expand the negative impacts associated with ship transport to a pristine area. A TEV for the reefs would allow for an Extended Cost Benefit Analysis between the uses of the two channels, taking into consideration environmental as well as developmental costs.

To date, the project is progressing as expected. A comprehensive research plan has been developed; the project is overseen by a newly formed Steering Committee. Small working groups have been identified providing the necessary data. Primary and secondary stakeholders have been engaged. A final report is expected to be drafted in December 2008. Thereafter, capacity-building to ensure the long-term use of environmental economic valuation in Bermuda will be established through the promotion of integrating the TEV in policy and decision-making, and through the development of an Environmental Economic Module developed for Bermuda College students.

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Conducting a census of seabirds at Barton Point Important Bird Area (IBA), Diego Garcia, British Indian Ocean Territory (BIO301 and BIO401)

The Royal Naval Birdwatching Society (RNBWS) mounted two expeditions to Diego Garcia, British Indian Ocean Territory, in May 2005 (BIO301) and November 2007 (BIO401), sponsored by RNBWS and OTEP. The aim of the two expeditions was to assess the breeding population of sea birds within Barton Point Important Bird Area (IBA) using robust and repeatable census techniques.

Barton Point IBA constitutes the north-eastern arm of the horseshoe-shaped atoll of Diego Garcia (see aerial photograph) and three associated islets. This previously inhabited part of the atoll was left to nature in the early 1960s and made out-of-bounds to personnel serving on Diego Garcia in the early 1970s. Possibly as a result of this lack of disturbance, seabirds have re-colonised this part of Diego Garcia after being absent for the better part of a century, and the area was given IBA status due to its breeding seabirds in 2004.

By extrapolating data from 116 10m x 30m quadrats, it has been calculated that, in May 2005, there were a total of 4370 breeding pairs of Red-footed Booby *Sula sula*, and, in November 2007, from 105 similar sized quadrats, a total of 203 breeding pairs. On both expeditions, nest-building, egg-incubation, small helpless chicks, large independent chicks and recently fledged juveniles were found. These results indicate that, in the Chagos, Red-footed Boobies breed throughout the calendar year, with a peak in productivity between January and July. This has implications when calculating breeding populations in the Chagos of this species, based upon counts from one visit (repeated annually in the same month). It is possible that previous estimates of the breeding populations for this species from throughout the Chagos have been underestimated. The May 2005 Red-footed Booby breeding population at Barton Point exceeds the qualifying criteria of 3000 breeding pairs of this species required for Important Bird Area status.

An adult Red-footed Booby on the nest
Photo: Chief Petty Officer (Met) Chris Patrick

Barton Point Important Bird Area, a bird's eye view looking south. The Red-footed Booby colony extends along both shores past the limits of the photograph. Photograph by Cathy Heinz available at http://www.zianet.com/tedmorris/dg

Brown Noddy *Anous stolidus* and Common White Tern *Gygis alba*, were also shown to breed throughout the year. From the expedition results and the limited historical breeding records from the Chagos of Brown Noddy, it is not possible to specify the exact breeding period for this species. It is probable that it has a sub-annual breeding strategy and this also has implications when assessing breeding numbers from repeat counts in specific months.

The lack of breeding activity in November 2007 by any of the Sternidae terns that nest synchronously in the Barton Point IBA (Little *Sterna albifrons*, Crested *S. bergii*, Roseate *S. dougallii* and Black-naped *S. sumatrana* Terns) suggests that January to July is the breeding period for the majority of seabirds in the Chagos.

The two expeditions found 14 new species of bird for the Chagos. These new species were: Gull-billed Tern *Sterna nilotica*; Saunders's Tern *Sterna saundersi*; White-cheeked Tern *Sterna repressa*; Yellow Wagtail *Motacilla flava* (all first recorded May 2005); Black-crowned Night-heron *Nycticorax nycticorax*; Indian Pond-heron *Ardeola grayii*; Common Moorhen *Gallinula chloropus*; Common Snipe *Gallinago gallinago*; Pectoral Sandpiper *Calidris melanotos*; Ruff *Philomachus pugnax*; Parasitic Jaeger (Arctic Skua) *Stercorarius parasiticus*; White-throated Needletail *Hirundapus caudacutus*; Common Swift *Apus apus* and Fork-tailed Swift *Apus pacificus*.

The two expeditions found also several other species that had been recorded fewer than five times previously in the Chagos. Some of these species had not been seen since the early 1970s. The recording, and in most cases photographing, of: Garganey *Anas querquedula*; Glossy Ibis *Plegadis falcinellus*; Great Egret *Casmerodius albus*; Little Egret *Egretta garzetta*; Common Ringed Plover *Charadrius hiaticula*; Kentish Plover *Charadrius alexandrinus*; Eurasian Curlew *Numenius arquata*; Redshank *Tringa tetanus*; Marsh Sandpiper *Tringa stagnatilis*; Terek Sandpiper *Xenus cinereus*; Grey-tailed Tattler *Heteroscelus brevipes* and Oriental Pratincole *Glareolum maldivarum*, greatly assists in building up the ornithological picture of this under-watched area.

