about human rights abuses on certain fishing vessels, it was recommended that UKOT governments should strive to ensure sustainable fisheries at the technical, social and governance level,

achieving certification of their fisheries through a recognised international standard such as the Marine Stewardship Council. (8)

M. Capacity and resource issues

See also the section on Environmental Education and Awareness for further points in this area.

Conclusions

225. The scarcity of capacity and resources is a continuing handicap to implementing biodiversity conservation in UKOTs and CDs. (4)
226. UKOTs are severely limited in the funding sources available, and heritage preservation and restoration is rarely allowed in project applications. Those few bodies who have advised the conference that they have managed to find other sources are invited to share this information with others via UKOTCF. (7)
227. The Forum exists to assist in collaboration, communication and experience-sharing in order to maximize the value of conservation activities throughout the UKOTs and CDs. (4)
228. UKOTCF and other NGOs can best assist by continuing to serve as a network amongst UKOTs and between Britain and the UKOTs, and also by continuing to lobby strongly in Britain for access to funding not yet available to UKOTs - and perhaps to the creation of alternatives to Darwin Plus (which many have indicated that they consider too big and/or otherwise unsuited for some initiatives). (4)
229. UKOTCF and other NGOs could help by collating best practice examples – and mapping these across to specific Aichi targets and/or Environment Charter Commitments. This could also provide a point for collating 'concerns' that in turn could be followed through by the UKOTCF partnership, developed into 'policy asks' for HMG, or developed into collaborative funding bids. (4)
230. UKOTCF and other NGOs could continue to assist in brokering relationships between the different members for specific issues/ actions (including via organising conferences like this event and the write-up which in turn will help take things forward). (4)
231. The loss of a number of skilled and interested people because projects ended or funding cycles finished is a major concern. Two to three years is not sufficient to manage biodiversity – it needs to be a continuing process after individual project implementation. The best way to overcome the obstacle of capacity is to assist in building biodiversity management as a permanent cycle, even if it begins as projects. There needs to be a shift in the concept from a project-based biodiversity management to a programme-based one. (4)
232. As Hon Claude Hogan, Minister of the Environment for Montserrat noted in the final conference session, "We need to look and grasp the need to build capacity in our small islands because we experience extreme conditions." (15)
233. It would be valuable to identify some specific issues that UKOTs could seek funding for the Forum to address or though developing joint projects with UKOTCF. For example, one area some UKOT organisations are interested in developing further is looking at what is, in effect, 'scientific ecotourism' (or pairing up of volunteer expertise with local needs) which could generate some extra man-power and other resources into projects. (4)
234. The Conference appreciated the recognition that Ministers gave to the value of UKOTCF, its conference and its network, for example: Hon. Richard Ronan MHK, Minister of the Department for the Environment, Food and Agriculture, Isle of Man Government, noted in the final session: "A special aspect of UKOTCF and the conference is Government and NGOs working together." Both Hon. Claude Hogan, Montserrat's Minister of Environment, and Mr Victor Brownlees, Alderney's Chief Executive, indicated their wish to contract out more work to NGOs, Minister Hogan noting also the help UKOTCF had provided recently in bringing a major third party in to help resource Montserrat's sustainable fisheries work. (15)
235. Funding mechanisms can be heavily bureaucratic to such an extent that laborious and technical application and fulfilment rules are unattainable by UKOTs (and SIDS), which are already struggling with economic

and human resource constraints. A common resultant trend is that funding is often not available or accessible to the countries where funding is most needed. Heavily bureaucratic funding mechanisms are also economically wasteful. They require copious oversight during implementation, rigorous review and cost UKOTs considerable labour resources. (4)

236. Competition, even among and within UKOTs, for the same small pot of money results in many losing out, particularly those who lack the technical capacity adequately to seek funding, and many needs going unmet. NGOs, such as UKOTCF, can provide a critical role providing technical assistance to territories to help access funds. (4)

237. UK Government needs to be more aware of the importance of Darwin Plus, while at the same time recognising the ambiguities of the process and an increased need for equitable and fair distribution of funds. (4)

238. Participants need to recognize that the European Union (EU) as a funding body operates very differently to all others and there is very little room for negotiation once the contract is signed:

- When applying for EU-funding, applicants should understand the funding framework and requirements before beginning the project proposal development process.
- Partners should recognize that the EU tends to prefer cross-territory and multi-partner projects with larger budgets.
- Organisations interested in applying for EU funding should link/partner with a UK or EU partner that may be in a better administrative position to address reporting and financial requirements of EU funding.
- Organisations interested in applying for EU funding should keep project activities realistic and flexible to accommodate potential changes (to the project and/or its budget) that may be required by the EU prior to project approval as well as during project implementation.
- It is important for organisations that have benefited from Darwin Plus funding as well as Ministers of the Environment to highlight the importance of the funds and the funding mechanism to UKOT environmental conservation to the UK Government. (4)

239. Technical assistance to navigate the funding quagmire has been provided by NGOs, such as the UKOTCF participation in the MPASSE project. (4)

240. A video explaining complex structure of the European Union was shown. It is available on Youtube – 'the European Union Explained', and a link will be provided from www.ukotcf.org. (11)

241. Personnel from BEST hubs gave a welcome presentation on the forthcoming EU BEST funding which will unlock Euro 6 million for environmental initiatives in the Territories. (11)

242. Some funding mechanisms are more bureaucratic than others, so applicants should be realistic in what activities and how many are being proposed. Capital infrastructure is extremely time- and rule-intensive for EU funding, and tenders must be conducted for anything over a certain value. That is where UKOTs suffer greatly as the pool of qualified people is very small. (4)

243. Regional institutions are beneficial, but in some circumstances, they may not have built national and technical capacity. Regional institutions may focus on building their own institutional capacity and CVs while ignoring the island nations which they support. (4)

244. The conditions given by funding bodies place too much strain on UKOTs and CDs, which makes the work too project-focused, versus being programme-based, to allow for long-term continuity and success. These conditions come also with expectations that the territory will already have studies or works completed and ready for further advancement. At times, the cost to perform some of those vital studies beforehand is just not achievable with small islands' fiscal resources, and this automatically eliminates them from being able to apply for the funds. (4)

245. The importance of getting to know your funder was highlighted. (11)

246. In reference to external NGOs with their own funds, pressure is generally placed on what they (these funding NGOs) want to achieve rather than what the country needs to have accomplished for their advancement. Such restrictions should be revisited to allow monies to be used more adequately

and derive bigger rewards needed within country. (4)

247. Opportunities were recognised for the potential for high impact research outputs from universities and other research institutions which were part of the new requirements of the UK's Research Excellence Framework.(11)

248. Collaboration between territories and between governments and NGOs boosts effectiveness. Hon. Claude Hogan, Montserrat's Minister of Environment, noted "I want to borrow the phrase from my Gibraltarian friend, Hon Dr John Cortés [Minister of Environment] that, in fact, all the UKOTs are punching above their weight." Dr Hon. Kedrick D. Pickering, Deputy Premier and Minister for Natural Resources & Labour, British Virgin Islands, reinforced this: "We don't have to be big to have our voice heard." (15)

Recommendations

249. A greater understanding of the role of organisations like UKOTCF should be shared. Funding bodies need a better understanding of UKOTs and conservation challenges there, and the facilitation and assistance roles that some governmental and NGO bodies in the UKOTs look to in locally experienced umbrella conservation bodies. (4)

250. A particular problem is the short-term nature of projects that build up experience and capacity which is then lost from territories at its completion. In line with the views expressed at the conference, UKOTCF should promote the benefits of programmes, rather than short-term projects, to maintain and build skills, knowledge and experience. (4)

251. The scarcity of capacity and resources is a continuing handicap to implementing biodiversity conservation in UKOTs and CDs. UKOTCF should continue to address this constraint through developing partnerships in the metropolitan UK and the territories. (4)

252. The Conference acknowledged the importance of continued funding for research, education and implementation of conservation measures for the environment of the UK Overseas Territories. Difficulties of access to UK and EU funding streams were highlighted as there are restrictions because of the constitutional position of both funders and the Territories. Specific Overseas Territory funding was therefore particularly supported by the Conference. (To UK Government, EU, other funding bodies) (11)

253. Concern was expressed widely at the conference that the recent June 2015 launch of the 22nd Round of the Darwin Initiative for developing countries had not been complemented by the launch of the next round of the UK Overseas Territories Environment and Climate Fund (Darwin Plus). The persons expressing this concern asked that letters be sent to Ministers of Defra, DFID and FCO on this point, noting that the £2m fund enables Overseas Territories Governments, local NGOs and UK Institutions to work together and deliver concrete results for the internationally important environments of the Territories, which hold 94% of the globally threatened species for which the UK is responsible; and that the constitutional position of the UK Overseas Territories makes funding in these areas exceptionally hard to obtain. If this fund is not available, crucial environmental projects will have no obvious funding stream. Funding from UK Government in this way is a commitment by UK Government to meet international requirements. (UK Government) (11)

254. It is recommended that biodiversity and its ecosystem services are included in national accounting systems to ensure biodiversity is fully valued for the long term benefit of the territories. (UKOT/CD Governments, with support from UK Government) (4)

255. A checklist of environmental infrastructure (e.g. sustainable physical development plan, habitat and ecosystem services mapping, legislative framework, etc.) should be developed for each UKOT. Rather than allocating scarce funding resources on a "winner takes all" basis, UKOTs can advocate allocation of funding where it is most needed. In some cases, this will be UKOT governments (which will anyway be involved re permits etc.), but in other places, funding will be better allocated to NGOs that can work among and between governments effectively. (To: UK and

UKOT Governments and other Funding Bodies) (7)

256. A comprehensive checklist of environmental needs should be developed for all territories, with funding targeted preferentially to fill gaps. This need not be a whole new exercise. Existing initiatives such as the UKOTCF review of progress against Environment Charter Commitments and Aichi Targets, reviews of legislation and local reviews can provide much of the analysis. (UKOTs/CDs; UKOTCF) (7)

257. National perspectives and support from the UKOT governments (ministries/politicians / Cabinet) should be built-in. (7)

258. The Sustaining Partnerships Conference itself provides an important format for the exchange of ideas and the development of future collaborations, Mr Victor Brownlees, Alderney's Chief Executive, noting "Knowledge is at its most powerful when shared." All conference delegates were encouraged to focus on the development of future projects during and following the event. (Conference participants) (11 & 15)

N. UKOTCF and its Regional Working Groups

Most of the topic sessions concerned themselves with the substantive conservation issues that were their subjects. The meetings of UKOTCF's regional Working Groups (Wider Caribbean, Southern Oceans and Europe Territories) also addressed such issues. However, these deliberately gave some emphasis also to the way in which UKOTCF operates. After the conclusions and recommendations from these Working Groups, the requests and suggestions for UKOTCF actions arising in the main topic sessions are summarised.

Conclusions

259. UKOTCF provides an invaluable forum. There is a lot going on; UKOTs and CDs are often surprised to hear what is going on elsewhere. UKOTCF facilitates valuable information exchange, and enables cooperation, thereby also preventing wasting of scarce resources reinventing the wheel. (6)

260. For some aspects in some regions other linking fora exist (notably SAERI for research in the South Atlantic). However, for other aspects (e.g. other regions, conservation in the South Atlantic, etc.), UKOTCF provides regional networks in addition to its role across all UKOTs and CDs. It provides the potential for yet more close working relationships. (6)

261. There are many excellent projects under way in the UKOTs and CDs, as well as new challenges and opportunities. The situation was noted of "lots of demands, few resources", and the strong impact of small, well targeted projects. (6)

262. Widespread concerns were expressed over the low and reducing level of engagement of UK government and limited engagement of some territory governments in environmental work. (6)

263. Whatever the situation, information flow, cooperation, shared expertise, collating examples of best practice, etc. are all more important than ever. UKOTCF is a major facilitator here. All were encouraged to engage with and support UKOTCF and its Regional Working Groups. (6)

264. Hon. Richard Ronan MHK, Minister of the Department for the Environment, Food and Agriculture, Isle of Man Government, noted that, to achieve preservation of natural treasures, we have to work closely with our neighbours, learning from each other and gaining from experiences whether they be good or bad. This demonstrates the value of taking time out and sharing opportunities with each other at the conference. He hoped that the conference and the Forum will be a platform, and looked forward to building strong relationships in the future. (15)

Recommendations

265. UKOTCF should, alongside its existing approaches, develop further the more thematic approach it has been developing across UKOTs/CDs, e.g. looking at invasive species, use of GIS, coral reef issues. (2)

266. UKOTCF should map the engagement of universities and other research bodies with the UKOTs and CDs, with a view to establishing closer links/partnerships. UKOTCF and partners should then consider how to exploit this engagement

for mutual benefit, including through extending UKOTCF's current work student attachments/ secondments/ sabbaticals. (2)

267. UKOTCF should also (re-)engage stakeholders more effectively, aiming to build closer sustainable partnerships with other bodies with cross-cutting interests. (2)
268. UKOTCF should do more to raise its profile and that of the UKOTs/CDs, not least with a view to fund-raising. (2)
269. UKOTCF should aim to secure funding, not just for projects, but for feasibility and follow-up work. (2)
270. UKOTCF should consider holding more smaller conferences and workshops, on a regional basis, and/or with thematic focus in between the full UKOTCF conferences, ideally in concert with partners and perhaps in the UK as well as in territories. (2)

O. UKOTCF role

UKOTCF continually checks what the territories want it to do, and tries to learn all the time. This includes too improving each conference.

UKOTCF works only for the UK Overseas Territories and Crown Dependencies – it does not have another agenda. It is involved long-term working with the territories, and understands well the differences between UKOTS/CDs and with UK. It has built up a position of mutual confidence with many partners in territory and elsewhere. Unlike other UK-based bodies, territories are not a small part of its business; they are its business. But that makes it vulnerable because it does not have other activities or income streams to buffer hard times.

The conference made valuable suggestions about what else it would like UKOTCF to do (see below). These ideas will be taken forward where possible on a priority basis following UKOTCF Council discussions and taking into account resources, as noted below the listing. During the conference, UKOTCF (the Forum) was asked to:

- Maintain that long-term continuity of relationships with the territories, and provide an effective network
- Compile a list of benefits of association with MEAs and examples of positive outcomes and activities associated with each Convention on Biological Diversity (CBD) Aichi targets.
- Be a focal point for sharing ideas, information and experiences of invasives management
- Coordinate collaboration and information-sharing to progress priorities for action on dealing with invasive species
- Coordinate and improve access to data on UKOTs held by other institutions in various countries
- Facilitate exchange of experience and access to scientific and other information for decision-making
- Continue to coordinate availability of specialists, pro bono or well below consultant rates.
- Continue to address this constraint through developing partnerships in the metropolitan UK and the territories
- Map and share between territories legislation and regulations, e.g. for EIA, and derive a set of best practices that we could all ultimately aspire to
- Help develop cross-territory sustainable tourism guidelines, and play a key role in building capacity and training
- Build up links with cultural heritage conservation expertise
- Competition among and within territories for limited funding means many needs go unmet; UKOTCF can provide a critical role providing technical assistance to territories to access funds
- A comprehensive checklist of environmental needs should be developed for all territories, with funding targeted preferentially to fill gaps
- Develop collaborative funding bids with UKOTs to address points in these conclusions and others identified by the processes recommended here
- Be prepared to accept contracts from UKOT governments to address particular issues, as well as continuing to seek other sources of funding for agreed work
- Work with UKOT Governments and NGOs to press for better access to UK funding
- Help develop partnerships, collaboration and information-sharing to agree and progress

priorities for action

- Collating measuring, reporting and institutional arrangements for verification of the performance Environment Charter Commitments, Aichi Targets and any further commitments agreed by the territories
- Explore opportunities for strengthening international and regional collaboration, particularly related to migratory species including whale sanctuaries
- Transference of stewardship roles requires some initial funding for training and establishing protocols and procedures. Such funding could be provided by governments or other funding agencies. UKOTCF can play a key role in building capacity and training.
- The Sustaining Partnerships Conference itself, and its follow-up and successors, provide an important format for the exchange of ideas and the development of future collaborations.
- Sharing what is going on in UKOTs/CDs, including progress in monitoring the implementation of the Charters and conventions, using the UKOTCF regional Working Groups, Newsletter, Website or Facebook page
- Providing Training for Teachers and developing Teachers' Education Materials (Curricula, courses, Resource Guides on various topics etc)
- Take a more thematic approach, e.g. looking at invasive species, use of GIS, coral reef issues across territories/CDs, as well as maintaining both all-territory and regional approaches
- The Forum should map the engagement of universities and other research bodies with the UKOTs and CDs, with a view to establishing closer links/partnerships. Then consider how to exploit this and other links for mutual benefit, including through student attachments/secondments/sabbaticals and extending UKOTCF's volunteer programme.
- Continue to play the role of sharing positive outcomes, new methods and lessons learned among territories, and collating best-practice examples
- Consider holding smaller conferences, on a regional basis, and/or with. thematic focus in between the full UKOTCF Conference
- Continue to help and guide Stuart McPherson with his video/book programme
- Continue to help flow, cooperation, shared expertise, examples of best practice, all more important than ever
- Continue to be major facilitator
- Continue to provide technical and managerial assistance and advice
- Continue to develop and evolve, including in respect of the conferences
- There is a lot going on; UKOTs and CDs are often surprised to hear what is going on elsewhere. UKOTCF should continue to facilitate valuable information exchange, and enable cooperation, thereby also preventing wasting of scarce resources reinventing the wheel
- Aim to secure funding, not just for projects, but for feasibility and follow-up work.
- UKOTCF should do more to raise its profile and that of the UKOTs/CDs, not least with a view to fund-raising.

