

Jersey's Biodiversity Strategy

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In a small community the concept of diversity in its broadest terms is sometimes greeted with suspicion.

The high standard of living and the good quality of life that most of the inhabitants enjoy promotes complacency and reduces the desire to safeguard the intangible resources of a rich and varied wildlife. Despite being a very prosperous island as a result of the finance industry, the materialistic ethos often leads to dismissal of concerns about local and international biodiversity.

Jersey is extremely well connected to the outside world, because of the needs of the finance industry, but there is a residual isolationist sentiment, which was recently articulated by a local politician who, in the face of criticism from the OECD, suggested that the Island declare independence from the UK. This sentiment leads to resistance when it is suggested that the Island has a responsibility to preserve biodiversity.

DESCRIPTION

Geography

Jersey is the largest of the Channel Islands, situated off the north-west coast of Normandy in the Bay of Mont St Michel. The French coast is 22 km to the East and 50 km to the South

Geology

The island is approximately 117 km² but owing to the large tidal range (up to 12 m) this area increases to 163 km² at low tide. The underlying geology is largely granite and shale.

Soils

The overlying soils vary from areas of clay, sandy loess and alluvium with acid soils, particularly over the granite.

Climate

The climate is milder than that of the British Isles with mean temperatures of 7 degrees centigrade in January and 18 degrees in August. Summers are generally warm and dry, yet with the occasional drought. Winters are usually mild but with frosts in some years.



Topography

The island slopes from a height of 153 m on the north coast to 60 m above mean sea level in the south. In the west, a large, mainly undeveloped, coastal plain (picture above) faces a fetch of 4,500 km across the North Atlantic to the coast of Newfoundland. This bay is considered a special place, and an integrated management strategy has been developed including extra planning restrictions.

The Bay contains the largest area of natural fresh water in the island, St Ouen's Pond (below), which is 4.5 ha in extent surrounded by 9.0 ha of reed beds. The associated wet meadows, with a rich orchid flora, and the dune grassland of 12.1 ha make this an exceptionally rich area.



The south end of the bay comprises the largest sand dunes in the island, Les Blanches Banques, which now still cover 113 ha. The dunes are exceptionally rich in plants and insects, with about 375 plant species,

including 16 UK Red Data Book (RDB) species. The dunes are also home to the green lizard *Lacerta viridis* not found in the UK. No longer an active system, the dunes have, for fifty years, been cut off from the sea by a sea wall, mainly constructed during the German occupation in World War Two.

Housing development is gradually surrounding and pressing in the boundaries of this site. Golf courses have also taken a sizable chunk of the dunes, which once extended towards the bay to the south, but the land is now covered by housing.

The south west consists of coastal cliffs, which are warmer than the north coast cliffs and have a distinct flora. The south is coastal plain, mainly developed and which contains the Island's capital, the town of St Helier. The ash from the Island's refuse incinerator and other rubbish have been dumped on the shore here, and an area of foreshore has been claimed; this will be used for housing and so on.

To the east is more flat land, and offshore a large intertidal area, which is now designated as a Ramsar site for its rich marine flora and bird life (see below for the edge of the site at La Rocque, also illustrating the large tidal range). There is a long strip of housing along the coast; behind are agricultural fields, and some remaining connecting habitat corridors.



The south-east coast is a series of small coves. In the north-west, the land rises to the steep cliffs which form the whole of the north coast, a narrow steep strip with dominant heather and bracken, broken by the occasional natural harbour (see picture in following column).

The centre of the island is a mainly agricultural plateau, cut by steep-sided valleys radiating from north to south. The inland area is mainly agricultural with development along the coast, although there is extensive settlement throughout the inland part of the Island.



JERSEY'S BIODIVERSITY

- 33 UK RDB plant species
- Two lizards not found in the UK
- Red Squirrel
- Agile frog not found UK
- Rich marine flora and fauna
- Important dunes, coastal heathland

Jersey's geographical position partly explains the number of RDB species in a UK context. Species include the four reptiles (two not found in the UK), the red squirrel, two amphibians (one unknown in the UK), several invertebrates rare or not recorded in UK, and a rich lichen flora, not to mention the rich marine life. This means that Jersey's biodiversity is well worth a high level of attention.

Unfortunately, we have found it very difficult to win the political battle for funding at a level which is well justified by our richness in species and habitats. A "green audit" carried out in 1992 concluded "public sector conservation initiatives are hampered by lack of resources and there is no voluntary group concerned solely with nature conservation." Voluntary groups peripherally involved in nature conservation are hampered by lack of funds and expertise. We would like to help more with funding but do not have the resources

SOME FIGURES

- Size = 116.5 km²
- Farmland = 54%
- Urban = 20%
- Semi-natural = 26%
- Population = 88,000
- Visitors = approx 600,000 /year (1999)

Points to note here are the high density of population; the area of farmland, over half the Island; and the still considerable area of semi-natural habitats. The density of housing is effectively sub-urban across the Island, and we are keen to link habitats. Clearly a high level of public awareness is essential; this is difficult to measure, but we believe we are making progress. A

well educated population is helpful, but the very materialistic ethos, fostered by the dominance of the financial sector, works against us. The natural beauty of the Island is slow to be affected, while underlying consequences of poor decision-making are slower to become apparent. When problems do become apparent, such as algal blooms on some beaches as a result of nutrient rich run-off, the public demand an instant solution. The tourism industry is beginning to use the natural environment as a major selling point, but expectation still outstrips reality

FARMING & COUNTRYSIDE

- Dairy moving towards zero-grazing
- High input, no rotation
- Water pollution
- Incremental urbanisation
- Loss of biodiversity
- Need for marine protection

Once again farming faces the crossroads. The policies of relying on intensive production of a few crops, mainly new potatoes and cauliflowers, have resulted in concentration of land holdings and the loss of small mixed farms. Changes in the dairy industry mean that pasture and hay have given way to fodder maize and silage, affecting the habitats of arable weeds and farmland birds.

