

# Chagos News

*The Periodical Newsletter of the  
Chagos Conservation Trust*

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## EDITORIAL

### EGM and AGM

These meetings were very well attended with over 39 members present – another 29 sent apologies – and it was most encouraging seeing and hearing the support for CCT achievements during 2006. The meeting started with excellent presentations for 40 minutes on the Eagle Island rat eradication reported in News 28 together with graphic photographs and maps. Three people will revisit the island in March for a week of intensive trapping and monitoring and if, as expected, no rat is found to have survived, Eagle can be declared officially rat free. This was followed by a 20 minute talk by Charles Sheppard on the 2006 expedition. The results are still being analysed and written up but are already promising a lot of good news which we hope to print later this year. The Chairman, William Marsden, gave us a report and so did the BIOT Administrator, Tony Humphries. These are reported fully in the Minutes of meetings which can be obtained from the Secretary at [simonhughes@hughes-mccormack.co.uk](mailto:simonhughes@hughes-mccormack.co.uk) or 29 Champion Hill, London SE5 8AL

### Contents

One of the Eagle Island Magnificent Eleven, Dr Chris Hillman, is writing a comprehensive account of the ecology of Eagle and he has kindly provided a summary especially for this edition of Chagos News.

Nigel Wenban-Smith has also been undertaking major historical research which has involved interpretations of 16<sup>th</sup> century Portuguese. He provides us with a mystery. Where was the *Conceição* or *Conception* actually wrecked? If you have a view or comment, please send to him [nigel@wenbarlow.com](mailto:nigel@wenbarlow.com)

### Chagos

There is ever increasing interest in Chagos. Please look at our website [chagosconservationtrust.org](http://chagosconservationtrust.org) which is one amongst many. Other sites cover political and social matters. We stay with the objectives we declared when we started 14 years ago. As a Registered Charity we are, of course, not allowed to be political. We are though very interested in all developments. Please let me know what improvements you would like to see in our website.

*John Topp*

# **Rapid Assessment Survey of the Environment of Eagle Island – CERP**

**2006**

**Dr Chris Hillman**

The rats are all gone from Eagle – or so we hope we can report after the assessment trip in March next year, one year after the eradication exercise. So – what next?

In fact, the first question is – what do we have now? While the island has only received a few visits in the recent past, most of these have focussed on the marine side and used the island as a base from which to study the surrounding areas of the Great Chagos Bank. Some information on the terrestrial ecosystem was collected by the Joint Services Expeditions (JSE 1975) in the 1970s, but this information is now over 30 years old and not readily available.

The Chagos Ecological Restoration Project in February to April 2006 (CERP 2006) had the objective of ridding the island of rats in order to encourage further seabird breeding on this – the second largest island in the entire archipelago. This was achieved through the establishment of a series of cutlines through the islands dense vegetation, permitting the laying down of a 30 x 30m grid of poison bait stations over the entire land surface. The end result of over 2,800 evenly distributed, reasonably accessible points provided a unique chance to obtain a rapid assessment of the island's ecosystem.

The Rapid Assessment Survey was hatched while on the island to respond to this opportunity and over a three day period at the end of the 3-month expedition four team members (Dr Nik Cole, Nicole Lohrmann, Darryl Birch and myself) visited every point and recorded details for 10 parameters at each. These included the type of Vegetation, non-Coconut Tree presence, Bird nesting, surface Water, past and recent Human evidence, effects of the 2004 Tsunami, Soil characteristics, Coconut Crab presence, Topography and most importantly – any remaining evidence of Rat activity.

These data were collated after the trip and entered into a spread sheet, analysed as far as was possible, and mapped onto an outline of the island. The resulting eleven distribution maps and accompanying information provide a window onto the current state of the island at the time the rats were eradicated, with which future observations and changes can be compared. Details have been recorded in a semi-scientific report lodged with Fauna and Flora International (FFI), the organisation charged with management of CERP 2006 and the funds made available for this by the British Foreign and Commonwealth Office (FCO).

What have we learned? That -

- Never let anyone convince you a coconut is round – it is anything but and after months of walking over nearly a hundred years accumulation on the ground, staggering around as though seriously drunk, you come to accept that a coconut is in fact part round, part triangular and totally unpredictable as to which way it will roll.



