

Part 4. Prescription: Management Plan proper

4.1. Introduction

This management plan is part of a management process, not a document to be placed on the shelf and forgotten about. The process is intended to involve periodic reviews and revisions. These reviews will allow assessment of progress so far against the plan, as well as consideration of what aspects of the plan itself need revision in the light of increased knowledge and experience by all concerned.

Because of this working nature of the plan, at any one time different elements of the plan will be developed to different extents. Taking the following section on trails for example, the actions needed to establish some trails are now quite well worked out. For others, more investigation is needed. For yet others, the likelihood of a suitable trail in the area is recognised, but research is needed even on its route. As work develops, these various components will also move to more filled-out plans at varying rates. Similar comments apply to other sections of the plan.

Wherever possible, the details of the Plan are written in terms that will readily identify which actions have actually been achieved. This should assist monitoring, reporting, selecting priorities for future periods, and in revising the Plan periodically.

4.2. Field-roads (Trails) and Hides/Blinds

4.2.1. Background

A key to the approach of conserving the internationally important biodiversity of the Caicos Islands is to make more of it available to be experienced. This is both so that local people can know and cherish it, and to provide facilities for visitors, these in turn providing opportunities for local employment. The development of visitor centres, trails, viewing platforms and supporting information will be central to the project. These will provide the basis for awareness-raising, the education work noted above, material for visitors and their local guides, sales points for local crafts and for tickets for trails etc.

The general idea was well spelt out in the early report on potential Ramsar sites in TCI (Clarke & Norton 1987):

“Wetland sites can be exploited as tourist attractions as long as adequate access and guidance is provided. Educational and natural history tours are becoming increasingly popular and bird-watching groups travel far and wide. The designation of a Ramsar site will create great interest in the Turks and Caicos Islands as a natural history destination and this could be tied in with the existing interest in diving on the coral reefs.

“Access may be provided by boat ... On land trails are required with board walks in mangrove areas and hides erected at strategic places. ... Nature trails could be established by continuing or improving existing trails ...

“Guidance can take the form of self-guided trails with signs, labelled trees, display boards, and leaflets. Guided tours to explain the ecology, etc., would attract visitors (e.g. people at Club Med would go on such tours), and provide part-time employment for knowledgeable individuals. Training for local guides should be possible through regional organisations.”

4.2.2. Overview (including integration, funding, guides, stakeholders)

Several factors need to be taken into account in developing a system of facilities for experiencing the heritage of the Caicos Islands. These include:

- o The development of the system should be modular, so that some elements can become fully operational at an early stage, and help generate interest and support from the early stages.

- o Even though modular, the scheme should fit a wider plan, so that the various elements will be integrated at later stages when more are in place.
- o Trails and hides should cover a range of ecosystems and other interests.
- o Wherever possible, historical and cultural features should be included as well as biological ones.
- o Trails should incorporate a range of distances and challenges.
- o Throughout, damage to the biological, historic and cultural heritage should be avoided. Indeed, the object is to conserve this.
- o Usage should be monitored.
- o Schemes to generate income should be implemented as early as possible, so as to support maintenance of existing facilities and the addition of more modules (following the example of the Trust's successful Little Water Cay trails).
- o Wherever possible, facilities should be related to Information Centres or other Trust facilities, so as to enhance interpretation, aid supervision and provide a range of opportunities for visitors.

It is not envisaged that the facilities outlined below should all be implemented immediately. This would be impracticable in terms of resourcing and managing. Rather, it is envisaged that annual and other work programmes will select appropriate priorities from the overall plan. Neither do the potential facilities below comprise the full range possible. Indeed, when a late draft of this plan was discussed at a community meeting on Middle Caicos in early 2002, local residents (who had been involved throughout in finding and re-opening the field-roads) were keen to point out the possibilities for additional trails etc, based on further traditional field-roads. It is envisaged that this management plan will be a working document, and appropriate additional elements will be added in revisions.

The main activities involve designing and managing integrated nature and historic trails, based where practicable on traditional paths (field-roads), and including vegetation management, board-walks over wet areas, viewing hides & platforms and signage. Project personnel will use results of the Darwin Initiative surveys, information on cultural and historical sites, land and access information and other information to identify appropriate areas for public access; construct trail infrastructure (by locally recruited trades-persons); and convert relevant biodiversity, historical and cultural information into user friendly interpretative materials. Systems will be established for guided access with limitations as necessary to conserve resources. Existing collaboration with local tour guides will be developed to agree capacity limitations, means of access control, fees where appropriate, and system of enforcement, feedback and revision as necessary.

In the following sections, the various components of the work are considered in turn.

4.2.3. Field Roads

4.2.3.1. Introduction

The following are the field-roads which have been identified as an appropriate sub-set of the total. Together, they would provide a range of experienced, generally grouped on the main settlements. However, even individually, they would provide a range of steadily increasing interest. Some of the trails, and the centres, are superimposed in mauve ("fuchsia") on the maps on the following pages.

4.2.3.2. Crossing Place Trail

This trail was primarily of historic and scenic importance. However, as a result of work reported here (see Sections 2 & 3), it is now known to be of conservation importance also to butterflies, birds and other features. The trail is already in place following work by the Trust, and marked to some extent, and is valued highly by the local community and visitors.

Some particular points were noted on a review of the Trail west of Conch Bar in February 2002:

- o Between Conch Bar and Blue Horizon, the path is sign-posted adequately, and passes through some low vegetation, including cacti of interest, and passing some ruins. These could both be features of interest within a trail guide.
- o A short way along, as the trail rises up King Hill (just before Mudjin Harbour Point), it is possible to get a good view down on to the first of the Fish Ponds. At this point, some waterbirds (e.g. herons and reddish egrets) would be another feature of interest which could be mentioned in a trail guide, with bird identification information to hand.
- o The trail through the Blue Horizon complex becomes more difficult to traverse, as the path is made up primarily of bare karst rock, which is sharp underfoot, and somewhat unstable in places. This surface either needs improving, or some sort of warning should be posted indicating the problem. It is also not clear where the trail is in places around here – which does not help when one is focusing intently on the ground to prevent a fall. Clearer signage is needed here to direct persons on the correct route.
- o Once one is well past Mudjin Harbour, the terrain underfoot improves, and again the walker can concentrate on the views – either the coastal scenery or the Fish Pond complex, which is now adjacent to the trail, and would be featured in a trail guide.
- o There is a substantial amount of rubbish on the beach and coastal vegetation all along this trail. One of the Crossing Place Trail signs explains that these items, mainly washed into shore from the Atlantic, were a treasure trove for locals..., but frankly, most of it today is just an eyesore! It should be feasible to remove some of it on a periodic basis, particularly the plastic items. Some other items are heavy, and may be a long way from the road, but a regular, selective clean-up schedule could do a lot to improve the state of the beach, whilst still allowing the “treasure trove” aspect to be appreciated.
- o There is a sign in the vicinity of Sandy Hill Cay which portrays the northern end of the trail as a loop, giving the walker a chance to walk around the coast to the tip at Juniper Hole, then walking along the coast to meet the trail again, and joining the coast below the Boiling Hole. In reality, one can walk up to Juniper Hill (but climbing this should not be encouraged – see below), then down to one of the ponds, but here the trail ends. This also means that the suggested loop below the Boiling Hole runs to a dead end. It would be an improvement if this loop could be reinstated, so that the trail has a circular route, rather than the whole experience being from end to end and back again. Once past the Blowing Hole, it again becomes difficult to find where the trail is, and more markers are needed here.
- o The painted Crossing Place trail signs were each used as a perching place by American kestrels, also between Norbellis Coves and Conch Bar settlement there was an osprey on numerous occasions. Much more information could be provided also on the butterflies, botanical and herpetological interest along the trail.

Further work is needed:

- to secure the land against future damage (see section 4.5.8 below)
- to improve the signage at the western part of the trail, and to provide a clear route to the road near Pine Barrel Landing (see above)
- to provide clear warning signs to avoid the dangerous ground in the area of Juniper Hole unless accompanied by a qualified guide
- to provide an information leaflet/map of the trail, perhaps at a small charge, preferably with suggestions for which parts of this long trail are suitable for walking or cycling
- to provide rest spots along the trail with information and interpretative materials to boost public awareness (e.g. family surnames done in ceramic tiles on stone benches)
- once nearby hides/viewing places are available, to link these into the trail information

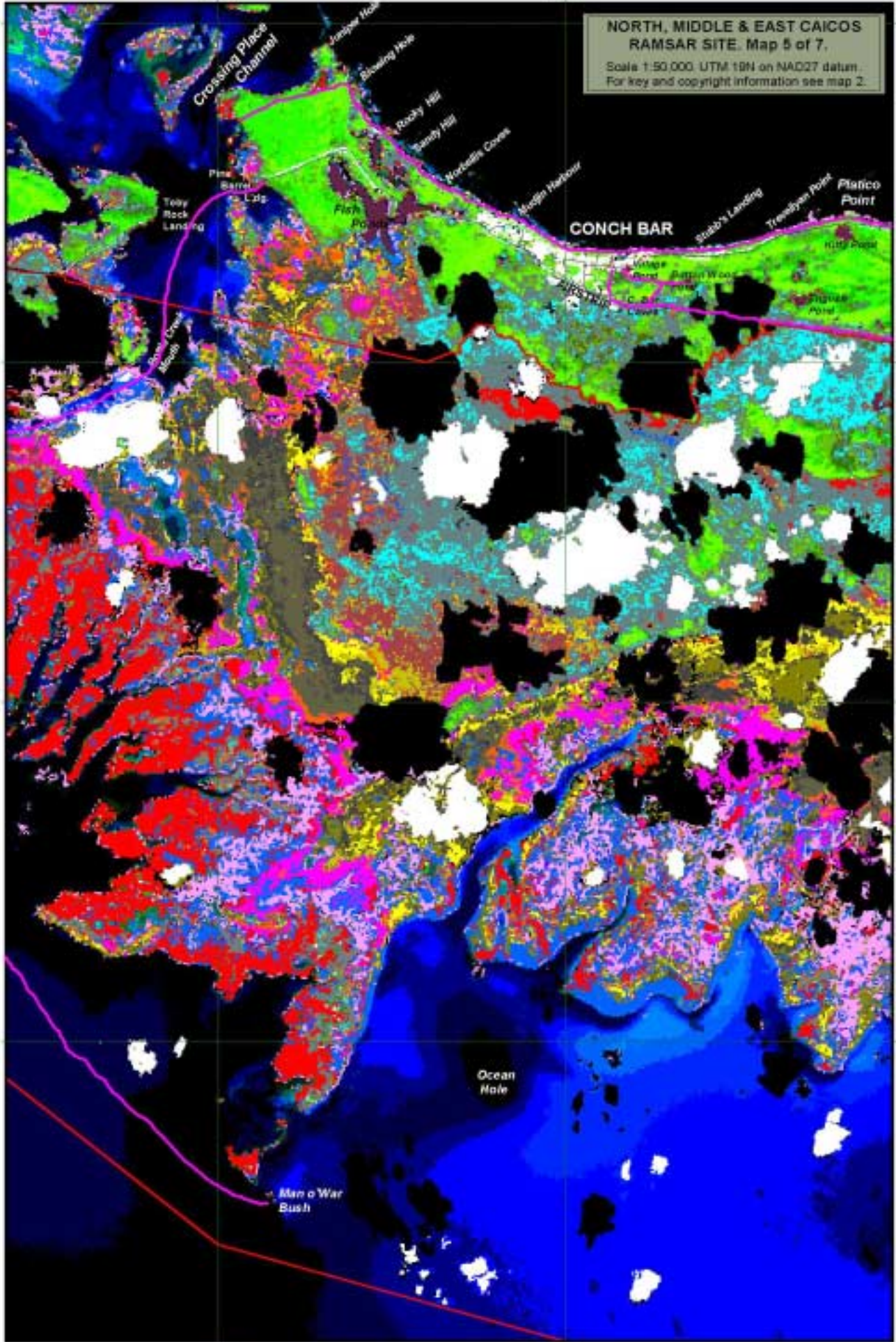
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**NORTH, MIDDLE & EAST CAICOS
RAMSAR SITE. Map 5 of 7.**
 Scale 1:50 000. UTM 18N on NAD27 datum.
 For key and copyright information see map 2.



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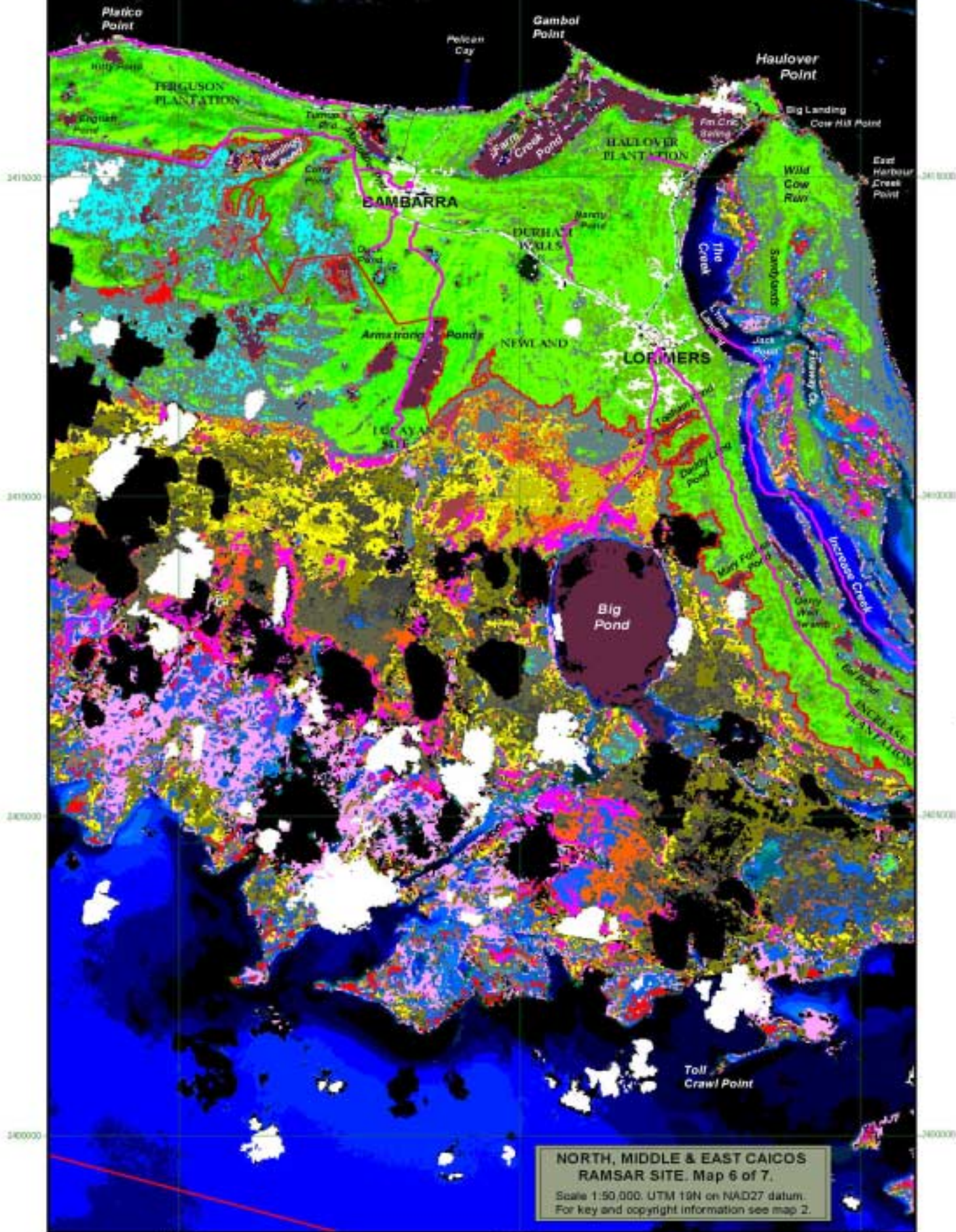
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**NORTH, MIDDLE & EAST CAICOS
RAMSAR SITE. Map 6 of 7.**
Scale 1:50 000. UTM 19N on NAD27 datum.
For key and copyright information see map 2.


19215000

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North, Middle and East Caicos Turks and Caicos Islands

Ramsar site code: 6UK001

Wetland of International Importance,
Ramsar Convention boundary shown thus: 

Longitude: 71 45 00 W
Latitude: 21 45 00 N
Area of Ramsar site: 58,517 ha
Scale: 1:50,000 (maps 2-7)
Map: 2 of 7
Version number: 1.0 / 15 Jan 2002
Projection: UTM Zone 18 North on NAD27 datum (this map),
UTM Zone 18 North on NAD27 datum (maps 1 & 3 - 7)

This map is reproduced by permission from a base map which is the copyright of the Turks & Caicos National Trust.
Landsat image processing and map layout by Fredrick J. Burton.
Ramsar boundary defined in National Parks Ordinance (revoked 15 May 1998) related to this map by Dr. Michael W. Plenkowski.



Wetland of International Importance,
Ramsar Convention.
Designated by the Secretary of State
Date: 27 June 1980

KEY TO MAPS

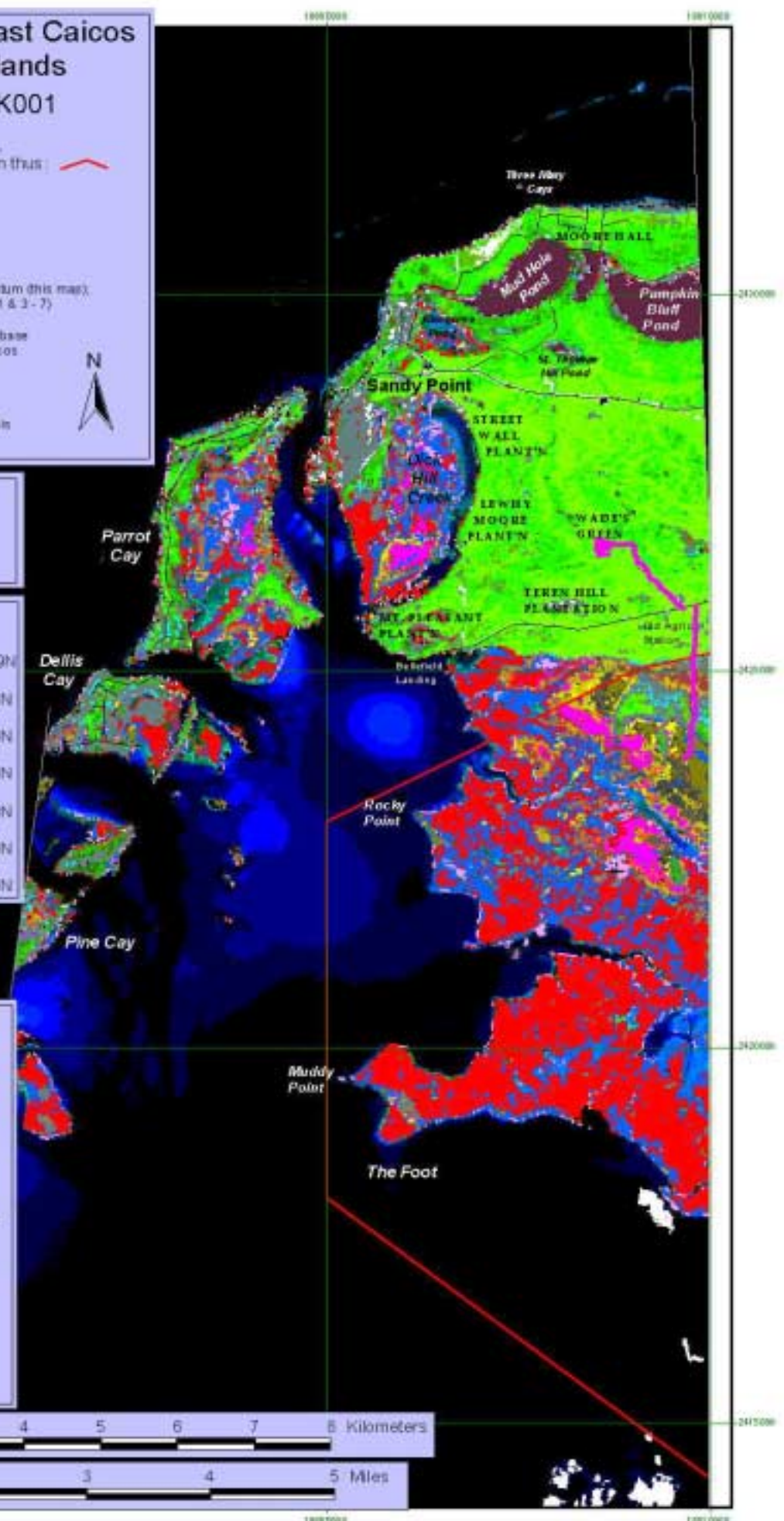
- Map 1: Ramsar Site Overview
Scale 1:150,000 UTM Zone 19N
- Map 2: Western North Caicos
Scale 1:50,000 UTM Zone 18N
- Map 3: Central North Caicos
Scale 1:50,000 UTM Zone 19N
- Map 4: North/Middle Caicos
Scale 1:50,000 UTM Zone 19N
- Map 5: Western Middle Caicos
Scale 1:50,000 UTM Zone 19N
- Map 6: Eastern Middle Caicos
Scale 1:50,000 UTM Zone 19N
- Map 7: Western East Caicos
Scale 1:50,000 UTM Zone 19N

Key:

-  Roads
-  Footpaths
-  Water - shaded deep to shallow
-  Ponds
-  Natural biotope
-  Unvegetated rock & mud flat
-  Exposed intertidal mud
-  Sparsely vegetated saline sand flat
-  Salicornia sp. / Periwinkle saltmarsh
-  Disturbed / Sparse biotope saltmarsh
-  Mixed saltmarsh with sparse Silver Scaevola
-  Scaevola shrubland on saltmarsh pebbles
-  Scaevola-Rhizophora dwarf shrubland
-  Rhizophora & Avicennia mangrove shrubland
-  Seasonally flooded woodlands (various)
-  Seasonally flooded Pinus woodland
-  Dry shrubland - shaded to indicate relief
-  Cleared areas & clouds
-  Cloud shadow and masked areas

0 1 2 3 4 5 6 7 8 Kilometers

0 1 2 3 4 5 Miles



4.2.3.3. Haulover Plantation Field-road

This proposed trail follows the track opened by the Trust to the foundations of the major plantation buildings at Haulover. This would provide a short, easy trail (a little over 1 km, a little less than 1 mile, for the whole walk out and back). It would provide opportunities to view wildlife of dry bush habitats and view the impressive plantation remains. Work needed includes:

- to confirm permission for the Trust to implement and operate the trail
- to complete identification of features of interest on the trail, to be identified by numbered pegs (this has now been done)
- to write the trail leaflet to relate to these markers for fixed items, and working in reference to mobile features (birds, butterflies, etc) (this has now been done)
- to devise a means of charging for trail use by visitors – perhaps using the leaflet as ticket, and to agree with tour companies and guides
- to complete ground-clearance of trail (especially de-stumping) to minimise risk of tripping
- to install the numbered pegs and a sign featuring TCNT at the start of the trail
- to train guides in the use of the trail
- to secure the conservation of ecosystems in the vicinity of the trail including appropriate land ownership and management (see section 4.5.7)
- to investigate the longer term potential of making this trail suitable for use by people with physical disabilities

4.2.3.4. Nanny Pond Field-road

This proposed trail follows the track opened by the Trust to the small, permanent, deep freshwater Nanny Pond. The trail passes through farmed patches and tall bush, and alongside 3 shallow, temporary ponds. This would provide a 1 km (about 0.7 mile) each way, moderate trail. It would provide opportunities to view wildlife of dry bush habitats and several types of wetland, varying with season. Work needed includes:

- to confirm permission for the Trust to implement and operate the trail
- to complete identification of features of interest on the trail, to be identified by numbered pegs
- to devise a way of viewing Nanny Pond without causing disturbance to wildlife; this probably means construction (at a non-sensitive season) of a hide without damaging the screening vegetation
- to write the trail leaflet to relate to these markers for fixed items, and working in reference to mobile features (birds, butterflies, etc)
- to devise a means of charging for trail use by visitors – perhaps using the leaflet as ticket, and to agree with tour companies and guides
- to complete ground- and some vegetation-clearance of trail to minimise risk of tripping
- to install the numbered pegs and a sign featuring the Trust at the start of the trail
- to train guides in the use of the trail
- to secure the conservation of ecosystems in the vicinity of the trail including appropriate land ownership and management (see sections 4.5.7 & 4.5.10).