The importance of the influence of agricultural activity on the natural environment is increasingly recognised, yet the main effect seems to be that interdepartmental arguments about responsibility for budgets and policy formulation are intensifying. We hope that the major review that the agricultural department is undergoing at present result in a positive outcome for the natural environment, and are offering consultation. One of our fears is that, in a move to increase production, money will be spent on “improvement” of marginal areas, an approach which in the past has had the effect of halting succession to natural habitat and diminishing their value to wildlife.

MONEY

- 1992 Total Expenditure on nature conservation 0.0006% of total Government Expenditure
- Conservation Budget 1992 £215,000.
- Conservation Budget 1999 £668,000
- GDP 1992 £1305M
- GDP 1998 £2754M.

Jersey is a rich island, a very rich island, and yet efforts to preserve its rich flora and fauna do not seem to receive the level of support one might expect

OBJECTIVE FOR CONSERVING BIODIVERSITY

To conserve and enhance biological diversity in Jersey and to contribute towards the conservation of global biodiversity when appropriate

This is a pretty tall order, and interpretable in many ways. Individual states have individual priorities, and each strategy should reflect the unique biodiversity of individual states.

It is important not to confuse the map with the terrain. If we decide to complete the map, or strategy, before we start work we could end up never finishing. What, I think, is required is a balance between planning and action. Any strategy is only a map; it is not the terrain

UNDERLYING PRINCIPLES

- Sustainable
- Wise Use
- Individual and community involvement
- Based on sound knowledge
- Integral part of Local Government policy
- Decisions guided by precautionary principle

While there should be an individual approach to the creation of a strategy, there are certain underlying principles which should guide its creation.

Sustainability and wise use are self evident, but it is most important that all sectors of a government are aware of the strategy when making policy. Inevitably, decisions made in areas apparently removed from issues of biodiversity often in practice have an impact upon the natural world. This means wide consultation, not only during the drafting of the strategy, but afterwards.

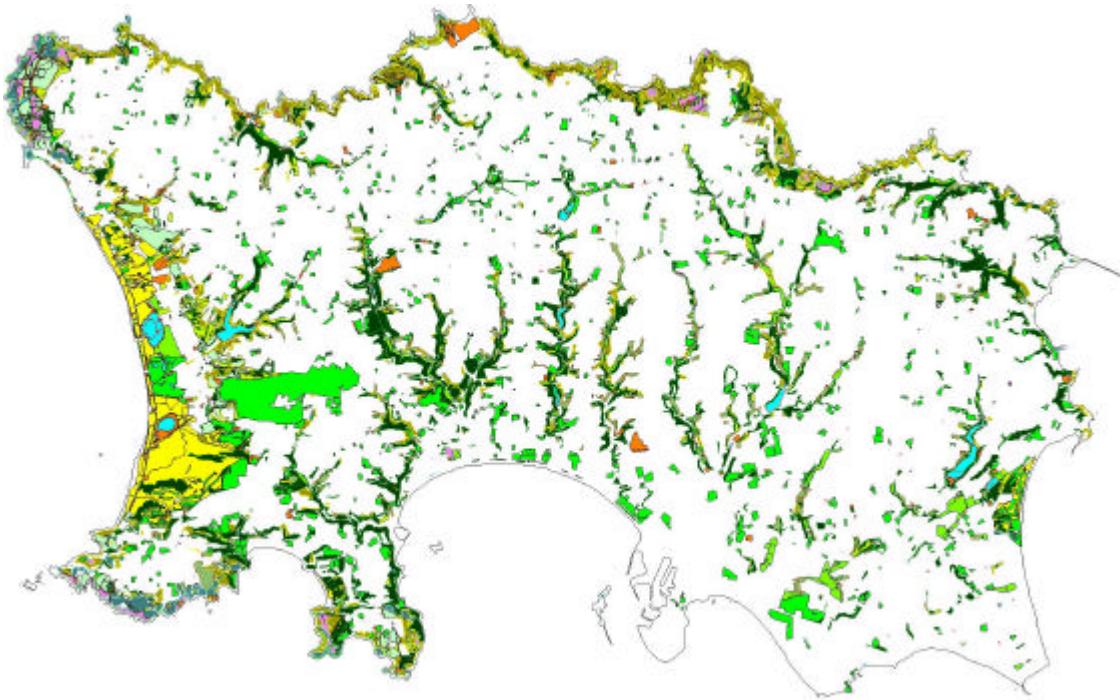
PROCESS

The basic process by which we will achieve our objectives.

- Complete inventory
- Clear statement of policy
- Species and Habitat management plans
- Monitoring

The first stage, the inventory, is complete for all the most prominent groups. Bats, lichen and fungi need more work, and this is in hand, using consultants or local staff as resources allow.

Species management plans have been completed for 21 vascular plant species, 9 invertebrate species, and 1 amphibian.



The next stage, the completion of the strategy is taking some time, and the completion of the strategy and the public consultation leading to adoption is, on past experience likely to be a rocky ride.

Monitoring is ongoing, although of course staff shortage is a major problem here as elsewhere

THE STRATEGY

The creation of an inventory is the first stage of the strategy. The “Phase 1” habitat survey (see map above) is now complete. The main features confirm what we have already seen; the valuable habitats are in the west, along the north coast and along the steep valley sides where the slope precludes cultivation. We intend to monitor gross change in habitat area using these survey results as a baseline.

The “phase 2” habitat survey will concentrate on gathering information on the less studied, smaller areas of valuable habitat in Jersey, leading also to the identification and eventual designation of more SSIs. We have also dabbled in remote sensing, and we have a map which is a product of a satellite data gathered to help in planning in the Island. The difficulty is the interpretation of the data, but the overall result is a useful contribution to our habitat recording. Improvements in the interpretation of the satellite data, using the results of the ground-proofed habitat survey will help us in the future as the technology improves.