Eagle Island – *“an elongate exclamation mark of dry land fringed with burning white sand and a cruel halo of a reef, with what, from the sea, looked like a solid infill of palms”* – David Bellamy in *Half of Paradise*

- The only sounds were the wind in the palms above and the far off sound of surf on the reefs each side of the island. No bird calls, no brief sighting of winged forms in the vegetation, just the occasional flicker of a rat crossing a gap on the ground.
- You were not hallucinating after weeks of “*Scavvy*” cutting, blistered hands, old cuts aching, on hearing a cock crow – your mind thinking you were about to stumble on a farmyard or a house - you told yourself you were on Eagle Island, Chagos, with not a farm or a house within several hundred miles! Yes, there are chickens on Eagle!

In all seriousness, the Survey resulted in a much better understanding of the distribution of Eagle Island’s natural aspects at this point in time and enabled comparisons with earlier observations – notably the vegetation map produced by JSE 1975. This is where the changes were most noticeable in that a map had been produced and some species identified.

Changes in the vegetation distribution in the past 30 years noted as the result of this survey were as follows:

1. The Bulrush swamp area mapped in 1975 has been taken over totally and is now a Palm Swamp area, characterised by small even-aged coconut palms, fairly uniformly distributed and not yet producing fruit. These palms exhibit a high degree of deformity, trunks being twisted, curved and swollen, often with above-ground root masses. Ground cover is good between the trees, comprising small sedges, ferns and some grasses, on a dense palm root mat lying over water and liquid mud.
2. “*Taro*” or “*Plantain*” (*Alocasia* spp.) planted by the early plantation workers as a food source, has seemingly reduced in area considerably, most plants now being very small relicts, and no area dominated by the species.
3. The *Hernandia* woodland area, now well established and extensive centrally towards the north, did not apparently feature as a distinctive vegetation area in 1975.
4. “*Scavvy*” - the thickets of *Scaevola toccada* – has increased considerably from the previous narrow fringes along the beach crest in many places and bordering the open clearings along the eastern shore. It now forms dense thickets of considerable extent. In some areas it can be seen to be taking over open areas through collapsing outwards into open space and rooting adventitiously.
5. It is now much harder than it was 30 years ago, to distinguish plantation palm areas from “natural” palm forest, all having matured to such an extent that the palm planting pits are almost all that remains as evidence of cultivation activities.
6. A number of species not previously recorded were noted – a small area of *Leucaena leucocephala* (that ought probably to be eradicated in case it spreads), one stand of *Pandanus* palm, and a single specimen of the Vanilla Orchid – all three species almost certainly introduced by man in the past for one reason or another.

7. Parts of the mangrove area were much drier than others, occupied by small wiry low mangrove “bushes”, some heavily infested with Dodder, and with large areas that had died off. This suggested areas that are now marginal for mangrove survival as the “*Barachois*” depression in-fills and dries out.

It is evident that much of the western shoreline, centrally, is a low-lying area that has been sealed in and cut off from the sea - an earlier “*Barachois*” (a coastal lagoon separated from the sea by a sand bar). In the 18<sup>th</sup> and 19<sup>th</sup> century this water body was open enough for an administrator to suggest using it as a transportation channel from the northern part of the island to the centrally located main settlement area (Dussercle 1935). In the 1970s the northern part of it was a Bulrush swamp – a species that frequents deeper open freshwater bodies before they become filled in with sediments and fallen plant matter. In early 2006 we found it as a Palm Swamp area floored with a thick root mat over water, giving a highly mobile surface to walk on, and that in places breaks through to mud beneath. Not a single Bulrush plant was found.

It is possible that this change has occurred slowly over time, or that it was accelerated through an incursion of sea water which may have affected the Bulrush growth and distributed coconuts evenly over an area which previously had none. There are no adult nut-bearing palms in this northern area of Palm Swamp as yet.

Elsewhere it would seem that time and the lack of plantation management have resulted in a dense monoculture of palm vegetation of a chaotic nature where soils are deeper, and open clearings where only a shallow soil or sand layer exists over the base coralline rock and compacted sandstone strata. Further south-centrally where smoothed coral boulders and sharp coral fragments form the surface of the ground, a slightly raised area of excellent large broad-leaved forest with dense bryophytes has formed, dominated by very large *Hernandia* trees.

Some bird nesting already occurs despite the presence of rats at the time we were there. The survey returned results for a sparse population of Fairy Tern nesting on trees over most of the island, with some Noddy nesting in palm trees to the north, and a small area of Red-Footed Booby nests on the extreme southern tip. There is also a small population of Little Green Heron for which a few nests were recorded. Undoubtedly, in the absence of rats, there is a reasonable expectation that these numbers will increase in the absence of any further ecosystem manipulation. Neighbouring Cow Island, 1.5km away to the south, has no rats and a good population of breeding seabirds, many of which use the rising air currents generated over Eagle to reach Cow Island.