Here is the challenge. UKOTCF needs help to provide the help territories say they want from it. The Forum is therefore grateful to territories for offering to host and fund future conferences – this is a major boost. Hon. Claude Hogan, Montserrat's Minister of Environment said: "I am putting the entire Forum on notice that the next conference shall be held – God willing – in Montserrat [probably in 2018]." Mr Victor Brownlees, Alderney's Chief Executive, offered to work to fund and host the following conference, probably in 2021, and Hon. Richard Ronan MHK,Minister of the Department for the Environment, Food and Agriculture, Isle of Man Government, offered to host another UKOTCF meeting, either a full conference or a smaller meeting at an earlier date. Dr Mike Pienkowski, UKOTCF, thanked all and indicated that he would follow up with them.

But UKOTCF needs help also in keeping the show on the road – because the very nature of the service that it provides in the ongoing services to help territories look after their environments it is difficult to fund-raise for.

UK Government used to help by funding projects, which UKOTCF experts did free or at low cost, so what would have been their payments for work were donated to UKOTCF's low but unavoidable running costs.

Also UKOTCF needs territory partners to adjust

the erroneous perceptions of other funding bodies, used to dealing with bigger countries. It needs to be made clear by the territories that they want and need UKOTCF to help – and that it is are not some sort of parasitic consultant diverting resources from conservation. Our host, Hon. Dr John Cortés, Gibraltar's Minister of Environment, has repeatedly made that clear, as have Ministerial and other colleagues here, notably Hon. Claude Hogan, Montserrat's Minister of Environment: "I want us to ... have institutional arrangements in place with the UKOTCF which I continue to think is going to have an indefinite role to play." UKOTCF would appreciate and value these messages being repeated continually to funding bodies.

Annex 1: developing the conclusions and recommendations

There was a widespread view amongst potential conference participants that the conference should strive to reach some clear conclusions and recommendations on the topics addressed (these topics resulting from wide consultations). Of course, time at the conference was limited, especially as territory participants had made clear that they did not want parallel sessions, which have been tried in some previous conferences.

To allow a good discussion time for each topic, talks (aimed to stimulate discussions) were all restricted to tight slots, and participants were encouraged to supply other stimulating material as posters (as well as in the proceedings). However, even an hour of discussion time per session is tight for developing clear conclusions and recommendations. Therefore, UKOTCF tried to help this process.

UKOTCF expected that whichever way this was done would give rise to some criticisms, but the only way to avoid these would be not to do it – which seemed undesirable. Participants were asked to take this in the positive spirit in which it was intended.

In previous experience of conferences, both UKOTCF-organised and others, the first stages of developing recommendations emerged from the talks and posters. UKOTCF tried to emulate this process by getting a small team together for each session to gather their ideas for conclusions and recommendations. The Forum was anxious that these teams should be widely drawn, rather than be composed of core Forum personnel. Accordingly, the teams were made up of those based in the UKOTs or with an extensive background working there, including the speakers (except in a few cases where communications difficulties sabotaged this). Where received in time, the abstracts of talks and posters were also consulted by the teams. There were then discussions to attempt to generate a draft set of conclusions and recommendations for each session. These were drafts. As explained above, their purpose was to get done the ground-work which would otherwise take up valuable conference time, so that discussion time could be devoted to exchange of ideas, rather than drafting. The drafts were inputs into these discussions, so that the outputs could take account of the consensus of views in the sessions' discussions.

Collating such varied information put a heavy load on the coordinator(s) of each session team and UKOTCF is grateful to them.

Approaching matters in this way had an extra advantage: the drafts were circulated in advance so that participants could think about these before the discussion and, indeed, consult colleagues in advance if they wished. It was pointed out that the conclusions and recommendations do not commit anyone to anything. Participants in the conference were not formal delegates of their territories or organisations. The conclusions and recommendations (and the drafts of these) are reasonably concise summaries of best advice on the basis of the experience of the territory and subject experts brought together by the conference. Decision-makers from all the inhabited territories were invited by HM Government of Gibraltar to a closed session the day after the conference, and a majority participated or sent representatives. That sort of forum is the sort which might agree policy positions. It is the role of such others (and not the conference) to decide the territories' or the organisations' reactions to the conclusions and recommendations, and whether and how they intend to use them. The fact that an individual participated in the conference does not mean that they supported each conclusion and recommendation, and this should not be assumed. As Hon. Claude Hogan, Montserrat's Minister of Environment, said in the final conference session: "I really applaud the conference for having taken a really hands-on approach to dealing with conservation mitigation and the issues of protecting our environment." "I am promising and committing to be a champion for environmental issues in Montserrat and I'll take back to my cabinet the issues that have been unfolded here so

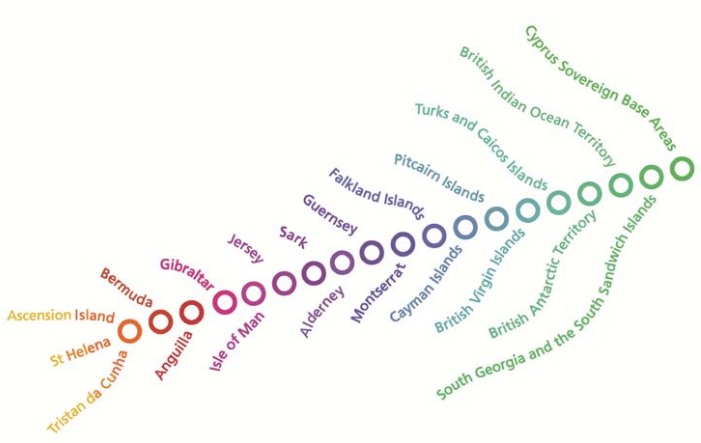
brilliantly."

In order to minimise any constraints on each session team, a common structure was not imposed on the developing draft conclusions and recommendations. This was reflected in different approaches and lengths in the drafts for different sessions. Subsequent to the drafting, some formatting and numbering were added, primarily to aid reference in subsequent discussions. Whilst there might have been a preference for some of these drafts to be more concise, it was important not to impose a central control. It was indicated that the outputted conclusions and recommendations would be sub-edited both to shorter lengths and, in a few cases, appropriate adjustments to wording. However, this was deferred until after incorporating the results of the discussions, to avoid constraining the latter.

It was made clear that some draft wording provided by the various teams might need some polishing after the conference. Participants were invited to offer wording suggestions by email to the organisers rather than in discussion sessions, which were best devoted to the issues themselves, rather than wording details, and the organisers thank those who did. UKOTCF stressed that the draft was intended to open up discussion, rather than constrain it.

The session coordinators and the conference organisers then used the discussions from the conference and written inputs to amend and extend the draft conclusions and recommendations. There was some overlap in subjects for different sessions. The drafts were not consolidated prior to the sessions, again to avoid constraining the discussions. However, it was noted that some sub-editing and sorting would be done on the session outputs, to make these as manageable as possible, and to bring together sections on the same topic from different sessions. Once the drafts had been amended and supplemented by the discussions in the conference, this was done, except where doing so would have made other material from a session difficult to follow. Similarly, it was envisaged and indicated that the final outputs might be presented in various forms, including sub-sets for the different target audiences for the recommendations, and relating them to Environment Charters, Aichi Targets, MEAs etc. This has yet to be done.

Pre-conference press conference at the Ministry. Photos: Juan Carlos Teuma, Gibraltar Government Press Office



Sustaining Partnerships:
a conference on conservation and sustainability in UK Overseas Territories, Crown Dependencies and other small island communities

Gibraltar
11th to 15th July 2015

Organised by:
UK Overseas Territories Conservation Forum and HM Government of Gibraltar Department of Environment, with the support of Gibraltar Ornithological & Natural History Society

Appendix 1: Final published Provisional Programme

(Sequence and timings may change)

	Saturday 11th July 2015
16:00-18:30	Registration desk open Pre-booked posters may be put up at the designated places, under the supervision of conference personnel
Session 1 19:30-21:00	**Opening: Garrison Library** (Leave the Eliott Hotel main entrance, cross the car-park and the road. The Garrison Library is the building in front of you, with a garden in front of it.) Speakers: Chief Minister, The Hon. Fabian Picardo QC MP Deputy Chief Minister, The Hon. Dr Joseph Garcia Minister for Health, the Environment, Energy and Climate Change: The Hon Dr John Cortés MBE MP CBiol CEnv Dr Mike Pienkowski, Honorary Executive Director, UKOTCF
	Followed by opportunity for informal meetings over dinners organised by participants themselves
	Sunday 12th July 2015
From 06:00	Breakfast available
Session 2 07:00 – 08:45	**UKOTCF's Wider Caribbean Working Group** (open to all on this occasion) Rooftop Suite (8th Floor)

	Joint Chairmen: Bruce Dinwiddy & Boyd McCleary Secretary: Ann Pienkowski, with Dace Ground
08:45-09:15	Refreshment break – Tercentenary Suite (Basement)
Session 3	**Field visits**
09:15	Get on coaches at front of hotel either (1) to marina for boat trip or ...
09:30	get on coaches at front of hotel (2) for Upper Rock visit
09:45	Coaches (1) arrive marina and participants embark on boat
09:45-12:00	Boats (1) tour marine and coastal ecosystems around Gibraltar
12:00	Coaches (1) leave marina
12:30	Coaches from both (1) & (2) arrive back at hotel
	(Any posters not yet up should be put up, under the supervision of conference personnel, in the designated places during this break.)
12:30-13:30	Lunch – Tercentenary Suite (Basement)
13:30	Return to Rooftop Suite (8th floor)
Session 4	**Implementing biodiversity action plans in the context of Environment Charters, Aichi Targets etc, and including environmental monitoring** Rooftop Suite (8th Floor)
	(Note the broadcast media are likely to be present for at least the start of this session.)
	Chairing & facilitating team: Liz Charter (Isle of Man), Mike Pienkowski (UKOTCF), Catherine Wensink (UKOTCF) & Lyndon John (St Lucia)
14:00	Introductory remarks to conference by Hon Dr John Cortes (Minister of Health & Environment, Government of Gibraltar) and Dr Mike Pienkowski (Honorary Executive Director, UK Overseas Territories Conservation Forum)
	(Some TV crews and other media may leave the main room at this point.)
14:15	Introduction to session: projects in the territories within the international conservation framework – Liz Charter (Isle of Man Government)
14:30	An overview of progress in implementing the Environment Charters and moving towards the Aichi Targets – Sarah Barnsley, Emma Cary, Mike Pienkowski & Catherine Wensink (UKOTCF)
14:45	Rodent eradication on South Georgia: global-scale conservation is within the reach of small NGOs – Tony Martin (South Georgia Heritage Trust)
15:00	Question break
15:15	Mapping invasive Japanese knotweed in Jersey, Channel Islands – Tim Liddiard (States of Jersey)
15:30	Current and planned invasive species removal exercises – Lyndon John & Jonathan Hall (The Royal Society for the Protection of Birds, RSPB)

15:45	Terrestrial Ecosystems of the Falklands: a Climate Change Risk Assessment – Rebecca Upson & Colin Clubbe (Royal Botanic Gardens, Kew)
16:00	Why do we Red List? – Jeremy Harris (St Helena National Trust)
16:15	Question break
16:30	Refreshment break – in Rooftop restaurant and pool area (same floor as meeting)
16:45	Using GIS and remote sensing to aid conservation monitoring – Katie Medcalf (Environment Systems), Tony Gent and Thomas Starnes (Amphibian & Reptile Conservation)
17:00	*OT Biodiversity Data Access Project* – Tara Pelembe & Steve Wilkinson (Joint Nature Conservation Committee)
17:15	Discussion
18:15	End
Session 5 18:15	**Poster session** Tercentenary Suite (Basement) (Posters will be available in the Tercentenary Suite throughout much of the conference, but this will be an opportunity for poster authors to be present at their posters to discuss them with other conference participants, over a drink.)
19:30	Opportunity for informal meetings over dinners organised by participants themselves
	Monday 13th July 2015
From 06:00	Breakfast available
Session 6 07:00 – 08:45	**UKOTCF's Southern Oceans Working Group** (open to all on this occasion) Rooftop Suite (8th Floor)
	Chairman: Nigel Haywood Joint Secretaries: Sarah Barnsley, Tim Earl & Catherine Wensink
08:45	Those in Session 6 move to Ground level to join all other conference participants for...
09:00	**Conference photo** – gather outside hotel front door and in lobby
09:15	Refreshment break – in Rooftop restaurant and pool area (8th Floor)
Session 7	**Conservation and Sustainable Use of Terrestrial Resources** Rooftop Suite (8th Floor)
	Chairing & facilitating team: Kathleen McNary Wood (Turks & Caicos Islands), Esther Bertram (Falkland Islands), Farah Mukhida (Anguilla)
09:45	Introduction
10:00	Environmental Sustainability: through the application of economic valuations – Ms Sharmer Fleming (Government of Anguilla, Department of Environment)
10:15	A New Framework for the Conservation of Species and Habitats in the Cayman Islands – Gina Ebanks-Petrie (Cayman Islands Department of Environment)

10:30	Attempts to achieve Management of protected Areas to Support Sustainable Economies - and discovering the realities of managing an EU funded project in a small Caribbean territory – Nancy Woodfield Pascoe (National Parks Trust of the Virgin Islands)
10:45	Question break
11:00	Ecosystem effects of eradicating invasive species – Jennifer Lee (Government of South Georgia & the South Sandwich Islands)
11:15	Establishing Stakeholders as Conservation Stewards – Amy Avenant, Katharine Hart, (Department of Environment & Maritime Affairs) and Kathleen Wood (SWA Ltd, Turks & Caicos Islands; UKOTCF) [This presentation will also link terrestrial & marine, the latter topic being mainly in the following session, after lunch.]
11:30	Discussion
12:30	End
12:30-13:30	Lunch – Tercentenary Suite (Basement)
13:30	Return to Rooftop Suite (floor 8)
Session 8	**Conservation and Sustainable Use of Marine Resources** Rooftop Suite (8th Floor)
	Chairing & facilitating team: Annie Glasspool (Bermuda), Tom Appleby (Blue Marine Foundation; UKOTCF), Peter Richardson (Marine Conservation Society), Drin Lutchman (South Atlantic, Gibraltar & elsewhere)
14:00	Introduction
14:05	Governance in the Marine Environment – Tom Appleby (Faculty of the Environment and Technology, University of the West of England, Bristol/ Blue Marine Foundation/ UKOTCF)
14:20	Intra- and Inter-territory Environmental Research in the South Atlantic Supporting Strategies for Environmental Conservation and Management. – David Blockley (South Atlantic Environmental Research Institute (SAERI))
14:35	Pitcairn Islands: Integrating Research, Conservation Monitoring, Management and Sustainable Development – Terence P. Dawson[1], Jacqui Christian[2] and Michele Christian[3] ([1] School of the Environment, University of Dundee, DD1 4HN, UK; [2] European Representative of the Government of Pitcairn, Henderson, Ducie and Oeno Islands, Adamstown, Pitcairn; [3] Environmental, Conservation & Natural Resources Division Manager, Government of Pitcairn, Adamstown, Pitcairn.)
14:50	Towards a marine mammal transboundary management and governance in the Caribbean region: UKOTs on board with us? – Romain Renoux, (Réserve Naturelle de St Martin/SPAW-RAC/Agoa) and Amandine Eynaudi, Agence des aires marines protégées/ Sanctuaire Agoa/)
15:05	Question break
15:20	Sustainable fisheries management in the South Atlantic: Models of best practice – Indrani Lutchman
15:35	Tristan da Cunha – another example of registered sustainable fisheries and its recovery from the *Oliva* wreck – Jim Kerr (Tristan da Cunha Government)
15:50	Action Plan For Maintaining Coral Reef Health in the Turks & Caicos Coral recovery projects – Don Stark (Turks & Caicos Reef Fund)

16:05	Marine Protection in Bermuda: Lessons Learned from 400 years of Management and a Range of Geographical Scales – Annie Glasspool (Bermuda)
16:20	Question break
16:35	Refreshment break – in Rooftop restaurant and pool area (same floor as meeting)
16:50	Applying parts of UNCLOS (UN Convention on the Law of the Sea) to access data for use in mapping and monitoring in UKOT waters – Alan Evans (Marine Geoscience Group, National Oceanography Centre, Southampton, UK)
17:05	3-minute video: The Virtual Watch Room, Pioneering Technology to Help End Illegal Fishing – Jo Royle (The Pew Charitable Trusts)
17:10	Discussion
18:10	End
Session 1a	**Special lecture**
18:15	Chairman: Mike Pienkowski
	Conservation: the Gibraltar perspective revisited – Hon Dr John Cortés, Minister for Health, Environment, Energy and Climate Change, H.M. Government of Gibraltar
1915	Free evening: opportunity for informal meetings over dinners organised by participants themselves
	Tuesday 14th July 2015
From 06:00	Breakfast available
Session 9 07:00 – 08:45	**MEA sign-up clinic** (Please book your place for this clinic in advance.) Rooftop Suite (8th Floor)
	Liz Charter (Isle of Man Government), supported by Clare Hamilton (Defra) and others
08:45	Refreshment break – in Rooftop restaurant and pool area
Session 10	**Renewable Energy** Rooftop Suite (8th Floor)
	Chairing & facilitating team: Maya Doolub (Elms Consulting), Bruce Dinwiddy (UKOTCF), Daniella Tilbury (University of Gibraltar) & Liesl Torres (HM Government of Gibraltar)
09:00	Introduction – Renewable Energy in UK Overseas Territories and Crown Dependencies – Maya Doolub (Elms Consulting)
09:15	Wind-turbines: environmental benefits and challenges – Stephen Butler (Falkland Islands Government)
09:30	Tidal power: the environmental benefits and challenges of emerging renewable energy development within the Crown Dependencies – Roland Gauvain (Alderney Wildlife Trust)
09:45	Question break