4.2.3.5. Field-road from Lorimers to Big Pond, Middle Caicos

This could provide a half-day adventure experience, for those who wish to see some of the wild places. If it is made clear that it is at least a 2-hour walk each way (with, at the most productive seasons, mosquitoes - see below), but a chance to see uniquely special wild places, the dedicated wildlife tourist (an increasing market) will be interested. The trail route itself passes through dry scrub and woodland, with several historic features, such as a well and walls, together with a great deal of wildlife: vegetation, especially attractive insects (notably butterflies) and spiders, as well as birds. Crossing the ridge, there are good views in all directions across the various habitats. The route across the flats passes further old walled fields and a range of wetland habitats, rich in wildlife with noticeable birds at suitable seasons.

This is a more ambitious project, but one that could generate significant work in the local community (see also below). Guides would be needed, both to explain the history and wildlife, as well as to show the route and ensure that visitors did not (wittingly or unwittingly) disturb the wildlife.

Work needed includes:

- to confirm permission for the Trust to implement and operate the trail
- to complete identification of features of interest on the trail, and decide whether to use numbered pegs or depend solely on guides; some marker posts will still be needed on the flats
- to write the trail leaflet to relate to these features, working in reference to mobile features (birds, butterflies, etc) and seasonal differences
- to devise a means of charging for trail use by visitors – perhaps using the leaflet as ticket, and to agree with tour companies and guides
- to install the numbered pegs (if used) and a sign featuring TCNT at the start of the trail
- to train guides in the use of the trail
- to secure the conservation of ecosystems in the vicinity of the trail (see sections 4.5.7 & 4.5.16)
- The bush route (already opened by the Trust) would need to be cut back at regular intervals (of perhaps about 6 months, depending on weather), especially after rain and plant growth.
- The surface of the ground through the bush is good walking, and would not need much attention, apart from removal of stumps likely to cause tripping. Indeed, the emphasis would be to keep the conditions as natural as possible.
- It may become desirable to lay a board-path across the marsh N of Big Pond, and possibly through the marsh at the end of the pond marked as “Topham Pond” on the map (although some local usage has this as “Daddy Long Pond”, a name used on the map for the next pond to the south); this would have the side benefit to visitors that they would not have to wade through shallow water over mud (which, actually, can be quite refreshing!) but to protect the mud flats from damage – which could become severe and lasting if not protected. As usage of this trail is likely to develop slowly, it may not be necessary to introduce board-walks in the early stages, and only progressively later.

These maintenance activities would create some local employment, as would the guiding. Here, it would be valuable to collect the historic knowledge of older local people – and particularly valuable to enlist some of these as guides. This would help capture this information, both for archiving and for passing on to younger guides. Some training would be necessary in guiding practice, in good codes of conduct, in wildlife aspects of guiding.

The high concentration of particularly active mosquitoes at certain times of year (especially October-November, and continuing through February) provides both a challenge and an opportunity. This is, indeed, one manifestation (if a slightly uncomfortable one) of the biological richness of the area. Many animals we value more highly depend on the mosquitoes for food. The dry bush and Big Pond itself tend to be (relatively) free of mosquitoes. However, Lorimers village and the wet parts of the flats are mosquito-rich at some seasons. There is the potential here for significant local craft work, to provide traditional woven hats with the addition of head protection netting. Similarly,

the traditional attractive and practical insect whisks could be produced. Such items (and suitable gloves) could be available – for purchase or hire – at the information centre (see section 4.3.1). This could also provide a point of sale for other traditional woven material, alongside the message of traditional use of natural materials.

4.2.3.6. Increase Road

The old road from Lorimers to Increase Plantation, formerly a main thoroughfare, is now overgrown and most of it is no longer even a passable track. A long-term possibility would be to open this up as a trail. This could provide the option of converting the Lorimers-Big Pond walk into a circular tour – and possibly even a cycling extension to the Crossing Place Trail.

4.2.3.7. Armstrong Pond Field-road

This track is only for the reasonably fit. Taken at a pace to view things *en route*, it takes at least 3 hours in each direction. It is a little shorter than the distance from Lorimers to Big Pond, but the terrain is quite taxing. It runs from near Bambarra via East Armstrong Pond to the flats at the major Arawak archaeological site. It crosses a very wide range of dry scrub, wetland and transitional habitats.

There is a possibility of linking to the Big Pond-Lorimers route to make a circular tour, with road transportation between Lorimers and Bambarra. Although this would be longer than retracing steps, it would probably be less taxing. The total walk would be about 6 hours, plus any prolonged stopping time. It would probably be popular with reasonably fit eco-tourists used to trails in, for example, US National Parks.

Work needed includes:

- to confirm permission for the Trust to implement and operate the trail
- to complete identification of features of interest on the trail, and decide whether to use numbered pegs or depend solely on guides; some marker posts will still be needed in parts, and, if extended to Big Pond, on the flats
- to write the trail leaflet to relate to these features, working in reference to mobile features (birds, butterflies, etc) and seasonal differences
- to devise a means of charging for trail use by visitors – perhaps using the leaflet as ticket, and to agree with tour companies and guides
- to install the numbered pegs (if used) and a sign featuring the Trust at the start of the trail
- to train guides in the use of the trail
- to secure the conservation of ecosystems in the vicinity of the trail including appropriate land ownership and management (see sections 4.5.7 & 4.5.16)
- The bush route (already opened) would need to be cut back at regular intervals (of perhaps 6 months), especially after rain and plant growth.
- The surface of the ground through the bush would need some work, particularly the removal of stumps likely to cause tripping. However, the emphasis would be to keep the conditions as natural as possible, and not to make the trail so wide as to lose the nature of being within the woodland.
- to train guides in the use of the trail; some training would be necessary in guiding practice, in good codes of conduct, in wildlife aspects of guiding
- These maintenance activities would create some local employment, as would the guiding.
- The comments about mosquitoes made for the Lorimers-Big Pond Trail would relate also to some extent to this trail.

4.2.3.8. Duck Pond Field-road

This proposed trail follows the track from near Bambarra to Duck Pond, about 1 km to the south. The trail passes through farmed patches and bush, to the ponds. This would provide an easy trail about 1 km (0.7 mile) in each direction, with opportunities to view wildlife of a range of habitats in proximity to Bambarra. A hide at Duck Pond would be a useful addition (see below).

Work needed includes:

- to confirm permission for TCNT to implement and operate the trail
- to identify features of interest on the trail, to be marked by numbered pegs
- to devise a way of viewing Duck Pond without causing disturbance to wildlife; this probably means construction of a hide (see below)
- to write the trail leaflet to relate to these markers for fixed items, and working in reference to mobile features (birds, butterflies, etc)
- to devise a means of charging for trail use by visitors – perhaps using the leaflet as ticket, and to agree with tour companies and guides
- to complete ground- and some vegetation-clearance of trail to minimise risk of tripping
- to install the numbered pegs and a sign featuring TCNT at the start of the trail
- to train guides in the use of the trail
- to secure the conservation of ecosystems in the vicinity of the trail including appropriate land ownership and management (see sections 4.5.7 & 4.5.10).

4.2.3.9. Washing Pond and Corry Pond Field-road

Washing Pond: Washing Pond (marked on the older aerial photo maps as Corry Pond) is a “swash” between two ridges: the ridge upon which runs the King Road, and the ridge which flanks the north-east side of Flamingo Pond. A field-road to the area runs from the King Road, through scrub forest and some formerly farmed patches (reco-ering). The end of the trail opens on to a seasonally flooded marsh. This marsh is covered in low grasses and has several large patches of *Typha*, along with an abundance of *Sabal palmetto*. Washing Pond itself is a shallow pool of brackish water surrounded by buttonwood and *Typha* thickets. Several open areas provide excellent views of the pond.

The marsh area is home to many insects, most notably butterflies and dragonflies. Observations by Darwin team scientists revealed that butterflies of several species breed in this area. A variety of spiders is also to be found here, and land crabs are abundant. This pond is an excellent birding area. Some species seen here are rails, coots, moorhens, white-cheeked pintails, teals, great blue herons, little blue herons, great egrets, cattle egrets, snowy egrets, plovers, flamingos, hummingbirds, catbirds, anis, and blue-gray gnatcatchers. Approach to some of the open areas is covered and would make for an excellent hide location. Numbers of birds can be quite high and it is not unusual to see many or all of the described species at the pond simultaneously. The distance from the road would make blind and boardwalk construction difficult, but this would greatly improve the access and usage of the site. Once on the grassy marsh, walking is easy (when the marsh is dry) through the adjacent palmetto woodland and *Typha* patches. Washing Pond is viewable distantly from the King Road.

Corry Pond: Corry Pond is accessible from the field road to Washing Pond. Care must be taken to route a new trail around the crowns of the large manchineel trees between Washing and Corry Ponds. The approach to Corry Pond runs through a habitat that is sparse in plant cover. Corry Pond itself seems to be a blue hole. Sisal soaking pens remain from times when rope-making was still done. A group that the TCI Government has permitted to explore all of the Blue Holes has shown some interest in this hole, but believes that it is not deep enough to warrant immediate study. The bank of Corry Pond opposite the Washing Pond access trail actually lies within several meters of the King Road, but the thicket of “cats paw,” a spiny, tough scrub, discourages easy passage. Legends about Corry

Pond abound, including the story of a resident mermaid.

Work needed includes:

- to confirm permission for TCNT to implement and operate the trail
- to identify features of interest on the trail, to be marked by numbered pegs
- to devise a way of viewing the ponds without causing disturbance to wildlife; this probably means construction of one or two hides (see below)
- to write the trail leaflet to relate to these markers for fixed items, and working in reference to mobile features (birds, butterflies, etc)
- to devise a means of charging for trail use by visitors – perhaps using the leaflet as ticket, and to agree with tour companies and guides
- to complete ground- and some vegetation-clearance of trail to minimise risk of tripping
- to install the numbered pegs and a sign featuring TCNT at the start of the trail
- to train guides in the use of the trail
- to secure the conservation of ecosystems in the vicinity of the trail including appropriate land ownership and management (see sections 4.5.7 & 4.5.16).

4.2.3.10. Old (sometimes “King”) Road, Middle Caicos

The old main road from Bambarra to Conch Bar is passable in a vehicle with high ground clearance (except when flooding in the low parts is particularly severe – which is fairly rare). It is not passable in a car with little ground clearance – due to both rocks in part and flooding in wet seasons in others. The road probably needs to be kept open because of access to the radio transmitter and beyond to the power line which follows the road. However, the vegetation is in need of trimming. The road is accessed by the power company’s truck, which is an extremely high all-terrain vehicle. The road is not kept clear regularly (even when requested). This may need to be addressed through the District Commissioner’s Office and the Ministry of Public Works.

The road passes through a range of habitats including dry scrub/woodland and several wetland types, as well as skirting the pine woodland and Conch Bar Caves. It also provides a view over Flamingo Pond, which at times supports a range of interesting birds (flamingoes, spoonbills, ducks, herons, shorebirds etc). A viewing platform (see below) would be useful at this location. The road further to the west in the low-lying area also runs along the Ramsar site boundary.

The old road could be used in conjunction with the Crossing Place Trail to make a circular route, probably appropriate for cycling, although the Bambarra - Conch Bar route would be a feasible day walk.

Work needed includes:

- to confirm permission for TCNT to implement and operate the trail
- to identify features of interest on the trail, to be identified by numbered pegs
- to write the trail booklet to relate to these markers for fixed items, and working in reference to mobile features (birds, butterflies, etc)
- to devise a means of charging for visitors – because this is a public road, this would probably be feasible only for the leaflet and perhaps for use of hide/viewing platform
- to install the numbered pegs and a sign featuring TCNT at the start of the trail
- to train guides in the use of the trail
- to secure the conservation of ecosystems in the vicinity of the trail including appropriate land ownership and

management (see section 4.5.16).

4.2.3.11. Short field-roads in Bambarra – Flamingo Pond area

Especially with the development of the environmental centre at the old school in Bambarra, it would be beneficial to develop a short-moderate walking trail from there, preferably circular. This would include the interesting ecosystems and historical features near the village, but would also provide for a relatively short walking route to the proposed hide/viewing platform overlooking Flamingo Pond. It could possibly provide options also to link to the two other short trails proposed near Bambarra (Duck Pond and Corry Pond Field-roads).

Work needed includes:

- to survey the routes of the trail(s), using traditional field roads as far as possible
- to confirm permission for TCNT to implement and operate the trail
- to identify features of interest on the trail, to be identified by numbered pegs
- to write the trail leaflet to relate to these markers for fixed items, and working in reference to mobile features (birds, butterflies, etc)
- to devise a means of charging for trail use by visitors – perhaps using the leaflet as ticket, and to agree with tour companies and guides
- to cut/clear trails as necessary
- to install the numbered pegs and a sign featuring TCNT at the start of the trail
- to train guides in the use of the trail
- to secure the conservation of ecosystems in the vicinity of the trail including appropriate land ownership and management.

4.2.3.12. Buttonwood Pond Field-road

A well-established but somewhat overgrown trail runs from Conch Bar, along the south side of Village Pond to Buttonwood Pond. It runs through dry scrub and alongside several wetland habitats including the open water and sawgrass beds at Village Pond and mangrove swamp at Buttonwood Pond. There are also patches of transient vegetation. This provides a short walk (about 1 km each way) conveniently in the vicinity of Conch Bar. It lies within the Conch Bar Caves Protected Area. (This material is considered further in Section 4.5.2 on Conch Bar Caves Protected Area). It may be necessary to discourage heavy use of this trail or incorporate appropriate features in the route and design if it is discovered that it brings visitors too close to bird nesting and feeding habitats in the back of the pond.

There is the possibility of turning it into a circular walk, using the well established (but similarly overgrown) fork to Conch Bar Caves, returning via a section of the old road and the path from the airport to the village. This would also have the advantage of passing (or starting from) TCNT's kiosk at the airport. However, it might be disadvantageous to provide alternative access to the caves area (see section 4.5.2). It would, however, probably be possible to divert the return route to miss the caves entrance.

Another possibility for making this route circular has yet to be explored. This would be to open up the other route to Buttonwood Pond, from the coast road (and Crossing Place Trail) from the north, via the ruins of Stubbs Plantation.

Work needed includes:

- to confirm permission for TCNT to implement and operate the trail
- to identify features of interest on the trail, to be identified by numbered pegs
- to ensure that viewing points at the two ponds do not cause undue disturbance

- to write the trail leaflet to relate to these markers for fixed items, and working in reference to mobile features (birds, butterflies, etc)
- to devise a means of charging for trail use by visitors – perhaps using the leaflet as ticket, and to agree with tour companies and guides
- to complete ground- and some vegetation-clearance of trail to minimise risk of tripping
- to install the numbered pegs and a sign featuring TCNT at the start of the trail
- to train guides in the use of the trail
- to secure the conservation of ecosystems in the vicinity of the trail including appropriate land ownership and management (see section 4.5.2)
- to explore the options for extending the trail to a circular route

4.2.3.13. Boat trip to East Caicos

The boat trip from Lorimers to East Caicos would make a very attractive wilderness and heritage experience. Whilst it is possible to travel from the north coast of Middle Coast to East Caicos over the open sea, a far more interesting experience (and less weather dependent) is through the creeks to Windward Going Through, and across the open sea for only the final stage to near Jacksonville (or through very shallow water – kakak or punting south of Joe Grant’s Cay). This gives a far more complete impression of the habitats, better views of wildlife (flamingoes, herons, pelicans, shorebirds, kingfishers, small birds, ospreys, etc.) and a valued experience. It also relies on the knowledge of local boatmen, providing another contribution to the local economy. These people can also give information on local history, such as the fish trap at Blow Hole, the sisal farm at Jacksonville.

It would be worth exploring the possibility of restricting usage of these narrow waterways to kayaks and small boats with local boatpersons/guides.

4.2.3.14. Boat trip to Man o’War Bush and Ocean Hole

Several local boatmen run trips to Man o’War Bush (the nesting colony of magnificent frigatebirds (see 4.5.11) and Ocean Hole (a very deep solution hole, now in the sea).

Because this is in the Ramsar site and is also listed separately as a protected area, some means of monitoring usage is required.

It would also be worthwhile investigate the possibility of enhancing the visit by other stop-offs of biodiversity interest *en route* through Bottle Creek Mouth from the starting/ending point of Pine Barrel Creek.

4.2.3.15. Cottage Pond, North Caicos

The very short walk from the highway to Cottage Pond could be developed into a trail with interpretative material. Because this Pond is frequently visited by visitors without a particular interest in wildlife, such signage could be used as an introduction to other trails and facilities.

4.2.3.16. Wade’s Green, North Caicos

Wade’s Green is TCNT’s important historic and natural reserve on North Caicos. Potentially, there will also be an interpretative centre there (see section 4.3.2).

The site already has attractive signage relating to the historic structures (although this may need revision in the light of more recent archaeological study).

The site would benefit from additional information and guidance on the biological and historic features, and this work is currently in progress.

4.2.3.17. North Caicos Dump Field-road

This trail leads south from the highway near the entrance to Wade's Green, through dry woodland and scrub, through a range of wetland habitats to the open flats. A range of wetland types not easily reached elsewhere can be viewed from this trail of easy, level walking of moderate length (about 2 km or 1.3 miles in each direction). These include open flats, saltmarshes, buttonwood savannah flats, palmetto woodland and others. Most of the trail lies in the Ramsar Site.

Work needed includes:

- to confirm permission for TCNT to implement and operate the trail
- to identify features of interest on the trail, to be identified by numbered pegs
- to write the trail leaflet to relate to these markers for fixed items, and working in reference to mobile features (birds, butterflies, etc)
- to devise a means of charging for trail use by visitors – perhaps using the leaflet as ticket, and to agree with tour companies and guides
- to install the numbered pegs and a sign featuring TCNT at the start of the trail
- to train guides in the use of the trail
- to secure the conservation of ecosystems in the vicinity of the trail including appropriate land ownership and management (see section 4.5.16)
- It would probably be desirable to lay a board-path across the parts of the trail that become flooded at times; this would have the side benefit to visitors that they would not have to wade through shallow water over mud, but would mainly be to protect the mud flats from damage – which could become severe and lasting if not protected. As usage of this trail is likely to develop slowly, it may not be necessary to introduce board-walks in the early stages, and only progressively later.

4.2.3.18. Flamingo Pond, North Caicos

The early report on possible Ramsar sites (Clarke & Norton 1987) noted “a nature trail could be established along the north end of Flamingo Pond leading to Malley Pond. Sensitive breeding areas should be off limits during the breeding season. For example Sawgrass Pond on North Caicos should be managed as a Nature Reserve with restricted access.”

This and other possibilities in this area should be investigated further and proposals developed in due course.

4.2.3.19. Pineyards Field-road, North Caicos

This track from the main road south of Bottle Creek settlement provides the potential for a trail through a cross-section of dry scrub, several wetland ecosystems and pineyards. Further investigation and assessment are needed.

4.2.4. Hides (blinds), platforms and shelters

4.2.4.1. Introduction

This section addresses the need for built structures to complement the field-roads and other viewing opportunities. These would fulfil several functions, each structure probably combining several of these uses. The different uses are:

- Hide (UK usage) or blind (US usage): a structure in which observers can remain concealed, allowing close viewing of wildlife (often birds) without disturbing them. Avoidance of disturbance is important in some

situations, both for the benefit of observers (so that they can obtain good views) and the wildlife (for which disturbance may prevent essential activities such as feeding or breeding). Hides normally have narrow viewing windows but are otherwise enclosed, especially on sides facing the wildlife. Depending on the local geography, they may also have screens to shield the approach of observers from the sight of wildlife at a fixed location, such as a small pond.

- Viewing platforms: structures to provide a vantage point from which to overlook scenic features.
- Shelters: Structures with a roof to provide shelter from strong sunlight or heavy rain, particularly useful for breaks in walks and often combined with viewing platforms.

Each of these structures may also have subsidiary purpose, for example:

- Venue for interpretative and public awareness materials, such as display boards and leaflets.
- Locations for tour guides to use as a focus to speak to groups, or for a warden to meet visiting groups.

In most cases, the structure will be appropriate for several purposes, and the design should be adjusted to the local situation and to cater for these different purposes. Some combinations of uses will be inappropriate. For example, a hide intended for the viewing of particularly sensitive species would not be appropriate as a meeting place for discussions or for a social gathering at mealtimes. Again, such incompatible usages can be borne in mind at the design stage, and supplemented by appropriate signage.

The building of elevated, thatched viewing platforms or hides (blinds) will facilitate visitors' viewing of birds and other wildlife. Worldwide research and observation tactics have shown that wild birds will come to accept a hide as part of their habitat, and will often come to ignore the presence of people when they remain quietly inside the hide.

The size of hides will need to be adjusted to suit individual locations. Generally, they have a long side with a narrow horizontal viewing window facing the main area of interest. However, in some situations, there may be interest on more than one side. The wall opposite the main window is normally solid, with a screened door, so that observers are not silhouetted to the wildlife. Some screening, preferably using natural materials may be necessary to allow observers to approach the hides without causing disturbance. The thatching of roofs will be done in the style traditional to the Caicos Islands. Benches inside the hides will allow for seating area, at suitable heights for using the viewing windows. In areas which can be serviced by trash collection, covered trash bins will assist in the limiting of litter. Each hide will be outfitted with a name sign including the National Trust logo. Simple cards available from the National Trust Offices or other suitable venues will show pictures or paintings of birds or other wildlife common to each respective pond, with the common English, local, and Latin names printed. A symbol will depict endangered or threatened species. These cards will act as a "ticket" to the hides, and a small fee will be collected by the National Trust from the sale of each. Proceeds will benefit the maintenance of the hides, future literature production, and other projects. For ponds in close proximity to a road, a small area for parking would be prepared as well.

The building of the hides will take up minimal space and create disturbance only where the support posts are cemented into the ground. The parking areas will be small and alongside the road's shoulder. Locally harvested thatch, from the white top palm and buffalo top palm, will be cropped sustainably by thatchers (as is their normal practice). Where practicable, waste bins will keep litter to a minimum. Construction of the hides may result in the short-term disturbance of wildlife, and the timing of their construction should be planned to minimise that; the hides will steer people away from disturbing the ponds and other sensitive areas, and allow for minimal disturbance in the future. The presence of the hides is likely to create a sense of pride in the ponds and other venues as unique and special features, suitable for marketing to tourists. This pride will help instil a desire to help protect the ponds and other features from further disturbance. The literature will educate the visitors (local and tourists) to the hides about the birds of the Turks and Caicos Islands, and about the importance of these wetlands. The hides and other structures will serve as locations for the education of groups from schools and as shelters from the weather for passers-by, as local residents will have free access to them. Thus, potential benefits include:

- Establishment of a set of observation hides at important wetlands and other venues
- Education of all visitors to the hides, including tourists, local visitors, and school students

- A decrease in the disturbance to the birds which use the ponds and other sensitive areas
- Increased sense of stewardship to the ponds and other features as valuable habitats
- Additional destinations for tourists to choose from during their visits
- Attraction of bird-watchers to the area, encouraging the islands as a bird-friendly tourism destination

There is approximate information on the costs of works available from an estimate made for the production of six small hides near roads:

Item	Cost (US\$)
Materials for construction	3,500.00
Labour for construction	4,500.00
Thatching	1,000.00
Signage	2,000.00
Design and production of wildlife identification materials	2,000.00
Occasional repairs through year	2,000.00
Total Costs	15,000.00

This equates to an average of \$2500 per hide, although the cost would probably be larger if hides were produced individually. Management and supervisory costs are not included.