Previously limited records have been made of invertebrates on Eagle. This was rectified to some extent with a sizeable collection made of spiders, as well as simple records of other groups encountered. Clearly the invertebrate population would benefit from more detailed study that would involve collection, in order to understand its role in the ecosystem, not least in vegetation dynamics and decomposition. The settlement buildings abandoned since 1935 and without benefit of the improvements made on other islands before people left them another 40 years later (e.g. corrugated iron roofing sheets and plastics)



Well in the Main Settlement



Red-footed Booby Nest on S tip in  
*Tournefortia (Argusia)*



Green Turtle Nesting Track frustrated by fronds & rubbish



Coconut Crabs amongst the Ruins



Taro, Palm Forest and Indian Almond



Bird's Nest Fern & Hernandia, Southern tip



Coco-rouge Plantation Palms near Northern tip.



Herb ground cover in Open Clearing



Central Hernandia woodland



Lumnitzera Mangrove and Breather roots



Chaotic Palm Forest



Scaevola encroaching on Palm Forest

are now largely overtaken by the plants, especially the single extensive “*Banyan*” fig and *Hibiscus tiliaceus* entanglements in the main settlement area on the western shore. The stone remains, the walls still standing in the main. The western shore is an erosional one, exposed to very dynamic waters and a reef only just off shore, which has resulted in several of the buildings now beginning to be undermined by very high tides. The same is true for the tiny children’s graveyard to the south. The adult graveyard well inland and south on the settlement area has suffered instead from rampant coconut palm growth. The information there on the previous occupants would be well-worth recording and an initial attempt was made during this trip. Numbers of artefacts of a mainly domestic nature were located but left in situ.

Expanding *Scaevola*, palm vegetation maturing and excluding other species through lack of light, *Barachois* gradually in-filling and turning to palm vegetation, mangrove dying out as the *Barachois* disappears – these are the changes we could note in three short months work and in getting to know the island intimately. The future could fulfil Bellamy’s description of “an elongate exclamation mark of dry land fringed with burning white sand and a cruel halo of a reef, with what from the sea, looked like a solid infill of palms” (Bellamy 1979). The Palm Forest areas were one of the least diverse in terms of plant species we found, with the Open Clearings the most diverse. Palms already occupy over 55% of the land surface with *Scavvy* over another 20%.

We hope we have removed the rats – but will the area left behind encourage the hoped-for increase in seabird nesting if it is changing as we observed? Different species have different requirements for trees, shrubs and open ground on which to nest. It will take time to see how quickly the rat removal permits renewed bird breeding on the island, which in itself will bring in further vegetation changes through the physical and chemical effects on plants.

The encouragement of successful turtle nesting on Eagle was an additional objective to the rat removal. Historical evidence suggests that Eagle was quite important as a hawksbill area in the past from the figures given for turtle shell exports – 11% of all that coming from Chagos over a 13 year period (Frazier 1977). The expedition recorded 25 nesting attempts, of which only one was definitely Hawksbill, the others being all green. No evidence was found for rat predation on the eggs, and hatching was not experienced which is when rats probably have their greatest effect.

Turtle nesting was observed to be frustrated on many occasions by the limited areas of clear sand, with the over-hanging *Scaevola* fringe and roots occupying much of the area down to the high water line, and the rest being strewn with fallen and washed in coconuts and fronds, with large amounts of ocean-borne human waste such as plastic bottles, fishing gear and other debris. The observations made of nesting attempts can be expanded to only 100 nests a year for Eagle at present (assuming limited seasonality) with uncertain success in nesting, and nest and hatchling survival before reaching the open sea. If the areas of suitable open sand available do not change, or even decrease, then Eagle’s contribution to turtle nesting may be somewhat limited, even with rat removal.

This exercise has been a second or third step in the environmental management of the Chagos Archipelago – the first being the JSE expeditions, and the second the on-going marine expeditions

organised by Charles Sheppard. Observations in the 1970s led directly to the rat removal thirty years later. Hopefully as rat eradication is extended to other and smaller Chagos islands, monitoring and management of Eagle will continue – to determine whether we are having any beneficial effects, and to plan further ecosystem interventions that may be required to achieve objectives.

The work would not have been possible without the active encouragement of Guntram Meier and the support of all the team members. The expedition was funded by the FCO through FFI, with fantastic support on the ground in Chagos from the British contingent on Diego Garcia, the captains and crew of the Fisheries Research vessel “Pacific Marlin”, and the 2006 Chagos Expedition in the area for part of the time under Charles Sheppard’s leadership – to them all we express our thanks. Finally – Sheila Hillman entered all the survey data on our return and has not complained at the “loss” of her husband over the expedition and in the extended write-up period since.