10:00	Geothermal energy: environmental benefits and challenges – Sarita Francis (Montserrat National Trust)
10:15	Renewable Energy Deployment and Waste Treatment – Liesl Torres (Department of Environment, Government of Gibraltar)
10:30	Discussion
11:30	End
Session 11	**Future funding and BEST** Rooftop Suite (8th Floor)
11:35	Introduction: some funding issues – Tom Appleby
11:45	Delivering conservation outcomes through a new funding strategy: the European Overseas BEST Initiative – Romain Renoux, (Regional Best Caribbean Hub Coordinator; Regional Activity Centre for Specially Protected Areas and Wildlife in the Caribbean region (SPAW-RAC)/Réserve Naturelle de Saint-Martin) and Maria Taylor, (Regional Best South Atlantic Hub Ecologist; South Atlantic Environmental Research Institute (SAERI))
12:00	Discussion
12:25	End
12:25	Introduction of Pat Reynolds (Heritage People CIC) – see also poster on Human heritage and the natural environment: interactions and opportunities
12:30	Lunch – Tercentenary Suite (Basement)
13:30	Return to Rooftop Suite (floor 8)
Session 12	**Using informed decision making to manage development sustainably (including physical planning, environmental impact assessments etc)** Rooftop Suite (8th Floor)
	Chairing & facilitating team: Dace Ground (Bermuda; UKOTCF), Jo Treweek (Treweek Environmental Consultants), Isabel Peters (St Helena), Arlene Brock (Bermuda)
14:00	Introduction – Dace McCoy Ground (Bermuda National Trust & UKOTCF)
14:15	Cayman: some successes, by public pressure; and by negotiations, rather than by EIA process – Christina Pineda (National Trust for the Cayman Islands)
14:30	St Helena Airport: Environmental Lessons Learnt – Isabel Peters (St Helena Government)
14:45	A model for rapid assessment and mapping of ecological criteria for informed land use in small island developing states – Kathleen McNary Wood (Turks & Caicos Islands)
15:00	Question session

15:15	Managing Marine Protected Areas in the Isle of Man in partnership with fishermen – Fiona Gell[1], Peter Duncan[1], Karen McHarg[1], Isobel Bloor[2], Sam Dignan[2], Kev Kennington[3], Liz Charter[4] and Andy Read[1] ([1] Fisheries Directorate, Department of Environment, Food and Agriculture, Isle of Man Government; [2] School of Ocean Sciences, Bangor University, UK; [3] Government Laboratory, Department of Environment, Food and Agriculture, Isle of Man Government; [4] Environment Directorate, Department of Environment, Food and Agriculture, Isle of Man Government)
15:30	Community Voice Method - a contemporary approach to engaging stakeholders in development of marine resource conservation policy – Peter B. Richardson[1], Lisa M. Campbell[2], Gabriel B. Cumming[2], Quentin Phillips[3], Sue Ranger[1] & Amdeep Sanghera[1] ([1]Marine Conservation Society (MCS), Ross House, Ross Park, Ross-on-Wye, Herefordshire, HR9 7QQ; [2]Nicholas School of the Environment, Duke University, Durham, NC, USA; [3]Department of Environment and Maritime Affairs, South Caicos, Turks and Caicos Islands, BWI)
15:45	Cyprus SBAs: need for measures in view of recent change of British policy – Melpo Apostolidou (BirdLife Cyprus)
16:00	Question session
16:15	Refreshment break – in Rooftop restaurant and pool area (same floor as meeting)
16:30	Legal requirements for EIAs – Arlene Brock (former Ombudsman for Bermuda)
16:50	Environmental Impact Assessments (EIAs): what they involve and what are the benefits – Jo Treweek (Treweek Environmental Consultants) (linking to the workshop for some participants on the day after the main conference)
17:05	General discussion and agreement on conclusions and recommendations
18:05	End
Session 13a	**Environmental Education and Awareness** (continues on Wednesday at 09:15) Rooftop Suite (8th Floor)
18:30	Video: Using wider broadcast media: *Britain's Treasure Islands* – Stewart McPherson, Redfern
19:30	Opportunity for informal meetings over dinners organised by participants themselves
	Wednesday 15th July 2015
From 06:00	Breakfast available
Session 14 07:00 – 08:45	**UKOTCF's Europe Territories Working Group** (open to all on this occasion) Rooftop Suite (8th Floor)
	Chairman: Keith Bensusan Secretary: Emma Cary
08:45-09:00	Refreshment break – in Rooftop restaurant and pool area

Session 13b	**Environmental Education and Awareness** (incorporating also item on previous evening) Rooftop Suite (8th Floor)
	Chairing & facilitating team: Ann Pienkowski (UKOTCF), Sarita Francis (Montserrat), Andrew Dobson (Bermuda), Stephen Warr (Gibraltar)
09:00	Introduction – Ann Pienkowski (UKOTCF)
09:15	Schools curricula: Tristan da Cunha – Jim Kerr (Tristan da Cunha Government)
09:30	Schools curricula: Wonderful Water Curriculum Development in the Turks and Caicos Islands (TCI) – Ann Pienkowski (UKOTCF)
09:45	Using local broadcast media (radio): Montserrat – Sarita Francis (Montserrat National Trust)
-	Using wider broadcast media: Britain's Treasure Islands (previous evening)
10:00	Field trips and open-days: Promoting the Natural Environment in Small Territories, with Gibraltar as a Case Study – Keith Bensusan (Gibraltar Ornithological & Natural History Society/Gibraltar Botanic Gardens)
10:15	Question break
10:30	Multi-media apps in environmental education – Stephen Warr (Department of Environment, Government of Gibraltar)
10:45	Still Linking the Fragments of Paradise: Public Awareness and Project Collaboration through Social Media in Turks & Caicos Islands – B Naqqi Manco (for Turks & Caicos National Museum; Department of Environment & Maritime Affairs (DEMA))
11:00	Public awareness raising actions: How a small NGO, with limited capacity, can deliver a wide range of activities to promote environmental education and awareness. Andrew Dobson (Bermuda Audubon Society)
11:15	Discussion
12:15	End
12:15-13:15	Lunch – Tercentenary Suite (Basement)
13:15	Return to Rooftop Suite (floor 8)
Session 15	**High-level session, summaries, discussion** [provisional] Rooftop Suite (8th Floor)
	Chairing: Dr John Cortes & Dr Mike Pienkowski
13:45	Introduction
14:00	Summaries of main conclusions from the earlier sessions
15:00	Opportunity for comments from Ministers or equivalents
16:00	Refreshment break – in Rooftop restaurant and pool area (same floor as meeting)
16:30	Continuing opportunity for comments from Ministers or equivalents, and opportunity for questions and discussion
17:15	Closing remarks - Dr John Cortés, Minister for Health, the Environment, Energy and Climate Change, Gibraltar
17:45	Administrative announcements – UKOTCF

18:00	Conference main sessions end
18:00-18:45	Posters must be taken down in this period, if they are still up.
19:00	Coaches depart to St Michael's Cave
19:30	Arrive at St Michael's Cave for **conference dinner.** Welcome drinks and canapés. Soldiers from the re-enactment available during the canapes and welcome drink for photos with guests and as a welcome. Violins and cello playing during the canapés and welcome drinks (19:30-20:40).
20:15	Guests to make their way to their seats.
20:40	Speeches: Chief Minister, The Hon. Fabian Picardo QC MP (to close conference) Liz Charter (UKOTCF Chairman) thanks all involved in making the conference happen
21:00	Starter served
21:30	Main Course served
22:00	Core of Drums plays
22:15	Desert and coffee served
23:00	Depart by coach from St Michael's Cave to return to conference hotel
	Thursday 16th July 2015
From 07:00	Breakfast
09:00-17:00	For those pre-booked: **EIA workshop (conference session 16)** Rock View Room of Rooftop Suite (8th Floor)
09:00-17:00	**Closed meeting of UKOT/CD Ministers** (Garrison Library)
?08:30	For those not involved in above meetings and on late flights: Optional coach tour (with optional short walks) of Gibraltar or other walks. (Those on this tour are advised to pack their bags before departure on tour, as rooms must be vacated and check-out completed by noon.)
09:25	Coach transfer leaves hotel at 09:25 for 11:25 Easyjet departure to London. (Other transfers will be listed separately.)
?11:00	Coach tour arrives back at hotel
15:00	Coach transfer leaves hotel at 15:00 for 17:00 BA departure to London. (Other transfers will be listed separately.) Note: you need to check-out of your room by noon.
	Friday 17th July 2015
From 07:00	Breakfast
?08:30	Optional coach tour (with optional short walks) of Gibraltar or other walks. (Those on this tour are advised to pack their bags before departure on tour, as rooms must be vacated and check-out completed by noon.)
09:25	Coach transfer leaves hotel at 09:25 for 11:25 Easyjet departure to London. (Other transfers will be listed separately.)

?11:00	Coach tour arrives back at hotel
15:00	Coach transfer leaves hotel at 15:00 for 17:00 BA departure to London. (Other transfers will be listed separately.) Note: you need to check-out of your room by noon.

The conference organisers' (in)famous time-keeping system - which proved surprisingly popular!

FINAL PUBLISHED LIST OF POSTERS

Ref	Wall	Topic	Poster	Authors
01	East (Rock)	Implementing biodiversity action plans in the context of Environment Charters, Aichi Targets etc, and including environmental monitoring	Conserving plant diversity and establishing ecosystem based approaches to the management of forest ecosystems in the British Virgin Islands	Nancy Woodfield Pascoe, Martin Hamilton, Natasha Harrigan, Keith Grant, Ronald Massicott, Denville Hodge, Colin Clubbe, Sara Barrios, Tom Heller, Jean Linsky, Marcella Corcoran (National Parks Trust of the Virgin Islands and Royal Botanic Gardens, Kew)
02			Boraginaceae *Varronia rupicola* – conserving a threatened species endemic to the Caribbean	Martin A. Hamilton, Omar Monsegur, Jose Sustache, Jeanine Velez, Nancy Woodfield Pascoe, Natasha Harrigan, Jean Linsky, Marcella Corcoran, Sara Barrios, Tom Heller, Colin Clubbe, Kelly Bradley and Michele Sanchez (Royal Botanic Gardens, Kew)
03			Caicos Pine Recovery Project – an overview	Michele Dani Sanchez[1], Paul Green[1], Sarah Barlow[1], Marcella Corcoran[1], Laura Martinez-Suz[1], Susana Baena[1], Justin Moat[1], Bryan N Manco[2], Judnel Blaise[2], Christopher Malumphy[3] and Martin A Hamilton[1] ([1] Royal Botanic Gardens Kew, [2] TCI Department of Environment and Maritime Affairs (DEMA), [3] Food and Environment Research Agency (FERA))
04			Species monitoring through a combination of predictive mapping and ground-truthing	Tony Gent, Thomas Starnes (Amphibian & Reptile Conservation) & Katie Medcalf (Environment Systems)
05			Akrotiri Marsh Restoration: a flagship wetland in the Cyprus SBAs funded by Darwin Plus	Melpo Apostolidou (BirdLife Cyprus)

Ref	Wall	Topic	Poster	Authors
06		Conservation and Sustainable Use of Terrestrial Resources	The Governor Laffan's Fern Recovery Project	Alison Copeland[1],Margaret From[2] & Kimberly Burch[3] ([1] Department of Conservation Services, Bermuda; [2] Rare plant research lab, Omaha's Henry Doorly Zoo, USA; [3] Department of Environmental Protection, Bermuda)
07			Rediscovery of the Bermuda Land Snail *Poecilozonites bermudensis*	Mark Outerbridge (Department of Conservation Services, Bermuda)
08			Attempts to achieve Management of protected Areas to Support Sustainable Economies - and discovering the realities of managing an EU funded project in a small Caribbean territory	Nancy Woodfield Pascoe (National Parks Trust of the Virgin Islands)
09			Golden, spikey and blushing – Conserving the invertebrate of the UKOTs	Vicky Kindemba (Buglife)
10		Conservation and Sustainable Use of Marine Resources	Using Seabirds to Inform Marine Spatial Planning in the BVI	Susan Zaluski (Jost Van Dykes Preservation Society)
11			A sustainable marine and fisheries management plan for the Pitcairn Islands	Terence P. Dawson[1], Robert Irving[2] and Heather Koldewey[3] ([1] School of the Environment, University of Dundee, DD1 4HN, UK. [2] Sea-Scope Marine Environmental Consultants, Dulverton, Somerset TA22 9PW, UK. [3] Zoological Society of London, Regent's Park, London, NW1 4RY, UK
12			Widening Bermuda's Shipping Channels: Challenging Pre-Conceptions through EIA	A.F. Glasspool*,J. A. Ward* and J. Burnham** (*Bermuda Environmental Consulting Ltd., **Works and Engineering, Government of Bermuda)
13		Future funding and BEST	Biodiversity and Ecosystem Services in the Overseas Territories (BEST III) - general overview	Maria Taylor (South Atlantic Environmental Research Institute (SAERI))

Ref	Wall	Topic	Poster	Authors
14			Biodiversity and Ecosystem Services in the Overseas Territories (BEST III) – specific focus on UKOTs	Maria Taylor (South Atlantic Environmental Research Institute (SAERI))
15			A dedicated funding scheme for Biodiversity and ecosystem services in European overseas territories : the BEST Initiative	Romain Renoux (Regional Best Caribbean Hub Coordinator, Regional Activity Centre for Specially Protected Areas and Wildlife in the Caribbean region (SPAW-RAC)/Réserve Naturelle de Saint-Martin)
16		General	The South Atlantic Environmental Research Institute (SAERI)	Maria Taylor (South Atlantic Environmental Research Institute (SAERI))
17			Campaigning against illegal bird trapping in Cyprus	Tassos Shialis (BirdLife Cyprus)
18	North		6 of UKOTCF's set of 18 posters (other 12 in meeting room)	UKOTCF
19			*Living Islands:* Environmental and Heritage Tourism, a sustainable economic tool for island communities?	Roland Gauvain (Manager, Alderney Wildlife Trust) & Victor Brownlees (CEO, States of Alderney)
20	West (Ocean)		The Department of Conservation Services: Who We Are & What We Do	Alison Copeland & Drew Pettit (Department of Conservation Services, Bermuda)
21		Renewable Energy and Waste-management	Environmental Impact Assessment and Tidal Power Filling the Legislative Gap: A case study from Alderney (Bailiwick of Guernsey)	Dr Melanie Broadhurst (Living Seas Officer, Alderney Wildlife Trust, with the kind support of Alderney Commission for Renewable Energy (ACRE) and the States of Alderney (SoA))
22		General	Human heritage and the natural environment: interactions and opportunities	Pat Reynolds (Heritage People CIC)
23			Falklands Conservation	Esther Bertram (Falklands Conservation)
24			Off the Grid Research Community	Maya Doolub (Guardian Integrators)
30		Display screen on short table	Incl. St Helena (Isabel Peters)	
31	South		Work of Gibraltar Dept of Environment	Sera Fromow

Ref	Wall	Topic	Poster	Authors
32			JNCC Overseas Territories Programme	Tara Pelembe
33			RSPB UK Overseas Territories Programme	Jonathan Hall

Appendix 2: List of Participants

Forename	Family Name	Post	Organisation	Email
Justin	Albert	Executive Director and Trustee	International National Trust Organisation (INTO)	justin.albert@nationaltrust.org.uk
Jessica	Alecio	PA to Minister for the Environment, Energy and Climate Change	HM Government of Gibraltar	
Melpo	Apostolidou	Project Coordinator	BirdLife Cyprus	melpo.apostolidou@birdlifecyprus.org.cy
Esme	Appleby		UKOTCF volunteer	
Dr Thomas	Appleby	Council Member	UKOTCF	Thomas.appleby@uwe.ac.uk
Kylie	Bamford	Marine Conservation Manager	UK Foreign & Commonwealth Office	Kylie.Bamford@fco.gov.uk
Sarah	Barnsley	Conservation Assistant; Joint Secretary Southern Oceans Working Group	UKOTCF	conservationx@ukotcf.org
Dr Keith	Bensusan	Council Member & Head of the Strait of Gibraltar Bird Observatory / Chairman Europe Territories Working Group	Gibraltar Ornithological & Natural History Society / UKOTCF	kbensusan@gonhs.org
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Dr David	Blockley	Marine Ecologist	South Atlantic Environmental Research Institute - SAERI	DBlockley@env.institute.ac.fk
Arlene	Brock	Former Ombudsman for Bermuda		arlenesbrock@gmail.com
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Jinna	Brownlees			
Alexander	Brownlees			
Natasha	Bull	Volunteer	Gibraltar Ornithological & Natural History Society	ncbull83@gmail.com
Steve	Butler	Head of Environmental Planning	Falkland Islands Government	sbutler@planning.gov.fk
Mrs Lian	Camilleri	PA to the Chief Executive	Gibraltar Department of the Environment	Lian.camilleri@gibraltar.gov.gi
Dr Phoebe	Carter		UKOTCF volunteer	Pklc1@hotmail.com

Forename	Family Name	Post	Organisation	Email
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Hugo	Chandler	Director	New Resource Partners	hugo@newresourcepartners.com
Robert	Chandler		Bermuda	rkchandler@ibl.bm
Liz	Charter	Principal Biodiversity Officer	Isle of Man Dept of Environment Food & Agriculture	Liz@iom.com
Dr Colin	Clubbe	Head, Conservation Science Department	Royal Botanic Gardens, Kew	c.clubbe@kew.org
Jenny	Collier-McCleary			
Alison	Copeland	Biodiversity Officer	Dept of Conservation Services, Government of Bermuda	aicopeland@gov.bm
Hon Dr John	Cortés	Minister of Health, Environment & Climate Change	HM Government of Gibraltar	
Michelle	Crick			
Clive	Crisp	Environment Officer / Dive Team Manager	Gibraltar Department of the Environment	Clive.crisp@gibraltar.gov.gi
Alasdair	Cross	Producer	BBC Radio4 Costing the Earth	
Prof Terry	Dawson	SAGES Chair in Global Environmental Change	University of Dundee, School of the Environment	t.p.dawson@dundee.ac.uk
Bruce	Dinwiddy	Council Member; Joint Chairman Wider Caribbean Working Group	UKOTCF	bruce.dinwiddy@zen.co.uk
Emma	Dinwiddy			
Andrew	Dobson	President	Bermuda Audubon Society	andrewdobs@gmail.com
Maya	Doolub	Consulting Director	Elms Consulting Ltd	maya.doolub@elmsconsulting.co.uk
Tim	Earl	Joint Secretary Southern Oceans Working Group	UKOTCF	tim.earl@iom.com
Gina	Ebanks-Petrie	Director	Cayman Islands Department of Environment	Gina.ebanks-petrie@gov.ky
Alan	Evans	Senior Scientist	National Oceanography Centre, Southampton	Alan.Evans@noc.ac.uk
Amandine	Eynaudi	Manager	Sanctuaire Agoa	amandine.eynaudi@aires-marines.fr

Forename	Family Name	Post	Organisation	Email
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Sarita	Francis	Director	Montserrat National Trust	mnatrust@candw.ms
Sera	Fromow	Assistant Environmental Officer	Gibraltar Department of the Environment	sera.fromow@gibraltar.gov.gi
Janine	Galliano	Assistant Environment Officer	Gibraltar Department of the Environment	Janine.galliano@gibraltar.gov.gi
Hon. Dr Joseph	Garcia	Deputy Chief Minister	HM Government of Gibraltar	
Roland	Gauvain	Trust Manager	Alderney Wildlife Trust	manager@alderneywildlife.org
Dr Fiona	Gell	Senior Marine Biodiversity Officer	Isle of Man Government	Fiona.gell@gov.im
Dr Tony	Gent	Chief Executive Officer	Amphibian & Reptile Conservation	tony.gent@arc-trust.org
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Appendix 3: Feedback – Conference Questionnaire Responses

We heard from you!