History of Biodiversity Strategies in Jersey

- First plan completed 1993
- Priority species and habitats
- Too prescriptive for other committees

- Not wide reaching enough
- Not enough consultation
- Provided outline

The first strategy was completed by group of students from University College London in 1993. It was not acceptable politically. It took a very target-centred approach, with plans for individual habitats and species and educational aims. The main reason why it was not acceptable was because it prescribed changes in the way other departments should operate. All consultation was with small groups. Most of the work was done over an intensive 12 days.

It took another two years and a change in the structure of the department to begin a new approach. In the meantime information gathering proceeded, continuing invertebrate studies over 20 years, plant and habitat surveys over same time, designation of 3 SSIs and 3 more this year, lichen surveys over last two years, major studies on red squirrel (a flagship species) and others about to begin on the agile frog (the subject of a captive breeding programme since 1994) and on bats.

Also, since 1996, major steps forward in preserving the marine environment were the appointment of a marine biologist and Ramsar designation studies towards coastal zone management plans. A big programme of awareness raising, major week-long events and publications, and an education strategy are being implemented.

What the strategy will deliver

- Compliance with international obligations
- Framework for implementation of local policy

- Action plans for habitats and species
- Base-line data to measure and monitor change
- Continue species information gathering

The extent to which our government feels bound by international obligations to the natural environment is debatable. There seem to be no sanctions for non-compliance, and therefore no compulsion to comply. A desire to control inflation by concentrating on reducing government's staff levels has seriously affected our need to expand our activities to a satisfactory level. The high commitment of our small staff has kept things going, but has prevented us from carrying out the tasks given to us by the strategic policy review of 1995, entitled "2000 and beyond".

SUMMARY

- Lack of political will, but
- Strategy will be:
 - sustainable
 - achievable
 - realistic
 - timed (and costed)

Despite the apparent lack of political will, we are determined to implement a strategy to preserve and enhance the valuable natural environment of our Island.

Through our involvement in this conference, we hope that clarification of roles and responsibilities of dependent territories and of the UK government will help us all to implement fully the spirit of the Convention on Biological Diversity.



Henderson Island Management Plan: what stops a plan becoming action

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Henderson Island in the Pitcairn Islands in the South Pacific is a 37km² raised coral island that is extremely isolated. It is also exceptionally undisturbed ecologically, despite a period of Polynesian occupation from the ninth to sixteenth centuries. It holds large number of endemic animal and plant species. For these reasons the island was designated a World Heritage Site by UNESCO in 1988, in response to a proposal from UK Government. Attached to the designation was the condition that the British Government draw up a Management Plan for the site. A plan was drafted by the Sir Peter Scott Commemorative Expedition to the Pitcairn Islands, and submitted to the Joint Nature Conservation Committee (UK Government's statutory adviser on nature conservation) in 1992. Following this submission, there was a period of consultation with interested parties before, in 1995, the draft was 'shelved' by JNCC. Since then, the British Government has not pursued the matter and therefore the condition of designation remains unfulfilled.

In our talk we ask whether the lack of a formally approved Management Plan has had adverse consequences for conservation. However, we begin by trying to identify the factors impeding progress with the Plan.

Firstly, the geographical separation of interested parties makes it well nigh impossible to assemble all parties at one place to resolve differences of opinion over the draft plan. These parties include the Pitcairn Island Council based on Pitcairn, the British High Commission in Wellington, New Zealand, the Foreign and Commonwealth Office and other Government Departments in London, England, the Joint Nature Conservation Committee in Peterborough, England, and various conservation NGOs, most based in the UK.

Secondly, there is persistent concern among the Pitcairn Islanders over the Management Plan, partly arising from the historical circumstances surrounding the designation of the World Heritage Site. It is difficult to allay this concern because of the geographical isolation mentioned above. It is also the case that any active management prescribed by the

Plan will require physical input from the Islanders who live 110 miles from Henderson. Given the present population of Pitcairn, some 50 people, the Islanders are rightly concerned they will have neither the manpower nor the financial resources to undertake that management.

Thirdly, the JNCC has not pressed for the Plan to be completed, despite having commissioned the draft in the first place. This has partly arisen because the size of JNCC's International Unit was reduced in 1994 and the JNCC as a whole in 1995.

Fourthly, the lead Department within the UK Government, the Foreign and Commonwealth Office, has not pressed for the Plan to be completed, mainly because of the burden of other work. Even less interest has been shown by the Department of Culture, Media and Sport, responsible for liaison with UNESCO over World Heritage matters.

Fifthly, NGOs have not perceived completing the Plan as the highest priority issue on the Pitcairn Islands, especially as important plant conservation management can be undertaken on Pitcairn itself without the Henderson Plan.

Has this lack of progress had adverse consequences? To address this, we first list the principal objectives of the draft plan. These are:-

- (i) To provide a management structure
- (ii) To prevent introduction of alien fauna and flora
- (iii) To control the removal of biological material and Polynesian artefacts
- (iv) To prevent damage to the reef and turtle nesting beaches
- (v) To develop miro and tao, used for carving by the Pitcairn Islanders, as a sustainable resource
- (vi) To control tourism and other visitor impact
- (vii) To improve scientific knowledge
- (viii) To provide rat-free nesting areas in the wider Pitcairn Islands for petrels.

Some of these objectives (ii, iii, iv and vi) have been achieved *de facto* by Henderson's isolation which continues to be a key feature assuring its protection. One objective (viii) has been partly achieved outside

the framework of the Management Plan. Rats have been eradicated from the atolls of Oeno and Ducie, both important petrel nesting sites. Rat eradication on Pitcairn remains a task for the future. Objective (i) has manifestly not been achieved, but is a means to an end. Objective (v) has also not been achieved, and is perhaps the objective most likely to be advanced if the Plan were completed. There has been no significant advance in scientific knowledge since the 1991-92 Expedition (Objective vii), but it is doubtful whether this situation would have been materially different were a Management Plan in place.