Recurrent costs would be the maintenance of the sites including structural repairs, clearing of parking areas and maintenance of supplies of identification materials.

Work needed includes:

- The assessment of the best locations for a hide at each site, as well as any dealing with any land ownership issues at the sites
- Tailoring the basic design options to the site and purposes
- The recruitment of local carpenters and thatchers
- The construction of the hides (including thatching), and clearing of parking areas where appropriate
- Close management and supervision of this work by someone understanding the conservation objectives and the need to avoid damage and disturbance
- The design and production of the wildlife identification literature and the hide name signs
- The publishing of the necessary literature and explanation of the policy of the literature as a ticket
- Work with local tour guides
- The Public Health Department will be informed of the presence of the trash bins, which may be emptied during their normal collection times.
- The marketing and encouragement of use of the hides
- The checking and maintenance of the hides
- Observations will be made as to the effects of building on presence of wildlife in the ponds
- Community meetings will be held to describe the goal of the project
- Supervision and management of the work

In selecting the sites for structures as resources become available, it is important to take into account the need for a spread both geographically and in relation to the range of ecosystems and wildlife. It is also necessary to relate the placement of the hides and other structures to the development of trails described above. Middle Caicos is the largest

of the Turks and Caicos Islands in land area and is quite diverse in habitat type. Research by the Darwin Initiative Project shows several important wetland habitats exist throughout Middle Caicos. The Ramsar Wetland of International Importance site on the south side of this island and much of North Caicos provides great expanses of wetland communities for plants and wildlife. The dry-lands of the northern side of Middle Caicos also contain several important wetlands. The wetlands of Middle Caicos provide excellent habitats for many waterfowl and wading bird species as well as other wildlife. Some of the wetlands frequented by birds are in close enough proximity to roads to be easily viewed from the road area. Many similar features relate also to North Caicos. Some of the possible venues are indicated below. Although priorities are not indicated at this stage, the current stage of knowledge, and of related interpretative developments, suggest that the following might be the most appropriate priorities in the short-term:

Hides at Village Pond, Nanny Pond, Turnup Pond and, if trails are developed, at Duck Pond and Washing Pond;

Platform at Haulover Trail, Flamingo Pond, Middle Caicos;

Repairs and interpretation at shelters at Flamingo Pond, North Caicos.

4.2.4.2. Flamingo Pond, Middle Caicos

Flamingo Pond near Bambarra is included in the Ramsar Wetland site and is frequented by flamingos throughout the year, but most especially in the winter. Evidence of flamingo breeding activity has recently been found in Flamingo Pond. It is also important for other wildlife.

The old main road is passable by vehicles with high ground clearance (see section 4.2.3.10). A hide/viewing platform just off this road (at about 192161 224157) would have several benefits:

- The road probably needs to be kept open because of access to the radio transmitter and beyond to the power line which follows the road.
- Interesting birds (flamingoes, spoonbills, ducks, herons, shorebirds etc) may be seen here, but this should not be the main feature, as occurrences of mobile animals are unpredictable and numbers are relatively low.
- There is a wide view from here of the distant low flats, through the bush hills, to the coral reef and open sea: this provides the opportunity for a display explaining the structure of the islands and the habitats, together with a panoramic view key naming the features.
- This also provides a rare accessible view-point of the Ramsar site, as Flamingo Pond is included in a northern loop of its boundary.
- These features would also give the opportunity of explaining the Ramsar Convention, the international value of this area, and the work of the Trust.
- There should be low maintenance costs and, with the proximity of communications and power facilities, good prospects of sponsorship.
- At later stages, there is the possibility of expansion to develop a nature trail, perhaps to another hide down the hill to overlook the marsh to the west, perhaps returning along the old road.

If the viewing area is to have vehicle (as opposed to walking-only) access, this would require a commitment from the appropriate government department to keep the King Road cleared for the unhindered passage of tour vehicles. Most tour guides are reluctant to go there now because of the scratching their vehicles will endure, as well as possible flat tyres from the bad road quality.

4.2.4.3. Kitty Pond, Middle Caicos

Kitty Pond, between Bambarra and Conch Bar, is used by several species of birds in the winter, including brown pelicans and flamingos. It is close to the main road, but a viewing position might be needed either through the bushes or over them.

4.2.4.4. Village Pond in Conch Bar, Middle Caicos

Several ponds have been affected by the construction of roads. These include Village Pond in Conch Bar, part of Conch Bar Caves National Park. This brackish tidal pond is frequented by black-necked stilts, Bahama pintails, greater flamingos, and several species of herons, and is a confirmed breeding site for the endangered West Indian whistling duck. The main road for Middle Caicos was pushed through Village Pond (despite the obvious intention of avoiding this unnecessary damage, which is to be seen in the original plans for the road), and part of the pond is now a grassy marsh also used by birds and other wildlife. With the road now there, there is a good opportunity to show this very important site to a wide public.

4.2.4.5. Fish Ponds, Middle Caicos

The Fish Ponds near Pine Barrel Landing, which are tidal sea-water ponds, are often used by flamingos and several species of herons, and terns are common at this site at some seasons. The Fish Ponds are traversed by a causeway for the Ferry Dock road. Shallow culverts under the road do not replace the natural flow from before the construction of the causeway, but marine life still manages to survive in these ponds (see section 4.5.9).

4.2.4.6. Montpeller Pond, Middle Caicos

Montpeller Pond, near Bambarra, is a seasonal salt pond flanked by buttonwood groves and frequented by flamingos in the winter.

4.2.4.7. Turnup Pond

Turnup Pond is a small pond forming part of the Montpeller Pond complex, but separated by marshes from the main Montpeller Pond. It is frequently rich in water birds and is situated beside the bend in the main road where it turns up from near the shore, towards Bambarra. Although very close to the road, the pond is not easily viewed from there because of bushes and the difficult location on the bend of the road. A hide here could be very useful, although careful attention will need to be given to road safety aspects in relation to car-parking and access.

4.2.4.8. Washing Pond, Middle Caicos

See section 4.2.3.9 for a description.

4.2.4.9. Duck Pond, Middle Caicos

Duck Pond is a rich pond (probably named for its hunting potential when this was practiced) in the scrublands. If the fairly short trail to this pond is developed (see section 4.2.3.8), it would be important to construct a hide by the pond in order to avoid disturbance while providing viewing opportunities.

4.2.4.10. Nanny Pond, Middle Caicos

Nanny Pond is a small but very deep pond in a hollow surrounded by thick woodland. It is very important for wildlife but, because of its small size, it is probably potentially very sensitive to disturbance. The National Trust has opened a very interesting trail to this pond (see section 4.2.3.4). However, if usage is to include the end of the trail near (and possibly eventually past) Nanny Pond, a carefully designed hide will be needed.

4.2.4.11. Big Pond, Middle Caicos

There are some possibilities for structures in the Big Pond complex to provide both viewing hides and shelters. However, there are counter arguments that, at the low level of usage expected in the near future, it might be more satisfactory to leave the area in a more wilderness state. It would be necessary to keep this status under review in the light of changed usage, so that any increased usage does not have an adverse impact – in which case, some more

active management measures, possibly involving viewing structures, might be required.

4.2.4.12. Cottage Pond, North Caicos

Cottage Pond is a small but very deep pool, with some similarities to Nanny Pond (see above). A main difference is that Cottage Pond is near the road, with a wide track reaching it. As a consequence, it is much visited, even though it is a statutory nature reserve. A hide overlooking the pond would be likely to be productive in terms of viewing opportunities for birds, but this would be ineffective if other visitors arrived at the pond while people were bird-watching. Any such development here would therefore require considerable further study and public consultation with the local community as to the agreed usage of the site.

4.2.4.13. Wade's Green, North Caicos

The National Trust has already provided an elevated viewing platform at Wade's Green Plantation. This affords both a view of the ruins of the main building and also a view over the western part of North Caicos to the nearby cays, and on to Providenciales in the distance. This platform needs completion, interpretation materials and a programme of maintenance.

4.2.4.14. Flamingo Pond, North Caicos

Shelters have long existed at the north end of Flamingo Pond on North Caicos, where the Ramsar site boundary crosses the main road. These shelters need considerable renovation and the addition of interpretative material, as well as a programme of maintenance. A new viewing building is being constructed at the Flamingo Pond Outlook in Whitby. Some building of new structures is in progress.

4.2.4.15. Other locations, North Caicos

Further investigation is needed of the potential for viewing structures at sites in North Caicos. There is almost certainly considerable potential for these around Flamingo Pond and in the related complex of marshes, integrated with trails also needing research (see section 4.2.3.18).

4.2.5. Publications

4.2.5.1. Interpretation for field roads etc

It is planned to develop and implement a programme of integrated leaflets, signs and displays matched to the opening of each trails etc, this programme itself related to the availability of financial and human resources.

It is envisaged that signage for field-roads will normally consist of a prominent entrance sign with logo(s), together with numbered feature posts. This will minimise costs and intrusion, while allowing changes to be made relatively easily and cost-effectively to the information content. It is anticipated that the guide leaflet to each field-road will serve as the ticket. The basic concept for format would be a single sheet printed on both sides, and incorporating sketch map, notes on numbered locations, illustrations and notes on the natural, historical and cultural features. Notes on mobile species likely to be seen will need to be worked into the text. It is planned that the sheet be laminated or be produced of a comparable standard. This would have several advantages:

- It becomes a souvenir, with extra awareness-raising potential.
- Any discarded or lost copies will not produce unrecoverable litter and may be recyclable.
- The leaflets will become collectable (and saleable) in their own rights, for example as sets for placemats.

4.2.5.2. Identification and awareness-raising

It is intended that material be prepared to aid the recognition and identification of various aspects of TCI wildlife. This is for several purposes, including increasing the awareness of the richness of this, as well as increasing the ability of local people and visitors to contribute to survey and monitoring. The Darwin Initiative project has made considerable progress on this, usually in collaboration with others.

4.2.5.2.1. Birds

The Darwin Initiative project was pleased to collaborate in the production of a major new book *The Birds of the Turks and Caicos Islands*, which was launched at the AGM of the Turks & Caicos National Trust in November 2001. The book is hard cover, 96 pages with 236 full colour pictures. While it concerns mainly birds, there is a section on habitats which also covers butterflies, moths and reptiles. The purpose of the book is two-fold: to serve as an educational tool for local people, especially children, to learn about their natural heritage, and to introduce visitors to the fauna of the TCI. In furtherance of the first objective, the Trust is giving a copy of the book to every school in the country. In tourism terms, we believe the book will help to attract tourists as some 51 million people in the United States alone call themselves bird watchers. In line with the objectives of the project, it is hoped that it will also encourage visitors to visit other Islands in addition to the main tourist resort of Providenciales, as it describes locations on other Islands which are particularly good for birdwatching.

The book was written and the photography done by Richard Ground, the Chief Justice of the TCI. Mr Ground's wildlife photographs have been published in many magazines over the last dozen years, and he produced a book on the wildlife of the Cayman Islands while he was Attorney General there. The lay-out and management of the publication process was done by his wife, Dace. They have donated the book to the Trust. The publication of the book was made possible by a generous donation from Robin and Sheila Laing, long-time residents of Grand Turk, and by an interest-free loan from the Conservation Fund, a new fund based on a visitor tax. Books can be purchased from the Trust office directly, as well as from local shops, at US\$20.00 each. They will be available at other Trust outlets.

4.2.5.2.2. Butterflies, Mammals, Reptiles & Amphibians

The extensive research on butterflies carried out for this plan is in process of being turned into a small book. Dr Oliver Cheesman is writing the book, and it will be illustrated by Richard Ground, who did the book on birds. One or more booklets on bats, reptiles and amphibians will probably follow.

4.2.5.2.3. Plants

We understand that Kathleen Wood has nearly completed a book to be published by Macmillan Press on the plants of these islands, including those with medicinal uses. It is expected to be comprehensive and authoritative, and will be of great use to visitors.

4.3. Information centres

4.3.1. Bambarra environmental centre

4.3.1.1. Renovation

TCI Government has donated the old school building at Bambarra, Middle Caicos, and its land to TCNT. Actual transfer of the land is in progress including necessary mutation of land parcels. Restoration, renovation and modification are required. Architectural drawings have been prepared during the period of the Darwin Initiative project. Some funding has been secured from local business and the balance is being sought through grants from and via TCI Government. As this version of the plan is drafted, TCNT has invited bids for roof repair.

Further work is necessary to secure funding and complete these works.

4.3.1.2. Exhibits

A variety of exhibits can be installed in the Centre. Outdoor exhibits can include traditional farming, medicinal plants, heirloom crops, ornamental displays of native plants (to encourage native gardens), heirloom livestock exhibits, traditional building techniques, and traditional outdoor cooking demonstrations.

Indoor exhibits can be of two types: flat display boards with photos and text, and display case exhibits. The flat boards could have information about traditional crafts, showing the materials “from Bush to Basket” and the entire process of producing the fanner-grass and palmetto baskets and hats. This area would include room for local artisans to produce their wares on-site, and would be adjacent to a sales floor of locally produced crafts. Other flat-board displays could be about animals and plants in ecosystems. For example, an overview of cave ecology and habitats, and a close-up look at bats physically and behaviourally.

A comprehensive trail map would make for a useful display as this will be the operations centre for the field-roads system. Indeed, as many displays as possible (including crafts and ecology) should relate to features visible from trails, hides etc.

Display cases could hold items of cultural, natural, and historical interest. Pottery shards and round-holed conch shells, as well as items on loan from the National Museum, would make for an impressive display on the Taino people. Such exhibits could also be backed by flat-boards with photos and text. Plant and insect displays from the herbarium and insectarium would allow visitors to understand some of the biodiversity of the islands.

A mangrove aquarium is an efficient way to display a “slice” of a mangrove habitat indoors. Such an exhibit is easy to maintain with the proper equipment and can display fauna such as fish, crabs, shrimp, anemones, urchins, and other mangrove inhabitants. A reptile exhibit is also easy to maintain and can give the visitors a close-up view of snakes and lizards. The animals of these exhibits can be rotated with animals in educational use to give the education animals a rest.

4.3.1.3. Native plant nursery

Recent land development in the Turks and Caicos Islands, especially Providenciales, has resulted in the destruction of large amounts of coastal, scrubland, and wetland habitats. The continuing development of the islands for tourism, residence and industry threatens these habitats which, while of great biological importance, are not widely valued in their natural state. With the removal of these habitats, native plants will decline in population as exotic ornamental plants are used for landscaping purposes. The importation of exotic ornamental plants carries with it the risks of the inadvertent introduction of other species of plants and animals, including plant pests. Already several islands have established populations of non-native animals and plants, which endanger the remaining natural habitat and some species. Introduced plant pests and diseases threaten the small-scale subsistence agriculture still practiced in some areas. Many introduced ornamentals have no benefit to the native animals as the native plants would.

The Turks and Caicos National Trust’s Darwin Initiative Project created a small facility for the propagation of native plants for fund raising sales in January of 2001. The original materials were purchased at a discount rate and the potential for several species were investigated by cuttings and seed planting. As successful species were identified and propagated, the inventory of the nursery increased. The current native plant nursery is supplied with pots and containers from several horticultural ventures. Seeds and cuttings are gathered from many sites around the Turks and Caicos Islands, but especially in Middle Caicos.

Under encouragement from the National Trust and others, demands for locally grown native plants are increasing throughout the Turks and Caicos Islands. Residents, resorts, and businesses are showing interest in using native plants in their landscaping. The use of native plants should be encouraged in landscaping, as the natural botanical communities of the Turks and Caicos Islands are under the constant and growing threat of destruction for development. Such plantings would lessen the impact which the clearing of scrubland, wetlands, and coastal plant communities has on the populations of native plants and animals. Furthermore, native plants are well adapted to local conditions, often requiring less watering, and are more economical.

The Turks and Caicos National Trust aims to encourage the use of native plants for landscaping ventures, while creating a locally produced stock of such plants for sale and distribution around the islands. The proposed native plant nursery is to be situated on the former Bambarra School grounds, which have been transferred to the National Trust for the creation of a Project Headquarters and Research and Visitors' Centre. The intended site for the nursery will be to the north of the school's water cistern where access to a fresh water supply is available.

The initiative would result in:

1. Propagation of a large and varied stock of native plants for sale to nurseries, resorts, and the general public; this would reclaim some destroyed habitat, furnish native animals and plants with extended range, and increase pride in local flora and fauna through the beautification of public and private areas.
2. Creation of an arboretum with some of the unsold plants which would serve as an example site of native landscaping on the Bambarra School property around the developing Research and Visitors' Centre.
3. Employment and training of one Middle Caicos resident in a community where jobs are scarce.

Subject to funding, the project entails the hiring and training of one Middle Caicos resident who would be selected by the project supervisors.

A local team of contractors will be hired to create a level white earth base; erect a shade lath, hot house, and a storage shed; and to install the necessary infrastructure for water and electrical supply.

Lumber, cement, shade cloth, hardware, hot house plastic, infrastructural materials, and gravel or beaten rock must be purchased for the construction of the facility.

Consumable supplies including fertilizer, rooting hormone, horticultural chemicals, coconut peat moss, plant labels, pots, seed trays, and protective equipment must be purchased initially, but the nursery will use profits from plants sold to purchase these supplies in the future.

The transport of the building materials to Middle Caicos by Middle Caicos Transport Ltd. Ferry and the transport of the plants to Grand Turk and Providenciales for sale will be considerable expenses which must be funded.

The propagation of native plant species will make available a stock of landscape quality trees and shrubs for gardening and beautification. Plantings with native plants will assist wild populations of plants in keeping a hold in their native habitats, while providing benefits to the wildlife which are dependent on these plants. Green waste from the plant nursery will be composted. Minimal non-recyclable waste will be created. Pesticides for plants, whenever possible, will be nontoxic and low-impact to the environment, and "green" products will be used as much as they are available.

Initiation of this element (like most others) is dependent on funds becoming available. Establishment costs were estimated in September 2001 as:

Item	Cost (US\$)
Materials for Construction	4,000.00
Labour for Construction	4,000.00
Consumable products	5,000.00
Transport and Shipping	2,000.00
Employment/ Training	5,000.00
Total Costs	20,000.00

Supervisory and management costs are not included. Recurrent costs would include the purchase of the consumable products, transport and pay of a hired trainee and caretaker for the nursery.

4.3.2. Wade's Green

4.3.2.1 Assets

Geographic Features: Assets of the site Wade's Green Plantation include an area of tropical dry forest west of Kew Settlement, North Caicos. The site includes a varied topography and the central ruins of a Loyalist Plantation founded by Wade Stubbs in 1789. The area surrounding Kew is the only place in the Turks and Caicos Islands where the all tropical dry forest habitat exists. Consequently, the site has great natural value as well as historic value.

Geological Features: The tropical dry forest of Wade's Green Plantation is nourished by relatively deep fertile soils. These soils make the area popular for farming. Rock outcroppings are common on the site but many are not attached to the bedrock.

Historic Structures: Approximately ten large building ruins exist on the site, which is surrounded by rock walls. These walls extend out from the main ruins site in all directions. Three walled roads leave the site to the east, west, and north. Two wells have been found on the site. A great deal of broken glass and pottery can be found on the site. Metal artifacts are also occasionally found. Foundations and remains of other outbuildings exist around the site. Two large boiling pots sit close to the Great House. Several of the buildings include the unique Bahamian ship etchings in the walls, which are currently under study.

Historic Information: Records of Wade's Green Plantation are relatively complete. All records dealing with Wade Stubbs, Wade's Green Plantation, and subsequent use of the Wade's Green Plantation Site are to be included as attachments to a development of this outline plan for easy reference.

Contemporary Structures: An unfinished thatch pavilion has been built near the Great House. A viewing tower is adjacent. The Great House has a refurbished bridge in it so visitors may see the inside of the building more easily. A wooden gate has been erected at the entrance of the site.

Botanical Features: The dry tropical forest habitat type includes many plants that are unique to this area of the Turks and Caicos Islands. Many of the plants on the site grow in abundance in this habitat while they are rather infrequently encountered in the scrub forests, which are the major woody plant habitat in the islands. The size of the trees here is more varied than in the scrub forest: there is a proper forest structure with an emergent layer, a closed canopy, open under story, and herb layer. This structure provides a shaded forest floor covered in rich leaf litter, and serves to contain moisture.

Botanical Exhibits: Several botanical exhibits featuring ornamental or regionally-native tropical dry forest trees have been installed. In some cases these beds are holding areas for specimen plants which are to be later installed in the as yet un-established National Botanic Gardens. A complete plant list exists for the site. The plant list exists in two forms – one is a list of names (English, Latin, and Local, if available) and the other has a complete annotation including native range, invasive status, points of interest, and specimen origin. The annotated list also includes notation if the plant is being held for removal to the National Botanic Gardens.

Field: A local style field has been cut to demonstrate the traditional post-plantation style of farming. The field is used to grow corn, beans, potatoes, melons, sugarcane, and cassava.

Zoological Features: Several animals appear to be confined to this forest type. Most notably is the Caicos Islands Gecko *Aristelliger hetchi*, which inhabits crevices in the walls and ruins. This large endemic gecko is abundant on the site, but very difficult to find elsewhere. The Key West quail dove is common on the site, while nearly absent in other areas of the island. The Cuban endemic blue-headed quail dove has been seen on the site. Because of the rich habitat, animals native to other areas of the islands are more abundant and obvious here. Curly-tail lizards, anoles, snakes, Cuban crows, white-crowned pigeons, greenhouse frogs, and other animals are common on the site. Erebus moths are frequently found in rock wall crevices. A species of large, fierce ants with enormous mandibles are common.

Accessibility: Wade's Green Plantation is easily accessible from the road to Bellefield Landing, which is to be developed further in the near future. A parking lot at the site entrance allows vehicles to approach the site but keeps them out of the site itself. The site is not currently suitable for visitation by persons who have difficulty walking.

4.3.2.2 Problems

Geographic Problems: Wade's Green Plantation currently sits off of the utility grid of North Caicos. Electricity is not available to the site. Water is not currently available aside from what is caught in the sugar bowls and what is in the Original Well. A plan to install a catchment for water is underway.

Geological Problems: The richness of the soil of the tropical dry forests puts them in danger of clearing for farmland. The National Trust maintains a good relationship with farmers; this is not always the case in other countries. Sometimes forest preservation interests and farming interests collide on the matter of land. This could be a problem in the future that the National Trust should examine as soon as possible. The National Trust maintains a traditional field on the site. This field should not be expanded under any circumstances, nor should any other parts of the dry tropical forest be cleared in this manner. The National Trust must maintain a commitment to protecting this rare and fragile habitat type on North Caicos. The possibility of moving the field to another location, and enabling restoration of the forest at the field's present location should be investigated.

Problems of Historical Structures: Three main threats to the historic structures exist:

1. Structural integrity decreasing with time. As the ground and buildings settle, it is possible that they will collapse. As wooden window and door beams rot or are eaten by termites, it is likely that these openings will collapse.
2. Structural integrity decreasing due to natural damage. Trees, especially Short-leaved Fig *Ficus citrifolia* grow in the building walls. Over time, it may be that the tree is the only thing holding the building up. The trees' natural sway in the wind is a threat to the buildings, as is the weight of the trees as they are rooted in thin soil. Killing the trees is not a solution because when they rot away or are eaten by termites, there will be gaps left that could cause the buildings to collapse. Experts on ruins should be consulted to find out what are the best solutions for the long term survival of the ruins.
3. Structural integrity decreasing due to human activity. People climbing on the ruins and scratching graffiti into the walls are threats to the buildings. Climbing knocks loose the weathered cap-stones which protect the softer inner limestone blocks. Etching the limestone and plaster walls also opens the soft limestone to the elements and destroys historic drawings on the walls. There are currently no preventative measures installed to keep visitors from etching the walls. Tour guide education and full-time wardening would prevent this.