Participants were given the following questions to answer.

1. Please indicate, for any of the following sessions, any aspects that you found useful for your work (especially if you think that they will change how you approach aspects of it). Please indicate also any parts of the sessions that you thought were of little value to you. [The sessions were then listed.]

2. The choice of session topics was the result of a wide consultation around those working in conservation in the UKOTs and similar areas as to which topics they would find most useful. We tried to accommodate as many of these topics as possible (combining them under broader themes, where appropriate) but could not include them all. If another conference were organised, what topics would you like to see addressed (whether included this time or not)?

3. At the Jersey conference (2006), we experimented with parallel sessions. Feedback strongly suggested that delegates preferred not to have parallel sessions, which were consequently not a feature of subsequent conferences. What are your views on parallel sessions in a conference of this type?

4. Did you make any important links in previous conferences (if you attended any) that have aided your own work? If so how do you think they have helped?

5. Do you think that a conference of this nature is sufficiently useful that another might be organised somewhere and, if so, after how many years' interval? Or do you think that the resources would be better deployed in another way? (It cannot be guaranteed, of course, that funds not used for a conference would actually be available for other conservation uses.)

6. What would be the most helpful things that the UK Overseas Territories Conservation Forum could try to do to help its conservation partners (including governments), in the UK Overseas Territories and Crown Dependencies?

7. What would be the most helpful things that the UK Government could try to do to help environmental NGOs and other stakeholders (including governments) in the UK Overseas Territories and Crown Dependencies?

8. Has the conference given you ideas and inspiration in order to deal more effectively with challenges in your work? If so, what were they? What do you think that you will do differently as a result of attending this conference?

9. If you attended previous conferences in this series (Jersey, Cayman etc) what did you do differently as a result?

10. Any other comments

Below, we include all comments received; they have not been selected in any way. Apart from those answers which indicated that the respondent did not attend the session or a reply of not-applicable was given, they have not been edited or analysed and appear uncorrected, except that some wording which would have allowed attribution of the comments has been removed.

Part 1: Feedback on Sessions (Question 1)

Participants were asked to indicate, for each session, any aspects that they found useful for their work or those sessions which were of little value. The results of these are listed below (without names).

Posters and displays

COMMENTS:

- Very useful
- Very good, though relatively little use to me.
- All that I attended were very useful (I missed the MEA though)
- The posters were a good way to facilitate discussions between attendees.

- On a personal level they were very interesting and useful to help understand some of the priorities in the UKOTs. It was also interesting to learn more about the types of projects funded by other financing instruments such as Darwin Plus.
- Posters were informative, varied and well done. I found it difficult to concentrate on content during lunch and wine sessions (too many people distractions and interruptions) and difficult to find time outside of the conference to absorb them. Would have preferred a separate room or on the walls of the conference room
- Good and valuable addition to increase scope of the presentations and participation, due to time restrictions. It would be good to have had longer poster session to allow people to circulate and discuss posters with presenters. Display space for the posters need to be improved, as many posters were falling off the walls.
- Useful in terms of information sharing and 'setting the scene' to give participants an understanding of others work and projects
- Useful as always. Would Like to get information on printing costs to produce he various sizes A0, A1, A2 and A3. Also retractable banners 33.5 x 78 inches
- Interesting way to learn more about specific projects
- Great opportunity to speak in more detail to people. Useful networking
- Yes, useful. I'm sorry to have missed the talk-by-poster session.

Introduction to Gibraltar and conference initiation by field visit

COMMENTS:

- Good way to get group to mingle and interesting way to see Gibraltar (marine)
- Excellent
- I liked this, good idea
- Not directly relevant to my work but a fun activity and a good opportunity for informal networking.
- Excellent and thoroughly enjoyable! Obviously made better by the passion and involvement of Minister John Cortes
- Terrestrial tour- Very interesting and comprehensive tour with enthusiastic experts in the field. It provided a great introduction to Gibraltar's environment and natural beauty and environmental concerns. A big thanks to Liesl and Charlie!!!
- Very useful, giving the hosts an opportunity to inform on current situation.
- Did not participate in this exercise
- Not useful for my work but a very interesting part of the meeting. Should be done at all these conferences.
- Very good field trip – great to see some dolphins and to get chance to meet in more informal surroundings. I thought the length of the field trip was good.

Implementing Biodiversity Action Plans in the context of Environment Charters, Aichi Targets etc, and including environmental monitoring

COMMENTS:

- Important and well done
- This session provided a useful overview of the context for biodiversity and ecosystem conservation funding for the UKOTs and will be used to inform the BEST 2.0 programme.
- Overall good session and inspiring to see what can be accomplished. Session was more about challenges, constraints and successes of conservation management. Would have enjoyed looking at some tables reflecting how the various OTs (combined) had 'ticked off boxes'
- Quite long and 'dry' part on legislation, which probably would be better delivered in written format with discussion session. Enjoyed very much and found very interesting/useful the part of applied environmental monitoring. Maybe it could have included more talks on on-going projects in the UKOTs.
- Highlights the need to constantly assess progress against Aichi Targets
- Very interested in seeing greater commitment to the Charter by HMG and respective OT administrations. Perhaps a briefing exercise of all the political directorate, FCO and DFID should be organized. (not just environment ministers, but also policy, infrastructure and finance ministers)
- Got some great ideas from this session on how to do some things I'm doing differently.
- Good session I had little knowledge about the charters to start with.

Conservation and Sustainable Use of Terrestrial Resources

COMMENTS:

- A good and effective session, well handled
- This session delivered a good overview of the work that is currently going on in the UK OTs and identified some of the gaps that could be filled by BEST 2.0. The insights provided into the complexity of certain EU funding for OTs was useful for informing the BEST 2.0 approach.
- Loved this session. Perhaps not because of the title but rather the content of the presentations. Wow stuff that inspired me to come home and try some new approaches. A future session dedicated to economic evaluations would be very good to have. Politicians speak more in dollar signs than environment.
- Very interesting/useful with good examples of project experiences and conservation legislation.
- Very good presentations. Would like to see more partnerships to assist with OTs that have capacity issues to ensure Biodiversity is not placed at a disadvantage.
- Although I deal primarily with marine issues, I found this very interesting.
- Interesting session

Conservation and Sustainable Use of Marine Resources

COMMENTS:

- Great way to learn of different ways in which the territories are managing their marine ecosystems
- A good and effective session, well handled
- Provided a good overview of the work that is currently going on in the UK OTs in relation to the marine environment and identified some of the gaps are that could be filled by BEST 2.0.
- Powerful session with many lessons. Found the presentations either really good or not really good at all. Discussion was excellent.
- Pew's dramatic video was sensationalist without much content or direction. I was looking forward to news on the new technology for satellite monitoring of illegal fishers on the open ocean. Can we get some presentations or a session on this in the future? By the next conference there should be some good data and examples out there that would result in huge savings and enforcement success for OTs
- Good session. Would advocate for a briefing of legal in-country entities in order to put the legislative instruments in place to secure the OTs territorial waters.
- Another session that has given me ideas on new approaches to projects I am pursuing.
- This was an interesting session. The OTs rely very heavily on the marine environment and it is much less well studied, mapped and monitored, so I think it is very important.

Renewable Energy

COMMENTS:

- Maya Doolub was great! Keep this topic (and climate change) on UKOTCF grid
- Interesting, if not my area of work
- Not directly relevant for my work but a very interesting session and one which I think has a lot of value.
- While a most important topic to be discussing I did not find the presentations particularly useful for application. Felt like this might be a teaser for something better to come. We all agreed that each territory will have its own unique parameters and solutions but I would like to see examples of how experts actually work with the OTs to determine best course of action. Also would like to see inclusion of more examples of carbon offset programme or mindset changes.
- Interesting examples of available resources, but presenters not experts in the field so discussions were quite vague and not too effective.
- How about a collaborative effort to source renewables at a reduced price as opposed to each country doing their own thing?
- Interesting but not in my remit.
- A really important technology, one thing the discussion did not embrace was how the OTs and Crown Dependencies might need to find ways to work around existing political situations where one company controls the power supply as a monopoly. If our recommendations help governments make the case for renewables then this will surely help.
- Not really my field, but has some wider applications, that I've noted down

Future funding and BEST

COMMENTS:

- A very useful session as really everything (annoyingly) focuses on funding and money
- Regret I missed this. Darwin very important, but does not meet needs of all OTs, but only small projects- which are important.
- Good discussion
- Receiving feedback from the delegates and understanding the issues of concern were highly relevant and will be used to inform the BEST 2.0 Programme.
- Sorry I find the funding sessions so frustrating and almost depressing. Can we just find a sugar daddy or pot of gold and offer some good news next time.
- Very applicable and useful.
- Not entirely relevant to Crown Dependencies; more applicable to OTs.
- Good discussions. Would also suggest that some partner organisations assist with capacity and project management so that the weaker (hopeful) recipients can take full advantage of this funding mechanism.
- Very helpful
- Very useful session, from reading the guidance I had got a completely different picture of what BEST 2 would do. I am however very disappointed that they are going back to protecting important areas instead of moving forward to embracing the ecosystem approach and working out the importance everywhere.
- Very useful!

Using informed decision making to manage development sustainably (including physical planning, environmental impact assessments etc)

COMMENTS:

- Very good
- Not directly relevant to my work but a very informative session and something that is clearly very relevant for the majority of OTs.
- Again found some presentations really good and others not so relevant. Discussion was good. Topic is so important. Would like to see more focus on the importance rather than examples of process without the constraints and benefits against outcomes described.
- Good examples of on-going work in the UKOTs; very useful and informative!
- Would require assistance to build capacity for GIS. Would also need more training to build capacity for EIA monitoring and assessment. What training opportunities are available?
- Very helpful. Helped us identify a strategy to deal with a specific issue we are facing today.
- Great session, there is some excellent ground breaking work, but also some major challenges
- Very useful!

Environmental Education and Awareness

COMMENTS:

- Superbly planned and presented
- Not directly relevant but provided some good practice that can be promoted through the projects funded by BEST 2.0.
- Always an enjoyable topic. Presentations were varied and interesting. Discussion useful and very well executed. Well Done!
- Talks gave excellent example of on-going work. Maybe it could include presenters from Education Department or teachers next time to enhance input of on-the-ground needs and feedback.
- Everyone seems to have a handle on this area. Financial assistance would boost deliverables – Posters, brochures, booklets, professionally done radio productions, web design etc.
- Very helpful- some great resources identified to help with a new educational program we are planning.
- Interesting session, I think the thing that stood out for me was the importance of engaging people with hands on experiences with the environment. I think within the current health and safely worried legislative cultural environment we need to be careful not to give people the idea the environment is a too dangerous place to be and interact with.
- Very useful!

MEA sign-up clinic

COMMENTS:

- OK – Would like to see more on techniques to inform and influence those in a position to sign on.
- Good workshop. Unfortunately some smaller territories are servicing way too many MEAs with not additional capacity. I recall there was an attempt to design a template that would satisfactorily allow for multiple MEA

reporting. I hope this idea could be revamped.

Environmental Impact Assessment workshop

COMMENTS:

- Wish I had signed up. I had assumed other relevant delegates from my country were going to be there.
- Good Workshop. Would like to see cheat sheets developed to assist non trained persons in scoping exercises and to identify flaws in planning proposals etc. that have not taken the environment into account.
- Very useful
- Did not attend, but wish I had! I hadn't realised the scope of the EIAs: some quite worrying implications for human heritage, particularly where they are undertaken by international/house teams, which may appreciate the need to involve local ecologists, but not local heritage managers/tradition bearers.

Regional Working Group meetings

COMMENTS:

- This I thought was one of the strongest sessions, as it brought the working groups together, which in many cases had similar queries and suggestions
- WCWF very useful, including on how other WC and UKOTCF could improve its work
- Interesting Caribbean one and very well attended and well chaired
- Relevant and worthwhile. Delegates or country reps should have been identified/ notified prior to meeting that a brief was expected. Much was missed because of lack of preparation.
- This was the first time I have been involved in a Regional Meeting and would like to become more involved in the future (perhaps standing in when [others aren't] able to attend). The opportunity to streamline these meetings was apparent so that attention could be given to pre-agreed set topics.
- Very good meeting. Would be useful to have this sub group meet annually.
- Only attended WCWG- but it was a very good discussion about how the group can better function.
- I went to the Caribbean working group session, which was interesting and useful.
- I am happy to offer any of the working group ad hoc advice and help with remote sensing and planning issues.

Other elements (e.g. Opening, Conclusions session, informal meetings, closing dinner etc)

COMMENTS:

- Both opening and closing dinners were outstanding, thought the informal approach to the first night worked perfectly and then the closing dinner was the perfect way to finish off the week.
- Excellent. Very close engagement of host minister was brilliant and very inspiring.
- No specific comments from the point of view
- Opening was fabulous…a great ice breaker. Opportunity to network and connect with people is always the best part of a conference. Closing dinner will be hard for any other OT to match. Well Done Gibraltar.
- All worked very well and kept me informed and enthused. Dinner was fabulous and speakers were inspirational.
- Very good time keeping and over all planning.
- The conference opening session and particularly the conference dinner were very good; having the Ministers there was brilliant. The food was excellent and the cave very spectacular, really a night to remember. I think it's the best conference dinner I have ever attended!
- Did not attend opening. Closing dinner was very good in all aspect (excellent for networking).

Part 2: Additional Feedback (Questions 2-10)

Choice of Topics

COMMENTS:

- Maybe more on future funding
- A session on climate change and renewables (including waste management) combined
- I liked the idea of having a culture and heritage session- much to explore that can overlap with conservation and education
- A more comprehensive session on funding and the issues faced could be useful including best practice for managing projects e.g. preparation of proposals, project management structure, reporting arrangements etc.

- Implementing a sustainable and appropriate alternate energy plan for island territories – how to find the right solutions and consultants for your criteria
- Economic evaluations – a toolkit for success – and how to use them to influence change
- Finding interns and PhD students – where is the communication network – we have the need, they have the desire.
- Influencing policy makers through the voices of our children
- I think that the topics were interesting and covered a wide range of subjects, but there was some overlap. Possibly wider topics could be an option for avoiding overlapping and repeated discussions.
- In line with Aichi Targets. Especially considering the next meeting may be in 2018 with only two years left to deliver on most Targets.
- The thematic areas presented were good. One area that may be useful is getting groups together to jointly work on project proposals. Having persons from Darwin, BEST and other funding agencies present while the proposals are being developed, will raise the funders appreciation of the OT needs.
- More on funding options, e.g. public/private funded projects. Add ecotourism.
- Organisational stability and fundraising
- I would be happy to run a GIS workshop in the free QGIS software or a clinic session at another conference if people would find this useful [Katie Medcalf Environment Systems].
- Can't really comment – happy to see more human heritage, of course, if wanted.