Other taxa were also recorded and these revealed a new species of dragonfly for the Chagos, as well as valuable data on populations of reptiles, amphibians and introduced mammals.

In summary, the two RNBWS ex-

peditions have produced a wealth of data that can and will contribute to the conservation of birds in the Chagos and provide historical documentation of other taxa. For a minimal cost, and with limited disturbance to the HQ BIOT staff, the contribution of the findings by the two RNBWS trips has been very good value for money.

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Creation of several sets of maps of zones, covering all conservation, protection and different use zones in British Indian Ocean Territory (BIO403*)

*Although originally an OTEP proposal, this project was actually supported from another UK Government fund.

The Chagos Conservation Management Plan (CCMP) is the primary overview of conservation management in BIOT. BIOT Administration adopted it in 2003, when it was set before Parliament. These map sets are designed to make easier the understanding and scope of the variety of legally established zones which have developed over the years.

Map Set 1: No Take Zones. One of the CCMP's three cornerstones is that one third of BIOT should be protected from all extractive activities. It has been empirically shown that this is the most effective form of overall conservation. It involves minimum active management – a necessity in BIOT – and permitting licences sustainable extraction (mainly fishing) from the remainder, The fishing may possibly be at higher levels than would be the case otherwise, because of adults which overspill from the zones into fished areas. The 2003 CCMP designated provisional zones, based on available data. Following fieldwork, data from about 20 scientists has been used to help refine the locations of these zones

The Chagos Archipelago, with banks (on which islands sit) shaded and deep water unshaded. The proposed No take Zones of the Chagos Archipelago are outlined. They encompass rich reefs, as well as all the islands with identified rich bird populations, which already are Strict Nature Reserves (SNR). Three miles from each of a) Colvocorresces Reef, b) Blenheim Reef, c) Pitt Bank, d) the block linking the SNRs of Peros Banhos and Nelson Island (to include Victory Bank), e) the block surrounding all the western SNRs of the Great Chagos Bank, plus Egmont. These are all encompassed within a 12 mile boundary of these SNRs.

In addition, three other map sets were produced, which specify all other permitted and prohibited activities, for visitors to northern atolls and residents of Diego Garcia.

This include:

Map Set 2: Outline of areas where yachts may anchor – 'sacrificial areas' where no further account need be taken of coral survival in future

Map Set 3: Outline of areas which define all existing Strict Nature Reserves on all uninhabited islands, for which access to all is strictly prohibited, save with special permission.

Map Set 4: A definitive map of the boundaries of all zones of the inhabited atoll of Diego Garcia, including all classes of protected areas, mixed use areas, and special areas such as the Ramsar site.

All maps are on a GIS, which uses Landsat and Ikonos images to provide the base maps. On to all can be superimposed a variety of additional matters of conservation concern, such as erosion, which is increasing in these low-lying islands.

The maps are equally for the benefit of those who patrol and those who enforce. This project strengthened the Chagos Conservation Management Plan, started its effective implementation, and provides greater and easier manipulation of several governance procedures when required, such as when changes to anchoring and management zones are deemed to be desirable given revision of BIOT legislation. One example of this already has been to slightly expand the Ramsar area of Diego Garcia to include a particularly unusual, adjacent foraging area for Hawksbill turtles.

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Plants of the Falkland Islands – A new book from Falklands Conservation (FAL401)

This is a simple identification guide to the most common and attractive plants of the Falkland Islands. It describes 56 different plants, selected because they are particularly striking or interesting. Plants have been included from nearly all Falkland habitat types and from most of the plant families found growing in the Islands. It is intended for use by anyone – Islanders, visitors, young and old – in fact, anyone who wants to know more about the beautiful flora of the Islands.

The guide is illustrated with colour photographs throughout. It includes an identification key covering flower colour, shape, height/spread, fruit and habitat. It has a detailed description of the plant, its flowering period and where it can be found, fascinating local facts and eleven delicious traditional recipes using native ingredients.

The author, Ali Liddle, recently took a two-year sabbatical from her teaching job to work for Falklands Conservation on an environmental education project, particularly to develop locally focussed education material for the Falkland Islands' schools. This book forms part of that project, and has been produced with support from OTEP.

Plants of the Falkland Islands. Ali Liddle. 96 pages. ISBN978-0-9538371-9-9. Price £10. Available from Falklands Conservation, 1 Princes Avenue, Finchley, London N3 2DA, or from the website: www.falklandsconservation.com

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