Historical Information Problems: While the information about Wade's Green Plantation is available, it will take considerable time and money, and probably travel, to acquire copies of important documents. The National Trust should pursue the obtaining copies of all documents pertaining to Wade's Green Plantation, and have at least two copies in two separate locations. The National Museum should also have a copy of all information. Funds generated from the site could in part fund research on the history of the site. Time period specialists should be invited to the site and asked to give a general report of their findings. Eventually, a low-impact archaeological study of the areas of the site which are already cleared would be advisable.

Contemporary Structures' Problems: The recruitment of a reasonable, skilled carpenter on North Caicos has proven very difficult. The structures on the site have been built without precision and care, and the pavilion was left unfinished. The National Trust must be sure that the contractor's cost is negotiated to a reasonable level and that no hidden costs are included. The National Trust should prepare construction contracts and should seek legal advisory with the Legal Advisor to the Committee should a contractor break their contract. The pavilion must be finished when funds become available and regular checks of the structural integrity of the structures must be made. Termites pose a threat to all wooden structures. Wasps nesting in the structures pose a threat to visitors and should be eradicated from the structures. Weathering, especially on the thatch roof of the pavilion, must be considered, as this part of the structure will need periodical replacement.

Botanical Problems: The site must be carefully protected against the escape of invasive species from cultivation. This will require weekly inspections of the areas surrounding plant beds with potentially invasive species. Non-native ground-covers and specimen plants must be kept in check at all times. Cow Bush stumps must be removed completely from the ground where they are not desired. In other areas, they should continually be cut back until they die. Seed head should not be allowed to form on the Cow Bushes.

When day labourers are weeding, native and ornamental species must be protected. Large trees must not be struck with machetes (a practice sometimes done out of boredom) and damaged likewise. All pruning should be done with pruning loppers or shears, not machetes.

Gathering of botanical materials from the site is to be prohibited. This includes collection by National Trust Staff and affiliates.

Botanical Exhibit Problems: The botanical exhibits must be carefully watched so that the trees in them do not overgrow their space. Continual pruning is important to consider. Again, invasive plants must be kept in check and not allowed to escape from the flower beds.

Field Problems: the field must not be expanded or moved. Under no circumstances should any more patches of tropical dry forest be cleared. The field must be kept planted (or restored to forest) so that erosion does not occur.

Zoological Features Problems: Hunting is to be strictly prohibited on the site. Visitors are not to bring dogs on the site under any circumstances, except properly trained guide-dogs for the blind.

4.4.2.3 The Future

The analysis started above will be developed further.

TCNT has arranged researching of this site, which was probably the most important plantation in the country. TCI Government has decided to transfer ownership to TCNT for the country, and surveys to demarcate boundaries and subsequent transfer are in progress. The transfer of land needs completion.

The site is of importance as the plantation site and for surrounding vegetated areas. It is also close to the western part of the Ramsar site, and one access trail into it, as well as to other natural features. It would therefore be appropriate to develop into the Trust's environmental centre in North Caicos, complementing that at Bambarra on Middle Caicos.

UKOTCF arranged via one of its UK member organisations (The National Trust of England, Wales and Northern Ireland) to provide the voluntary services of a professional restoration expert to develop a restoration plan in 2001. This will inform the placement of a visitor centre. Within this project, the Trust (with its partner organisations) will then embark on fundraising from local and international sources, including TCI Government and its agencies, local commerce, its local membership, international companies, governments and NGOs, as well as tourists, to provide for planning and construction of the centre.

TCNT would like to see Wade's Green used the same way Little Water Cay is used, as a travel destination for tourists. TCNT would also like to encourage bird watching groups to use the area. Picnics will be welcome on the parking lot area to keep food off of the main site. TCNT would like to explore more thoroughly the tropical dry forests surrounding the site, especially in light of some interesting sites recently found adjacent to the Wade's Green property.

Wade's Green Plantation Historic Site, much like Little Water Cay, is now receiving a steady flow of visitors from North Caicos and Providenciales. To improve the experience for the visitors, the Trust will, as funding allows, install more interpretive signs and produce additional literature. A variety of historic, botanical, and zoological exhibits are also being installed on the site. Included in the plans are a Tropical Dry Forest garden, a plantation-era pottery exhibit, and a bird garden. To reach these goals, a visitor fee as been implemented on a similar model to the Little Water Cay button ticket system. Visitors will receive a Wade's Green Button with the new Wade's Green Logo as a souvenir, and this will act as their ticket to the site. The buttons are available from the National Trust Offices in Providenciales and North Caicos for the cost of \$5.00 each. Funds collected from this system will be incorporated directly into the maintenance budget of Wade's Green Plantation. Close liaison is being maintained with tour operators.

The site is also going to have a working farm, currently being implemented. This farm will show visitors the traditional style of small-scale swidden agriculture used in the Turks and Caicos. Other smaller farm areas will display the crops grown at Wade's Green in the past. Exhibit plantings of culturally important, native, and ornamen-

tal trees will provide learning opportunities to the visitor. Plantings of heirloom crops such as “guinea corn,” a grain grass which has fallen out of agricultural favour, will help to preserve these plants from extinction in the TCI. More accurate site interpretation will be implemented. Souvenirs based on artefacts will be created; one such idea is a metal key ring made from a cast of one of the old skeleton keys found on the site.

An exhibit to display an heirloom breed of fowl, introduced by the loyalists, is underway. TCNT hope to add other traditionally raised breeds once the site is in regular use. Dominique and “scrub” chickens, Guinea-fowl, and royal palm turkeys could be displayed. Other livestock around the site could be added when facilities and finance exist for their care.

4.3.3. Cheshire Hall

Whilst its development is not directly within the programme of work for North, Middle and East Caicos, the historic site of Cheshire Hall Plantation, Providenciales, relates closely to the Middle, North & East Caicos conservation project because it will provide an important first point of contact in the major population and visitor island in TCI. This former plantation site is in an unrivalled location on the major tourist island and centre of population in the country. It lies on the main road between TCI’s international airport and all the resorts, and adjacent to the business centre and government offices. On this island undergoing rapid built development, it has the potential to become a key land-mark and educational centre, for both local people and tourists. The views from its situation provide also for a gateway to the environment, geography, history and ecology of the islands. It will be developed as a focal point also to make visitors aware of the other heritage sites throughout the country and to facilitate visits to them. In 2000 TCI Government decided to transfer the site to the Trust. The Trust has undertaken preliminary work to stabilise the ruins and provided basic interpretative signs and leaflets. Some of this pilot work was supported by a grant from the British Government, which was announced by HRH Prince Andrew The Duke of York during his address to the islands’ parliament and prior to a visit to Cheshire Hall, in March 2000. UKOTCF arranged via one of its UK member organisations (The National Trust of England, Wales and Northern Ireland) to provide the voluntary services of a professional restoration expert to develop a restoration plan in 2001. This will inform the placement of a visitor centre. Planning, fund-raising and construction of the centre will be required. The Trust (with its partner organisations) will then embark on fundraising from local and international sources, including TCI Government and its agencies, local commerce, its local membership, international companies, governments and NGOs, as well as tourists.

4.3.4. Equipping and manning centres

This will be phased, partly in accordance with the rate of fund-raising. The first phase will be the Eco-centre Centre at Bambarra, for which partial funding has already been secured. The timing of the other two phases will be adjusted during the project. For each centre, an analysis will be made of user needs. The Bambarra Centre will probably house an office, basic accommodation for researchers, the national herbarium, the information database on biological resources in the islands, a visitor centre including displays, locally produced refreshments, giftshop promoting local craft products and native plants, and a base for trails and outdoor educational and visitor activities. Wades Green will provide a comparable centre for North Caicos with additional complementary specialisms. For the role of Cheshire Hall, see above.

4.3.5. Craft sales

TCNT has already developed a cooperative arrangement with residents of Middle Caicos and other islands, to promote and sell their traditional crafts, via the Trust’s office in Providenciales, general events, special craft fairs, and potentially the internet. This will be developed further at the centres on Middle and North Caicos, with the additional benefit that the sales at these locations will link closely with the natural and cultural information disseminated there.

4.3.6. Reference collections

For serious scientific work on many taxa, it is important to have reference collections to aid identification of complex groups of species. Where such collections have been made in the course of the Darwin Initiative project 1999-2002, the collections have been made in duplicate. This is so that one of the sets can be repatriated to TCI, while the other is retained at a second location as an insurance. The set for TCI cannot be repatriated until suitable storage conditions are available and reliable; otherwise the material would rapidly decompose. It is envisaged that one of the Trust's environmental centres would provide the home for the reference collection. It would be best for this to be at the location where it would be most used, probably the Eco-centre.

4.3.7. Educational facility

It is planned that the centres, field-roads etc will be developed as an educational resource, using these as living classrooms. The interpretative centres, trails and other facilities will be designed and staffed to incorporate this usage, as well as ensuring access by people with disabilities wherever practicable. (See also following section)

4.4. Training and Environmental Education

4.4.1. Staff

Training will be organised for personnel recruited in a phased manner relating to resources available to implement those elements of the plan requiring staffing. This will involve identifying the nature and level of skills required, evaluating existing competencies of recruits, assessing training needed to reach required levels, and organising this. A key role is that of local counterpart to the Conservation Officer, so that the many skills can be transferred over several months. So far, funding for this has not been achieved, but it remains a priority (see Appendix 7).

4.4.2. Guides

There is a need to identify training needs of existing local tour guides and develop in consultation with them integration of these into the system. As new elements for visitor usage are developed in a modular way, there is a need, in consultation with the guides and external expertise, to identify the nature and level of skills required, to evaluate existing competencies, to assess training required to reach required level, and to organise this. There is a need to maintain a register of guides currently trained and approved for operating in each Trust facility and to ensure the annual review and, as appropriate, renewing of such approvals.

4.4.3. Environmental education

Education work will centre on expanding the highly successful modular curriculum course in environmental education *Our Land, Our Sea, Our People*, developed by TC National Trust in consultation with the TCI Education Department. Subject to resourcing, this will be developed further using the nature reserves as living class-rooms. Project personnel and TC National Trust Education Officer will use biodiversity information from the Darwin Initiative project with historical, cultural information from further studies, and work with local teachers and the Education Dept to incorporate into revisions of existing modules, develop further modules and introduce to schools, including teacher training. TCNT-managed sites will be made available as living class-rooms for school-children throughout Turks & Caicos. Junior conservation programmes will be developed for school-children to participate in conservation work in their communities. The potential for post-school education will be explored with the developing Community College curriculum.

4.4.4. Local communities

Training will be provided for local people in skills needed to support this work, including trail-management, guide work, and the establishment and operation of small businesses compatible with, and supportive of, maintenance of the heritage and way of life. This will build on previous programmes run by TCNT and TCInvest, and collaboration will be explored further.

4.5. Management Considerations for important sites

4.5.1. Introduction

The results of the Darwin Initiative work, both scientific and based on local knowledge, lead to recommendations on particular sites appropriate for conservation/restoration activities, and integration with cultural heritage. Further such recommendations are likely to develop during the course of continuing work. In such cases, project personnel will develop recommendations for incorporation in the integrated management plan, contracting (or securing as volunteers where possible) specialists for detailed plans for selected sites.

In a few cases, recommendations will need to address the conservation of some areas where introduction of public access would itself be damaging. In far more cases, the need will be to assemble viewing site and trail packages which combine a range of interests for the visitors. Much of this is outlined in the preceding sections. This will involve the development of trails of different lengths and difficulties to meet a range of visitor requirements (see section 4.2.3). In all cases, the sustainable capacity of the trails will need assessment. In the case of biological aspects, the expertise and knowledge of the project team and steering group will be supplemented by (largely voluntary) advice from the wide network of international specialists linked UKOTCF's network. In the case of historic structures, the same network will make available appropriate specialists. Furthermore, the TCNT has strong links with the TC National Museum, which will assist in the participation of the key archaeologists.

Recommendations for individual sites follow. The amount of material on different sites varies greatly. This may relate to the amount of work needed, but more often is a result of some issues having been given priority in the first stages of the work. As noted earlier, this management plan is intended as a working document, so that the recommendations and plans for other sites will be developed progressively.

The identification of particular sites does not indicate that other areas of North, Middle and East Caicos are without interest. Indeed, it is the fact that these islands still have throughout an important natural element and that management is still largely environmentally sustainable that makes the approach of sustainable development outlined in this plan feasible. The aim should be to maintain such environmentally sustainable approaches throughout the islands. The reason for addressing some particular sites within this is that these areas need some additional management to maintain their very particular special features. These features are important in their own right, as part of maintaining the quality of life of local people, and to provide the continuing basis for economic activity to sustain local human populations.

4.5.2. Conch Bar Caves Protected Area

[The development of the following section was expedited during the preparation of this plan to meet urgent management needs. For consistency, the extracted material is left here in the same general form as has been used separately, so as to avoid confusion. A consequence is that there is some repetition between this section and some other parts of the plan.]

Management Plan for Conch Bar Caves Protected Area (CBCPA), Middle Caicos, Turks & Caicos Islands

4.5.2.1. The CBCPA Management Plan: summary

This Management Plan addresses access arrangements, health and safety for people using or visiting the site, conservation of the caves themselves and the other parts of the Protected Area, approved uses of the site, management of habitat, visitor resources and mechanisms for revision of the plan as appropriate. As for the wider plan, sustainable use to the benefit of local people is a core aim. The plan has been developed in close consultation with the local community.

The management plan aims to preserve the natural, archaeological and cultural interests of the caves and of the rest of the protected area, while allowing for public appreciation of those features as part of the local and international heritage, and for approved and appropriate research.

It is the intention that management will be integrated with other parts of the area, and this will be addressed in the wider management plan currently in development.

As for the wider management plan, of which this forms a part, it is intended as a working document. Therefore aspects which require further investigation are highlighted as well as those for which information is already adequate to allow operational management decisions. As for the plan as a whole, it is intended that short-term work plans will be developed from its framework.

4.5.2.2. Background

The area is formally designated as a National Park (see Appendix 8). However, it is the view of the National Trust, and others, that it should be reclassified as a Nature Reserve, for the reasons evident in this plan. So as not to preempt this decision, we here use the neutral term “protected area”.

CBCPA comprises Conch Bar Caves and the overlying and surrounding areas identified in the Map at Annex 1. Conch Bar Caves are claimed in some literature to be the largest natural cave in the West Indies. (This is unlikely to be true – but further literature research would be necessary to check this.) As currently mapped (Robinson 1984 – see Annex 2), Conch Bar Caves comprises a deep Y-shape with the arms of the Y being about 300m (southern arm) and about 170m (northern arm). The stem of the Y is about 110m long, when it becomes flooded but clearly extends to the East. (Indeed, it is reported to continue until its appearance at an entrance by Button Wood Pond – but this has not been verified in current surveys). There are five entrances, only one readily accessible, and roof vents/collapses.

Geomorphological features: Many formations are stable relicts of geomorphological interest and beauty. However, the cave is still a “living cave”, that is, formations are still growing and constantly in a fragile state (principally in the southern arm). Further information on this aspect is understood to be available but has not yet been accessible to this project.

Bats: Four species are known to inhabit the caves. Their sensitivity, especially during the breeding season, must be considered – as must their integral part in the tourism interests of the caves. The bat species are Waterhouse’s big-eared bat *Macrotus waterhousii*, Jamaican long-tongued bat *Monophyllus redmani*, buffy flower bat *Erophylla sezekorni* and Cuban fruit-eating bat *Brachyphylla nana*. This is the only known colony of *B. nana*, a Caribbean endemic, in the archipelago of the Bahamas and Turks & Caicos. *M. redmani* and *E. sezekorni* are also Caribbean endemics and uncommon and not widespread, and the cave may provide critical habitat for populations of the Bahaman Archipelago. *B. nana* occurs as one group in a few close chimneys in ‘Bat City’, which also houses a large

proportion of the population of *E.sezekorni*.

Other cave fauna: A number of cave crustaceans are described from TCI – mainly from Conch Bar Cave. Many of the more interesting cave endemics in the region are from deep water within caves (or related underground habitats – blue holes, etc). There needs to be a review of the known crustacean fauna and its status. The British Museum (Natural History) (contact Geoff Boxall) may be in a position to help here. (A number of references are already available to the Darwin Initiative Project team, but most of these have yet to be followed up. One obvious shrimp species was collected in November 2001). Many insects and other arthropods inhabit the caves (including cave crickets, cockroaches, Diptera, Coleoptera, spiders, woodlice, crabs and amblipygids (whip-scorpions). These, too, should be studied to assess levels of endemism. (Some specimens of a white woodlouse on bat guano were collected in November 2001.) The occurrence of fish should also be investigated. Barn Owls sometimes use the cave as a roost site.

Historical/Archaeological features: The cave presents a number of features of historical interest, including visitors' names and dates (most repainted and no longer authentic), and holds value for archaeological studies (which must be carried out with methods that do not compromise the other features of conservation interest). Principal interest is in early occupation by Arawak Indians (Lucayan Tainos), and later for exploitation of (bat) guano, etc. Authentic evidence should be identified and preserved and decisions made about other features/ materials. (The results of recent studies by David Steadman should be obtained and assessed, as should some palaeontology done by G. Morgan.) Accurate interpretative material will need to be developed in the light of these investigations. There are other probably uses as hurricane shelter and water source. It is desirable to secure access to unpublished reports in files in TCI but not accessible at present by the National Trust, in order to amplify the information incorporated in this plan.

Outside the cave, the protected area comprises the area between the coast and the old road (see Annex 1). This includes an area of scrubland and the ridge over the cave area, as well as two important ponds. It is possible that these ponds are hydrologically linked to the water systems in the caves. (This would benefit from further investigation.) Village Pond is important in its own right for wildlife including many notable birds. These include Black-necked Stilts and other shorebirds, Bahama Pintails, and several herons, and the Pond is a confirmed breeding site for the endangered West Indian Whistling Duck. The main road for Middle Caicos was damagingly pushed through Village Pond (despite the obvious intention of avoiding this unnecessary damage, as seen in the original plans for the road) and part of the northernmost part of the pond is now separated as a grassy marsh also used by birds and other wildlife. The second important pond is Buttonwood Pond, which has been less well studied. The ruins of Stubb's Plantation lie at least partly in the eastern part of the site, and would warrant investigation. Part of Crossing Place Trail crosses the site along its coastal edge.

The caves are currently one of the main tourism attractions at Middle Caicos. However, there is concern from the local community (including local guides) as to how much pressure on the sensitive elements, such as geological structures, archaeological material and bats, is compatible with sustainable usage. This was one reason for both DECR and the local community asking the Trust and the Forum giving priority to investigation of the caves in the work which became the Darwin project to develop this plan.

4.5.2.3. Oversight of Management Plan for CBCPA

The responsibility for the implementation or modification of the Management Plan for CBCPA will rest with the Council of TCNT, which may delegate authority to a committee (for example its Executive Committee or the local committee - see Section 4.8.4), or to staff as appropriate. Trust Council and committees include wide representation but, in modifying the plan, the Trust will take additional steps to consult the local community including guides, government bodies and other interested parties. The Trust will be responsible for the conservation of the site and its intrinsic importance, for the way it is used for education (including any involvement in schools' curriculum if appropriate), research and recreation (and local employment), and for ensuring that such activities are carried out in a manner appropriate to the health and safety of staff, guides and visitors, and similarly that any such activities do not damage other interests of the site. The Trust would incorporate reporting on its stewardship of this site in its statutory reporting to the TCI Government and Legislature.

Any infringements or other matters of concern or interest should be reported to the Turks and Caicos National Trust, or the District Commissioner. The Trust would liaise with DECR in any matters requiring policing under the responsibilities laid on DECR.

A policy for dealing with the infringements or other matters of concern should be developed (e.g. rescinding of licences/permissions, changes of practice).

4.5.2.4. Cave access arrangements

The priority attached by all to ensuring the conservation of the cave's sensitive heritage, both for its own value and as a basis for sustainable tourism to benefit the local community means that the gate on the track to the caves will be kept locked with authorised keyholders. [This may encourage vandalism, but may be worth trying – if vandalism is persistent (it often stops after a year or so in UK experience), change the plan.]. It is recognised that there are various other possibilities for access, although far less easy and unlikely to be used by visitors to the area.

Ideally, authorised keyholders will be a dedicated TCNT warden, with at least one back-up TCNT person, plus an emergency key with a suitable and available island authority (e.g. District Commissioner or police officer). However, until resources are available for a dedicated warden to accompany all visits, it may be necessary to issue approved guides with a key. In this case and until long-term arrangements can be put in place, this key should be kept either with a TCNT officer based on the island or with the District Commissioner, and should be issued to authorised guides for specific visits against their signature in a log-book. All keys remain the property of TCNT.

TCNT may declare the site temporarily closed to access in the event of abuse of access arrangements, or for reasons of any notified temporary hazards or health and safety provisions (e.g. cave collapse, flood), or for reasons of recognition of problems affecting the interest of the cave (e.g. decline in bats, degradation of geomorphology, artefacts), or an accident, or for any other good reason.

TCNT may apply, as appropriate, seasonal restrictions or declare some areas permanently off-limits ('out of bounds' sanctuary areas, e.g. 'Bat City') in the interests of the conservation of bats or other features of concern.

All persons entering the cave must abide by the Health and Safety regulations (see Annex 3).

All persons entering the cave must abide by the Code of Practice with respect to conservation (see Annex 4).

Records of tourist visits and tourist numbers per visit, and ideally names and contact details of tourists, should be kept. As far as possible tour groups should be limited to six and should never exceed ten.

Records of other visits (e.g. for education or research) should be kept.

TCNT will consider limiting the number of tour groups in any one day if this becomes necessary in order to protect the site for continued conservation and use for tourism.

Until a dedicated warden is appointed, an appropriate TCNT staff member or volunteer should visit the site regularly to ensure that recommended practices are being followed and report on where the recommended practices create difficulties for visitors or may pose threats to the conservation concerns. Following the appointment of a dedicated warden, all visits should be monitored by him/her, and a report supplied regularly to TCNT on these points.

4.5.2.5. Tour Guides for the caves

Tour cave guides have been amongst those encouraging the development of the plan and have participated in community meetings and other consultations throughout the process. In common with experience elsewhere, it is much easier for any individual guide to meet the desirable practices if there is a management body to oversee such standards are applied by all other guides. Cave tour guides should be approved and certified by TCNT following training in health and safety, understanding cave geology and formation, ecology (especially bats) and history. They should also be briefed about the TCNT and its role in the management of the site. Approval will be annual, and renewal will require a positive decision by TCNT.

Tour guides should be encouraged to recognise that they have an important (key) role and interest in the conserva-

tion management and monitoring of the CBCPA.

Tour guides must at all times follow and make their tourists aware of the Health and Safety Regulations (see Annex 3).

Cave tour guides should at all times follow and make all visitors aware of the conservation value of the cave and potentially damaging activities identified in the Code of Practice for Conservation (see Annex 4), including identifying highlights before entering the cave.

Tour guides should be encouraged to participate in the running of the cave (see 3.1 above) and in the bat monitoring (see 10.2 below). They should also be encouraged to report biological (or other) observations (e.g. for bats' breeding season).

As far as possible tour groups should be limited to six and should never exceed ten (larger parties should be split into two or more groups).

Tour guides should agree with TCNT set routes for all tours, which should avoid 'Bat City'.

Tour guides should keep all tourists close to them and not allow them to wander from established routes.

Tour guides infringing these rules may have their approval revoked.

4.5.2.6. Research in the caves

Research will be permitted only if it does not threaten the conservation interests of the cave and its fauna.

Research within the caves should be carried out only with the approval of TCNT following submission of a standard application to be reviewed by management authority with external advice as appropriate.

Researchers must submit a full report on their work and its results to TCNT (within 6 months or such other time that has been mutually agreed).

TCNT may wish to maintain a list of research topics it would like carried out in or in relation to the cave and its environs.

4.5.2.7. Management for bats of habitat surrounding the caves

There is a need for further investigation of the habitat and its appropriateness for bats within the CBBPA and any other areas within 2 km of the cave entrances.