Parallel Sessions

COMMENTS:

- I thought the sessions in this conference were pretty much perfect- maybe one or two days having shorter sessions, to give time to have more of break or see more of the area
- All sessions should continue to be plenary
- I liked the 'everyone can hear everyone' approach, but I am learning so it suits me. I guess folks can always duck out if they wish. Plenary sessions are always good for sessions with 1 or 2 folks from the territory there
- Given the high relevance of the majority of the sessions to most of the OTs I think that parallel sessions would result in delegates missing out on relevant talks. I also think that having all of the delegates in the room for the discussions sessions is valuable and provides a range of different perspectives; having parallel sessions would dilute this.
- No parallel sessions. It's exhausting for the brain but don't want to miss anything
- I do prefer parallel sessions than very long days.
- If parallel sessions were to be considered then perhaps these could be terrestrial and marine focused as most people tend to specialise in either one or the other?
- It depends on the diversity of the topics and the interest by participants. Because of the size of some departments the terrestrial person may also be the marine person so a parallel session may put them at a disadvantage.
- My initial though before the conference was that there should be parallel sessions but now I won't endorse that plan. I learned as much if not more from sessions I thought I could have skipped.
- I appreciated the opportunity to attend all sessions
- I think a single stream conference is preferable. I really liked the short presentation and then the longer time for discussion. It allowed for good concentration.
- I found it refreshing that the group was together all the time (while of course people absented themselves from some sessions). I think that people, given the choice, would have tended to 'their' topics, which meant they may have missed what other topics had to say. In a realm where most people wear many hats (and the hats they don't wear, they know who wears them, and often share an office with them) I think it is particularly important that people don't have to choose.

Links made since last Conference?

COMMENTS:

- Very valuable for chairman of WCWG to meet Caribbean- based (and non- London based) members of the groups
- This was my 1st
- n/a – this was the first conference that I have attended.
- Certainly made new contacts at each conference that led to attendance in our local capacity training course

- Have continued to correspond with experts in the field on relevant matters that have helped local understanding of issues (would never have met those people or be comfortable contacting them without the UKOTCF)
- All the links have been useful over the span of the conferences. I am sure they assisted with our successful bids for economic valuation, invasive species control and EIA planning. Having the Minister available was also encouraging as he can report back to cabinet as to how valuable this "environmental" relationship can be.
- First time attendee.
- Yes I'll let you know at the next conference about most of them but meeting the DEFRA rep has already been useful.

Should there be a future Conference?

COMMENTS:

- I believe that 3 years is the right amount of time, as it gives time for change and things to happen between conferences
- Yes, within not more than 3 years, possibly 1-2 years with smaller priority thematic conferences/ meetings in the future.
- 3 year interval sounds about right
- Yes – I think that the conference is very valuable forum for sharing of experience and lessons learnt and for facilitating networking. I think that holding the conference annually may be too frequent but every 2-3 years would certainly be valuable.
- Hugely valuable – never give it up – every two years would be better $$$$$
- It was my first time at a UKOTCF conference. I found it a great way to network and learn about on-going projects in the UKOTs, mainly as many of the UKOTs are so far apart and there are not many opportunities to have so many participants from different territories in one place at a time. It could be good to have the conferences more often, maybe every two years…, so the schedule is not so packed and more people have the chance to present. Besides most projects are quite short term, so it could be beneficial to have more frequent conferences to exchange learned experiences.
- This was the first conference that I have attended (popped in and out of the Jersey 2006 conference). I found the whole process highly valuable and consider every 3 years to be perfect.
- A 3 -5 year interval would be a good time span between conferences. This will give the OT's ample time to report on short cycle projects. Specific focus groups or regional partners could aim for annual or a meeting every two years between main conferences.
- I think every 2-3 years is appropriate timing.
- I think this conference was highly useful and would like to see them every 2-3 years.
- Yes – very useful I think about every three years is ideal. If it's held too frequently then the attendance becomes spread out and/or it becomes very academic with research papers rather than action on the ground.
- Not knowing the other demands on the resources, it's difficult to say.

What should UKOTCF do to help UKOTs/CDs?

COMMENTS:

- Provide constant support
- Be the link between Territories or Crown Dependencies
- Organise more fantastic conferences…
- Building on Gibraltar, work to strengthen partnership between them all; help OTs prepare for JMC and other contact with the UKG; and seek to reengage constructively and not to confront the UKG
- Probably need more experience to answer without bias
- Source money, build capacity and influence policy
- Having an active network system for open discussions and support among UKOTs and provide some source of resources/references database
- To provide information which can then be forwarded to key high level Civil Servants and Politicians (at OT & CD level)
- 1. Assist with liaising between OTs and the UK Administration
  2. Endorse OTs efforts (put in a good word) with funders
  3. Assist with capacity building or technical assistance for OTs
  4. Assist with harmonising (as best as possible) the OTs aspirations to honour MEAs, the Charter etc.
- Continue to foster cross-territory communications and coordinate cross-territory projects.

- Develop and sustain good relationships with central UK Government funders in the UK for members of the UKOTCF to connect with needed.
- Again, not really my field.

What should HMG do to help UKOTs/CDs?

COMMENTS:

- More nationwide recognition of the OTs and CDs, how important they are and the conservation efforts being implemented there and what is needed in the future
- Provide more support
- To reengage on all levels and fulfil charter commitments; including capacity building, MEAs, promoting inter-OTs cooperation and funding.
- Probably need more experience to answer without bias
- It is clear that there is a need for additional funding and technical support by the vast majority of OTs and CDs.
- Source money, build capacity and influence policy
- Primarily funding conservation work; which is very restricted for most of the UKOTs and essential to carry on on-the-ground research and activities. Projects of longer duration would be beneficial, as most funding is very short term and some projects lack continuity. Capacity building and outreach are essential tools for local environmental awareness and conservation and should be promoted.
- Fund a capacity assessment exercise for each OT. Earmark (ring fence) funds to correct weaknesses.
- Continue to provide grant monies
- Funding
- Darwin Plus
- Begin dialogues between DCMS, its funded bodies, and the UKOT, with the aims of ensuring that UKOT are properly consulted (e.g. on treaties), advised, and the advice given by DCMS, etc., to others in the UK (e.g. to the Heritage Lottery Fund) is improved.

What ideas has the Conference given you?

COMMENTS:

- I'm soon to stand down from the council. But challenges include stronger PR, reengagement with UKG, exploring new partnerships in the UK especially with universities and building on enhancing UKOTCF profile to review and renew ways of putting the UKOTCF on a properly sustainable financial pathway
- It has been a privilege to attend such a conference at the very very beginning of my career in the OT. Also, gaining an understanding of the expertise and key players, the needs, the challenges and energy very inspiring extremely helpful.
- The feedback from the delegates will certainly help to ensure that the BEST 2.0 Programme is adapted to the capacity and capabilities of the OTs, within the confines of what is acceptable to the European Commission
- Share my inspiration with the Minister of Environment and the press.
- I have a list but not with me now
- Yes, it was very inspiring and enriching experience. I have learned about some good ideas to promote community engagement and outreach that can be used in my current project. New contacts and collaborations have also arisen as a result of participation in the conference.
- Yes fully inspirational!!
- I will target projects to Aichi Targets and will work closer with CD colleagues
- Be more proactive
- Yes new ways to use citizen science new data sources to help plan and describe project work.
- Greater focus on MEAs and how we can deliver against targets therein.
- The BEST 2 bids we were planning will have to be re-worked to take into account that only specific areas are of interest. This is very hard for marine work, which this conference highlighted as extremely important.
- It has reinforced my belief that there is a need for Heritage People CIC – or something like it!

If you attended a previous conference how did it help?

Any other comments

COMMENTS:

- Better general performance (I hope), from much improved knowledge of biodiversity issues and from contacts made
- Attacked everything with a new energy
- Well done everybody, and thank you! I hope to keep in touch with UKOTCF and its activities

- Thanks to the whole team
- I would just like to thank the UKOTCF for such an informative and well organised conference and the Government of Gibraltar for supporting it.
- JUST FABULOUS AND THANK YOU
- Thank you very much to the organising and support teams for delivering such a successful and interesting conference. Many thanks to Keith Bensusan and the Gibraltar BG staff for an excellent tour of the botanic garden at the end of the conference, it was much appreciated!
- I send BIG thanks to all those involved in the organisational and behind the scenes work.
- 7am-7pm is a very long day especially for those working on a 5-6 hour time difference.
- Thank you for all your hard work!
- It was good to see so many persons that I have seen for years.
- Thank you for inviting me!
- I am about a month late in saying this, but you all did a great job organising such a diverse meeting. Well done!
- Firstly, a huge thank you to you, as well as all the other Forum members who worked so hard to pull off a fabulous conference. It was hugely motivating. We forget sometimes just how isolated we are in many ways in the OTs, and how important it is to be able to bounce around ideas and glean from the experiences of others.
- Thank you and all the team for organizing such a beautiful and productive conference. I am certain that the effects would be far reaching.
- Let me first thank you, for the hard work that you put into what was a very successful conference. Thank you for giving me the opportunity to attend. We hope that the Forum will be recognized for the immense work and the dedication of the Council, staff and volunteers in exposing the value of the UKOTs to world biodiversity.
- Thank you once again for a really useful, inspiring conference. I really learnt a lot and made some really useful contacts and it was a great opportunity to strengthen links with other islands and organisations.
- I just wanted to take a minute (as I sit here in Heathrow) to extend my hearty thanks to all of you for putting on a very useful meeting for the UKOTS (& CDs!).
- I know these types of meetings are a load of work - and I can only imagine what you have gone through in the last several years and then the follow up in the last few months to make it happen.
- From [our] perspective, these types of events are so valuable in exchanging ideas and meeting new contacts.
- It has been just lovely working with you over the past few months and this week.
- Your commitment to the Forum shows through not only in your professional approach to execution of this week's event, but in your ability also to reach out to all attending as a colleague and friend. You've been truly wonderful- thank you
- I had not met many of those I have worked with for several years. It was great to have the opportunity to meet them face-to-face. The conference has definitely helped with working relationships.
- Thank you for organising such a great conference. I found it highly informative and interesting, and it was very inspiring to meet so many people doing such great work in the UK OTs and CDs.
- Many thanks for a superbly organised and productive conference.
- A huge thank you from [our] contingent. We are en route [back] but I wanted to tell you how grateful I am for the experience of this last week. I go back inspired and with a host of new friends. I look forward to working with you and to deepening our bonds.
- I'd just like to say thank you for the opportunity! It was such an incredible few days, not only the experience, but meeting all the different people and learning about the OTs and CDs and the conservation practises!
- Thank you and all the team for organizing such a beautiful and productive conference. I am certain that the effects would be far reaching.
- It was a great conference and I was pleased to be part of it.
- It was really great experience to be involved in something so wide-reaching as the conference, and as well as the work I definitely had a lot of fun, so thanks for letting us help!
- I did very much enjoy the conference and working with everyone. Thank you for doing all the organising in the run up to and during the conference, everyone was saying how smoothly it went!

- The conference was amazing. So well organised and so informative. Honestly one of the best I have been to.
- Thank you very much for an extremely useful and enjoyable conference.
- I very much enjoyed the event and thought that the planning and effort put into it really showed through in the quality and the ease of running and thank you very much for all your hard work.
- I appreciated being able to speak and participate.
- Thank you once again for a really useful, inspiring conference. I really learnt a lot and made some really useful contacts and it was a great opportunity to strengthen links with other islands and organisations.
- Thank you all for your efforts in making Gibraltar such a success. It was a superb conference, great to meet old and new friends and get me fired up again in my efforts in Bermuda. Attached is a photo of most of the group from the wider Caribbean.
- I just wanted to thank you for letting me be a part of the conference.
- I cannot thank you enough for the support provided to attend yet another FABULOUS UKOTCF conference. You all work so hard and do such a wonderful job.
- Congratulations on a good event – was lovely to meet up with folk, and to get a good summary of a lot of work happening across the OTs.
- Thank you very much to you all, the UKOTCF and GONHS support teams for delivering such an interesting and successful conference. I thoroughly enjoyed the opportunity to network and learn more about on-going conservation work in the UKOTs.
- Also, thank you all for an inspirational conference; I will remain enthused for a long time to come.

Appendix 4: Recommendations sorted by Type of Addressee

Conference recommendations to Territory Governments

The full set of conference conclusions and recommendations are at: http://www.ukotcf.org/pdf/2015conf/SustainingPartnerships2015Concl&Rec.pdf . Here are reproduced those directed to Territory Governments. For more context, see the full document. Because this document is an extract of that, the numbering here includes gaps.

It is important to note that not all conclusions and recommendations will apply to every territory. They all differ and any kind of "one-size-fits-all" approach would be unlikely to be successful.

The conclusions and recommendations have been grouped into sections, some fairly closely related to the conference sessions, but others cutting across several. The categories of organisations to which recommendations are directed are indicated in bold italics in the text or after it. The session(s) in which the conclusion or recommendation arose is indicated by the session number(s), as indicated in the programme.

C. Environmental Education and Awareness

C1. Requirements of CBD and other MEAs, and influencing decision makers

In accordance with the UK Environmental Charters Article no. 8 and CBD Article 13, the following recommendations are being put forward.

005. Sustainable Development Plans (or their equivalents) should include environmental education and public awareness. (To: UKOT/CD Governments) (13)

006. Government Ministers and senior officials throughout the UKOTs/CDs should receive regular briefings from ecologists with local knowledge about issues relating to the Environment Charters and their commitments, the importance of their local biodiversity, and specifically threats to local ecosystems, international and globally important species and populations (e.g. endemic species). (To: UKOT/CD Governments, including Departments of Environment) (13)

007. Government Departments and agencies with responsibility for the environment should be adequately funded by territory governments. (To: UKOT/CD Governments) (13)

008. Actions of NGOs which deliver important conservation work should be supported by governments. Partnerships, either informal or via Memoranda of Understanding or Co-operation are effective, both for cash-strapped NGOs and Government Environment Departments. (To: UKOT/CD Governments and NGOs) (13)

009. UKOT/CD Governments need to arrange for providing training for teachers and developing teachers' education materials (e.g. resource guides on various topics including biodiversity conservation, sustainable use, climate change and renewable energy). (13)

C2. Resources and funding opportunities

014. Territory Governments should set up and manage, jointly with local NGOs, a dedicated Conservation Fund (e.g. through tourist landing fees) to which NGOs can apply. (To: UKOT/CD Governments) (13)

C3. Schools Curricula

019. Attempts should be made to integrate Environmental Education topics into the National Curricula at all levels. Environmental Education materials need to be curriculum-linked, and included in the assessment process. Consider introducing a certificate of achievement which recognises student achievements and can assist with job applications. (To: UKOT/CD Government Departments of Education and of Environment, NGOs and project designers

and managers) (13)

020. Investigate linking a locally assessed environmental certificate of achievement to more widely recognised qualifications. (To: UKOT/CD Government Departments of Education and examination boards) (13)

021. Classroom-based activities need to be supported by hands-on involvement and investigation, including outdoor classrooms and field-trips. (To: UKOT/CD Government Departments of Education and of the Environment, project designers and managers, NGOs) (13)

022. There should be clear methods of communication between education departments, and those people producing environmental education materials for schools and colleges. Local educators and teachers should be involved in the development of environmental education materials. (To: UKOT/CD Government Departments of Education and of the Environment, project designers and managers, NGOs) (13)

023. It is important that environmental education activities are included in schools' programmes from the start. (To: UKOT/CD Government Departments of Education) (13)

C4. Using broadcast media, social networking and multi-media apps (games)

026. Opportunities for using TV, radio, social networking and the development of Apps should be considered when planning future environmental education and public awareness programmes. (To: NGOs, project designers and managers, UKOT/CD Government departments) (13)

027. Share what is going on in UKOTs/CDs using the Forum Website or Facebook page and other media (as stated in UK's Commitment 6 in the Environment Charter). (To: NGOs, project designers and managers, UKOT/CD Government departments) (13)

C5. Other public awareness raising actions (including field trips, outdoor classrooms, exhibitions and open days)

034. Identify opportunities for open days, outdoor classrooms and activities, and timetable these into the work programme. Link where possible with internationally designated days, such as biodiversity day. (To: NGOs, UKOT/CD Government Departments of Environment and of Education) (13)

037. Communicate regularly with stakeholders. (To: NGOs, UKOT/CD Government Departments of Environment and Education, Project designers and managers, Governors' Offices) (13)

D. Renewable Energy

Policy

038. Political will needs to be bolstered and demonstrated by commitment to address need for policy change, incentives. (10)

039. For those territories which have committed to energy transition, ensuring the right legislative framework is in place is key; knowledge sharing and support is critical. (10)

Planning

040. When setting the vision for energy transition, UKOTs/CDs should identify and involve partners early on in the process and create a vision in which each person living in a territory can clearly see and define their role. (10)

041. Vision setting for energy transition should be followed by assessment of renewable opportunities, including comparing current energy system with the vision, developing a roadmap for renewable penetration and detailed integrated resource planning-technical assistance required. (10)

042. There is a need to focus on the long-term energy transition process whilst identifying also the quick win opportunities, e.g. LED street lighting, energy efficiency in government buildings, solar on schools, hospital retrofits. (10)

People

043. UKOTs may need:

- Technical assistance to support fielding and evaluation of technology proposals;

- Expertise on regulatory framework reform;
- Assistance on commercial services (understanding the go-to market strategy for projects; developing technical specifications, contracts etc). (10)

044. UKOTs should pool resources on a regional basis, if appropriate also with non-UKOTs, e.g. Caribbean to apply for support required. (10)

Pathways

045. UKOT Ministers are invited to discuss the support provided by France for its overseas territories to explore whether similar (technical) support can be provided for UKOTs/CDs. (10)

046. It would be wise to focus on sustainable growth of all sectors – many territories have 5* star hotels, but far from 5* hospitals and schools. (10)

Partnerships

047. Establishing Working Group across UKOTs/CDs (and possibly on regional basis) might aid sharing knowledge/ practice, planning and resource requirements, e.g. similar to working groups established for Eastern Caribbean States. (10)

048. There is a need to establish (stronger) relationships with NGOs/research institutions such as IRENA to benefit from current initiatives, knowledge. (10)