In summary therefore we find that some conservation progress has been achieved (e.g. Objective (viii)) without the benefit of the Plan. Other objectives (e.g. Objective (v)) have not been achieved and would very likely be advanced within the framework provided by the Plan. Moreover, an agreed Management Plan for this World Heritage Site would provide a structure within which any future threats to the ecological marvels of Henderson could be assessed.



Santalum insulare var. *hendersonense*, a variety of sandalwood endemic to Henderson



Female green turtle hauling ashore on Henderson's East Beach



The south-western coast of Henderson is dominated by fabulously eroded *makatea* limestone.

The Millennium Seed Bank Project

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The first tranche of UK mainland Biodiversity Action Plans (*Biodiversity: The UK Steering Group Report, 1995*) included, amongst the species plans for higher plants, several actions along the following lines:

'5.3.3 Collect seed from a representative number of native sites in different parts of the range of this species and deposit in the Millennium Seed Bank at Wakehurst Place (Kew). Plants should also be propagated for reintroductions if necessary'

So why collect seeds for a seed bank? What is seed conservation about?

The Royal Botanic Gardens, Kew, have maintained a seed bank at Wakehurst Place in Sussex, England, since the middle of the 1970s. The bank takes advantage of the fact that the majority of seeds have a natural dormancy, designed to take them safely through periods of adverse environmental conditions. Seed banking involves invoking this dormancy and then storing the dormant seeds under 'adverse' conditions until they are needed. Different species have different storage requirements, and some can be stored for longer than others, but the time-spans involved are generally considerable. For instance, in the case of sorghum the time taken for viability to decrease from 97.7% to 84.1% is estimated to be 6106 years (Ellis & Roberts 1980).

Some species, however, do not store. The reasons for this are the subject of a great deal of research, but the fact is that an estimated 15% of the world's plant species produce seeds that cannot be banked. Generalisations can be made; large, fleshy seeds are difficult to store, and species from habitats that are continually wet, such as tropical rainforest, tend to produce seeds that are not desiccation-tolerant. Having said this, nearly all of the UK's aquatic plant species produce seeds that can be dried and stored.

The banking process begins with a short period of drying. Seed collections are stored in moisture-permeable containers – cotton or paper bags – and on arrival are placed in a room at 20% relative humidity. This is solely to aid with the seed cleaning process, since material collected under wet conditions is often difficult to work with. Once the collection is dry, it is cleaned to remove as much non-seed material – pods, leaves, dust, etc – as possible.

A sub-sample is then removed for testing. An x-ray reveals what proportion of the seed is filled, and germination on plates of agar gives an initial percentage germination figure to act as a benchmark for future tests. Germination is vital – there is little point in storing seeds that cannot subsequently be turned back into plants. Scarification, chemical treatments and a range of temperature- and light-regimes are all used to ensure that germination is achieved, and the protocol developed for each species is recorded.

The bulk of the collection, now cleaned and tested, is then sent for its final drying. This time, the collection spends at least 4 weeks at 20% relative humidity, gently losing moisture to its surroundings. Finally, it is sealed in airtight containers and placed in the bank, which is maintained at -20C. Every 10 years, a sub-sample is removed and germinated. The germination rate can be compared with the original germination results to give a picture of how well the sample is storing. All the tests are, however, destructive and the size of the stored sample decreases each time. For genetic reasons, collections are rarely bulked up by taking a sample from the bank and growing it to maturity. This would put artificial selection pressure on the 'population', favouring plants that grow best in glasshouse conditions. The ideal is to re-collect from the wild, sampling widely and evenly across as large a population as is available.

Although most seeds are small and can be packed into a small volume, it was always anticipated that the Kew Seed Bank would eventually run out of space. A proposal was put together for a programme of seed collecting work throughout the world, centred around a new, purpose-built seed bank building. Kew was fortunate to be successful in its application for funds from the National Lottery, and the Millennium Seed Bank was born.

The first stage of the project involved the collection of seed from effectively the whole UK mainland native flora, some 1400 species. Using over 250 volunteers from around 35 organisations, collecting took place from 1997 to 1999. Currently, 93% of the native flora is represented in the Bank, the remaining species being those which a) cannot be banked, b) do not produce seed or c) are difficult to locate, identify or both.

The overseas collecting programme is concentrating on the arid and semi-arid tropics, with large-scale collaborative projects in Africa, Central and South America, the USA, Madagascar, Australia and India. The aim is to collect 10% of the world's flora by the year 2010.

The Wellcome Trust Millennium Building, centrepiece of the project, comprises a state-of-the-art seed storage facility, laboratories, accommodation for overseas visitors and an interpretative exhibition for the public. Now that the facility is open, with 8 times the storage capacity of the previous Bank, we are keen to encourage collaboration. Like any other bank, we rely on deposits and withdrawals, and we are happy to store, free of charge, seed material from our partners' priority species. In return we can offer long-term secure storage in state-of-the-art facilities, information on the viability of the sample, and guidance on successful germination.

Although *ex situ* conservation is not, and will never be, a substitute for on-site habitat management and protection, it can form a useful tool within an integrated conservation strategy. If you are interested in working with us, please get in touch.