The main entrance area should continue to provide some tree cover under which bats can circulate in early evening or at dawn before departure to, or after return from, foraging areas.

The current availability of scrub edge extending from each end of the main cave mouth should be maintained to provide a protective flyway for bats commuting from the cave and then dispersing to feeding sites.

Vegetation around the other entrances should not be allowed to develop to the point where it prohibits free access for bats.

Vegetation around the other entrances should not be cleared to isolate the entrance from adjacent scrub and trees.

4.5.2.8. Management, viewing and access arrangements for surface parts of the protected area

Several very important habitats on the surface are also within the protected area. This includes breeding sites for the vulnerable West Indian whistling duck and other birds, butterflies and plants. It is important to organise management and viewing while impinging as little as possible on traditional uses. If successful, this will result in a very attractive visitor site in the immediate vicinity of the village.

Village Pond is an important wetland habitat and one which is very accessible to viewing from the road. However, it is also a small area, so that disturbance to wildlife could become both a conservation problem and one restricting the viewing opportunities. There would be advantages in building a viewing structure on the road at Village Pond. This could have more than one function:

- Hide (UK usage) or blind (US usage): a structure in which observers can remain concealed, allowing close viewing of wildlife (often birds) without disturbing them. Avoidance of disturbance is important in some situations, both for the benefit of observers (so that they can obtain good views) and the wildlife (for which disturbance may prevent essential activities such as feeding or breeding). Hides normally have narrow viewing windows but are otherwise enclosed, especially on sides facing the wildlife. Depending on the local geography, they may also have screens to shield the approach of observers from the sight of wildlife at a fixed location, such as a small pond.
- Shelters: Structures with a roof to provide shelter from strong sunlight or heavy rain, particularly useful for breaks in walks and often combined with viewing platforms.
- Venue for interpretative and public awareness materials, such as display boards and leaflets.

The building of a hide will facilitate visitors' viewing of birds and other wildlife. A car-parking area (easily accommodated within the existing road width) beside the hide would be required, and it may be desirable to use a screen of local materials so that visitors can move from vehicle to hide without disturbing birds. (Worldwide research and observation have shown that wild birds will come to accept a hide and even passing cars as part of their habitat, but may be wary to people getting out of cars. They often come to ignore the presence of people when they remain quietly inside the hide.)

The thatching will be done in the style traditional to the Caicos Islands. Locally harvested thatch from the White Top Palm and Buffalo Top Palm will be harvested sustainably by thatchers (as is their normal practice). Benches inside the hides will allow for seating area, at suitable heights for using the viewing windows. Trash bins will assist in the limiting of litter. Simple cards available from the National Trust Offices or other suitable venues will show pictures or paintings of birds or other wildlife common to each respective pond. These cards will act as a "ticket" to the hides, and a small fee will be collected by the National Trust from the sale of each. Proceeds will benefit the maintenance of the hides, future literature production, and other projects.

Buttonwood Pond Field-road. A well-established but somewhat overgrown trail runs from Conch Bar, along the south side of Village Pond to Buttonwood Pond. It runs through dry scrub and alongside several wetland habitats including the open water and sawgrass beds at Village Pond and mangrove swamp at Buttonwood Pond. There are also patches of transient vegetation. This provides a short walk (1 km each way) conveniently in the vicinity of Conch Bar. It lies within the Conch Bar Caves Protected Area. It may be necessary to discourage heavy use of this trail or incorporate appropriate features in the route and design if it is discovered that it brings visitors too close to bird nesting, feeding and resting habitats in the back of the pond. Some work may be necessary to adjust the line of this trail so that it is set back from the Village Pond shore and screened from the pond by natural vegetation. This would prevent too much disturbance of wildlife of the pond, from the road on one side and a trail on the other.

There is the possibility of turning the field-road into a circular walk, using the well established (but similarly overgrown) fork to Conch Bar Caves, returning via a section of the old road and the path (East Road) from the airport to the village. This would also have the advantage of passing (or starting from) TCNT's kiosk at the airport or Conch Bar itself. However, it might be disadvantageous to provide alternative access to the caves area (see 4.1). It would, however, probably be possible to divert the return route to miss the caves entrance.

Another possibility for making the route from Village to Buttonwood Pond circular has yet to be explored. This would be to open up the other route to Buttonwood Pond, from the coast road (and Crossing Place Trail) from the north, via the ruins of Stubbs Plantation. If the ruins of the plantation prove worthy of visit, this could provide also an interesting option spur-walk off the Crossing Place Trail.

Work needed to implement these field-roads or trails includes:

- identify features of interest on the trail, to be labelled by numbered pegs
- ensure that viewing points at the two ponds do not cause undue disturbance

- write the trail booklet/card to relate to these markers for fixed items, and working in reference to mobile features (birds, butterflies, etc)
- devise a means of charging for trail use by visitors – perhaps using the leaflet/card as ticket, and agree with tour companies and guides
- complete ground- and some vegetation-clearance of trail to minimise risk of tripping; vegetation clearance to pay regard to important features and, where possible, keeping trail sufficiently narrow for vegetation to close overhead
- install the numbered pegs and a sign featuring TCNT at the start of the trail
- train guides in the use of the trail
- secure the conservation of ecosystems in the vicinity of the trail
- explore the options for extending the trail to (a) circular route(s)

Other aspects of development of Crossing Place Trail itself are not addressed here, because these are better considered in the context of the whole of the Crossing Place Trail, rather than in the context of this Protected Area in which a short section of that Trail falls.

4.5.2.9. Interpretative material

It is envisaged that signage for field-roads will normally consist of a prominent entrance sign with logo(s), together with numbered feature posts. This will minimise costs and intrusion, while allowing changes to be made relatively easily and cost-effectively to the information content. It is anticipated that the guide leaflet to each field-road will serve as the ticket. The basic concept for format would be a single sheet printed on both sides, and incorporating sketch map, notes on numbered locations, illustrations and notes on the natural, historical and cultural features. Notes on mobile species likely to be seen will need to be worked into the text. It is planned that the sheet be laminated or be produced of a comparable standard. This would have several advantages:

- It becomes a souvenir, with extra awareness-raising potential.
- Any discarded or lost copies will not produce unrecoverable litter and may be recyclable.
- The leaflets will become collectable (and saleable) in their own rights, for example as sets for placemats.

It is possible that a variant of this model might be appropriate too for the Caves. Further information should be on boards at the cave entrance, including on bats.

A leaflet (which could constitute the ticket – see 9.1 above) should be available from tour companies, the TCNT and on site. It should incorporate an explanation of the conservation interests of the cave and the principal components of the Code of Practice for Conservation (from Annex 4).

It is proposed that a booklet guide to TCI bats (and possibly other mammals etc) be prepared and this would highlight the importance of Conch Bar Village Cave.

Tour companies (and others) may be approached for sponsorship of such interpretative materials.

Information boards and other tourist resources should be kept in the open, away from the cave entrance and positioned so as not to impede bat flight-lines to and from the cave entrance.

4.5.2.10. Monitoring

Visitors to the cave should be monitored as at 4.7 and 4.8. In the light of such monitoring in relation to the changes identified in 8.2 (or to other aspects of interest) TCNT may further limit visitor numbers on a seasonal/ daily basis or with respect to fully protected areas within the cave.

An organized count of the bats should be carried out at six monthly intervals (say July and January). Such counts

may not give full population counts but should be regarded as representative. If bat numbers (of any species) appear to be in decline, the reasons for that decline should be assessed and appropriate measures taken to halt and reverse the decline. As far as possible tour guides should be encouraged to participate in the bat monitoring.

Monitoring of waterbirds using the ponds and of other wildlife are addressed in Section 4.8.2, and will be developed further in later revisions of this plan.

Consideration should be given to the practicability of developing a system of monitoring water quality and movement.

4.5.2.11. Charges

The work in preparing visitor facilities, including trails, interpreting them, maintaining and managing them, has costs, as do the preparation of signs, printing of information, training of guides and general management. Many of these costs have been met, and will be met, by grants from within TCI and overseas. However, providers of such grants are encouraged to give further support if ecotourism facilities themselves generate a contributory income. TCNT has an excellent performance record on this, notably with the Little Water Cay trail. TCNT has used the income from this both to maintain the trails and to help initiate other conservation and environmental work, including that on Middle Caicos.

It is the policy of TCNT to exempt school visits from charges for the use of these facilities. It is the intention also to exempt local residents from charges to their local sites. However, it is important that such usage is monitored, both to demonstrate and allow reporting on the uses made of the resource, and to allow monitoring in relation to conservation management. In this context, it is particularly important that all visits to the caves, whether by paying tourists or by local residents or by school parties or by researchers or by site-managers, are recorded.

In the case of the caves, the ideal position in relation to long-term conservation of the caves (and hence the visitor-attracting resource) would be to have a dedicated warden at this facility. The costs of this ought to be defrayed by access charges. Furthermore, it is likely that, with increased visitors, the daily safe capacity of the caves will be reached on at least some days within the reasonably near future. It would be wise to plan ahead for this so that it can be managed positively and without deterring visitor support. In addition to the option of offering access to the caves on other days, it should be TCNT's aim to offer alternative venues of interest on days when the caves are not available. There are many potential venues which are identified within this wider management plan. The rate at which they can be developed is dependent in large part upon funding. Therefore, income from existing resources will help these developments. In this context, it would be sensible to plan for an initial charge for cave visits to be \$10 per person. Bearing in mind that most people paying this are foreign tourists, this is a very small charge in relation to the total costs of their visits to Middle Caicos (about \$150 for a day-trip from Providenciales), and indeed to TCI. This is especially so when it is considered that a souvenir guide-card or button will be included in this charge. Collection would normally be as part of a much larger charge (including transportation etc) collected by the tour-operator.

4.5.2.12. Conservation work

Apart from the work outlined in the above sections on the provision and management of visitor facilities, monitoring etc, proper stewardship of the resource includes various other necessary conservation activities. Some concern monitoring, also noted earlier, and others awareness raising. For example, there are indications that work on the roads does not necessarily treat adjacent habitat (such as Village Pond) with the care that would be appropriate. It would be valuable to make road-workers and their managers aware of the importance of these areas, so that casual damage is avoided. In the case of Village Pond, there would be advantages in reinforcing this importance by building, for example, low walls between the road and the pond on either side.

Awareness raising is also important in terms of other usages of the area. The important sawgrass habitat in Village Pond was burnt in 2001, thereby removing breeding habitat for ducks and other wildlife, apparently for the purpose of unauthorised crab-hunting. Some areas of the protected area are in use for low-level agriculture. The latter may not necessarily be damaging to the natural interest, but some investigation and guidance may be necessary.

In order to achieve effective management, a single organisation needs to take responsibility for the protected area and be accountable for it, even though that body will need to work closely with other conservation bodies, the local community and the government. This plan assumes that this lead body is TCNT, since it has a good working relationship with the local community, who favour this role for TCNT (as evidenced in many community meetings including one co-ordinated and chaired by the Ministry of Natural Resources), as it has brought together the specialist skills to enable a soundly based plan to develop, and because it has experience in operating this kind of ecotourism resource successfully.

There have been some problems with the boundaries of this protected area being subject to erosion. To ensure the long-term safeguard of the resource, in its own right and as an important basis for the local economy, it is important to place the land concerned in conservation ownership in trust for the people of TCI. The protected area comprises the following parcels of land:

- All of parcels 40105/5, 40104/63, and 40104/62. These should be transferred to conservation ownership as soon as possible.
- Part of parcels 40104/135, and an area at the junctions of blocks 40104, 40105 and 40200, whose parcel number is unclear but is probably part of 40200/00. These should be transferred to conservation ownership as soon as new parcel boundaries can be clarified.

Studies are desirable on the range and distribution of the habitats on which the bats are dependent for food, so that conservation measures can be designed for these.

TCNT will use its network of international contacts through UK Overseas Territories Conservation Forum to make researchers aware of studies that it would welcome to help further conservation measures.

4.5.2.13. Revision of CBCPA Management Plan

A system of review of the Management Plan should be established, initially on a yearly basis and later, say, every five years. Any agreed modification to the management plan should not compromise the natural and cultural interests of the site.

This plan and its revisions will provide the wider and longer-term plan from which individual and short-term work programmes are developed each year or more frequently.

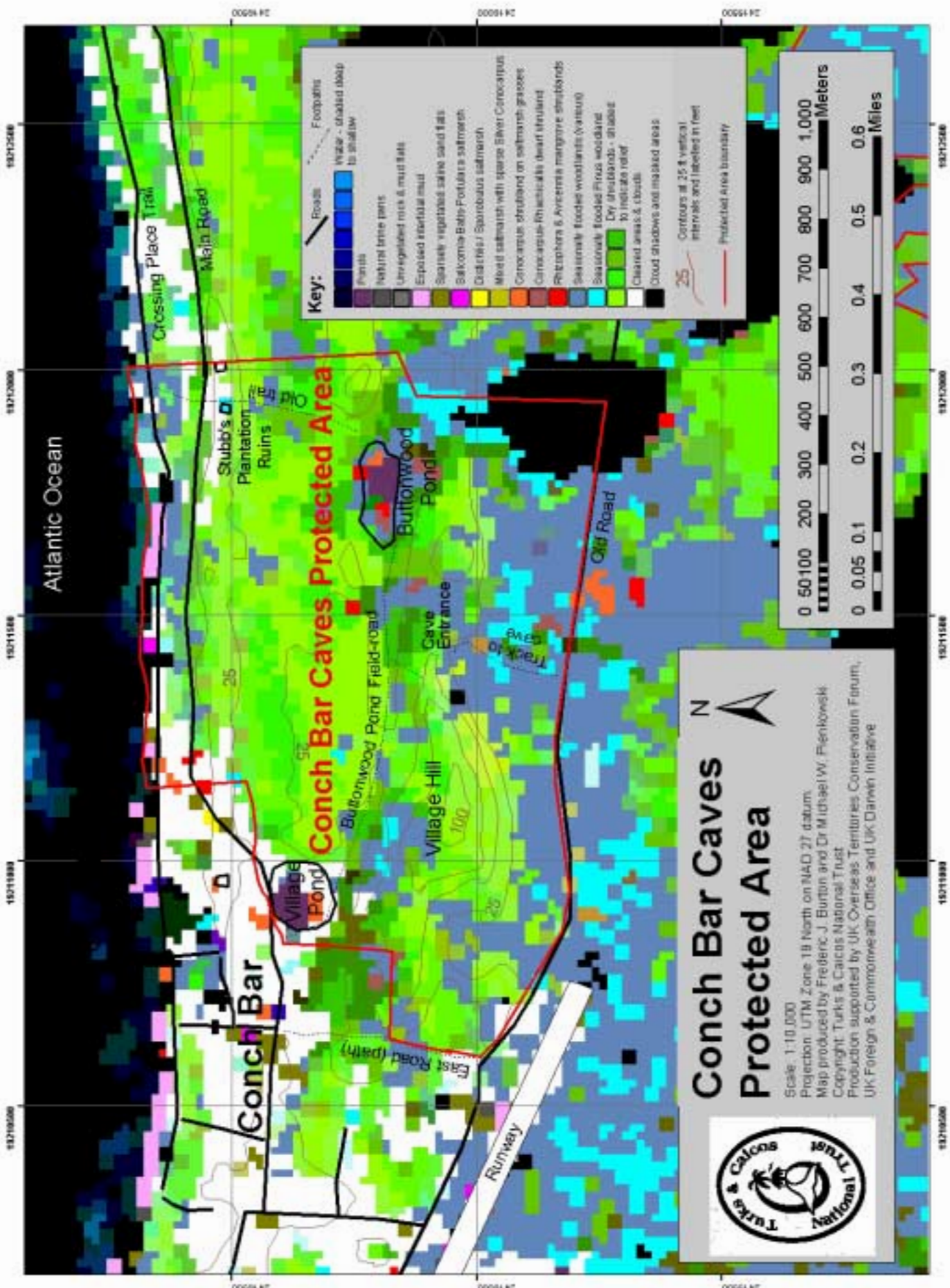
4.5.2.14. Annex 1. Map of Conch Bar Caves Protected Area; and Annex 2. Map of Caves

(These are on the following two pages. Annex 2 is from Robinson 1984.)

4.5.2.15. Annex 3 Health and Safety Regulations

Regulations will be developed to include the following aspects:

- Tour guides and tourists must observe the Health and Safety Code.
- Note should be taken of any notified temporary hazards or health and safety provisions. [This is just to cover for any eventuality, such as a collapse, occurrence of histoplasmosis, flood, an accident, etc – all very unlikely, but care recommended!]
- Any infringements should be reported to the Turks and Caicos National Trust.
- Matters arising from a Health and Safety risk assessment. Risks might include:
 - o contact with rock (head injury),
 - o falls from collapse of floor or through openings in floor,
 - o trips, slips and falls on same level,
 - o fear of fauna (crickets, cockroaches, bats, etc)
 - o entry into confined spaces,
 - o being struck by falling rock,
 - o drowning,
 - o sudden illness of guide during tour



Key:

- Roads
- Footpaths
- Ponds
- Water - shaded deep to shallow
- Natural lime pans
- Unvegetated rock & mud flats
- Exposed skeletal mud
- Sparingly vegetated saline sand flats
- Saltcrusts-Bathy-Portulaca saltmarsh
- Disturbed Sporobolus saltmarsh
- Mudflats with sparse Silver Conocarpus
- Conocarpus shrubland on saltmarsh grasses
- Conocarpus-Rhizophora dead shrubland
- Rhizophora & Avicennia mangrove shrublands
- Seasonally flooded woodlands (Varecu)
- Seasonally flooded Pinus woodland
- Dry shrublands - shaded to indicate relief
- Cleared areas & roads
- Wood shadows and masked areas
- Contours at 25 ft vertical intervals and labelled in feet
- Protected Area boundary

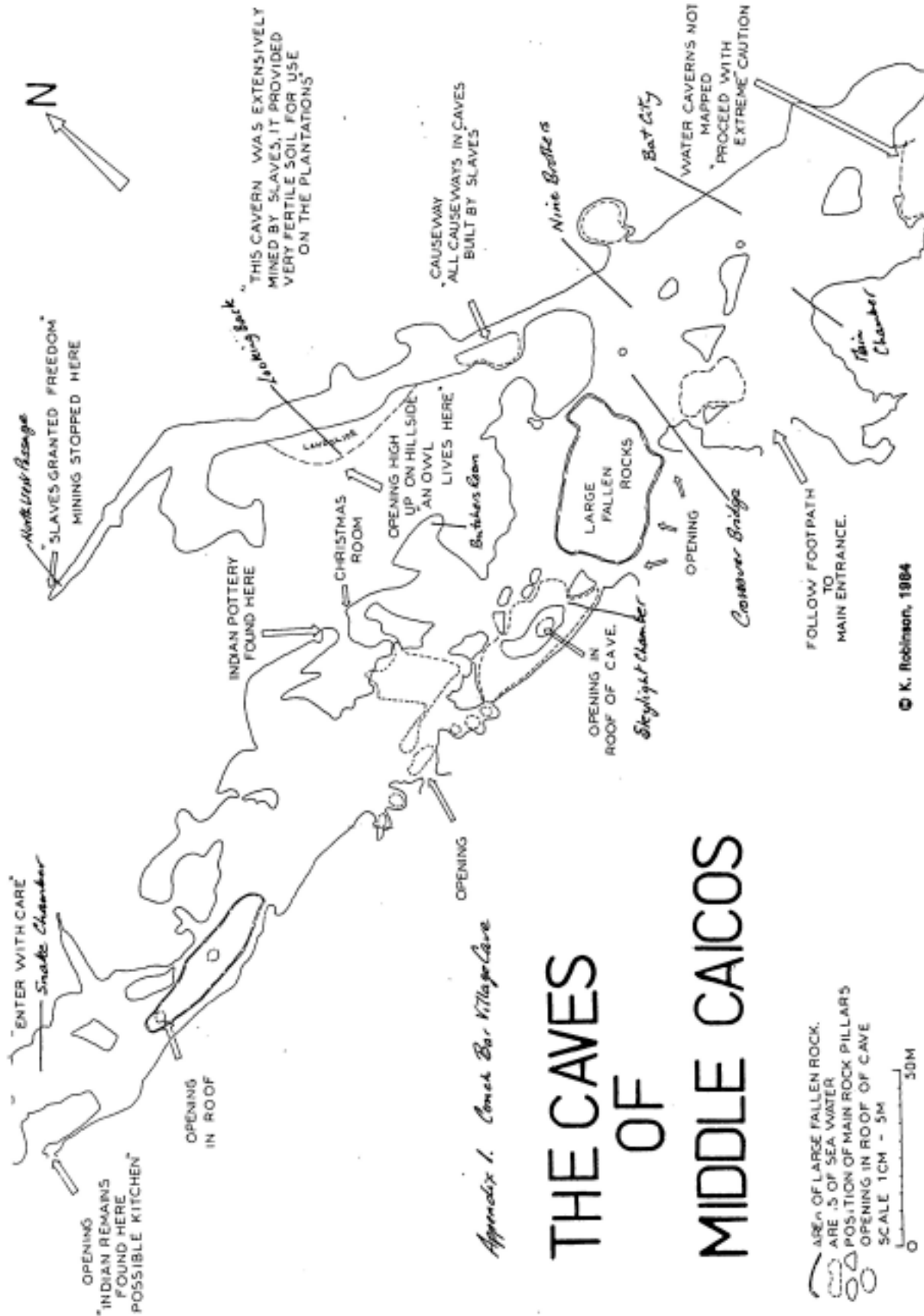


Conch Bar Caves Protected Area



Scale: 1:10,000
 Projection: UTM Zone 19 North on NAD 27 datum
 Map produced by Frederic J. Burton and Dr Michael W. Florkowski
 Copyright: Turks & Caicos National Trust
 Production supported by UK Overseas Territories Conservation Forum,
 UK Foreign & Commonwealth Office and UK Darwin Initiative





- Visitors should be advised of H&S issues
- o availability of lights (all tourists should be provided with adequate lighting - but not so bright as to disturb bats!)
- o tourists should be advised to wear appropriate shoes
- o consideration should be given to whether people should be provided with hard hats, advice on other suitable clothing, etc.
- o information should be provided to visitors in resorts before they arrive on Middle Caicos to ensure that they come prepared and suitably dressed
- Tourist parties should include no more than six tourists per party.
- Records of tourist visits and numbers should be kept.
- A set agreed route for all tours should be established.
- All tourists must remain close to guide and not wander from established routes.

4.5.2.16. Annex 4. Conservation Code of Practice

All visitors should be made aware of the conservation value of the cave and of potentially damaging activities.

1. No smoking in cave.
2. Only electric lights to be used (no combustion type lights, such as kerosene or alcohol lanterns or flame torches).
3. No food or drink should be brought into the caves (as it provides an easy entry route for litter and vermin-attracting food). Remove all litter and debris.
4. Visitors must not enter or pollute water.
5. No natural feature of the caves (including animals, plants, formations and rocks), or human artefacts of historical interest, may be removed from the cave.
6. No animals or plants may be introduced to the cave.
7. Avoid disturbance to bats as far as possible, especially in 'Bat City'.
8. Do not linger in areas occupied by bats – try to keep moving.
9. Lights should not be shone directly at bats.
10. Noise levels should be kept down.
11. Bats should not be disturbed, handled or photographed with flash.
12. Any infringements or other matters of concern should be reported to the Turks and Caicos National Trust.
13. The TCNT may waive some of these rules to enable specialists to carry out approved research or other activities.

4.5.3. Indian Cave

Indian Cave is much less extensive than Conch Bar Caves, consisting principally of a fairly open arch structure, with some very narrow systems connecting into it. It is important for bats. Indian Cave also provides a unique habitat for plants that prefer moister, shadier areas. It is interesting to note that species common on the island have dramatically different growth forms inside the cave and around its entrance. Barn owls are known to use the cave, as are land crabs. It is known as an area where the endemic boas are found (and killed by workers hired [not by an approved management body] to clear the area). Greenhouse Frogs use Indian Cave as a breeding site. While these amphibians are not native, they may have been introduced by human agency or they may have colonized the islands on their own (they are known to do this with great ease).