049. Support is needed to assist governments in working with their utilities to plan future energy systems and identify clearly the value proposition for utilities. (10)

050. It would be wise to engage the private sector within territory to drive a more sustainable framework for industry with local operating costs reduced. (10)

E. International agreements

085. The conference offered encouragement and support to all territories considering having further MEAs extended to them. (4)

087. It is not always easy to get the word out on progress in monitoring the implementation of the Charters and CBD, if, for example, (1) the progress is published in scientific journals to which not all other UKOT stake-holders subscribe and (2) because it is very easy for there to be impediments to progress in those UKOTs where a change in staff of one person can mean the end of a biodiversity programme actually functioning (and thus there being nothing more to report or monitor). The first point is often satisfied through the Working Groups and Forum News, but perhaps this can be expanded. As for the second point, again a more programme-based, rather than project-based, method may result in a better way to report and monitor progress. (Part to UKOTCF; part to UKOT Governments and programme & project managers) (4)

088. Everyone in the Territories (UKOT Governments, NGOs) is encouraged to identify how their existing and proposed activities meet CBD's Aichi targets (including via UKOTCF's current exercise). This will
   i) assist in the completion of National Reports for those territories that have had the CBD extended and assist in preparing encouraging evidence for those territories still considering extension,
   ii) support and demonstrate relevance in funding applications, and
   iii) identify gaps in delivery. (4)

F. Using informed decision making to manage development sustainably, including Environmental Impact Assessments

F1. Legal Status of Environmental Impact Assessments, and of Environment Charters

092. Fulfil UK's Environment Charter Commitment 7, under which the UK Government must give technical assistance to enable (amongst other things) the UKOT governments to (a) establish best practice EIA protocols and (b) assess EIAs submitted by proposed developers. (12)

093. Fulfil UKOTs' Environment Charter Commitments 4 and 11, under which UKOT governments must require EIA for all major development proposals and for

those proposals likely to have significant environmental impact. (12)

094. Fulfil UKOTs' Environment Charter Commitment 5, under which UKOT governments must require consultation with stakeholders as a component of EIAs (and other plans and developments). It would be worth thinking also about the concept of FPIC (free, prior and informed consent). (12)

100. UKOT Ministers, while recognising the commitments of their own governments under the Environment Charters (agreed with the UK Government in 2001), should continue to press the UK Government to fulfil its commitments under the Charters, including in relation to:

- Technical assistance, especially regarding technical and scientific issues like renewable energy, fulfilling commitments numbers 1, 5 and especially 7;
- Use UK, regional and local expertise to give advice and improve knowledge of technical and scientific issues. This includes regular consultation with interested non-governmental organisations and networks.
- Assistance with updating environmental legislation, fulfilling commitments 2 and 5
- A ring-fenced fund to support 'projects of lasting benefit to the Territories' environments' (commitment 8). (This is worth a note. When the Charters were written in 1999, environmental projects in the UKOTs were funded by the FCO Environment Fund for the Overseas Territories, so the treaty referred to that fund. By the time we met in Bermuda in 2003 that fund had been cancelled, to universal consternation. So, as a result of the Forum conference in 2003 in Bermuda, the Overseas Territories Environment Programme was started, with funds from FCO and DFID. This fund provided an accessible, ring-fenced fund for projects in the UKOTs, was managed initially through an open process through in which experienced NGOs and local Governors' offices played an important role, involved a level of bureaucracy that was suited to the UKOTs and provided funding for small-scale projects which were manageable by individual UKOTs. This was cancelled unilaterally by FCO in 2011 and replaced, after a year without a fund, by Darwin Plus (Defra/FCO/DFID), whose decision-making process is less open.)
- Facilitating Territories' inclusion and compliance with Multilateral Environmental Agreements (commitments (3 and 4).
- Promoting cooperation and sharing of experience/expertise among the Territories (including by helping to fund regular UKOTCF conferences like that hosted by Gibraltar in July 2015) (commitment 6: to 'Promote better cooperation and the sharing of experience between and among the Overseas Territories and with other states and communities which face similar environmental problems.') This is why UK Government should continue to fund conferences of this sort. (12)

101. UKOT governments should implement their commitment to ensure that future development plans must provide for mandatory EIA as required by the Environment Charters and general international law. In accordance with Environment Charter Commitment 2, the UK government must assist the UKOTs to review and update environmental legislation to be consistent with general international law. (12)

102. With respect to the particular challenges of Small Island Developing States (SIDS), the UK and UKOT governments should draw upon, second or otherwise leverage the technical and broad SIDS expertise of the Commonwealth Secretariat, the UNEP and other multi-lateral institutions in accordance with Environment Charter Commitments 4, 5, 6 and 7. (12)

F2. Requiring EIAs and standards of best practice

106. UKOT governments should require EIAs for all (including both governmental and private) major development proposals and for those proposals likely to have significant environmental impact, and make them transparent and open (with copies readily

available on-line) to local persons and outside experts to comment on, and allow reasonable time for this. (12)

107. UKOT governments should make provision for open and independent scrutiny and review, and should write into the terms of reference for EIA, that anyone can call for a review of EIA, as established by the Privy Council in Belize Alliance of Conservation NGOs v. Department of the Environment (2004) UK PC 4. If contractors know that their work could be open to scutiny by other consultants, this could have an important impact. Mindful that participation in decision making is embedded in the Environment Charter commitments, this should be happening anyway. During the sessions there were some excellent examples of the use of public participation to aid decision-making – but also some examples of disastrous decision making when the public were not consulted. So the Conference recommended that informed public participation by interested and affected parties be central to decision making in the territories. (12)

108. UKOT governments should put in place appropriate and effective legislation requiring EIAs that meet accepted best practice standards and make them available to guide practitioners undertaking EIAs and regulators who need to review them and act on their findings when determining development consent. (12)

109. UKOT governments develop follow-up and enforcement mechanisms and allocate the resources needed. (12)

110. UKOT governments should approach this strategically, so that environmental planning, monitoring and mitigation measures etc are in place well in advance of development proposals. (In this context, it would be useful to make a distinction between EIAs and SEAs (strategic environmental assessments) and what the role of each might be.) (12)

111. UKOT governments should ensure that the EIA process is embedded in, and forms part of, the planning/ development consent process. This ensures that it is considered as part of the decision-making process, in accordance with the Privy Council decision in Save Guana Cay Reef Association v. R (2009) UK PC 44. Any recommendations/ mitigation measures from the EIA can then form planning conditions. (Here and elsewhere, there are references or implications indicating EIAs considering socio-economic impacts. It might be helpful to think about what is the expected scope of an EIA and whether there are other complementary assessments that could pick up socio-economic issues.) (12)

112. To enable this, UKOT Governments should have:

- appropriate supporting policy and legislation in place regarding required outcomes for ecosystems, habitats and species
- State of the environment reporting or strategic baseline data in place so developers, planners and EIA practitioners are aware of issues they will have to address to comply with this.
- Assistance and capacity-building from (or resourced by) UK Government in line with Charter commitments to develop strategic sustainable development plans and devise effective impact assessment processes commensurate with significant threats and pressures. (12)

113. UKOTCF should investigate putting together a list of all the regulations and derive a set of best practices that we could all ultimately aspire to. It would be good to have statements from across the territories to see what issues come up in common, and to identify where the most serious revision of their EIA guidelines are needed so that this can act as an effective tool in terms of environmental impacts and better planning. (12)

F3. Importance of appropriate and effective legislation, and that EIAs are supported by policy and appropriate established standards

114. UKOT governments should put in place appropriate and effective legislation requiring EIAs that meet best practice standards, and proper enforcement mechanisms, and allocate the resources needed to do this. Such legislation should make provision for the role of NGOs in the assessment process. It would be worth considering "fit-for-purpose" approaches, that are robust, but not necessarily so

resource-hungry that the system is set up to fail due to lack of resources. (12)

115. UKOT governments should have clear policy on biodiversity and ecosystem services in place, to underpin standards and requirements. (12)
116. UKOT governments should have appropriate supporting legislation in place (e.g. protection of species and habitats) in order to create enforcement mechanisms during the development process. (12)
117. UKOT governments should ensure good baseline data exists, so that developers, planners and EIA practitioners are aware of what is present on site and the species/ habitat issues they will have to address, as well as wider environmental effects on humans. (12)

F5. Role of Civil Society

119. UKOT Governments should ensure, by appropriate support and encouragement to civil society organisations, that decisions are informed by a wide range of information – scientific information, local knowledge, resource use information etc. – using just one of these sources in isolation can be counterproductive. (12)
120. It is worth NGOs, UKOT Governments and others investing valuable time and resources in informing and engaging stakeholders to assist in decision-making. Their input can really influence the outcome of a project. A good way to ensure a high level of stakeholder engagement in decision-making is to offer a variety of ways to get involved. If stakeholders can be given more responsibility, e.g. fishermen given a role in managing a particular fishery or site, they are more likely to become actively involved. Sometimes small jurisdictions are able to be more flexible in their approach to accommodate stakeholder input and achieve good conservation outcomes. (12)
121. Managers must develop creative ways to engage the public, and to make complex technical information accessible to both the public and decision makers. (12)
122. UKOT governments should ensure that civil society feels that their input will be taken seriously and considered carefully in the decision process. (12)
124. Organisations that bring together UKOT and CD representatives and member organisations and individuals could help with informed decision making by sharing case studies of good and bad practice, and UK & UKOT Governments and other funding bodies should resource this. (12)

G. Stakeholder and User Stewardship

136. A model of a systematic approach for engaging the community in stakeholder stewardship is being devised, e.g. with TCI's Community Conservation Partner Program and UKOTCF; however, initial funding is needed to establish project protocols, procedures, legislative framework and training for all participants. Once developed, this model can be applied across territories. Funding could be provided by UK or UKOT governments or other funding agencies. (7)
138. Anguilla's Constitution gives significant rights to land-use, which brings frequent legal challenges by stakeholders in relation to what and how they can use their registered land. This can be detrimental, economically and socially, but on the other hand it can be beneficial. UKOTs' Constitutions should be amended to ensure that environmental management and conservation of ecosystems and their services are enshrined in their Constitution. Furthermore, it should be the Constitutional Right of Nationals to ensure that this happens. Hence, the Nationals will be held accountable for their practices on each parcel of land. (To: UKOT and UK Governments) (7)
139. Management roles should be enshrined in law for accountability. (7)

H. Legislative Framework

148. It is important that amendments are made to the building codes and Physical Planning Acts to factor in climate change as a means to build resiliency in the Small Island Developing States. Some countries have outdated pieces of legislation, which have not taken into account this growing issue. These necessary alterations are vital if we are appropriately to build resiliency and

alleviate loss and damage. (To: UKOT Governments) (7)

149. Stakeholder participation and transparency should be mandated in legislation. (7)

I. Economic and Intrinsic Value of Sustainable Use

167. NGOs, such as UKOTCF, should be resourced so as to be able to continue to play the role of sharing positive outcomes, new methods and lessons learned among territories. (To: UK Government and other funding bodies) (7)

J. Invasive species

188. Develop/implement suitable IAS policy and regulatory framework to prevent, control and manage IAS, as well as IAS strategies at the local and regional level, including the elaboration of IAS alert-lists, control methods (including "eradication", promoting of assessment and feasibility studies for eradication or control of IAS, communication and outreach…). Where an NGO shows interest in eradicating an invasive species, the territory Government should generally support and encourage that initiative, and employ expert advisors to monitor and assess the proposed work on its behalf throughout its duration. Governments should ensure that eradication operations are carried out professionally, safely and effectively, but UKOT Governments may need to seek external advice to ensure that international best practice is followed in both the planning and implementation. (UKOT Governments) (4)

189. Greater public awareness and increasing the community's role in controlling invasive species can be effective. UKOT Governments can also improve conditions by strengthening development agreements and legislation to prohibit importation of soil, landscaping materials and other biosecurity threats. (7)

190. UKOTs governments should acknowledge that invasive species are a global threat, and therefore should be encouraged to prioritise a list of the top ten alien invasions and develop invasive species strategies to manage their impacts. (7)

191. Develop early warning and rapid response systems at the local and regional levels to prevent introduction and spread (i.e. biosecurity). Expert advice must be sought, considerable thought given, and action taken in regard to preventing the re-introduction of an eradicated invasive species before the eradication has taken place. (UKOT Governments) (4)

192. It is essential to prioritise within each territory the most vulnerable places and threatened species as control of invasives is resource intensive. There are tools and examples of ways to do this. (UKOT Governments and NGOs) (4)

194. UKOT/CD Governments should strengthen protection against invasive species introductions, and implement invasive species culling of established invasive species (e.g. lion-fish), recognising that in some cases a regional effort (at both the preventative and culling levels) will be needed for such action to be effective locally. UKOTs should establish lists of species of regional concern and current status. (8)

195. Secure funding to conduct eradication/ control of invasive species that are impacting on key biodiversity sites and endangered species, and to develop/enhance capacity in the UKOTs to manage such invasive species. (UK Government and other funding bodies). (4)

K. Biodiversity data

201. Development of biological indicators to measure progress. The UK indicators tend to focus on certain groups (farmland and woodland birds, bats and butterflies) where there are well defined monitoring schemes, but historically 'BAP reporting' used a slightly more subjective 'expert view' approach to assess the priority species. A basket of key species and/ or habitats could be selected and trends measured using various surveillance approaches. An example of such surveillance is remote sensing. Assessment of whether trend analysis would

be useful and, being really ambitious, 'target statuses' could be set for a range of species against which progress could be assessed. UK and UKOT Governments and NGOs need to discuss and research what could be considered achievable short term, and what might be needed to develop more ambitious approaches could be instructive. (4)

202. It is recommended that territories' data are shared with UK, regional and global databases, particularly in relation to the highest priority species such as endemics. (UKOT and other Governments, NGOs, other researchers) (4)

204. UKOT/CD and regional scientific capacity should be strengthened through the establishment of, or support for, existing scientific centres, which can also help promote/coordinate regional data sharing; existing centres/institutions should be approached to assess interest/capacity. There is a need for quality assurance of data and standardised metadata, and it is recommended that UKOT governments adopt ISO 19115 as the framework for their metadata standards. UKOT governments need to strengthen requirements for sharing of scientific data by visiting scientists (perhaps tying this as a condition of research permit). (8)

205. Under the UN Law of the Sea, UKOTs/CDs are entitled to access data collected within their EEZs and UKOT governments should establish the necessary mechanisms for accessing this data with the UK Government. UK Government should provide guidance/advice as to how international legislation (e.g. UNCLOS) may provide UKOTs with access to scientific data within their EEZs. (8)

L. Other aspects of Conservation and Sustainable Use of Marine Resources

216. UKOT/CD governments should manage their marine resources on the basis of sound scientific data, i.e. evidence-based decision-making. Management objectives, based on sound science, should be clearly defined and articulated by UKOT/CD governments, so that management tools (e.g. minimum size, seasonal closures, MPAs, gear-restrictions, catch-quotas, rights-based management, etc), tailored to address the specific, often unique, local or regional marine environment, can be applied. As a safeguard, it was agreed that the precautionary principle should be applied to resource management where there is insufficient data. (8)

218. The socio-economic vulnerabilities of small island communities need to be understood, and responsibility for ensuring full stakeholder consultation in the management of the shared marine resources must be taken by UK and UKOT Governments (i.e. a transparent 'EIA' approach should be adopted when seeking to implement significant conservation measures to ensure environmental and socio-economic impacts are widely understood and assessed). (8)

219. UKOTs/UKOTCF should explore opportunities for establishing/strengthening existing regional/international collaboration (e.g. 'sister' sanctuaries being established by French MPA Agency), particularly where migratory species are concerned, and the possibility of whale sanctuaries linked to those of neighbouring territories and countries should be given some priority. (8)

220. UKOTs should consider establishment of coral nurseries as species banks and development of artificial reefs. (8)

221. UKOT/CD Governments should strengthen/share with other UKOTs contingency planning (with support from the UK Government where relevant with regards to international relations) for major marine incidents. (8)

222. UK and UKOT Governments, supported by NGOs and others, should continue to explore ways of strengthening surveillance of illegal fishing activities for resource-poor UKOTs, investigating a range of methods, such as satellite-tracking, use of UK Government naval or other resources etc. (8)

224. Prompted in part by concern about human rights abuses on certain fishing vessels, it was recommended that UKOT governments should strive to ensure sustainable fisheries at the technical, social and governance level, achieving certification of their fisheries through a recognised international standard such as the Marine Stewardship Council. (8)

M. Capacity and resource issues

249. A greater understanding of the role of organisations like UKOTCF should be shared. Funding bodies need a better understanding of UKOTs and conservation challenges there, and the facilitation and assistance roles that some governmental and NGO bodies in the UKOTs look to in locally experienced umbrella conservation bodies. (4)

252. The Conference acknowledged the importance of continued funding for research, education and implementation of conservation measures for the environment of the UK Overseas Territories. Difficulties of access to UK and EU funding streams were highlighted as there are restrictions because of the constitutional position of both funders and the Territories. Specific Overseas Territory funding was therefore particularly supported by the Conference. (To UK Government, EU, other funding bodies) (11)

254. It is recommended that biodiversity and its ecosystem services are included in national accounting systems to ensure biodiversity is fully valued for the long term benefit of the territories. (UKOT/CD Governments, with support from UK Government) (4)

255. A checklist of environmental infrastructure (e.g. sustainable physical development plan, habitat and ecosystem services mapping, legislative framework, etc.) should be developed for each UKOT. Rather than allocating scarce funding resources on a "winner takes all" basis, UKOTs can advocate allocation of funding where it is most needed. In some cases, this will be UKOT governments (which will anyway be involved re permits etc.), but in other places, funding will be better allocated to NGOs that can work among and between governments effectively. (To: UK and UKOT Governments and other Funding Bodies) (7)

256. A comprehensive checklist of environmental needs should be developed for all territories, with funding targeted preferentially to fill gaps. This need not be a whole new exercise. Existing initiatives such as the UKOTCF review of progress against Environment Charter Commitments and Aichi Targets, reviews of legislation and local reviews can provide much of the analysis. (UKOTs/CDs; UKOTCF) (7)

257. National perspectives and support from the UKOT governments (ministries/politicians / Cabinet) should be built-in. (7)

258. The Sustaining Partnerships Conference itself provides an important format for the exchange of ideas and the development of future collaborations, Mr Victor Brownlees, Alderney's Chief Executive, noting "Knowledge is at its most powerful when shared." All conference delegates were encouraged to focus on the development of future projects during and following the event. (Conference participants) (11 & 15)

Conference recommendations to UK Government

The full set of conference conclusions and recommendations are at: http://www.ukotcf.org/pdf/2015conf/SustainingPartnerships2015Concl&Rec.pdf . Here are reproduced those directed to UK Government. For more context, see the full document. Because this document is an extract of that, the numbering here includes gaps.