Reference

Ellis, R. H. & Roberts, E. H. 1980. The influence of temperature and moisture on seed viability period in barley (*Hordeum distichum* L.) *Annals of Botany* 57:499-503



Seeds are stored at sub-zero temperatures



The Wellcome Trust Millennium Building, designed to house the new Millennium Seed Bank, as well as offices, laboratories and a public exhibition area

Summary and further actions

Taking things forward: Led by Sara Cross (Director for Development, UKOTCF) and Sheila Brown Brathwaite (Permanent Secretary, British Virgin Islands Ministry of Natural Resources & Labour), with support from John Cortes (General Secretary, GONHS), and Mike Pienkowski (Chairman, UKOTCF)

Appendix 1. Final published programme for the conference

Appendix 2. Participants and their contact details



John Cortes (General Secretary, GONHS), Sara Cross (Director for Development, UKOTCF), Sheila Brown Brathwaite (Permanent Secretary, British Virgin Islands Ministry of Natural Resources & Labour) and Mike Pienkowski (Chairman, UKOTCF)

Taking things Forward

The final session of *Calpe 2000: Linking the Fragments of Paradise*, an international conference on environmental conservation in small territories, 28th September to 1st October 2000, John Mackintosh Hall, Gibraltar – Sponsored by the Government of Gibraltar, organised by the Gibraltar Ornithological & Natural History Society, with the support of the UK Overseas Territories Conservation Forum.

This conference was designed to be of help in some of the priority issues identified by workers in small territories. The conference was deliberately participatory for all, rather than segregated into speakers and audience, because exchange of experience was a key. For this reason, the organisers wanted to capture rapidly some of the main conclusions arising from discussions. Throughout the meeting, a small team kept track of these. This was led by Sara Cross (Director for Development, UKOTCF) and Sheila Brown Brathwaite (Permanent Secretary, British Virgin Islands Ministry of Natural Resources & Labour), with support from John Cortes (General Secretary, GONHS), and Mike Pienkowski (Chairman, UKOTCF). Additional contributions were sought from others. Sara and Sheila gave the presentation, which is given below. As indicated then, minor changes have been made to their summary below in order to include adequately the later sections.

Taking things Forward

For many of the OT delegates who were at the meeting in London *A Breath of Fresh Air* just over a year ago (June/July 1999), one of the major issues was how conservation action could be taken forward. At that meeting much was spoken on what was referred to as the Environmental Charter for the Overseas Territories (and, for the benefit of those people, we will briefly outline the progress made at a Governmental level on the Charter process, shortly). However, the essence of what we are talking about can be encapsulated in the term Strategic Environmental Action Planning, and this is applicable to all small territories, and indeed has been a major theme of this conference in Gibraltar.

As the London conference drew to a conclusion last year, we recognised how valuable it had been in drawing together so many enthusiastic, committed and normally widely dispersed people. We already knew that this conference, *Calpe 2000*, was in the early planning stages, and were extremely glad of that. This was because we believed that it would provide an excellent opportunity for all participants to report on progress they had made in developing those ideas for action which generated so much enthusiasm 15 months ago. We hoped also that it would encourage further exchange of ideas and networking with the additional participants from small territories who have made such a valuable contribution to the knowledge we have all gained during our time in Gibraltar.

As mentioned, we will now turn briefly to the Environment Charter process, in response to questions from many OT delegates, in order to communicate what we understand to be the situation on its progress, before returning to summarise outcomes from the progress that has undoubtedly taken place at this *Calpe* conference. In October last year, the Environment Policy Department of the Foreign Office, after an extensive period of wide consultation, generated a statement of draft key principles, which

were aspirational statements, related to various existing international agreements and written in deliberately accessible language. The draft key principles were sent to all OT Governments for comment, in time for the first Consultative Council meeting of Ministers. Feedback from the Territories to date has been slow, with only a few comments having been received by the FCO.

However, government officers and NGOs in several of the OTs have flagged up the need to take forward in parallel some work to illustrate how these key principles would translate into real actions. This process would also help clarify the principles themselves. Consultations with several OTs have made clear that more facilitation is needed to assist people in the Territories to kick-start the process of developing their own action plans, up to now on hold due to the lack of time and human resources. Several OTs are discussing with the Forum the ways in which this facilitation might most usefully be provided, and FCO has indicated that it is supportive of this approach.

During this conference, it has again been apparent that environmental education and public awareness are vital tools for the realisation of the value of environmental resources, both in protected areas and in small islands as a whole. The conference has illustrated the many arenas and methods which participants are employing to get the message across, from island-wide campaigns and focused public meetings, to developing materials with which teachers can be trained to integrate environmental messages into the school curriculum. One of the pertinent messages was that all Territories must instil in their own people a sense of pride in their unique flora and fauna. Schemes such as the National Trust [for England, Wales & Northern Ireland] school guardianship programme, which involves children learning hands-on ecological skills directly from professionals in the field, should be encouraged and developed wherever possible. BVI has a similar

programme involving the Department of Agriculture, where children are taught how to grow vegetables using small plots of land, while developing a sense of responsibility and awareness for the environment. These experiences can make a significant impression on young minds, and thus are important to the long-term sustainability of the Territory's land mass. The performance by the Gibraltar school children was excellent. They obviously were not put off by the short period of time given to prepare, and like most Gibraltarians, they are obviously quite fast learners! The calypso was very catchy and taught us about the iguana in a simple but very interesting way. Their inclusion added a very welcome flavour to the proceedings as a whole, and again we would like to thank all those involved, including the children, for their efforts.

The immense value of information networking cannot be stressed enough for the individuals gathered here today. In the past, we have been so widely dispersed, and some of us have been so isolated from the wider world that communication has been difficult and intermittent. The advent of electronic communications in the form of email and the internet have brought us all much closer together, simply by allowing us to share our experiences with ease and at low expense. The development since the last gathering of a database for environmental information in the Overseas Territories now has the potential to draw us together even further, and will empower us to work together and pool our efforts to make things happen constructively. We will be able to keep abreast of each other's concerns and successes, and learn a tremendous amount about our own situations by being able to read about others in a similar position. The database has the potential to be a marvellous mechanism for enhancing over-stretched capacity, and we strongly encourage everyone to use it, give us feedback on it, and to encourage its future development, in line with your most pressing information needs. The more pertinent information we can include, the more powerful a tool the database will be. We see it being equally useful to those outside this hall, whether they be tourists, Governors, politicians or potential developers, as a means of finding out just how important the Territories are for their biodiversity interest.