At present, it has no formal protection, but is frequently visited, being on one arm of the Crossing Place Trail and the

main road. It has been subjected to well-meaning but inappropriate management. It has also been proposed for residential development spreading from Conch Bar. One plan for land division ignored the existence of the cave: a proposed commercial subdivision for Conch Bar has been made for the land upon which the cave sits.

This cave and its surroundings are important for both conservation and as an attraction to visitors if managed suitably. It is recommended that it be protected by being transferred from Crown ownership to safeguarded conservation status, using the powers in the National Trust Ordinance, and that the National Trust incorporate its management in the integrated plan outlined in this document.

4.5.4. Other Middle Caicos Caves

There are reports of small cave systems in other parts of Middle Caicos, particularly near Lorimers, being of importance to bats and other wildlife.

Several biologically and culturally important cave systems exist south of Lorimers in Middle Caicos. Three have been visited by the NT staff for exploration. Mango Tree Hole is a large collapsed cave, about 12 feet (4 m) deep with two small passages extending several metres back into the hillside. These passages are home to at least one species of bat. In the bottom of this hole are three large mango trees. The grand-daughter of the woman who planted these trees, Gertie Forbes of Bambarra, knows the history of the trees and their planter. Several other fruit trees are planted around and in the hole. A wall surrounds it. The deep leaf-litter houses many invertebrates and a healthy population of the African Monk Orchid *Oeceoclades maculata*, which introduced itself on hurricane winds during the last few decades.

Charles Rigby Hole is a small opening which widens out quite a lot. The hole is approximately 15 feet (5 m) deep. No bats have been observed there yet. A Barn Owl roosts there in the day-time, and ample ledges in the wall suggest that this may be an appropriate breeding site. Descent into the hole may prove difficult because the owl repeatedly attacked a measurement rope dropped into the hole. The hole was formerly used by a man named Charles Rigby, to grow bananas. No banana trees are left there, but a carpet of ferns covers the floor of the cave. A wall surrounds the cave entrance. This is a dangerous area because of the risk of falling and the seclusion from human settlement.

Fig Tree Hole is 8-10 feet (3 m) deep and has no passages. A large short-leaved fig tree grows out of the hole. The hole itself simply supports the fig tree, but the fig tree may be an important food tree for birds and bats.

Further investigations should be pursued as opportunities arise.

4.5.5. East Caicos Caves

The cave complex in the Flamingo Hill area of East Caicos is reported to be on the same scale as Conch Bar Caves. However, inaccessibility means that it is rarely visited, especially by those who could survey its biological aspects. Attempts to get bat and other specialists to the caves during the Darwin Initiative project 1999-2002 were foiled by adverse weather conditions.

These are probably important caves and their protection is likely to be a priority. Attempts to survey the site should continue. The probable importance of the area should be borne in mind in relation to any proposed developments.

4.5.6. North Caicos Caves

Investigations and enquiries on North Caicos during the Darwin Initiative project 1999-2002 revealed only very small cave features. This matches existing reports and the generally low relief. It is possible that cave systems may occur in the higher elevations of the Bottle Creek area and smaller hills in the northwest of the island. Opportunities should be taken to gather further information, but it is unlikely that caves in this area will prove as important as those of Middle, and probably East, Caicos.

4.5.7. Middle Caicos woodland

A major result of the 1999-2002 Darwin Initiative project has been the identification of the importance of some of the woodland and scrubland areas, especially between Lorimers and Bambarra. The importance of this has been somewhat undervalued as conservation and other interest in the wildlife centred first on the coral reef areas and more recently also on the more terrestrial wetlands. Although the woodlands include many wetland habitats, little of it was included in the Ramsar site, nor indeed the system of protected areas, many of which resulted from a survey of wetlands only.

This group of habitats therefore remains under-represented in areas of statutory or other protection. Some aspects of the importance include:

- Vital wintering habitat for some North American breeding populations. These birds are more obvious in April-May than at other times, because they spend a lot of time feeding to fuel their migrations to the breeding grounds. Among the most important finds during the recent fieldwork were several Kirtland's warblers. This is one of the most threatened bird species of the region, the world population consisting of only about 3000 individuals. They breed only in a restricted habitat in one part of Michigan, USA, and spend the non-breeding season in largely unknown locations in the Bahamas and TCI.
- Small pools with breeding records of the West Indian whistling duck, another vulnerable species, for which major conservation efforts are being undertaken internationally.
- Extremely high densities of characteristic local birds, some widespread but others found in no or few other places (such as the Bahamas, Cuba or Hispaniola); these include thick-billed vireo (subspecies restricted to the Caicos Islands), Bahama woodstar hummingbird, Greater Antillean bullfinch (subspecies restricted to Middle & East Caicos) and Cuban crow. It is now clear that the woodland on Middle Caicos is important to the survival of this species and for the continued well-being of many others.
- Important habitat for certain bats
- One of the most important habitats for reptiles. The majority of the reptiles of the Turks and Caicos use the scrub forests and woodlands as their primary habitat. (One exception is the rock Iguana, which prefers coastal areas and coastal coppice habitats; this preference may be by necessity, as the remaining populations are found on small cays and isolated strands where these are the dominant habitats.) The endemic curly-tail lizards and the endemic races of the *Mabuza* skink and bark anole frequent the scrub forests. The endemic boa constrictors also favour this habitat, probably because the aforementioned lizards are their major food source.
- One of the areas in which re-establishment of woodland towards forest has moved furthest in places, so that there is a good range of scrub, woodland and forest types represented.
- Correspondingly wide range of invertebrate and plant species.
- Additionally there are some important plantation ruins in this area.
- It is also an important area for plants still used for traditional purposes; this is important both for local people using these resources and for the potential interest to visitors.

This great importance and interest is reflected in the fact that several of the field-roads re-opened by the Trust for development of interpretative trails run through these areas. These include the trails to:

- o Haulover Plantation
- o Nanny Pond
- o Big Pond and the flats (salinas)
- o Armstrong Pond
- o Duck Pond
- o Corry and Washing Ponds

Many parts of this area are in private ownership, and it is recommended that the Trust enter negotiations with appropriate owners to ensure awareness of the value of these areas, their conservation, and appropriate access for visitors.

Some parts of this area are in Crown ownership. It is recommended that suitable parts of this important area are transferred to conservation ownership and management as soon as possible. This is for several reasons:

- Conservation of the important ecosystems at a time before any conflicting proposals occur
- To allow effective conservation management in a coordinated manner
- To enable the conservation body managing the site to make appropriate charges for access in order to defray the costs of management
- To enable enforcement of agreed conservation management measures
- To ensure public access to appropriate features of interest.

The trail to Haulover Plantation crosses the following land parcels: 40301/17, 18, 20, 21

The trail to Nanny Pond crosses the following land parcels: 40301/3, 24.

A proposed linking of these two trails would cross land parcels: 40301/22, 23.

Adjoining parcels 40300/00 and 40206/7 provide the only remaining Crown-owned access from the main road to the Ramsar site at Armstrong Pond, and embrace the route of the exceptionally biologically rich trail to Armstrong Pond.

Consequently, an important initial major step to securing the conservation of this area, and its future use as a basis of the economic development via eco-tourism could be achieved simply by transferring ownership to the National Trust under its Ordinance, so that it could hold it in trust for the people. Accordingly, it is recommended that these parcels be transferred to Trust ownership to achieve these important objectives. Later consideration might be given to transferring several adjoining parcels in addition: some or all of 40301/1, 2, 4, 5, 6, 7, 8, 11, 13, 14, 15, 16, 19.

4.5.8. Crossing Place Trail

Crossing Place Trail is the traditional route along the Caicos Islands, in particular the Middle Caicos section of this. As such, it is of great cultural importance. The trail is also of great scenic value, and along its route are important sites for wildlife, such as breeding tropic-birds, Audubon's shearwater and a range of herons and egrets in the western part, as well as an endemic and other butterflies.

The Trust, in conjunction with the local community, have re-established the trail, with a programme of signage, interpretation and publicity. Not surprisingly, this is rapidly becoming a major tourism feature for the islands. However, the site lacks effective protection. This needs to be put in place in order to ensure the conservation of this important natural and cultural heritage, and its availability as an essential resource in support of the developing eco-tourism economy.

For areas towards Bambarra Beach, the integrity of the Trail has been compromised by the division of the coastal plot into many small units for development inappropriately close to the shore.

Further west towards Conch Bar, the Trail exists as a road reserve along the shore. It would be worth investigating conversion of this reserve into protected area.

Further west still, the Trail crosses parcel 40105/5, which is part of the Conch Bar Caves protected area, and ought therefore be safe if that parcel is transferred to conservation ownership (see section 4.5.2 above).

The Trail then crosses Conch Bar village as a road or road reserve near the shore.

In the western part of Conch Bar village, ownership is unclear, with most being a road reserve, but care should be taken that, if any plots own part of the Trail, development across it should be prevented. Ideally, the Trail here too should be transferred to conservation ownership.

West of Conch Bar, the Trail passes through parcel 40103/94. This is in Crown ownership and is the same plot which includes Indian Cave, so there are several reasons to consider transfer to conservation ownership.

West of this, ownership is within the Blue Horizon development. Here, the owners have apparently undertaken both

to leave the Trail open and to avoid development in the coastal strip. This admirable commitment should be formalised.

West of this, a further development is proposed, but the development boundary wisely excludes the coastal strip holding the Trail. From here westward is some of the most spectacular scenery of the Trail and also some of the most important wildlife aspects, on the coast and on the strip between this and the important wetlands of Fish Ponds (see below). Fortunately, this is also the area of simplest Crown ownership. Consequently, an important initial major step to securing the future of the Trail and the Fish Ponds could be achieved simply by transferring ownership to the National Trust under its Ordinance, so that it could hold it in trust for the people. The parcels concerned in this westernmost section are: 40101/00, 40102/00, 40102/4, 40103/96.

4.5.9. Fish Ponds

Fish Ponds comprise some of the most important wetlands in the area not included within the Ramsar site. The area is rich in fish and invertebrate life (but see below). It provides habitat for a range of conservation-sensitive birds including herons, egrets (including reddish), terns, gulls, flamingos and shorebirds – in some cases and seasons in large numbers.

Local information indicates that the Fish Ponds connect through underground channels to the sea to the north, leading to some tidal movement and water exchange. The construction of the causeway to Pine Barrel Landing has interrupted this water-flow, and local residents in community meetings within this project have drawn attention to large mortality events of fish, crabs etc, which they attribute to deoxygenation as a result of the reduced mixing. The essential problem is that pipes were put in the causeway in order to minimise flooding of the road, rather than to maintain water flow. There is a need to insert in the causeway more pipes, of larger diameter and at greater depth to ameliorate the effect of the causeway.

Notwithstanding this problem, the Ponds retain high value, and would benefit from transfer to conservation ownership. This could be achieved readily in conjunction with the Crossing Place Trail (see above). The land parcels indicated there include much of the Pools area. The Fish Ponds appear to function as an ecological unit with the land and sea towards the western end of the Crossing Place Trail, further supporting the case for conservation ownership and management of this area.

4.5.10. Other Ponds

The northern parts of Middle and East Caicos are characterised by a string of ponds of varying characters (Clarke & Norton 1987). Further important ponds have been identified with the help of local residents, in community meetings and individual discussions. Only a few of these ponds are protected:

- Village Pond and Button Wood Pond within the Conch Bar Caves site
- Flamingo Ponds of both Middle and East Caicos in the Ramsar site
- Black Rock Salina, East Caicos, in the Ramsar site.

However, most are not protected, including:

- Fish Ponds (see above)
- Jack Pond
- English Pond
- Kitty Pond
- Washing Pond
- Corry Pond
- Duck Pond
- Turnup Pond
- Montpellier Pond
- Farm Creek Pond
- Farm Creek Salina
- Nanny Pond (see above)

- the ponds in the quarry west of Lorimers (identified by local residents as important for the freshwater lens, and for wildlife including the vulnerable West Indian whistling duck)
- several ponds on East Caicos SE of Black Rock Salina
- East Caicos caves

Many of these ponds would warrant protection. Options for Fish Ponds, Nanny Pond (as part of the Woodlands area) and possibly Farm Creek Pond are noted earlier. Amongst all the ponds another obvious priority is the Turnup Pond – Montpellier Pond complex.

Montpellier Pond is a narrow, long pond beside the main road west of Bambarra. Turnup Pond is at the northwestern end of the system. The ponds are very shallow and exceptionally rich in wildlife, most obvious in the wide range of birds commonly seen. These included: West Indian whistling ducks (a threatened species), white-cheeked pintails, least grebes, American coots, great white egrets and other herons, black-necked stilts, greater yellowlegs, banded kingfishers and a range of other species. The site also rated quite highly in the early Ramsar assessment by Clarke & Norton (1987). Montpellier and Turnup Ponds are in two separated pieces of Crown ownership (parcels 40203/18 & /16, respectively) and a transfer to conservation ownership is recommended.

4.5.11. Man o’War Bush

Man o’War Bush is a mangrove bush on Caicos Bank a few metres off the southern peninsula of mangroves on Middle Caicos. It is within the Ramsar site. It is an important and well-known breeding colony for magnificent frigatebirds.

Visits are made by boats owned by local boatman/guides. It is normal practice to approach to the immediate vicinity of the bush, so that many adult birds leave. However, some individual birds do not seem to be deterred from landing while the boat is nearby. There is no long-term quantitative data on trends in numbers of birds but the colony appears to be long established. It would be sensible to monitor bird numbers, especially if human visits increase. On the precautionary principle, it might be sensible to explore with boat-operators the practicability of agreeing a minimum limit on approach distance – probably of a few metres in the first instance. This would continue to provide superb views of the birds.

4.5.12. Flamingo Pond, North Caicos

Flamingo Pond of North Caicos is a very large pond complex forming part of the Ramsar site. It is well known for its flamingo flock and is important also for other waterfowl, probably including large moulting flocks of some species.

Local residents have drawn attention to their concerns about certain problems. These included low overflights, outwith those officially permitted in relation to the airport approaches. They were concerned also at some shooting activity. They considered that the presence of a warden would improve the situation considerably, and this is planned in the current proposals from the Trust when funds allow. It is in accordance with this plan.

4.5.13. Western woodlands, North Caicos

There is increasing evidence that the gallery woodland in the general vicinity of Wades Green and other parts of north-western North Caicos may be of particular importance to rare and vulnerable species of a wide range of taxa. The investigations need extending., and this is in progress now. It is already clear that this area has the best area of tall tropical dry forest in TCI, with a rich wildlife needing urgent conservation measures.

4.5.14. Extensions to the Ramsar site

The original report (Clarke & Norton 1987) which proposed the Ramsar site based its approach on the inclusion of representative samples of a range of wetland habitat types. This was a valuable study and we fully support it. However, since that time, the parties to the Ramsar Convention and others have developed further the approaches to

site identification. There is now a strong emphasis on protection of functional units, particularly where the wetland is in a natural or near natural state. Secondly, the Conference of the Parties has recognised that tropical wetland types, particularly coral systems, mangrove systems and sea-grass beds, are severely under-represented.

The East Caicos/Middle Caicos/North Caicos wetland forms probably the best example of its type in the Caribbean (and probably wider). It is also perhaps the most natural wetland amongst the more than 160 wetlands of international importance listed under the Ramsar Convention by the UK Government. The natural wetland formerly extended to Providenciales and South Caicos, but both these areas have suffered severe environmental degradation, although fragments of value remain.

The core unspoilt area is East Caicos. This is a superb complex of natural coral reefs, tidal flats, mangroves and marshlands which provide a haven for wildlife, as well as the natural basis of the fisheries and tourism industries. It is clear to us that the whole of this uninhabited island should be included in the Ramsar site.

However, there is currently a proposal for one of the largest cruise-liner ports in the world, able to take 660 cruise liners and 1.6 million tourists a year. This would take most of the uninhabited island of East Caicos, including its many natural lakes and marshes, as well as potentially having major effects on the Ramsar site, the coral reefs and the fisheries. The scheme, backed by a Canadian property developer, would lead to nearly half of the island of East Caicos's 17,500 acres being turned into docks, roads, leisure centres, shops, golf courses, hotels and luxury flats for wealthy North American and European visitors. An eight-mile main road and bridge would link East Caicos with the smaller island of South Caicos. This would bring in low-paid staff and workers to the port and complex. Most of them are expected to be hired in nearby Haiti and the Dominican Republic, as the number of workers required would equate to about half of TCI's existing population. Visitors at any one time would probably outnumber the local population of TCI.

The importance of East Caicos as the most unspoilt wetland complex in the region seems to be completely undervalued. This has huge potential for the future development of TCI by local people but would become impossible if the massive port and real estate development proceeded. For the last few years, this has been prevented by the inability of the developer to secure investment funds in this high-risk venture.

In this climate, it may not be practicable at present to extend the Ramsar site to include the area which is the subject of the proposed development, but should the cruise ship port project lose Government approval, much of East Caicos should become part of the Ramsar site and be designated as Nature Reserve. There are surrounding areas which are not subject to the same constraint. Indeed, even the developer has indicated that conservation use of such areas would be appropriate. These areas which could appropriately be added, formally and/or by transfer to conservation ownership, to the Ramsar site include:

- The area of East Caicos south of the development area
- Joe Grant's Cay, Long Bay beach, and the adjacent channels and reef
- The Creeks and flats at Lorimers and Increase
- The reefs off the north shores of East Caicos and Middle Caicos.

Protection of these areas would be of major importance for several reasons, including:

- Nesting beaches for turtles, threatened species, particularly important because most other turtle beaches in TCI are now developed or have proposals for developments.
- Reef areas, which are surprisingly under-represented within the Ramsar site – and also under-represented in Ramsar sites across the world.
- Undeveloped beach areas are rapidly disappearing from TCI.
- Creek complexes across the bank through the islands are not well represented.

4.5.15. Other historical sites and locations of traditional cultural uses of natural resources

A survey of other historical sites is required. Some of those noted as of potential importance include: Increase Plantation, Dusty Plantation, School House in Lorimers, Dr John Lorimer's tomb on Middle Caicos. Jacksonville, at the NW corner of East Caicos, was a cotton and sisal plantation. Most of workers came from Middle Caicos and other islands. Few lived on East Caicos (and then generally only while working). This was abandoned in the 1920s, although the buildings at Jacksonville were restored in the latter part of the century as a dwelling house, which was occupied for several years. The walls remain in good condition and some of the metal roof on the main building has not yet completely rusted through. This building could provide the basis for use by field workers, interpretation, shelter etc.

Subject to resourcing, the Trust's island network of volunteers, combined with TC National Museum personnel and high-school students, could be organised to survey the historical and cultural resource, to identify further sites, buildings, historic trails, fields and artefacts for cataloguing. Initial work has established basic information on a number of sites, and more detailed research is in progress on selected ones. Prior to further physical ground survey, information would be collated from maps based on aerial surveys combined with interviews with local senior citizens who have first-hand knowledge of many historical field-roads previously used to access these sites – at a time when local communities still practiced sustainable agriculture to a much greater extent than at present. (Since the onset of high-intensity development in Providenciales, large-scale supermarkets on this island with imported, often preserved, foods have reduced the market for locally grown food, although some personal agriculture has been maintained. This provides a knowledge base which can be built upon.) Partly as a result of pilot aspects of this project, there is now a revival of interest in utilising natural vegetation and growing traditional fibre crops as raw materials for a revival of traditional crafts. The potential project would uniquely combine a wealth of untapped, information from the Darwin Initiative's vegetation map (based on satellite-imagery with ground-truthing), local knowledge of senior citizens and the regenerating body of craftspersons to consider actual and potential areas for harvest of plants for traditional crafts and other cultural uses, without depleting the resource. Prior to historical and cultural developments since the plantation period, the Caicos Islands were a major centre of Arawak (Lucayan) culture. This has been the subject of several decades of archaeological research by external universities, and the results would be integrated into the project's work. Apart from inclusion in trails, educational material etc, another aim would be to repatriate information and artefacts to the Turks & Caicos Islands.

4.5.16. Safeguarding of the Ramsar site itself

This wetland complex is probably the most natural such area in the Caribbean – and probably in a much wider area. It is also probably the most complete and natural wetland area amongst the more than 160 designated by UK under the Ramsar Convention. This is an asset of tremendous potential to TCI. However, the site is not widely known, and its value largely unappreciated. As outlined in this plan, there would be great potential benefits in raising awareness of this site. These benefits could involve enhanced conservation as well as employment and economic benefits to the local population. However, introducing substantial visiting to the Ramsar site for the first time could also introduce the risks of damaging the fragile ecology of the site as well as the communities of Middle and North Caicos. For this reason, it is strongly recommended that the National Trust continue to take the lead, in conjunction with the local communities, in developing the tourism opportunities relating to the Ramsar site. This would ensure a measure of control, so that the priority remains conservation and that tourism is supportive of that – rather than the reverse.

It is timely to start such developments soon, because there is increasing development on Middle and North Caicos. Whilst the National Trust and the local community will wish to limit such developments, some will happen – and are happening already. This will create an increased market for such facilities, but it is essential that the National Trust establish these in advance, so that the potential to manage these in a way which allows their long-term conservation is not lost. Such losses – and consequent subsequent economic problems too – have been all too frequent in many other parts of the world.

Much of TCI is Crown land. There appears to be a presumption in some quarters that anyone who comes along with a proposal for built development should be given the piece of Crown land requested. Until the current Sustainable

Development Planning Initiative (SDPI), there was little in the way of effective strategic planning. There was clearly a presumption that all built development is 'good' and should receive government support.

On paper, there are some apparently good planning procedures. However, it is clear that the professional civil servants in planning and other departments are often unable to make use of these. In some cases, statutory Nature Reserves have been approved for development in breach of existing policies and legislation. This has resulted in some of the gems which were meant to be held in trust for the people of the TCI instead being allocated for development. In some cases, important areas such as main remaining turtle breeding areas have been lost to holiday resort development.

On the main islands, the rate of allocation of land to development is amazing. The concept of maintaining the different natures of different islands – itself a potential tourism attraction – is only beginning to be considered, and is now welcomed and promoted by the Tourism Board.

Middle Caicos is currently little developed, but it appears that much of the north coast has now been allocated for development. This includes a major development at Haulover/ Farm Creek Lagoon, north of Lorimers, from where a development road was bulldozed in autumn 1998. Further west, areas between the current small resort at Blue Horizon, near Conch Bar and Juniper Hole have been allocated for development. There are thought to be several others (see Section 4.7.1).

Much of the Ramsar site (and other theoretically protected areas) appears on the Land Register simply as Crown Land. It appears that any land on the register as Crown Land is assumed to be available for development. The possibility that such land may be a protected area is not well understood.

The legislation of the TCI provides in two ways for the government to secure or enhance special protection where the biodiversity or cultural heritage interest of the land resource is of particular sensitivity or value. These two ways may be used together or separately. The National Parks Ordinance provides for the designation of National Parks, Nature Reserves, Sanctuaries and Historical Sites but does not provide within the Ordinance for means of management to make conservation effective. The National Trust Ordinance provides for the government to transfer publicly owned land to the National Trust; however, the Trust may not treat this as a disposable asset but must instead manage the land in trust for the nation to maintain its heritage interest and integrity. Both measures have been used in pilot work. In the situations where these mechanisms have been used to transfer a protected area from government, the Trust has a track record of enabling a large number of visitors to experience an endangered endemic species at close range, while maintaining effective protection and generating sufficient income to sustain and enhance the resource as well as contributing to the livelihoods of many local tour businesses.

Given that all of the Ramsar site is designated as a Nature Reserve under the National Parks Ordinance, Government would be well advised to transfer to the Trust those parts of the Ramsar site which are Crown Lands (as was envisaged at the Trust's establishment by statute). This will benefit the private landowners, because in an area which is valued for its natural beauty, the presence of large tracts which will never be developed increases the value of that land which can be developed. For the relatively small privately owned parts of the Ramsar site and important surrounding areas, the Trust and Government will wish to explore possibilities for negotiation with land-owners with a view to purchase, joint management agreements or a wide range of mutually advantageous outcomes.