## ***The Conception: a 450-year-old mystery***

**Nigel Wenban-Smith**

### **Introduction**

All Chagos enthusiasts *know* that in 1555 a Portuguese merchantman (*nao*) was wrecked on Peros Banhos on her way to India. However, no trace of the vessel has yet been found nor have the documents describing the wreck and its aftermath ever been subjected to analysis. Indeed, the two accounts of the event do not appear even to have been translated into modern Portuguese, let alone any other language. So readers of *Chagos News* owe, as I do, a debt of gratitude to my son Jasper for delving into the original texts to extract sense from prose in which the Renaissance vocabulary and nautical expressions still baffle many Portuguese experts.

The main account of the disaster is by Manoel Rangel, a passenger aboard the vessel, first printed in 1557; the second, by an unidentified Jesuit priest writing in about 1620, relies on second-hand sources. Rangel makes sure that the selfish behaviour of the ship’s officers and the nobility is fully recorded; the priest is more concerned with the selflessness of the three Jesuits aboard. Both leave many uncertainties, most importantly about the site of the accident, the course(s) taken by the survivors and the numbers of those who either perished or survived.

### **Bare bones of the story**

The *Conceição* left Lisbon on 1 April 1555, later than was considered safe by the experts, but had an uneventful and reasonably quick voyage round the Cape of Good Hope (passed on 18 July) and on into the Indian Ocean. South of Madagascar, the captain chose to take the more direct route to Cochin, rather than head up the Madagascar channel. This involved proceeding eastwards, then, in the longitude of Rodrigues, turning north-north-east, so as to make best use of the South-East trade winds and keep to the west of the dangerous shoals represented by the Chagos and Maldive islands. The pilot may have possessed a chart similar to that illustrated. But he would also have relied on his own experience and on a *roteiro* (sailing instructions). Quite a number of these survive, but sadly none, so far as I have been able to discover, relates to the open sea route across the Indian Ocean.

On 21 August, the pilot reckoned he was six degrees from ‘India’. The text suggests that this was a calculation of latitude, since it was based on a midday fix of the sun in good weather (the priestly version states that Peros Banhos lies at 7° S, which proves his later knowledge and nothing more). Later, we are told that this position meant that, at midday, the ship would have been 24 leagues (about 82 nautical miles) from any shallows. Thirteen hours later, when the *Conceição* ran aground, the poor pilot moaned that he had to be still at least 4 leagues away! This after ignoring all the warnings he was given: the weather was



have been spent making further trips to the wreck to gather stores and also sails to provide a degree of shelter. On the following morning, the Captain and pilot, accompanied by various nobles and sailors – some 40 people all told – returned to the ship and, collecting as much as the longboat and dinghy could carry in the way of provisions and treasure, made off on their own.

Another nobleman was then elected leader. As the *Conceição* gradually disintegrated, quantities of timber etc were washed ashore and from this wreckage a makeshift raft was assembled to go and collect as much as could be salvaged, both for sustenance and to build a seaworthy craft which could be used to seek help. The salvage took 16 days and then work began on building a vessel intended to carry some 60-70 people; but, by the time it had been loaded with provisions (and most of the remaining arms and treasure), there was room for fewer than forty (and a great fracas in choosing who should be included – Rangel himself was thrown out and told to swim back to shore). This vessel (and the nobleman) left the island on 26 September 1555 and, surviving a collision with a whale, reached Cochin on 13 November. The priestly story, which gives 27 November as the date of arrival, adds that this vessel met the Captain setting out, with two ships, to bring help to the castaways, but then returned to India, leaving his second ship to undertake the rescue trip on its own.

The number of the castaways was gradually reduced by their privations. With hope of rescue declining, it was decided to build a second vessel, this time rather more makeshift, but capable of taking 27 people. This set out on 1 April 1556, with Manoel Rangel among those aboard. After many vicissitudes, those who survived the voyage (perhaps a dozen) reached one of the Maldivian islands and, eventually, were taken by the inhabitants to their king, who saw to their transport to India, which they reached in January 1557. The priestly account differs in detail on the difficulties encountered on this voyage, focussing especially on the heroism, self-sacrifice and eventual demise of the three priests involved – the last of them washed into the sea as he sought in desperation to catch a crab on the shoreline. So, how many people were involved altogether? Rangel says that, following the getaway of the Captain and his buddies, 56 shelters were made from timbers and cloth, each holding 6 people. By the time Rangel was about to leave, this number (336) had declined to 181, which suggests that about 150 had died already, and, assuming, as Rangel does, that all those he left behind perished (neither account makes further mention of the rescue ship), the total death toll on the island must have been just over 300. It would appear therefore that the total ship's complement at the time of the wreck must have been at least 400, the number stated in the priestly version. How many of the hundred or so who escaped actually survived is not known.