The biodiversity work that delegates from Cayman and Bermuda demonstrated this weekend have shown us how powerful a tool digital mapping systems can be to record important information on key species and habitats. These traditionally difficult and expensive techniques are rapidly becoming more accessible to the environmental NGO community, enabling conservation organisations to build geographic information databases of enormous value in protected area planning and endangered species conservation.

The wide range of presentations of the Saturday morning session showed how different islands try to ensure that their protected areas remain just that – protected.

The St. Helena Millennium forest project showed us how an inspirational idea, again fostering national pride for an endemic species could generate a huge commitment from local people to participate in setting up a long-term environmental project. This level of commitment will surely guarantee its long-term success, as the forest grows to maturity.

A number of presentations demonstrated how economic benefits to the country as a whole could be generated through environmental conservation activities. These are not just through employing locals as environmental workers, but also through the involvement of local people in associated industries, such as ecotourism, and its resultant infrastructure of accommodation, roads, transport etc. Again, a sense of local ownership is paramount to successful protection. We heard how wildlife clubs in Seychelles local schools ensure that this sense of ownership begins at an early age. Economic benefits arising from environmental conservation, and associated ecotourism, cannot only assist in sustaining the protection of important areas, they can also stimulate and encourage cultural activities, unique to each territory. Local people can benefit in this way through cottage industries, revitalising traditional skills and again enhancing a sense of national identity and pride.

The power of largely volunteer effort with limited financial resources has been evident throughout this conference, in the form of GONHS. Their achievements were particularly clear during the field trips as well as the presentations and discussions. They have a mature relationship with Gibraltar Government which seeks their advice, contracts work to them, respects their views and often follows their advice. Even when it cannot, it values the input of ideas and arguments. Many conference participants have indicated how they admire – and even envy – the immense commitment of time which constitutes the strong volunteer team and effectiveness of GONHS. We are sure that many will try to take up many of the ideas. And, as for GOHNS, just imagine what they could achieve with a paid core of employees to support their volunteer effort!

A frequently repeated message in several sessions has been the importance of owning land in order to ensure long-term conservation. In some situations, this is not an option. For example, GONHS cannot do this but are able perform miracles as managers; however, we think that they would be the first to admit that ownership would make many things easier. Those territories with National Trust type legislation have a particularly helpful mechanism available for

governments to enlist the resources of NGOs. Lands given by governments to National Trusts can be declared inalienable, so that the NT cannot treat this land as an ordinary disposable asset, but must safeguard it in trust for the people. Such transfers of land by government tend to attract further contributions by private individuals and organisations, making this a very cost-effective investment by government. It is also important to ensure an income stream for site-management. Sunday morning's discussion presented one strong route. Conservation Funds can be one of the few popular taxes. At least part of these can be ear-marked for the organisations managing protected areas. Again, there are extra benefits in that NGOs managing such protected areas can often draw in matching funding from both domestic and international sources, as well as major volunteer effort.

Something of a consensus evolved in discussion of the management of dedicated environmental funds in several OTs. The most successful examples involve an environmental tax being placed in a statutory fund separate from general government funds, managed by a Board with representation from government, NGO and private sector interests. Openness and accountability, strong and unambiguous legislation, and a constructive relationship between environmental NGOs and local governments are seen as key elements. Relative access between government and NGO agencies to grants from such funds is an ongoing concern needing resolution in several OTs.

Producing a summary of such a packed conference during the conference is a taxing business. Obviously, the final sessions suffer most. However, we will incorporate them more fully – and tidy these comments – in the proceedings.

What Next? Further Opportunities to Meet?

One of the oddities of Overseas Territories is that, until recently, there was little encouragement to exchange experiences. The Forum has brought together environmental NGOs in UK Overseas Territories. Increasingly, this opportunity has been used too by OT governments. At this conference, we have also benefited from the experiences of the UK Crown Dependencies, the OTs linked with France and the Netherlands, several small independent states, and relevant experience from larger countries. We will therefore continue to explore ways of maintaining these mutually beneficial links. For example, the Forum will be talking further with its French colleagues; and will be exploring with colleagues in the Netherlands Antilles the possibility of including some of their material from there within the Forum's database. We should also make use of the complementary regional networks. An example is the

work of the Organisation of Eastern Caribbean States in developing an environmental charter which should be exploited in our attempts to develop forward strategies.

We need to keep in touch, in order to benefit from our shared learning, This is increasingly easy with modern communications. For example, do please use the Forum's database. We should also think about meeting again – not too soon, because it is exhausting to organise these meetings! More importantly, however, we must allow ourselves enough time to apply our new ideas and achieve conservation, before devoting time to exchanging this knowledge. Probably, about two years' time might be about right. Several places may be interested in being the venue. We are aware that Bermuda has already expressed some interest, but so too have other places. One plea from the Forum: if hosts want the Forum to be involved, please get in touch early – as Gibraltar kindly did – because we all suffer from restricted human capacity!

In terms of other actions, we all need to push forward the initiatives and ideas we note above, and others. Indeed, one important area which embraces many others concerns strategic environmental planning. This really means sorting out our priorities, working out the responsibilities of the various stakeholders in achieving these; and using this process to make sure that these actions happen, including:

1. Development of user-friendly, dynamic management plans, using examples provided here;
2. Seek to update our legislation to make it more effective and enforceable;
3. Persevere to ensure that trust funds are used as intended;
4. Expand education initiatives wherever possible, especially involving the users;
5. Encourage the consistent use of EIAs for development initiatives;
6. Continue and expand the ongoing dialogue with the UK Government to impress upon them the obvious need for adequate funding and technical assistance to ensure that UK's OTs can work towards achieving sustainable livelihoods through the environmental sector of their economies;
7. NGOs must continue to provide policy makers with full detailed information to avoid perceived distrust.