Because of earlier practical necessity for agriculture, trading, moving to areas of employment on plantations, etc, there has been a strong tradition of the use of historic walking routes, field roads. Many local people have concerns about the loss of these traditional routes often because of the inappropriate placement of new buildings, usually constructed by foreigners. The National Trust is working with local people and the Planning Dept within the Ministry of Home Affairs to establish these rights of way. An interim measure within the planning regulations has been taken experimentally for one of these major routes, the Crossing Place Trail, that runs along the north coast of Middle Caicos. However, as noted earlier, it is likely that further measures in such cases will be needed, and this is being explored further with government.

In order to facilitate the above measures, it will be important to relate land ownership to conservation interest. Conservation personnel will work closely with Land Registry and the Departments of Planning, Economic Planning & Statistics, and Environmental & Coastal Resources extend and update existing information, collated during the Darwin Initiative project (see Section 4.7.1).

4.6. Socio-economic aspects, Awareness and Marketing

4.6.1. Enhancement for local people and their employment

As will be evident from the above, there are considerable possibilities for local employment in the direct work for the TC National Trust of implementing and operating the visitor facilities outlined above. However, the provision of these facilities opens the possibilities of many more jobs providing for visitors coming to see the features of trails etc. These latter jobs would be largely generated by small businesses of local people, and would be of higher quality than the sort of job generally available to local people if developments are driven by outside organisations.

Whilst the total number of jobs would not be large in absolute numbers, it would represent a significant proportion of jobs in relation to the size of the local community. Indeed, it is this type of small-scale employment which can support local communities and maintain their traditions and quality of life, rather than replacing this with a different (and, in many ways, unwanted) imported social system.

The types of work include guides, trail and hide maintenance, boatmen, and local craft work (including further development of that to meet current needs) – see below. Some training would be required, and possibilities for this are already being explored (see below).

For reasons outlined earlier, it would be desirable for all guides on Middle Caicos to work within a system of standards and training of the National Trust. It would be sensible to include in this the existing features of interest which are the subject of tours, notably the caves and the breeding colony of magnificent frigate-birds.

4.6.2. Small businesses

It would be desirable, in consultation with TCI Government's Economic Advisor of the Department of Economic Planning & Statistics (DEPS), to commission a suitable economist to undertake socio-economic analysis on local small business enterprises linked to heritage and prepare a report. In consultation with TCI Government Ministry of Finance and Investment Agency (TCInvest), it would be useful to identify the extent of available relevant information and the parameters of further study needed, in the light of developing heritage management plans. Potential consultants would need experience of socio-economic work with small communities and in heritage-linked aspects.

The successful earlier National Trust pilot programme of small business workshops should be further developed, in collaboration with the complementary UNDP-funded Small Enterprise Development Center programme, acting as resource to this latter programme and to identify gaps. Initial consultations reveal these gaps to be primarily in the areas of small businesses linked to showing visitors the heritage features, and linking to the craft-work; the UNDP project is centred on craft work. In conjunction with this, there is a need to arrange for suitable training to enhance technical skills of local people to meet the business needs, as well as those required to undertake work for the Trust in managing the heritage areas. Such training would help put local people in a position to take advantage of employment (or, where appropriate self-employment) opportunities provided directly or indirectly by this project's results as these unfold.

There is a revival of interest in utilising natural vegetation and growing traditional fibre crops as raw materials for a revival of traditional crafts. There is potential in combining the wealth of untapped information from the Darwin Initiative's vegetation map (based on satellite-imagery with ground-truthing), with local knowledge of senior citizens and the regenerating body of craftspersons to consider actual and potential areas for harvest of plants for traditional crafts and other cultural uses, without depleting the resource.

The loss of many important cultural traditions has been occurring with the swift development of the Turks and Caicos Islands. One tradition that has nearly disappeared is the small-scale subsistence poultry farming which was formerly the basis of life for many Turks and Caicos Islanders. Many residents of the islands have expressed interest in raising poultry for eggs and hobby, but the livestock suitable to the backyard farming methods are simply not available. Some work has already taken place to assist local residents with such developments.

Increased tourism in Middle Caicos could mean more of a financial base upon which to open ecologically-geared or tourist-friendly small businesses. Some potential businesses that could serve the tourists as well as the local

community are craft shops, shops that sell film, souvenirs, and snack food, and facilities to rent bicycles or kayaks as well as restaurants and guest-houses. Plenty of small businesses are already established on Middle Caicos, but being a small and tightly-knit community, there is no need to market or advertise businesses by any means but word-of-mouth. Tourists, especially those arriving from North America, often have no idea how to find what they need on the island due to the absence of signs, or a guidebook. The National Trust could easily produce a guidebook for visitors that would serve as a network to the “hidden” businesses. For example, the guide would explain which house to go to for gasoline (because you don’t go first to the gas station for gasoline here), where the owner of the shop is likely to be found, and from whom you can buy fresh eggs, sugarcane, or crafts.

4.6.3. Tourism

All the above features will provide increasingly attractive features to high-quality, low-impact tourism. Aspects of this are already active, and it is important that growth is progressive, at a rate that the local capacity can manage without damaging the communities themselves or the cultural and natural heritage features that provide the interest.

There is a need to develop an integrated marketing strategy incorporating input from biodiversity and cultural management plans and socio-economic study. This is a complex activity which needs to evolve. Therefore it will develop progressively, as further information and experience from various activities become available.

One market the National Trust could easily tap into would be the bird-watching tours market. Specialist-led excursions are taken to remote birding sites all over the world. It would be far better for the National Trust to enter this market as a key player in its Turks and Caicos Islands supervision than to allow the market to make the discovery on its own and make unsupervised visits to important wildlife sites. The National Trust is also the appropriate agency through which birders may obtain Bradley’s (1995) *Official Checklist* and Ground’s (2001) *Birds of the Turks and Caicos Islands*.

4.6.4. Turks & Caicos National Trust: membership, awareness, imprint

Effective implementation of this plan depends heavily on the TC National Trust. This is not just to manage the work and facilitate others, but also to draw in the support of local civic society, the support as members of both residents and visitors, and the help of expertise from outside the islands.

For these reasons, the promotion of the elements in this plan and of the Trust are mutually supportive. Therefore, signs, buildings, publications, trail leaflets etc should carry Trust logos. Trust membership leaflets etc should be widely available, and visitors to trails and centres should be invited to join the Trust.

4.6.5. Dissemination

The extensive network of the UK Overseas Territories Conservation Forum will be used to pull in volunteer expertise (as noted above) and to facilitate the application of the results of this project to comparable situations worldwide.

The example of this management exercise will be disseminated to other potential users by presentations led by the National Trust at regional meetings, including e.g. National Trusts, Caribbean Conservation Association, Society of Caribbean Ornithology, West Indian Iguana Specialist Group etc, with follow-up on bilateral or small-group basis as required. Trust representatives will be coordinated to address relevant meetings and conferences, write articles, and give local TV presentations. It is planned to develop standard presentations and briefing packs for any suitable representative to present. An even wider audience will be addressed by presentations via the UK Overseas Territories Conservation Forum network, including periodic international conferences, UK Government Foreign & Commonwealth Office network, *Forum News*, the Forum’s web-site, Forum member organisations’ networks (involving several million individual members), contacts with small island states and the Overseas Territories of other EU Member States. Presentation package, articles, web-pages, Working Group meetings will be developed.

4.6.6. Wetland awareness

In addition and in combination with the specific information about the Ramsar site and surrounding areas, it is important to use all opportunities to raise awareness about wetlands generally. This is because they are often wrongly thought to be wastelands, whereas they are crucial, especially in areas such as Turks & Caicos. Several means can be used to raise wetland awareness. Many have been noted above, but some additional ones are noted here.

Display boards, using colour photos, large text, and a few paintings. Some themes used elsewhere are:

- A. Title board, with a map of the main wetland area, a summary of what is and is not protected, and recommendations for what needs to be done.
- B. A board showing (in pictures) how evapotranspiration from the mangroves helps boost rainfall.
- C. A board explaining how nutrients carried out from deep within the wetlands, by outflow of rain-induced floodwater, fertilise the marine environment and so support economically significant resources.
- D. "Supporting groundwater resources" explains how major mangrove wetlands help retain "lenses" of fresh water in the rock strata of adjacent dry land areas, which is important to local water supply, and farming.
- E. "A shelter and a home" gives examples of animals (especially culturally popular ones like edible crabs) live and/or breed in the mangroves.
- F. "Protection from storms" explains about mangroves laying down peat to keep pace with rising sea levels, and the ability of mangrove coastlines to absorb wave energy during storms.

Such posters can be done with very little text, written at a non-technical level suitable for older school children and adults.

Local news stories, whenever there is a grant, acquiring a piece of land, or anything like that. Other possibilities are a regular spot on the local TV.

Partnership with local business.

Primary school resources, such as a colouring book, telling the story, in pictures with very few words, of the connections between the mangroves and the marine environment. Kids like it, colour it in, take it home, and show their parents, and so the parents learn as well. The Trust already has experience and a series of this nature

Information sheets on wetlands, and other aspects are useful resources for teachers, and of interest to the general (adult) public. They can be circulated free to all Trust members, schools, and anyone who asks.

4.7. Other aspects

4.7.1. Input to national plan (Sustainable Development Planning Initiative)

The TCI Government has been working for some time on a physical development plan for the country. Previous meetings, especially with the then Director of Planning, staged around the onset of the Darwin Initiative project identified a need for biological and historical material to be incorporated into the planning process. To this end, the biodiversity surveys which form the basis for the management plan were aligned to be compatible with TCI Government information needs. It is anticipated that further information derived from this ongoing work will also be compatible so as to inform further the physical planning process.

As work on this draft of the plan neared completion, TCI's Departments of Planning and of Economic Planning and Statistics (DEPS) had commissioned the pilot stage of the Sustainable Development Planning Initiative (SDPI). Workshops to encourage comment on the draft plan were held within a few days of presentations on the draft ideas of the SDPI. At and around these workshops, staff of the Planning Department, DEPS, the SDPI consultants, staff of the Department of Environmental & Coastal Resources and of Lands & Surveys and others encouraged the

development of further analyses to feed into SDPI. With the help of information from the Land Registry, this section is largely the result of that request. It takes this to various levels for different parts of the area, depending largely on the presently available information. It is envisaged that these analyses will be taken further, especially for areas with limited information at present, in future revisions of this management plan.

4.7.1.1 Unprotected important heritage areas

Most of the planning processes are concerned in practice with dry-ground areas, because these are the areas which are (initially in this situation) under most pressure for development and because planning processes relate less directly to intertidal and sub-tidal areas. In order to match this usage, Map A (and later maps in this section) distinguish between mainly dry and mainly wet areas.

This simplification for mapping clarity is also helpful in allowing some emphasis to be placed on important heritage areas on dry-land habitat. As noted earlier in this plan, such areas have not received much previous attention, but have been found to be important. Note also that many of the areas noted as currently protected, even within the mainly dry-land areas, are actually wetlands.

Shown in light stippled green shading on Map A are the currently formally protected areas in East, Middle and North Caicos. These include:

The Ramsar Wetland of International Importance (mainly wetland, of course)

Conch Bar Caves (including both wetland and dry-land areas)

East Bay Islands National Park (mainly wetland and beaches)

Cottage Pond Nature Reserve (wetland)

Dick Hill Creek and Bellefield Landing Pond Nature Reserve (wetland)

Pumpkin Bluff Pond Nature Reserve (wetland).

A striking feature indeed is the lack of dry-land protected areas. These are essentially small parts of the Ramsar site in southern Middle Caicos and northwestern East Caicos, and part of the Conch Bar Caves protected area. This emphasises the need for safeguarding of some of the key dry-land areas, with their important endemic and characteristic species and ecosystems.

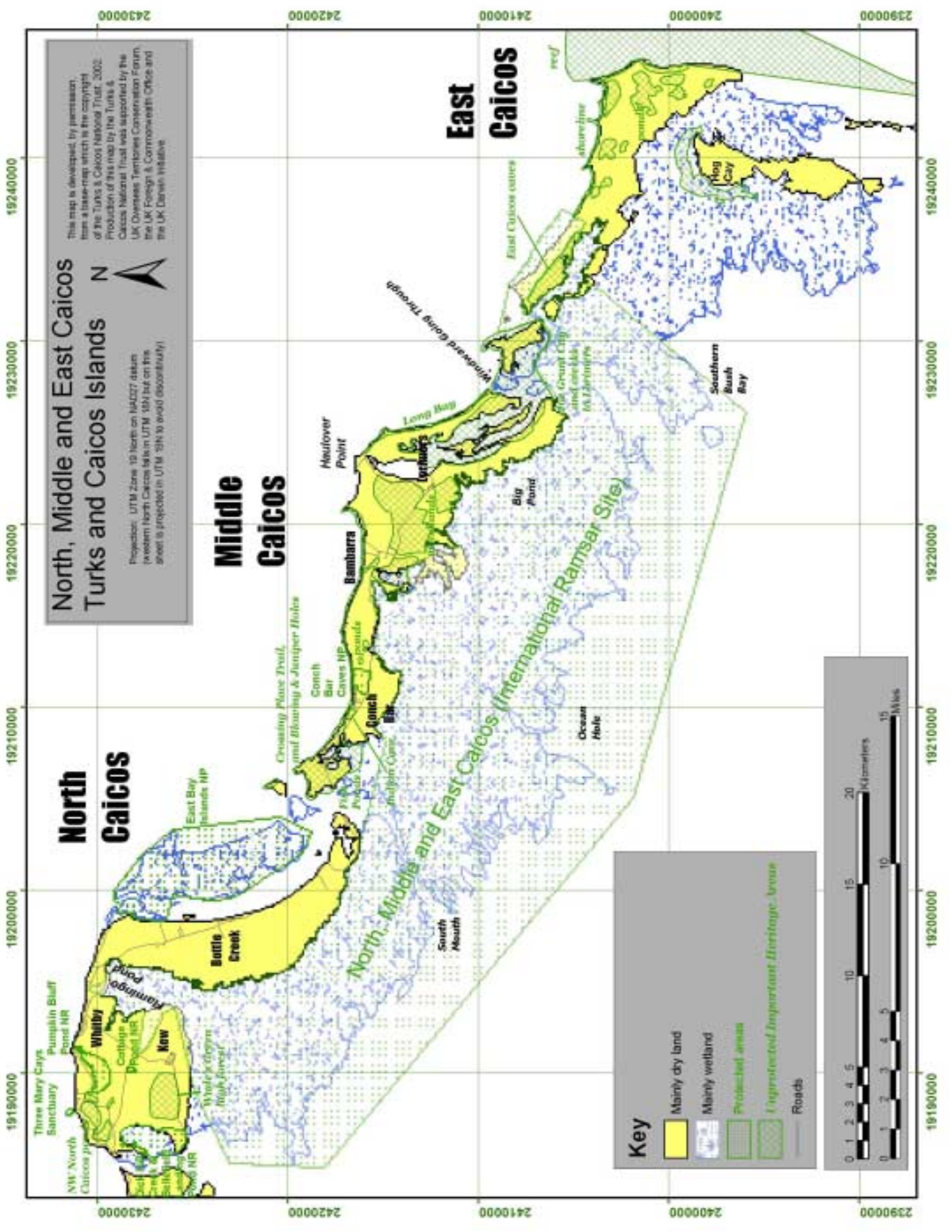
4.7.1.2 North Caicos

The additional important areas identified so far in North Caicos are of two types. One group consists of the group of ponds in the northwest of the island (Mangrove, Mud Hole, Moore Hall and St Thomas Hill Ponds). The other is the extremely important gallery woodland in the vicinity of Wades Green and Kew. This urgently needs survey and safeguarding.

Further analysis of the situation and potential of North Caicos is inhibited in that digitised land parcel information is not yet available in the Government's programme. The project has only relatively recently been able to obtain paper copies of the land parcel maps and has not had time or resources to digitise them. It is envisaged that this work will be developed further (as for Middle Caicos below) when digitised land-parcel information is available via one of these routes.

4.7.1.3 East Caicos

Land-parcel information is not available for East Caicos. However, as shown on Map B, almost all the dry-land area has been included in the "project area" for the proposed major cruise-liner and related development (see section 4.5.14). This makes open, consultative planning on a zoning basis impracticable, at least while the proposed project remains theoretically current. This is the more so in that the project studies (which are claimed to include an environmental impact assessment) are not available for scrutiny despite several requests at senior level.



North, Middle and East Caicos Turks and Caicos Islands



Projection: UTM Zone 18 North on WGS84 datum
(western North Caicos falls in UTM 18N but on this
sheet is projected in UTM 19N to avoid discontinuity)

This map is developed, by permission,
from a base-map which is the copyright
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Production of this map by the Turks &
Caicos National Trust was supported by the
UK Overseas Territories Conservation Forum,
the UK Foreign & Commonwealth Office and
the UK Darwin Initiative

Key

- Mainly dry land
- Mainly wetland
- Protected areas
- Unprotected Important Heritage Areas
- Roads



Middle Caicos

East Caicos

North Caicos

North, Middle and East Caicos (International Ramsar Site)

Three Mary Cay
Sanctuary
Pumpkin Bluff
Pond NR
NW North
Caicos pond
Whimby
Corking
Pond NR
Now
Wynne's Cay
Rough forest
Bottle
Creek
Kranango
Pond

East Bay
Islands NP
Grooming Place Trail,
Great Blowing & Juniper Holes

Conch
Bar
Caves NP
Bambaarra
Meutover
Point
Long Bay
Lorruks
Big
Pond

East Caicos cove
Hog
Cay
Southern
Rough
Bay

Ocean
Hole

reef

192400000

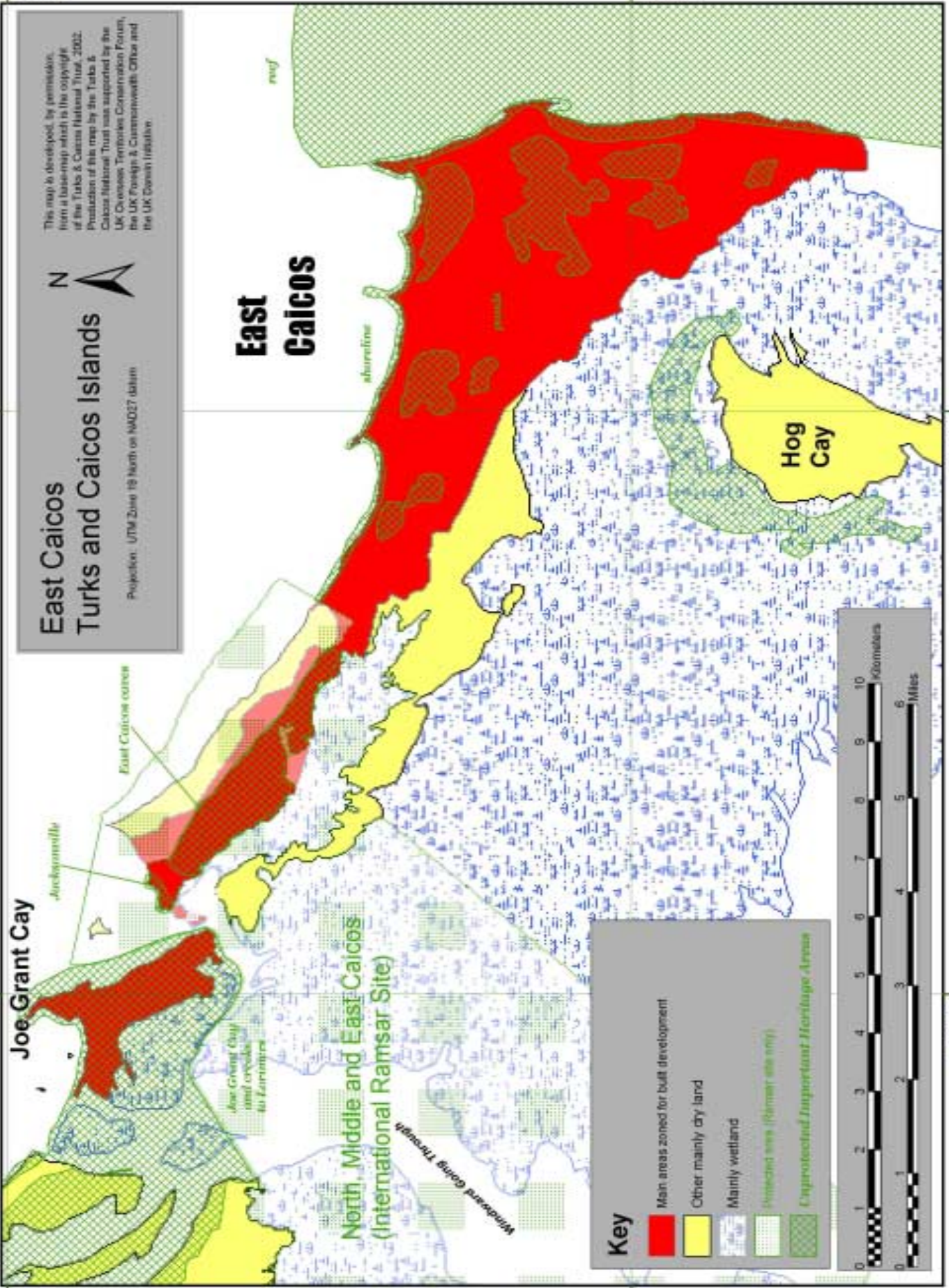
2410000

East Caicos Turks and Caicos Islands



Projection: UTM Zone 18 North or NAD27 datum

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192300000

2410000

2400000

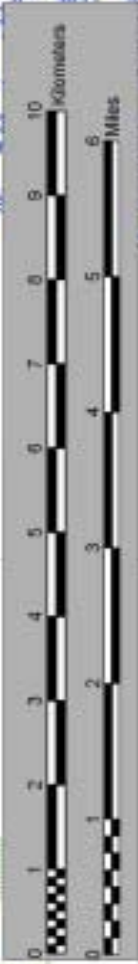
2400000

192400000

192300000

Key

- Main areas zoned for built development
- Other mainly dry land
- Mainly wetland
- Protected area (Nimrod site only)
- Unprotected Important Heritage Areas



19210000

19220000



Middle Caicos

Middle Caicos - land-use on dry-land areas Turks and Caicos Islands

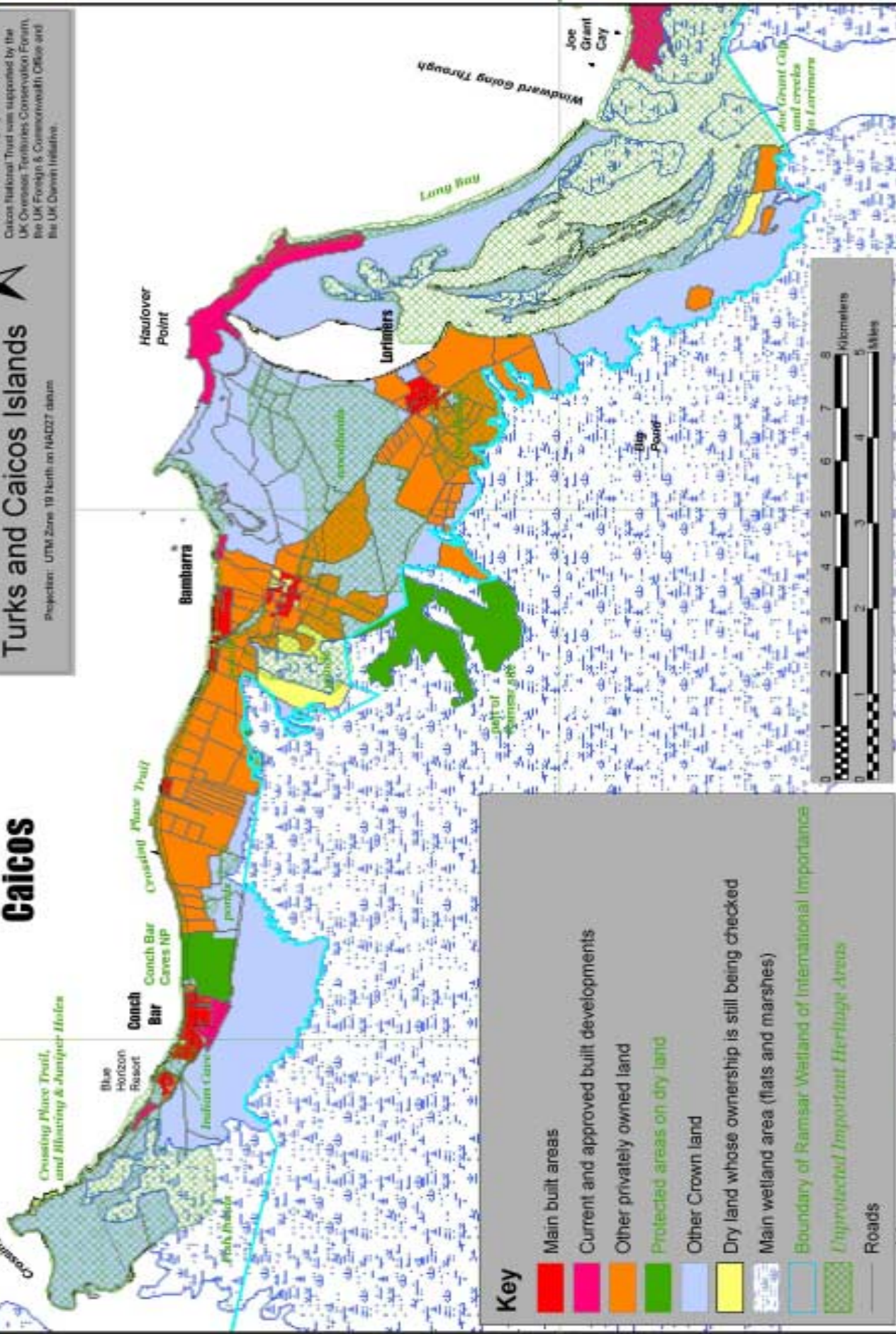


Projection: UTM Zone 18 North on NAD27 datum

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Key

- Main built areas
- Current and approved built developments
- Other privately owned land
- Protected areas on dry land
- Other Crown land
- Dry land whose ownership is still being checked
- Main wetland area (flats and marshes)
- Boundary of Ramsar Wetland of International Importance
- Unprotected Important Heritage Areas
- Roads

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Although not technically within the development “project area”, the development also includes access roads over parts of the flats and the length of the dry land at Hog Cay. It should be noted also that there are some problems as between the development “project area” and currently protected areas, in that detailed comparison of boundaries reveals that the “project area” overlaps the Ramsar site in important parts of northwestern East Caicos.