It is important to note that not all conclusions and recommendations will apply to every territory. They all differ and any kind of "one-size-fits-all" approach would be unlikely to be successful.

The conclusions and recommendations have been grouped into sections, some fairly closely related to the conference sessions, but others cutting across several. The categories of organisations to which recommendations are directed are indicated in bold italics in the text or after it. The session(s) in which the conclusion or recommendation arose is indicated by the session number(s), as indicated in the programme.

C. Environmental Education and Awareness

C2. Resources and funding opportunities

013. UK Government should end urgently its 5-year block on grant-funding for environmental education and awareness for the UKOTs. (We recognise that consultants are expensive, but NGOs, like UKOTCF doing this work with local partners, are good value for money.) (To: UK Government) (13)

C5. Other public awareness raising actions (including field trips, outdoor classrooms, exhibitions and open days)

037. Communicate regularly with stakeholders. (To: NGOs, UKOT/CD Government Departments of Environment and Education, Project designers and managers, Governors' Offices) (13)

D. Renewable Energy

051. Capacity building, including ensuring that soundly based and well-rounded advice is provided and that expertise and support is developed to ensure the options are well evaluated and the best combination taken forward (10)

052. Assistance with policy and development of an enabling regulatory framework (10)

053. Technical expertise and support – providing feasibility studies, grid integration studies, thereby de-risking projects for the market (10)

054. Business advisory services – developing the go-to-market strategy for projects (10)

055. Communications and marketing, noting the points at 051 (10)

056. A possible role in progressing the economic viability of other technologies such as Ocean Thermal Energy Conversion (OTEC) (10)

057. DECC should follow up on the post-JMC Renewable Technologies workshop, with a view to developing renewable roadmaps for all interested UKOTs/CDs. (10)

E. International agreements

084. It is recommended that the UK Government promotes the value of the Environmental Charters especially in relation to the MEAs and continues to support monitoring of progress, such as that in progress by UKOTCF, but also links the commitments to CBD monitoring and achievement of the Aichi targets (as the current UKOTCF exercise incorporates). (4)

F. Using informed decision making to manage development sustainably, including Environmental Impact Assessments

F1. Legal Status of Environmental Impact Assessments, and of Environment Charters

091. Fulfil UK's Environment Charter Commitments 2, 5 and 11, under which the UK Government must assist the UKOTs to review and update their environmental legislation, institutional capacity and mechanisms (including regulations and policies) to reflect the mandatory components of the Charters, including EIA as well as the Principles of the Rio Declaration on Environment and Development. (12)

092. Fulfil UK's Environment Charter Commitment 7, under which the UK Government must give technical assistance to enable (amongst other things) the UKOT governments to (a) establish best practice EIA protocols and (b) assess EIAs submitted by proposed developers. (12)

100. UKOT Ministers, while recognising the commitments of their own governments under the Environment Charters (agreed with the UK Government in 2001), should continue to press the UK Government to fulfil its commitments under the Charters, including in relation to:

- Technical assistance, especially regarding technical and scientific issues like renewable energy, fulfilling commitments numbers 1, 5 and especially 7;
- Use UK, regional and local expertise to give advice and improve knowledge of technical and scientific issues. This includes regular consultation with interested non-governmental organisations and networks.
- Assistance with updating environmental legislation, fulfilling commitments 2 and 5
- A ring-fenced fund to support 'projects of lasting benefit to the Territories' environments' (commitment 8). (This is worth a note. When the Charters were written in 1999, environmental projects in the UKOTs were funded by the FCO Environment Fund for the Overseas Territories, so the treaty referred to that fund. By the time we met in Bermuda in 2003 that fund had been cancelled, to universal consternation. So, as a result of the Forum conference in 2003 in Bermuda, the Overseas Territories Environment Programme was started, with funds from FCO and DFID. This fund provided an accessible, ring-fenced fund for projects in the UKOTs, was managed initially through an open process through in which experienced NGOs and local Governors' offices played an important role, involved a level of bureaucracy that was suited to the UKOTs and provided funding for small-scale projects which were manageable by individual UKOTs. This was cancelled unilaterally by FCO in 2011 and replaced, after a year without a fund, by Darwin Plus (Defra/FCO/DFID), whose decision-making process is less open.)
- Facilitating Territories' inclusion and compliance with Multilateral Environmental Agreements (commitments (3 and 4).
- Promoting cooperation and sharing of experience/expertise among the Territories (including by helping to fund regular UKOTCF conferences like that hosted by Gibraltar in July 2015) (commitment 6: to 'Promote better cooperation and the sharing of experience between and among the Overseas Territories and with other states and communities which face similar environmental problems.') This is why UK Government should continue to fund conferences of this sort. (12)

101. UKOT governments should implement their commitment to ensure that future development plans must provide for mandatory EIA as required by the Environment Charters and general international law. In accordance with Environment Charter Commitment 2, the UK government must assist the UKOTs to review and update environmental legislation to be consistent with general international law. (12)

102. With respect to the particular challenges of Small Island Developing States (SIDS), the UK and UKOT governments should draw upon, second or otherwise leverage the technical and broad SIDS expertise of the Commonwealth Secretariat, the UNEP and other multi-lateral institutions in accordance with Environment Charter Commitments 4, 5, 6 and 7. (12)

F4. Importance of a model for sustainable

development planning

118. UK Government should fund the development of a model that addresses the needs of UKOTs for sustainable development planning. This is urgently needed if biodiversity and ecosystem losses are to be slowed. Such a model should be inexpensive, easy to implement and readily accessible to decision makers of all technical capacities. (12)

F5. Role of Civil Society

121. Managers must develop creative ways to engage the public, and to make complex technical information accessible to both the public and decision makers. (12)
124. Organisations that bring together UKOT and CD representatives and member organisations and individuals could help with informed decision making by sharing case studies of good and bad practice, and UK & UKOT Governments and other funding bodies should resource this. (12)

F6. UK Government should address its priorities:

125. The key to sustainability is in ensuring that development in UKOTs is appropriate to a country's needs, while maintaining the ecosystem services on which economic growth depends. This cannot be accomplished without adequate development planning, based on environmental variables and followed up with a rigorous environmental impact process. Given this reality, the UK Government should prioritise assisting UKOTs with developing strategic sustainable development plans and devising effective environmental impact assessment and other planning processes. An audit of existing policies for all UKOTs would provide a starting point for this, which could be followed up with assistance for filling gaps. This would lead to a much more effective use for Darwin Plus funds than the current basis on which funds are currently allocated, which has been described by reasonable people as piecemeal and unintelligible. (12)

G. Stakeholder and User Stewardship

136. A model of a systematic approach for engaging the community in stakeholder stewardship is being devised, e.g. with TCI's Community Conservation Partner Program and UKOTCF; however, initial funding is needed to establish project protocols, procedures, legislative framework and training for all participants. Once developed, this model can be applied across territories. Funding could be provided by UK or UKOT governments or other funding agencies. (7)
138. Anguilla's Constitution gives significant rights to land-use, which brings frequent legal challenges by stakeholders in relation to what and how they can use their registered land. This can be detrimental, economically and socially, but on the other hand it can be beneficial. UKOTs' Constitutions should be amended to ensure that environmental management and conservation of ecosystems and their services are enshrined in their Constitution. Furthermore, it should be the Constitutional Right of Nationals to ensure that this happens. Hence, the Nationals will be held accountable for their practices on each parcel of land. (To: UKOT and UK Governments) (7)

I. Economic and Intrinsic Value of Sustainable Use

163. Economic and intrinsic valuation can and should inform the development of what some territories term National Sustainable Development Plans (but note that such terms may have different meanings in different places); however, such valuation is costly. A gap analysis of where such information is needed in UKOTs would be a good subject for Darwin Plus funding. (To: UK Government) (7)
164. Gap analyses, economic valuation and sustainable national physical development planning (noting again that precise terminology may vary between different territories) are primary components of sustainability and should be prioritised by the UK Government for funding purposes. (To: UK Government) (7)

165. One way to get Governments to address actively issues of environmental degradation is by having stakeholders being the advocates for the change in commonly used practices. For example, the loaning regime now being implemented by the World Bank, through its lending agencies such as the Caribbean Development Bank, requires the governments/countries to have in place key policies/legislation focused on the environment and factoring in some element of climate change. This is a condition under which a loan is given. The UK Government could institute similar conditions, but such conditions should be coupled with economic and technical assistance where needed. (7)

167. NGOs, such as UKOTCF should be resourced so as to be able to continue to play the role of sharing positive outcomes, new methods and lessons learned among territories. (To: UK Government and other funding bodies) (7)

J. Invasive species

193. Promote prioritising system(s) to determine which islands or areas across territories have the highest priority for eradication as this is of strategic importance to determining the allocation of limited resources to achieve maximum conservation benefit. (NGOs, UK Government & other funding bodies) (4)

195. Secure funding to conduct eradication/ control of invasive species that are impacting on key biodiversity sites and endangered species, and to develop/enhance capacity in the UKOTs to manage such invasive species. (UK Government and other funding bodies). (4)

K. Biodiversity data

201. Development of biological indicators to measure progress. The UK indicators tend to focus on certain groups (farmland and woodland birds, bats and butterflies) where there are well defined monitoring schemes, but historically 'BAP reporting' used a slightly more subjective 'expert view' approach to assess the priority species. A basket of key species and/ or habitats could be selected and trends measured using various surveillance approaches. An example of such surveillance is remote sensing. Assessment of whether trend analysis would be useful and, being really ambitious, 'target statuses' could be set for a range of species against which progress could be assessed. UK and UKOT Governments and NGOs need to discuss and research what could be considered achievable short term, and what might be needed to develop more ambitious approaches could be instructive. (4)

202. It is recommended that territories' data are shared with UK, regional and global databases, particularly in relation to the highest priority species such as endemics. (UKOT and other Governments, NGOs, other researchers) (4)

205. Under the UN Law of the Sea, UKOTs/ CDs are entitled to access data collected within their EEZs and UKOT governments should establish the necessary mechanisms for accessing this data with the UK Government. UK Government should provide guidance/advice as to how international legislation (e.g. UNCLOS) may provide UKOTs with access to scientific data within their EEZs. (8)

L. Other aspects of Conservation and Sustainable Use of Marine Resources

217. Recognition by international bodies of often limited resources in the UKOTs/ CDs is critical, and the need for the UK Government and international institutions to engage in full dialogue with UKOT governments and NGOs to understand priority issues and align research with the specific environmental needs of the territories is essential. UKOTs/CDs to develop catalogue of data needs and disseminate (through UKOTCF). (8)

218. The socio-economic vulnerabilities of small island communities need to be understood, and responsibility for ensuring full stakeholder consultation in the management of the shared marine resources must be taken by UK and UKOT Governments (i.e. a transparent 'EIA' approach should be adopted when seeking to implement significant conservation measures to ensure

environmental and socio-economic impacts are widely understood and assessed). (8)

221. UKOT/CD Governments should strengthen/ share with other UKOTs contingency planning (with support from the UK Government where relevant with regards to international relations) for major marine incidents. (8)

222. UK and UKOT Governments, supported by NGOs and others, should continue to explore ways of strengthening surveillance of illegal fishing activities for resource-poor UKOTs, investigating a range of methods, such as satellite-tracking, use of UK Government naval or other resources etc. (8)

M. Capacity and resource issues

249. A greater understanding of the role of organisations like UKOTCF should be shared. Funding bodies need a better understanding of UKOTs and conservation challenges there, and the facilitation and assistance roles that some governmental and NGO bodies in the UKOTs look to in locally experienced umbrella conservation bodies. (4)

252. The Conference acknowledged the importance of continued funding for research, education and implementation of conservation measures for the environment of the UK Overseas Territories. Difficulties of access to UK and EU funding streams were highlighted as there are restrictions because of the constitutional position of both funders and the Territories. Specific Overseas Territory funding was therefore particularly supported by the Conference. (To UK Government, EU, other funding bodies) (11)

253. Concern was expressed widely at the conference that the recent June 2015 launch of the 22nd Round of the Darwin Initiative for developing countries had not been complemented by the launch of the next round of the UK Overseas Territories Environment and Climate Fund (Darwin Plus). The persons expressing this concern asked that letters be sent to Ministers of Defra, DFID and FCO on this point, noting that the £2m fund enables Overseas Territories Governments, local NGOs and UK Institutions to work together and deliver concrete results for the internationally important environments of the Territories, which hold 94% of the globally threatened species for which the UK is responsible; and that the constitutional position of the UK Overseas Territories makes funding in these areas exceptionally hard to obtain. If this fund is not available, crucial environmental projects will have no obvious funding stream. Funding from UK Government in this way is a commitment by UK Government to meet international requirements. (UK Government) (11)

254. It is recommended that biodiversity and its ecosystem services are included in national accounting systems to ensure biodiversity is fully valued for the long term benefit of the territories. (UKOT/CD Governments, with support from UK Government) (4)

255. A checklist of environmental infrastructure (e.g. sustainable physical development plan, habitat and ecosystem services mapping, legislative framework, etc.) should be developed for each UKOT. Rather than allocating scarce funding resources on a "winner takes all" basis, UKOTs can advocate allocation of funding where it is most needed. In some cases, this will be UKOT governments (which will anyway be involved re permits etc.), but in other places, funding will be better allocated to NGOs that can work among and between governments effectively. (To: UK and UKOT Governments and other Funding Bodies) (7)

258. The Sustaining Partnerships Conference itself provides an important format for the exchange of ideas and the development of future collaborations, Mr Victor Brownlees, Alderney's Chief Executive, noting "Knowledge is at its most powerful when shared." All conference delegates were encouraged to focus on the development of future projects during and following the event. (Conference participants) (11 & 15)

Conference recommendations to NGOs

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C. Environmental Education and Awareness

C1. Requirements of CBD and other MEAs, and influencing decision makers

008. Actions of NGOs which deliver important conservation work should be supported by governments. Partnerships, either informal or via Memoranda of Understanding or Co-operation are effective, both for cash-strapped NGOs and Government Environment Departments. (To: UKOT/CD Governments and NGOs) (13)

C3. Schools Curricula

019. Attempts should be made to integrate Environmental Education topics into the National Curricula at all levels. Environmental Education materials need to be curriculum-linked, and included in the assessment process. Consider introducing a certificate of achievement which recognises student achievements and can assist with job applications. (To: UKOT/CD Government Departments of Education and of Environment, NGOs and project designers and managers) (13)

021. Classroom-based activities need to be supported by hands-on involvement and investigation, including outdoor classrooms and field-trips. (To: UKOT/CD Government Departments of Education and of the Environment, project designers and managers, NGOs) (13)

022. There should be clear methods of communication between education departments, and those people producing environmental education materials for schools and colleges. Local educators and teachers should be involved in the development of environmental education materials. (To: UKOT/CD Government Departments of Education and of the Environment, project designers and managers, NGOs) (13)

C4. Using broadcast media, social networking and multi-media apps (games)

026. Opportunities for using TV, radio, social networking and the development of Apps should be considered when planning future environmental education and public awareness programmes. (To: NGOs, project designers and managers, UKOT/CD Government departments) (13)

027. Share what is going on in UKOTs/CDs using the Forum Website or Facebook page and other media (as stated in UK's Commitment 6 in the Environment Charter). (To: NGOs, project designers and managers, UKOT/CD Government departments) (13)

C5. Other public awareness raising actions (including field trips, outdoor classrooms, exhibitions and open days)

034. Identify opportunities for open days, outdoor classrooms and activities, and timetable these into the work programme. Link where possible with internationally designated days, such as biodiversity day. (To: NGOs,

UKOT/CD Government Departments of Environment and of Education) (13)

035. Plan and run a volunteer programme, but identify the human and cash resources available for this to ensure that the programme runs smoothly and effectively – work within your means. (To: NGOs)

036. Reach out to possible partners. (This could / should include developers.) (To: NGOs) (13)

037. Communicate regularly with stakeholders. (To: NGOs, UKOT/CD Government Departments of Environment and Education, Project designers and managers, Governors' Offices) (13)

D. Renewable Energy

058. Capacity building, including ensuring that soundly based and well-rounded advice is provided and that expertise and support is developed to ensure the options are well evaluated and the best combination taken forward (10)

059. Sharing best learning outcomes, e.g. work in the Eastern Caribbean on regulatory reform (10)

060. Coordination of regional programmes, e.g. in the Caribbean, Pacific, to enhance the potential for scale across a number of islands (10)

061. Development of island-specific templates to support the development of bankable projects, e.g. Power Purchase Agreement (PPA) templates, bankable criteria (10)

062. Development of territory-specific guidelines for retro-fitting buildings, e.g. schools, hospitals (10)

E. International agreements

086. UKOTCF was asked:

i) to compile a list of benefits of association with MEAs and

ii) examples of positive outcomes and activities associated with each of the Convention on Biological Diversity's (CBD) Aichi targets. (4)

087. It is not always easy to get the word out on progress in monitoring the implementation of the Charters and CBD, if, for example, (1) the progress is published in scientific journals to which not all other UKOT stake-holders subscribe and (2) because it is very easy for there to be impediments to progress in those UKOTs where a change in staff of one person can mean the end of a biodiversity programme actually functioning (and thus there being nothing more to report or monitor). The first point is often satisfied through the Working Groups and Forum News, but perhaps this can be expanded. As for the second point, again a more programme-based, rather than project-based, method may result in a better way to report and monitor progress. (Part to UKOTCF; part to UKOT Governments and programme & project managers) (4)

088. Everyone in the Territories (UKOT Governments, NGOs) is encouraged to identify how their existing and proposed activities meet CBD's Aichi targets (including via UKOTCF's current exercise). This will

i) assist in the completion of National Reports for those territories that have had the CBD extended and assist in preparing encouraging evidence for those territories still considering extension,

ii) support and demonstrate relevance in funding applications, and

iii) identify gaps in delivery. (4)

F. Using informed decision making to manage development sustainably, including Environmental Impact Assessments

F2. Requiring EIAs and standards of best practice

113. UKOTCF should investigate putting together a list of all the regulations and derive a set of best practices that we could all ultimately aspire to. It would be good to have statements from across the territories to see what issues come up in common, and to identify where the most serious revision of their EIA guidelines are needed so that this can act as an effective tool in terms of environmental impacts and better planning.