### **Life on the island**

Rangel says that the island measured 300 by 160 'passos' and that at first there was no water "not even a drop", with people surviving on the tiny rations of wine and water retrieved from the ship. Eventually they dug into the sand, obtaining at first only tiny quantities of brackish water, but gradually doing better. In particular, once rain came, it stayed on the surface of the depressed centre of the island, providing sufficient for cooking as well as drinking. A disproportionate amount of the foodstuffs retrieved from the wreck was taken by those in the first two escaping vessels, but limited amounts of cheeses, jams, and olives were available from the wreck. The survivors began by consuming the birds, reducing the population from 10-12,000 to about 2,000 in 24 or 25 days. They also constructed a small boat, which they used for fishing, with sharks and seals among the creatures taken. And, not least, they consumed large numbers of turtle eggs (on one occasion 1836 were counted!), as well as some of the turtles as they came ashore to lay. It seems there were two types of turtle, in Rangel's account distinguished by their eggs only: one sort were larger, with 'whites' and parchment-like shells, the others, smaller and less numerous, only had 'yolks'.

### **Where did the shipwreck happen?**

A more careful and skilled study of the two texts may yield additional clues as to the site of the disaster. Hopefully, readers will turn to their charts, to the internet and to any other sources to propose solutions to the question posed. For me, the most striking feature of the story as told is the absence of any other islands visible from the wreck site. How could this be if the *Conceição* really did run aground in Peros Banhos? On the other hand, it is also striking that at least three of the four open boats which set off succeeded in reaching their destination, the first one quite quickly. We do not know anything about the routes taken, except in what Rangel says about his own escape. Does this help at all? He reports that he set out on a north-easterly course, which appears to have been maintained for 20 days, at which point a storm struck, supplying urgently needed water, but also forcing the boat in a south-easterly direction. After a

further 13 days, they saw two islands (roughly 4 leagues apart), both surrounded by reefs, and managed to get ashore, though the boat was wrecked, on one of them. This island was covered in coconut trees, which provided sustenance –apparently the castaways cut down the trees to eat the leaves from the crowns (the priestly account tells of the illnesses resulting from the sudden consumption of too many coconuts!). Then they noticed people on the other island, whose attention they succeeded in attracting. However, when some of them came to investigate, they turned and fled before real contact could be achieved. After several of the Portuguese died, Rangel and a few colleagues constructed another small vessel and managed to get to the other island, later returning to find only two of their comrades still alive (the three Jesuits perishing at this stage). This reduced band then managed to get taken by the native inhabitants to their ruler, who arranged for them to be transported to the Indian mainland at Cananor, some way to the north of Cochin. They learned that the islands on which they had gone ashore were called Mameluco, which were at the same latitude as Malindi. I cannot find a Malindi either in the Maldives or on the Indian mainland, nor Melindi, a place mentioned by a Dutch voyager in the 1580s. There is however a Maldivian island now called Mulaku  
....

It seems that Rangel was at sea for 5 weeks before making landfall and that the least unlikely place he had reached, if the name is anything to go by, was Mulaku Atoll. His home-made boat, with sails made from odd bits of cloth, would not have travelled fast and not effectively to windward. His statement that they were heading NE would make more sense if he believed he was starting from somewhere further north than present-day Peros Banhos; he should have headed due north, if he knew where PB lay in relation to Cochin and wanted to take the usual route though the Maldives. Or did he have a cunning plan – to point NE, but intend, because of drift to leeward, actually to move northwards? Also, Mulaku is on the eastern side of the Maldives, so it is hard to see how a vessel driven SE for 2 weeks could have avoided the atolls westward of Mulaku. I at least am left wondering whether the *Conceição* really is part of Chagos history. One possibility, worth further investigation, is that the ship was wrecked on Nelson Island (which fits many aspects of the story and where an ancient anchor has been observed embedded in its surrounding reef). Could Rangel, after heading north-east (and so missing Peros Banhos and Salomon) have been swept north-west by wind and currents, before the storm bore him into the Maldives? Maybe some activity with the CCT's metal detector, now stored in Diego Garcia, will help settle the matter!

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