Maps A and B show some of the important heritage areas now identified in East Caicos. This is not exhaustive, for several reasons. For example, the importance of the flats has already been noted (see section 4.5.14). It is likely that much of the dry-land area of both East Caicos proper and Hog Cay (and smaller cays) are likely to be important. However, the impracticability of progressing this with the proposed development still theoretically current, as well as the high costs of study in East Caicos and the unavailability of the developer’s contracted results, have meant that, so far, limited resources have had to be deployed mainly elsewhere.

Those important areas so far identified and marked on the maps include:

Jacksonville historic site

East Caicos Caves

The shoreline of importance to nesting turtles

The ponds and marshes on the dry-land area and the large permanent pond in the flats.

Also marked is the shoreward part of the large coral reef area to the east of East Caicos. This could be extended as a thin and important line of edging coral off the NE coast of the islands. This area is highlighted because of its prominence in the UNEP-WCMC study (ref – see section 3.1.6.3).

The importance of these and other areas should not be overlooked, especially as the long-proposed and controversial development is reconsidered.

To the northwest of East Caicos lies Joe Grant Cay, identified as important for land, shore and surrounding creek features. It is understood that a new resort development has just been approved for this cay, but no details are available. The way in which any such development is planned, built and managed would have marked effects on this sensitive heritage area.

4.7.1.4 Middle Caicos

The TCI Government programme of land-parcel digitisation has not yet covered Middle Caicos. However, the project has digitised this information, allowing a more full analysis.

Map C shows as red the dry-land areas which are currently built up or being built. This underestimates the extent of this type of development because isolated buildings are not shown. The red areas shown include:

Lorimers settlement

Bambarra settlement

The many plots sold for building (many now built or under construction) west from Bambarra Beach

Conch Bar settlement

Blue Horizon resort.

Shown as mauve-tinted red are Crown-owned areas which have been approved for development (which has already occurred in some cases). These include:

The extensive resort development at Haulover Point (where much bulldozing of large areas has already taken place intermittently over several years;

Small Crown-owned areas reserved for development on the coast near Bambarra;

The airport area at Conch Bar (slightly overlapping with the Conch Bar Cave designated protected area);

The area of the proposed computer development west of Blue Horizon.

Shown in orange are other areas of private ownership. Other Crown-owned areas are shown in blue-grey. Areas where ownership is still being clarified are shown in yellow.

It is striking how much of such an apparently unspoilt island as Middle Caicos is either built, scheduled for building or in private ownership. Most of the land between Conch Bar and Bambarra falls into this category, as does much between Bambarra and Conch Bar and south of the latter. The extent of actual or proposed development along the coast is alarming. This underlines a need to avoid sprawl development and to safeguard the potential for eco-tourism development by careful planning.

The two small areas of partly dry-land protected areas are shown in green. Overlaid over other areas in green cross-hatch are the other important heritage areas identified in this study. These include:

The Crossing-Place Trail and Fish Ponds area;

The Indian Cave and Crossing Place Trail area;

Crossing Place Trail east of Conch Bar;

Several ponds

An area of important wetlands around Corry, Washing and Duck Ponds;

The very important woodland and scrub areas between Bambarra and Lorimers;

The probable turtle beaches of Long Bay and elsewhere;

The creek and marsh system between Lorimers and Joe Grant Cay.

Because of private ownerships or approved developments, some of these important heritage areas cannot be addressed directly or immediately, for example parts of the woodland areas and some of the turtle beaches and marshes (the latter being emphasised by the recent approval of resort development on adjacent Joe Grant Cay). However, some actions could be taken readily to safeguard areas in Crown ownership, thereby protecting the potential for economic development through eco-tourism and preventing urban sprawl. These include:

The western part of Crossing Place Trail and Fish Ponds area;

Indian Cave to the Crossing Place Trail;

Those parts of the woodland/scrub area between Lorimers and Bambarra in Crown-ownership;

The remaining shores (for turtle nesting) and creeks and marshes in the Long Bay, and Lorimers to Joe Grant Cay area.

There remains substantial area for built development in the immediate vicinities of Lorimers and Bambarra. There are problems in Conch Bar spreading immediately eastwards or westwards without causing substantial damage. However, there appears to be considerable potential for development southwards. In addition, beyond the protected area to the east of Conch Bar, there is considerable scope for built development. Indeed, the challenge here must be to find some constructive way of avoiding sprawling development filling the area between Conch Bar and Bambarra, especially as almost all of this extensive area is already in private ownership.

4.7.2. Enhancement for wildlife

The National Trust is capable of emerging as a key wildlife advocate especially through the suggesting and drafting of new protective legislation, in partnership with governmental bodies. Along with its conservation education programmes, the Trust must be prepared to lobby for the legislative protection of the habitats and species of special

concern. Endemic and critically endangered species are of foremost protection priority. Any animal (or plant) which exists exclusively in these islands should enjoy full protection against senseless or groundless destruction. The National Trust is perhaps the most suitable agency to work in partnership with Government to provide the link between the public and government, and is in the position to educate both of these audiences on the importance of conservation legislation.

4.7.3. Biodiversity databases

Specialists involved in the Darwin Initiative work are developing appropriate databases in parallel to analyses of the results of the Darwin work and earlier material collated. These will be transferred to the Trust to serve as a basis for adding future records, and systems to handle all.

4.8. Forward processes

4.8.1. Further studies

The current work has identified some priorities for further studies. Those relating to various taxa are being analysed and will be added to later revisions of this plan. At present, a first analysis for bats and other mammals is available, and this is given below.

4.8.1.1. Bats and other mammals

Survey

Survey should continue for other roost sites in caves and buildings or other structures. Bat detectors can be used for survey to establish the distribution and status of *Lasiurus* (and other insectivorous species possibly present on the islands). It is possible that, in the long term, UK volunteer bat workers might be willing to carry out further survey and monitoring if accommodation and local transport costs can be met).

There should be effort to extend survey to other islands in the group. This should include resurvey of sites previously recorded as having bats on Providenciales, North and East Caicos (including survey to assess the status of *Artibeus jamaicensis* on Providenciales), and to assess whether any bats are present on islands where none is recorded (e.g. Turks, South and West Caicos).

The known distribution of bats should be related to broad habitats identified in the current habitat survey.

The use of aerial survey or aerial photographs to assist in identifying other caves and key roost and foraging areas should be explored.

Education and involvement of other people

It is likely that further initiatives towards public education will benefit the conservation of bats and may assist in identifying further important sites. It may be of benefit to seek assistance from Lois Blumenthal, Cayman Islands, who has had considerable success in bat education projects in Cayman. Much of her work has been directed to resolving the problems of bats (mainly free-tailed or 'rat bats', *Molossus molossus*) in buildings, which does not seem to be a problem in TCI (indeed, most people spoken to on TCI seemed to think that bats were a good thing to have around). Nevertheless, many of the educational resources and publicity initiatives developed for the Cayman Islands would probably apply to TCI or could be modified to do so. There should be renewed effort to encourage TCNT members or other suitable (and suitably trained) volunteers to assist with survey and monitoring and local public awareness.

Further diet assessment

It would be valuable to have further information on the food of the islands' bats. Basic information on food and seasonal changes in diet would be valuable in assessing the conservation needs of the bats and would contribute to

public awareness and understanding. However, analysis of pollen (and possibly other plant material) and insects may require the input of appropriate specialists; the input of such specialists should be agreed before considerable effort is put into such a project.

Nectar feeders: from further pollen swabbing of bats (using clear tape) and from collecting of droppings below roost sites. Specialist assistance would be needed for identification. This system would apply to *Erophylla*, *Monophyllus* and *Brachyphylla*. The breadth of diet of these species (which probably includes some fruit and insects in all species) is poorly known. It would be greatly assisted if pollen samples could be collected from likely plants (i.e. larger pale-coloured flowers, well above ground level, open at night, probably strongly scented and with copious nectar or anthers).

Fruit eaters: monthly samples could be easily collected by placing a sheet for a night or two under the *Brachyphylla* roost and sifting through the debris. It is likely that a reasonable knowledge of the local plants would allow the identification of many food items, but some specialist assistance may be needed. While *Brachyphylla* probably feeds mainly on fruits, flower-feeding and insects are also recorded in the diet. A tour guide quoted palm berry as a major food item.

Insect eaters: *Macrotus* has regular feeding ‘perches’ where debris of large insect prey accumulates; periodic (e.g. monthly) samples would give a reasonable idea of the diet without the need for any great input from specialists. The species undoubtedly also takes smaller insects, which could only be identified through analysis of droppings. Examination of droppings of this and other insectivorous bats (such as *Lasiurus* or any free-tailed or funnel-eared bats) would probably need the involvement of a specialist.

Species protection

There is no legislation to protect bats on TCI. If conservation legislation is being developed in the Turks and Caicos Islands the conservation of bats should be incorporated. Key sites (such as Conch Bar Cave) should be protected and managed for their bats. Apart from the potential effect of cave tourism on the bat populations, there appear to be no significant threats to bats on Middle Caicos at present.

Archaeological/fossil material

Ensure recently collected archaeological/fossil bat (and other) remains are identified and data incorporated into island database. David Steadman (University of Florida) stated (22 January 2001, pers.comm.) that his material from Indian Cave, etc ‘includes a lot of bat material’; we have been unable to ascertain what will happen to this material.

The Bahamian hutia (*Capromys* [or *Geocapromys*] *ingrahami*)

The Bahamian hutia (*C. ingrahami*) was widespread in the Bahamas, but survives only on the tiny island of East Plana Cay (Morgan 1989). Morgan (1989) discusses fossil remains likely to be of this species from Providenciales and Middle Caicos. There is some suggestion from local residents that it may still exist on an area at the S of Middle Caicos. The area should be investigated for evidence of this animal.

Involvement in wider Caribbean bat conservation

For some time it has been the intention of the IUCN/SSC Chiroptera Specialist Group (CSG) to establish a Caribbean Regional Group. This is likely to be established within 2002. A global bat action plan currently in press with IUCN identifies general concerns for the bat fauna of the Caribbean with its many endemics and an overview of bat conservation issues and action; this can be used as a basis for wider or local discussion and the development of collaborative or single island state initiatives. An e-mail interest group on Caribbean bats has already been set up by Lois Blumenthal in Cayman Islands. [France is currently reviewing the bats and their conservation needs in its overseas territories. Apart from Gibraltar, the only UK overseas territories with a bat fauna are those of the Caribbean. The UK Overseas Territories Conservation Forum and its relevant constituent bodies (such as TCNT) should liaise with the CSG regional group when the latter is established.]

4.8.2. Biological monitoring

The work of the Darwin Initiative project provided a baseline of information on a range of taxa. The results of this are summarised earlier in this plan. The more detailed results continue to be analysed by the volunteer specialists involved. Part of this analysis will involve the development of techniques where appropriate and feasible, so that the quality of the biodiversity can be monitored. If problems are subsequently revealed, adjustments to the management plan can be developed to address these. Biodiversity survey and monitoring will use a combination of volunteer outside specialists, working with local people so as to produce the necessary information while also transferring skills. This will build on the use of such techniques during the preceding Darwin Initiative project.

The monitoring procedures will be incorporated in the revisions of this plan, which are envisaged on a regular basis, together with supplements if major developments become available between regular revisions. Initial ideas are indicated below for some taxa.

4.8.2.1. Bats

A provisional system for monitoring the population of all bat species using Conch Bar Village Cave was established from two systematic counts made during the visit in January (see section 2.2.5.3.1 Caves). Such a count should be carried out every 2 months for the first year to establish any significant seasonal variation in populations; thereafter, it should be done twice a year, once shortly before the parturition period (?May/June) and once 6 months later. The pre-parturition count should, if possible, be timed to assess the populations of adult bats present before the young have started flying; this may not be possible if there is broad variation in birth period between species. If there is broad variation the proposal should be reviewed in the light of a knowledge of birth periods. If possible, local people (e.g. cave tour guides) should be encouraged to assist in the counts to ensure continuity of personnel and techniques.

A bat detector transect can be established using a vehicle to drive at no more than 25 km per hour for approximately 40-60 minutes, starting 15 minutes after sunset. The start point for the transect should be varied. The bat detector should be set at 30 kHz to optimise the chance of locating *Lasiurus* and any free-tailed bats present. Such a transect could be carried out once a month for the first year and the situation reviewed.

Other known roosts should be checked annually to confirm presence/absence or species and numbers of bats where possible, and any changes (threats) to roost sites.

4.8.2.2. Birds

Biodiversity monitoring procedures are being developed which will place emphasis on methods which can use relatively inexperienced personnel but nevertheless generate sound data for the purposes; modern ecological research has made major progress in identifying such techniques, which are particularly designed for tropical situations, in which traditional techniques are difficult to apply, both because of the nature of the vegetation and the shortage of specialist personnel. Computing procedures and databases for information handling will be developed, again with an emphasis on minimising manpower needs to handle these. Identification aids (see section 4.2.5.2) and record collection have been initiated in previous work, and will be maintained.

There is also a need for further work on the vulnerable West Indian whistling duck, Kirtland's warbler and endemic subspecies of dry-land birds, and on the breeding biology of species depending on irregular wet conditions.

4.8.3. Evaluation and revision procedures

The basic information allowing monitoring of the biodiversity of the area will become available from the techniques being developed, as noted above. The monitoring of the management work done and its outcomes will be achieved by means set out in the Logical Framework (Appendix 5). The main features (which will be deployed as the various relevant elements of the plan are resourced and initiated) include:

- o Regular meetings and reports;

- o Scientific survey and monitoring to ensure the safeguarding of biodiversity;
- o The development of a long-term financial plan;
- o Clear information on utilisation, from visitor centre records, tour fees and other ticket sales, records of school visits;
- o Information on local businesses and demographics from TCI Government;
- o Records of presentations, publications and web-visits;
- o Formal project reporting.

At approximately quarterly intervals, detailed aspects drawn from this overall plan will be agreed as priorities to produce short-term work programmes. Relevant monitoring materials drawn from the above will be deployed to review the work achieved against the priorities for the preceding quarter, and that information used to inform the plan for the following quarter. The format of these quarterly meetings will be between the project and site management staff and the supervising team, who will also advise the National Trust Executive Committee and Council.

In parallel, the regular community meetings, involving also the local consultative committee other stakeholders will be continued. This will build on the successful system established under the Darwin Initiative. Strong local participation has been achieved by open community meetings, with a planned but flexible agenda, which has proven an effective mechanism to capture the knowledge and wishes of local persons rather than impose outside ideas upon them.

Staff involved in project work will participate in regular Trust staff meetings. This is already part of regular Trust activities, and will continue to be important as new staff are recruited to the organisation. This will be increasingly vital with the decentralisation of Trust bases for staff from mainly Providenciales, initially to include the project bases of Middle Caicos and North Caicos.

Annually, the project activities and outcomes under this plan will be reviewed by staff and the supervisory team, and an annual report prepared. This will be available to stand alone and for incorporation in the Trust's Annual Report as well as reports to any project sponsors.

The outputs from meetings will be integrated into periodic revisions of working management plans, with full consultation. Working management plans will be annotated with relevant points arising at both community and staff meetings, as well as other inputs, including further research, monitoring, and land-management arrangements. In some cases, this will need early interim amendments to plans. However, in any event, the plans will be reviewed in addition at annual intervals to consolidate appropriate changes. Supplements and revisions of the plan will be issued as appropriate.

4.8.4. Management

The responsible body leading the implementation of this plan will be the Turks & Caicos National Trust, working in consultation with DECR, other TCIG Departments and the local community. It is recognised that no governmental or non-governmental agency in TCI yet has the full capacity to manage a plan of this scale and nature. Accordingly, the Forum will continue to support and advise the Trust, drawing on its wide network of experts as appropriate. This collaborative arrangement, including the extensive network of partners listed in the following section, has worked well in developing this plan, and it is anticipated that it will continue to work well in the implementation of it.

The Trust Council appointed a local committee to bring together the contributions of main interest groups, and inform the work of developing the integrated management planning. This committee proved valuable both in helping the development of the plan and in encouraging local people to make their views known to those in authority. The Trust Council has decided that this positive result should be built upon, by strengthening the local committee for Middle and North Caicos centred on the implementation and further development of the plan.

The earlier committee is listed at the start of this plan. It is recommended that, with its changing role, the committee now be constituted as follows:

TCNT Executive Director (Mrs Ethlyn Gibbs Williams) (Co-Chair)
UK Overseas Territories Conservation Forum Chairman (Dr Mike Pienkowski) (Co-Chair)
TCNT Conservation Officer (Mr Bryan Naqqi Manco) (Secretary)
TCNT local counterpart conservation officer (once resourced and appointed)
District Commissioner, Middle Caicos (Mrs Dottis Arthur)
District Commissioner, North Caicos
TCNT Council North Caicos representative (Mr Fuller Gardiner)
TCNT Council Middle Caicos representative (Mr Hormel Harvey)
Resident of Middle Caicos (currently Mr Alton Higgs)
Resident of North Caicos
Representative of TCIG Dept of Environmental & Coastal Resources (currently Mrs Michelle Gardiner)
Representative of TCIG Dept of Planning (currently Mr Clyde Robinson)
Representative of TCIG Dept of Environmental Health
Representative of TCIG Dept of Economic Planning & Statistics
Representative of TCIG Tourist Board
Representative of TC National Museum

As before, other persons would participate for particular purposes.

Community meetings, will continue to be used as a means of obtaining local wishes, ideas, experience and knowledge. These will be supplemented by extended interviews with elderly (but often still active) local residents. In addition to other involvements by Government personnel, project personnel will hold meetings with relevant departments of TCI Government to maintain inputs, consultation and coordination.

If the full programme of work is resourced, it is envisaged that the following personnel will be required. Fewer staff will be involved if only parts of the full plan are resourced. Day-to-day management of the local work will be by a Conservation Officer, with a business manager later recruited to run the Middle Caicos Eco-centre at Bambarra. The Conservation Officer will be supported by a warden on each of the two main islands, Middle Caicos and North Caicos. Project personnel will analyse tasks and develop job-descriptions in consultation with appropriate partners, matching this to the sequence of developments as modified by any external constraints. It is envisaged that, as the plan is implemented, increasing income from project operations together with support from the Conservation Fund (designed for support of management of Protected Areas), and other income raised by the National Trust will take over the funding from external grants.

Overall supervision of the project will initially be handled by the Executive Director of the Turks & Caicos National Trust, working with the Chairman of the UK Overseas Territories Conservation Forum and accounting to the Trust's Executive Committee. The Trust, in turn, has a statutory duty to report both to its members and to TCI Legislative Council. This provides clear accountability, important both within TCI and to account to external agencies for the use of their funds. It is important for successful co-management to have a lead body clearly set out to provide for accountability, as well as having mechanisms to consult widely with collaborating organisations to provide input of ideas and experience. Apart from scientific, technical, financial and general management, a major role will be to continue the successful capacity-development of the Trust. This will include facilitation of links between TCNT and TCIG personnel to UK Government (which handles external relations including international conventions) and international bodies and agencies.

4.8.5. Partnerships

The work leading to this plan and that envisaged within the plan itself has been highly collaborative. Some of the partners already involved or expressing interest in doing so include:

Turks & Caicos National Trust: full partner in project planning and implementation; membership non-governmental organisation with statutory role; local infrastructure; statutory role in holding and managing land in trust for the country; links into TCI Government and organisations; expertise in protected area management and environmental education as well as facilitating local people.

UK Overseas Territories Conservation Forum: full partner in project planning and implementation; facilitation of capacity-development; scientific guidance; use of its wide network of member organisations and other collaborators both to provide specialists for the work and to disseminate the results; links to UK Government and other international collaborators.

Forum member organisations in UK: expertise and support across a wide range of specialisms and skills; information networking to spread information on results and sponsors (including, e.g., CABI Bioscience, RSPB, the National Trust)

Forum network in other Overseas Territories and other countries: exchange of experience and in particular information networking to spread information on results and sponsors

Government of Turks & Caicos: General support from Governor and Government, including:

Ministry of Finance (especially Department of Economic Planning & Statistics): input into project development; reports & statistics; identification of complementary funding

TCInvest (Government investment agency): input into project development; collaboration on development of small businesses

Ministry of Natural Resources: taking proposals for transfer of protected areas to the safeguard of the Trust through government; facilitation of access to land ownership information; general support

Department of Environment & Coastal Resources (including its department of protected areas): collaboration on a wide range of issues

Department of Planning: incorporation of results into National Physical Plan and other joint working

Departments of Lands & Surveys, and Land Registry

Department of Education: cooperation on educational products and their introduction into schools

Department of Tourism: exploration of promotion of sustainable tourism product in contrast to traditional beach, diving, fishing holidays

Turks and Caicos Hotel & Tourism Association

Local businesses & hotels: development of partnerships in sustainable tourism

Tour guides: provision of training and approval scheme by the Trust

Turks and Caicos National Museum: collaboration on historical and archaeological information

UK Government conservation agencies: exploring possible short-term assistance

Regional associations: networking to spread information on results and sponsors, and to exchange information

Volunteer scientific and technical specialists: various short-term contributions in biodiversity, historical survey, monitoring, research and management.