So, let's not forget the enthusiasm of this meeting. Let's build upon that enthusiasm when we return home, and direct our efforts into working on the ideas outlined above to use the experience of this meeting to progress conservation.

Appendix 1.

Final published programme for the conference

CALPE 2000: LINKING THE FRAGMENTS OF PARADISE

An international conference on environmental conservation in small territories

28th September to 1st October 2000, John Mackintosh Hall, Gibraltar

Sponsored by the Government of Gibraltar, organised by the Gibraltar Ornithological & Natural History Society, with the support of the UK Overseas Territories Conservation Forum

BACKGROUND

This conference forms one of a new series sponsored by the Government of Gibraltar, under the series title "Calpe", which is the old Roman name for Gibraltar. This particular conference addresses the very topical issue of environmental conservation. Its title reflects one of the first publications highlighting the immense biodiversity value of the UK Overseas Territories, and the need to provide for increased exchange of knowledge between them and other areas.

The fundamental role that this plays in the economic and social well-being of people, as well as its inherent importance, is being recognised increasingly. Throughout the world, countries are preparing action plans for the environment. Indeed, those which are party to the Convention on Biological Diversity have committed themselves to integrate planning for the environment into all planning processes. This need is at least as true of small territories as elsewhere; in fact, it may be more so, because such territories are often very closely dependent on their natural environments.

The conference is intended as a working meeting, to help Territories take forward work, particularly in a range of areas that have been identified as priorities by workers in the small territories:

1. Environmental awareness and education
2. Information networking
3. Tourism and funding for the environment
4. Making protected areas effective
5. Biodiversity action planning

Emphasis will be placed on sharing knowledge and experience between workers from the various UK Overseas Territories, but also with other Overseas Territories, such as those of France, Spain and the Netherlands, as well as relevant small independent states.

PROGRAMME (as at 22 September 2000)

Wednesday 27 September and Thursday 28 September: Arrival

Thursday 28 September

[0900 Speakers, seminar leaders etc: briefing with audio-visual technician]

1000-1600 Optional tour of Gibraltar and principal wildlife sites. Coaches leave from John Mackintosh Hall. (As an alternative for late arrivals or the travel weary, there will be a guided tour of the Gibraltar Botanic Gardens starting at 14.30 until about 1600, led by Brian Lamb (Curator) and Andrew Anbrines (Horticulturist).)

[1700-1800 Business AGM of Forum – for member organisations only]

- 1815 Examples of successful ecological restoration projects in Bermuda – talk by Dr David Wingate, Bermuda National Trust & Bermuda Audubon Society
1900 Reception at John Mackintosh Hall, hosted by The Hon Ernest Britto ED, Minister for Public Services, the Environment, Sport & Youth, Gibraltar; followed by viewing of displays

[Dinner individually organised by participants]

Friday 29 September

OPENING SESSION (Chair: Dr Mike Pienkowski, UKOTCF)

- 0900 GONHS welcome and introduction to the Deputy Chief Minister
0915 Opening of the Conference by The Hon Keith Azopardi, Deputy Chief Minister and Minister for Trade, Industry, Telecommunications and Heritage, Gibraltar
0930 Conservation as viewed from a Gibraltar perspective. John Cortes, GONHS
Outlining purpose of conference and ways of working
- 1000 ENVIRONMENTAL AWARENESS AND EDUCATION – plenary session of 10-minute talks on a range of projects and experience in various Territories
- 1000 Conservation education & awareness programmes - Paul Butler, RARE
1020 Our Land, Our Sea, Our People (schools programme in Turks & Caicos Islands): Ethlyn Gibbs Williams, TCI National Trust
1035 Montserrat: Sarita Francis, Montserrat National Trust
- 1050 Coffee
- 1120 Environmental awareness and education on St Helena: Isabel Peters, St Helena Govt & Stedson Stroud, St Helena Conservation Group
1135 Raising awareness on wetlands of international importance in Cayman: Fred Burton, Cayman Islands National Trust
1150 Raising awareness - experience from a large organisation: Martin Drury, The National Trust [of England, Wales & Northern Ireland]
1205 Discussion
- 1245 Lunch
- 1345 INFORMATION & NETWORKING – short presentations in plenary on the Forum's database/web project, introductions to aspects of information handling, and guidance on advice available during the conference and afterwards
- 1345 Forum's database/web project – introduction and purpose Mike Pienkowski (UKOTCF)
1355 Forum's database/web project – demonstration. John Wheeler
1405 Forum's database/web project – invitation to comment on future priorities
1425 GIS and mapping: Fred Burton (Cayman Islands NT)
1445 Biodiversity recording and planning: Bermuda . Anne Glasspool (Bermuda Govt Museum & Zoological Society)
- 1505 Parallel workshops and helpdesks on several aspects of ENVIRONMENTAL AWARENESS AND EDUCATION and INFORMATION AND NETWORKING
(with coffee available, rather than as specific break)

1. Public awareness needs: surgery/discussion led by Paul Butler (RARE)

2. Producing educational, curricular & awareness material: workshop led by Ethlyn Gibbs-Williams (TCI National Trust), Rachel Sharp (RSPB re Ascension)
3. Wildlife clubs/ school kids performance preparation: work with ca 20 local 10/11-year-olds to produce various display material and performance, probably on seashore life as an example, for the plenary later in the day - led by Jim Stevenson (RSPB), Ijahnya Christian (Anguilla National Trust), Paul Linares (GONHS).
4. Training and helpdesk on using the Forum's database (both to obtain and supply information) and on web-site design generally; John Wheeler (Forum consultant)
5. Helpdesk/discussion on membership & contacts database handling: Dace McCoy Ground (TCI NT; ex- Cayman and Bermuda NTs)

1715-1745 Plenary for the kids presentation

1800-1900 Annual open meeting of the UK Overseas Territories Conservation Forum, with short presentations on its work, including its regional Working Groups.