(12)

F5. Role of Civil Society

120. It is worth NGOs, UKOT Governments and others investing valuable time and resources in informing and engaging stakeholders to assist in decision-making. Their input can really influence the outcome of a project. A good way to ensure a high level of stakeholder engagement in decision-making is to offer a variety of ways to get involved. If stakeholders can be given more responsibility, e.g. fishermen given a role in managing a particular fishery or site, they are more likely to become actively involved. Sometimes small jurisdictions are able to be more flexible in their approach to accommodate stakeholder input and achieve good conservation outcomes. (12)
121. Managers must develop creative ways to engage the public, and to make complex technical information accessible to both the public and decision makers. (12)
123. Small jurisdictions can sometimes face particular challenges in making the best use of science and other information for decision-making. Staff in government and NGOs are often particularly stretched, with very diverse roles, and may lack technical expertise across the whole range of issues. Help is needed from umbrella and linking NGOs to facilitate exchange of experience on how to rise to these challenges. (12)
124. Organisations that bring together UKOT and CD representatives and member organisations and individuals could help with informed decision making by sharing case studies of good and bad practice, and UK & UKOT Governments and other funding bodies should resource this. (12)

G. Stakeholder and User Stewardship

136. A model of a systematic approach for engaging the community in stakeholder stewardship is being devised, e.g. with TCI's Community Conservation Partner Program and UKOTCF; however, initial funding is needed to establish project protocols, procedures, legislative framework and training for all participants. Once developed, this model can be applied across territories. Funding could be provided by UK or UKOT governments or other funding agencies. (7)
137. NGOs working in and for the UKOTs should come together to develop cross-territory sustainable tourism guidelines/certification programme for tourism operators (for example, dive operators, tour guides, etc.), and take advantage of the IUCN publication Guidelines on development in sensitive areas. Such a certification program will have wide recognition and could prove to be more successful than single-territory certification schemes. NGOs can play a key role in building capacity and training. (To: NGOs and Funding Agencies) (7)

H. Legislative Framework

147. NGOs, such as UKOTCF, can assist (as above) in the development of legislative frameworks by bringing UKOTs together (e.g. in the WCWG) to discuss what has worked and what has not worked. (7)
150. Cross-territory experiences with Environmental Funds should be mapped, shared, and used as examples of frameworks for environmental conservation revenue generation. (?UKOTCF) (7)

I. Economic and Intrinsic Value of Sustainable Use

166. In the Eastern Caribbean Region in particular, there is much concern about the sharing of information in the Government agencies. The UKOTCF has played a leading role in information sharing. It will be beneficial if this Forum designates some time to discussing establishing protocols for data-sharing. (7)
167. NGOs, such as UKOTCF should be resourced so as to be able to continue to play the role of sharing positive outcomes, new methods and lessons learned among territories. (To: UK Government and other funding bodies) (7)

J. Invasive species

193. Promote prioritising system(s) to determine which islands or areas across territories have the highest priority for eradication as this is of strategic importance to determining the allocation of limited resources to achieve maximum conservation benefit. (NGOs, UK Government & other funding bodies) (4)

195. Secure funding to conduct eradication/ control of invasive species that are impacting on key biodiversity sites and endangered species, and to develop/enhance capacity in the UKOTs to manage such invasive species. (UK Government and other funding bodies). (4)

196. UKOTCF was recommended as a focal point for sharing ideas, information and experiences of invasives management. (4)

K. Biodiversity data

201. Development of biological indicators to measure progress. The UK indicators tend to focus on certain groups (farmland and woodland birds, bats and butterflies) where there are well defined monitoring schemes, but historically 'BAP reporting' used a slightly more subjective 'expert view' approach to assess the priority species. A basket of key species and/ or habitats could be selected and trends measured using various surveillance approaches. An example of such surveillance is remote sensing. Assessment of whether trend analysis would be useful and, being really ambitious, 'target statuses' could be set for a range of species against which progress could be assessed. UK and UKOT Governments and NGOs need to discuss and research what could be considered achievable short term, and what might be needed to develop more ambitious approaches could be instructive. (4)

202. It is recommended that territories' data are shared with UK, regional and global databases, particularly in relation to the highest priority species such as endemics. (UKOT and other Governments, NGOs, other researchers) (4)

203. There is a need for partnerships, collaboration and information-sharing to progress priorities for action. UKOTCF may be able to play a role in this. (4)

L. Other aspects of Conservation and Sustainable Use of Marine Resources

217. Recognition by international bodies of often limited resources in the UKOTs/ CDs is critical, and the need for the UK Government and international institutions to engage in full dialogue with UKOT governments and NGOs to understand priority issues and align research with the specific environmental needs of the territories is essential. UKOTs/CDs to develop catalogue of data needs and disseminate (through UKOTCF). (8)

219. UKOTs/UKOTCF should explore opportunities for establishing/strengthening existing regional/international collaboration (e.g. 'sister' sanctuaries being established by French MPA Agency), particularly where migratory species are concerned, and the possibility of whale sanctuaries linked to those of neighbouring territories and countries should be given some priority. (8)

223. Mechanisms should be developed or established and resourced for easy, effective sharing of examples of value/success of multiple management tools (e.g. UKOTCF conferences and website). (8)

M. Capacity and resource issues

249. A greater understanding of the role of organisations like UKOTCF should be shared. Funding bodies need a better understanding of UKOTs and conservation challenges there, and the facilitation and assistance roles that some governmental and NGO bodies in the UKOTs look to in locally experienced umbrella conservation bodies. (4)

250. A particular problem is the short-term nature of projects that build up experience and capacity which is then lost from territories at its completion. In line with the views expressed at the conference, UKOTCF should promote the benefits of programmes, rather than short-term projects, to maintain and build skills, knowledge and experience. (4)

251. The scarcity of capacity and resources is a continuing handicap to implementing biodiversity conservation in UKOTs

and CDs. UKOTCF should continue to address this constraint through developing partnerships in the metropolitan UK and the territories. (4)

252. The Conference acknowledged the importance of continued funding for research, education and implementation of conservation measures for the environment of the UK Overseas Territories. Difficulties of access to UK and EU funding streams were highlighted as there are restrictions because of the constitutional position of both funders and the Territories. Specific Overseas Territory funding was therefore particularly supported by the Conference. (To UK Government, EU, other funding bodies) (11)

255. A checklist of environmental infrastructure (e.g. sustainable physical development plan, habitat and ecosystem services mapping, legislative framework, etc.) should be developed for each UKOT. Rather than allocating scarce funding resources on a "winner takes all" basis, UKOTs can advocate allocation of funding where it is most needed. In some cases, this will be UKOT governments (which will anyway be involved re permits etc.), but in other places, funding will be better allocated to NGOs that can work among and between governments effectively. (To: UK and UKOT Governments and other Funding Bodies) (7)

256. A comprehensive checklist of environmental needs should be developed for all territories, with funding targeted preferentially to fill gaps. This need not be a whole new exercise. Existing initiatives such as the UKOTCF review of progress against Environment Charter Commitments and Aichi Targets, reviews of legislation and local reviews can provide much of the analysis. (UKOTs/CDs; UKOTCF) (7)

258. The Sustaining Partnerships Conference itself provides an important format for the exchange of ideas and the development of future collaborations, Mr Victor Brownlees, Alderney's Chief Executive, noting "Knowledge is at its most powerful when shared." All conference delegates were encouraged to focus on the development of future projects during and following the event. (Conference participants) (11 & 15)

N. UKOTCF and its Regional Working Groups

265. UKOTCF should, alongside its existing approaches, develop further the more thematic approach it has been developing across UKOTs/CDs, e.g. looking at invasive species, use of GIS, coral reef issues. (2)

266. UKOTCF should map the engagement of universities and other research bodies with the UKOTs and CDs, with a view to establishing closer links/partnerships. UKOTCF and partners should then consider how to exploit this engagement for mutual benefit, including through extending UKOTCF's current work student attachments/ secondments/ sabbaticals. (2)

267. UKOTCF should also (re-)engage stakeholders more effectively, aiming to build closer sustainable partnerships with other bodies with cross-cutting interests. (2)

268. UKOTCF should do more to raise its profile and that of the UKOTs/CDs, not least with a view to fund-raising. (2)

269. UKOTCF should aim to secure funding, not just for projects, but for feasibility and follow-up work. (2)

270. UKOTCF should consider holding more smaller conferences and workshops, on a regional basis, and/or with thematic focus in between the full UKOTCF conferences, ideally in concert with partners and perhaps in the UK as well as in territories. (2)

Conference recommendations to other Funding Bodies

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The conclusions and recommendations have been grouped into sections, some fairly closely related to the conference sessions, but others cutting across several. The categories of organisations to which recommendations are directed are indicated in bold italics in the text or after it. The session(s) in which the conclusion or recommendation arose is indicated by the session number(s), as indicated in the programme.

F. Using informed decision making to manage development sustainably, including Environmental Impact Assessments

F5. Role of Civil Society

120. It is worth NGOs, UKOT Governments and others investing valuable time and resources in informing and engaging stakeholders to assist in decision-making. Their input can really influence the outcome of a project. A good way to ensure a high level of stakeholder engagement in decision-making is to offer a variety of ways to get involved. If stakeholders can be given more responsibility, e.g. fishermen given a role in managing a particular fishery or site, they are more likely to become actively involved. Sometimes small jurisdictions are able to be more flexible in their approach to accommodate stakeholder input and achieve good conservation outcomes. (12)

124. Organisations that bring together UKOT and CD representatives and member organisations and individuals could help with informed decision making by sharing case studies of good and bad practice, and UK & UKOT Governments and other funding bodies should resource this. (12)

G. Stakeholder and User Stewardship

136. A model of a systematic approach for engaging the community in stakeholder stewardship is being devised, e.g. with TCI's Community Conservation Partner Program and UKOTCF; however, initial funding is needed to establish project protocols, procedures, legislative framework and training for all participants. Once developed, this model can be applied across territories. Funding could be provided by UK or UKOT governments or other funding agencies. (7)

137. NGOs working in and for the UKOTs should come together to develop cross-territory sustainable tourism guidelines/certification programme for tourism operators (for example, dive operators, tour guides, etc.), and take advantage of the IUCN publication Guidelines on development in sensitive areas. Such a certification program will have wide recognition and could prove to be more successful than single-territory certification schemes. NGOs can play a key role in building capacity and training. (To: NGOs and Funding Agencies) (7)

I. Economic and Intrinsic Value of Sustainable Use

167. NGOs, such as UKOTCF should be resourced so as to be able to continue to play the role of sharing positive outcomes, new methods and lessons learned among territories. (To: UK Government and other funding bodies) (7)

J. Invasive species

193. Promote prioritising system(s) to determine

which islands or areas across territories have the highest priority for eradication as this is of strategic importance to determining the allocation of limited resources to achieve maximum conservation benefit. (NGOs, UK Government & other funding bodies) (4)

195. Secure funding to conduct eradication/ control of invasive species that are impacting on key biodiversity sites and endangered species, and to develop/enhance capacity in the UKOTs to manage such invasive species. (UK Government and other funding bodies). (4)

M. Capacity and resource issues

249. A greater understanding of the role of organisations like UKOTCF should be shared. Funding bodies need a better understanding of UKOTs and conservation challenges there, and the facilitation and assistance roles that some governmental and NGO bodies in the UKOTs look to in locally experienced umbrella conservation bodies. (4)

252. The Conference acknowledged the importance of continued funding for research, education and implementation of conservation measures for the environment of the UK Overseas Territories. Difficulties of access to UK and EU funding streams were highlighted as there are restrictions because of the constitutional position of both funders and the Territories. Specific Overseas Territory funding was therefore particularly supported by the Conference. (To UK Government, EU, other funding bodies) (11)

255. A checklist of environmental infrastructure (e.g. sustainable physical development plan, habitat and ecosystem services mapping, legislative framework, etc.) should be developed for each UKOT. Rather than allocating scarce funding resources on a "winner takes all" basis, UKOTs can advocate allocation of funding where it is most needed. In some cases, this will be UKOT governments (which will anyway be involved re permits etc.), but in other places, funding will be better allocated to NGOs that can work among and between governments effectively. (To: UK and UKOT Governments and other Funding Bodies) (7)

Conference recommendations to the Private Sector and Utilities

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D. Renewable Energy

Private Sector

063. Development of tailored financing solutions to support project implementation (10)
064. Capacity building, ensuring that training is included in the implementation of solutions on island, including ensuring that soundly based and well-rounded advice is provided and that expertise and support is developed to ensure the options are well evaluated and the best combination taken forward (10)
065. Programmatic approach to building solutions that enable the development of on territory businesses (10)
066. Ensure that investment supports/enhances local infrastructure (10)
067. Engage with utilities and governments to define the clear value proposition of renewables beyond cost per kw/h (10)

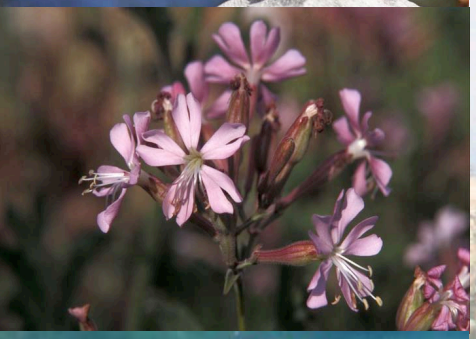
Utilities

068. Working with governments to develop operational plans in line with a low-carbon vision (10)
069. Developing a business model that focuses on reducing the level of diesel-generated energy and the amount of energy used on island, taking into account other relevant factors including population size and trends, starting point, etc. (10)
070. Supporting governments to develop well informed projects that are ready to move now, with competent grid integration studies – doing what can be done now (10)
071. Working inclusively with governments and others partners so that all can understand the needs of utility business models, including ensuring that soundly based and well-rounded advice is provided and that expertise and support is developed to ensure the options are well evaluated and the best combination taken forward. (10)

Appendix 5: Meeting of Territory Environment Ministers

Environment Ministers' meeting at the Garrison Library. Front row, from left:
Hon. Richard Ronan MHK, Minister of the Department for the Environment, Food and Agriculture, Isle of Man Government
Hon. Dr John Cortés MP, Minister of Health, Environment & Climate Change, HM Government of Gibraltar
Hon. Fabian Picardo QC MP, Chief Minister, HM Government of Gibraltar
Dr Hon. Kedrick D. Pickering, Deputy Premier and Minister for Natural Resources & Labour, British Virgin Islands
Hon. Claude Hogan, Minister of Agriculture & Environment, Government of Montserrat
Back row, from left:
Henry Wilson, Acting Director, Department of Environment & Maritime Affairs, Turks & Caicos Islands, representing Hon. Porsha Stubbs-Smith, Minister of Tourism, Environment, Heritage & Culture, Turks & Caicos Islands Government
Richard Lole, Chief Executive, Department for the Environment, Food and Agriculture, Isle of Man Government
Jim Kerr, UK Adviser to, and representing, the Government of Tristan da Cunha
Victor Brownlees, Chief Executive, States of Alderney
Steve Butler, Head of Environmental Planning, Falkland Islands Government, on behalf of MLA Michael Poole, Portfolio Holder for the Environment, Falkland Islands Government
Victor Brownlees, Chief Executive, States of Alderney
Inset (participating via Skype):
Hon Wayne Panton MLA, Minister of Financial Services, Commerce & Environment, Cayman Islands Government
Main photo: Dr Mike Pienkowski, UKOTCF; inset: HMGoG

The Environment Ministers' meeting in session.
Photos: HMGoG



Montage of Gibraltar wildlife. Photos: Keith Bensusan and his team of Andrew Abrines, Paul Acolina, Torberg Berge, Nicholas Ferrary, Clive Finlayson, Christine Gilder, Gilbert Gonzalez, Phil Gould, Rhian Guillem, Leslie Linares, Antonio Verdugo, Albert Yome, plus Charlie Perez and Peter Richardson

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