[Dinner individually organised by participants]

Saturday 30 September

- 0900 MAKING PROTECTED AREAS EFFECTIVE – short plenary presentations, not on selecting protected areas, but on making those areas meet their objectives (“using, not choosing”)
- 0900 An overview and the National Trust experience: Martin Drury
- 0920 Little Water Cay Iguana Trail and Middle Caicos Darwin Initiative: Ethlyn Gibbs-Williams (Turks & Caicos National Trust)
- 0935 BVI National Parks Trust: Joseph Smith Abbot
- 0950 St Helena Millennium Forest: Isabel Peters, St Helena Government
- 1005 Managing areas with no human population: Nigel Wenban-Smith (Friends of the Chagos)
- 1020 Coffee
- 1050 French Départements Outre Mer and Territoires Outre Mer: Alison Duncan (Ligue pour la Protection des Oiseaux, France)
- 1105 Reserve management in Catalunya: Dr Puri Canals (President of the Iberian Council for the Defence of Nature and Chairman of DEPANA)
- 1120 Seychelles: Dr Nirman Jivan Shah (BirdLife Seychelles & formerly Director of Conservation for Seychelles National Parks)
- 1140 Discussion
- 1215 Lunch
- 1315 Introduction to effective site-management planning, and the field workshops: Dr Tim Reed
- 1345 Parallel workshops on managing a range of protected areas. It is intended to offer a choice including options ranging between various terrestrial and marine habitats. The workshops will incorporate work in the field.
- 1730 Further opportunity to view displays and publication stands, and consult help-desks

[1730-1830 Exploratory meeting on forming a Forum European Working Group of the Forum. Participation by invitation.]

2000 Coaches leave for conference dinner

- 2030 Conference Dinner in the huge caves inside the Rock of Gibraltar, within the Upper Rock Nature Reserve

Coaches return from dinner

Sunday 1 October

- 0850 TOURISM AND FUNDING FOR THE ENVIRONMENT - plenary presentations on positive and negative experiences in securing funding from the tourism industry for environmental conservation
- 0850 The problems of intensive tourism (cruise & other) in the Caribbean: Polly Patullo
0910 Attracting cruise ships and setting the agenda: Falklands: Rebecca Ingham & Debbie Summers (Falklands Conservation)
0925 The St Helena situation: Isabel Peters, St Helena Govt & Stedson Stroud, St Helena Conservation Group
0940 Criteria for environmentally responsible tourism: the study for the Association of British Travel Agents: Monica Brett (WCMC)
0955 Transparency, criteria and NGO participation in tax-base conservation funds: the Seychelles experience: Dr Nirman Jivan Shah (BirdLife Seychelles & formerly Director of Conservation for Seychelles National Parks)
1010 The Cayman Environment Fund: Original objectives: Michael Gore (former Governor of Cayman; Chairman Forum Wider Caribbean Working Group)
1015 How well have these been achieved?: Report on behalf of the Government of the Cayman Islands
1025 The Turks & Caicos Conservation Fund: Original objectives: Ethlyn Gibbs-Williams (Turks & Caicos National Trust)
1030 How well have these been achieved?: Delton Jones (Government Economist, Turks & Caicos Islands)
- 1040 Coffee
- 1105 Tourism and Biodiversity: the Balearic experience: Dr Cristian Ruiz Atalba (Mediterranean Institute of Advanced Studies, Mallorca) & Catalina Ponsell Vicens (Josep Maria Llompart IES, Mallorca)
1120 Ulixes 21 – Towards Sustainable Tourism in the Mediterranean: Vanessa Hamilton (MedForum (Malta))
1135 Wildlife and tourism – the Gibraltar situation: Eric Shaw, GONHS
1150 Business planning for tourist income from trails etc: Paul Butler (RARE)
- 1215 Plenary discussion on future prospects in this area (jointly chaired by Penny Patullo & David Taylor [Chairman Forum South Atlantic Working Group; former Governor Monserrat; former Chief Executive Falklands])
- 1315 Lunch
- 1415 BIODIVERSITY ACTION PLANNING – plenary talks on: why we need plans; whose plans are they?; what do they look like?; how do we prevent them becoming an industry?; and how to make them effective
- 1415 Plans and their implementation: David Stroud (Joint Nature Conservation Committee)

- 1435 Action planning and implementation for the conservation of biodiversity of the Saba Bank:
Paul Hoetjes (Section Nature & Environment, Dept Public Health & Environmental Hygiene,
Netherlands Antilles)
- 1450 Jersey's Biodiversity Strategy: Mike Freeman (Ecologist, States of Jersey)
- 1505 Henderson Island Management Plan and what stops a plan becoming action: Leon Salt
(Pitcairn Commissioner) / Dr Michael Brooke (Chairman Forum Pitcairn Working Group)
- 1520 Millennium Seed-bank Project: Steve Alton, Wakehurst Place, Royal Botanic Gardens Kew
- 1535 Coffee break
- 1605 Seychelles GEF & Environmental Management Plan: Dr Nirman Jivan Shah
- 1625 Plenary discussions on biodiversity action planning
- 1730 Taking things forward: Sara Cross (Director for Development, UKOTCF) & Sheila
Brathwaite (Permanent Secretary, British Virgin Islands Ministry of Natural Resources &
Labour)
- 1800 Closing of conference: The Hon Dr Bernard Linares, Minister for Education & Culture,
Gibraltar
- 1815 Informal discussions

[Dinner individually organised by participants]

Monday 2 October

Disperse

Appendix 2.

Participants and their contact details

Conference participants are listed below, with details (where available) given in the following order:

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