

# An Annotated Checklist of the Chagos Archipelago Terrestrial Fauna (Omitting Birds) Recorded During the 1996 'Friends of the Chagos' Expedition

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**Abstract:** An annotated checklist of the terrestrial fauna (omitting birds) is documented. It includes 94 species of insect, one species of amphibian, two species of terrestrial reptile and three species of mammal.

**Keywords:** Chagos, Indian Ocean, Diego Garcia, Insecta, Amphibia, Reptilia, Mammalia

## Introduction

The Chagos Archipelago, British Indian Ocean Territory, centred at 6 degrees south, 72 degrees east, in the middle of the Indian Ocean (Edis 1993), is the largest and most isolated coral atoll complex in the world (Pearce 1994). The nearest land to the Chagos is Addu Atoll in the Maldives which is 600km to the north. Mahe, the main island of the Seychelles, is 1,770km to the west and Mauritius is 1,930km to the west. There are five islanded atolls within the Chagos: Diego Garcia; Egmont; the Great Chagos Bank; Peros Banhos and Salomon. The total land area is estimated to be less than 60km<sup>2</sup> (Symens 1996). The largest island is the main island of the Diego Garcia Atoll which is approximately 27km<sup>2</sup> (Symens 1996). The islands have a tropical maritime climate.

During February and March 1996, L. K. Barnett and C. Emms surveyed 24 of the 58 islands of the Chagos Archipelago for insects as members of the 1996 'Friends of the Chagos' international scientific expedition (Barnett & Emms 1996). This paper constitutes an annotated checklist of the terrestrial fauna that they recorded during the expedition. There was no attempt made to record molluscs or arachnid species during the 1996 expedition. Previous records of these groups are detailed in Stoddart (1971). The bird species recorded are documented separately in Symens (1996) and Symens (in prep).

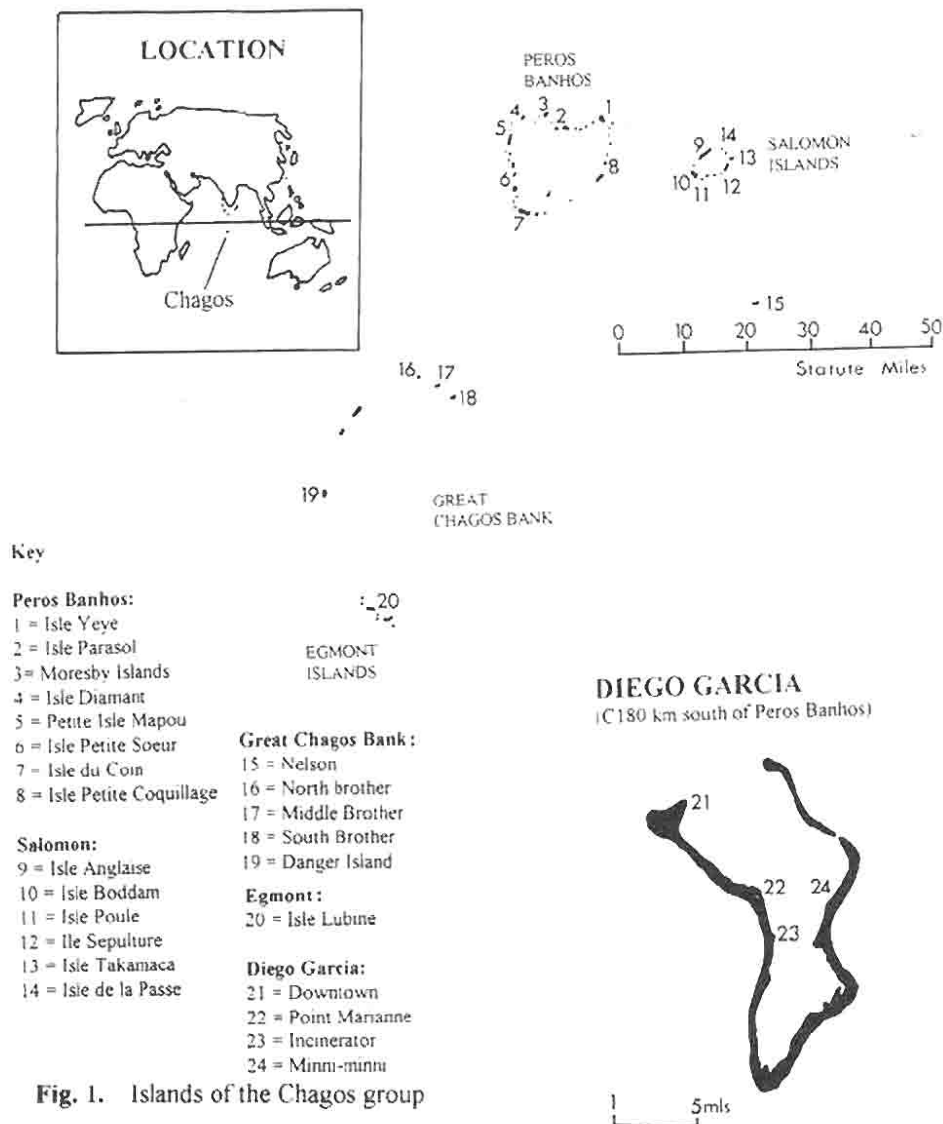
## Annotated Checklist

### Class: Insecta

#### Odonata

*Anax guttatus* (Burmeister, 1839). Previously unknown from Chagos. This large dragonfly was only recorded on Iles Diamante, Yeye and the Morseby Islands in the Peros Banhos Atoll. Prey items included the Gram Blue butterfly *Euchrysops cnejus* (Barnett & Emms 1997b).

# THE CHAGOS ARCHIPELAGO



**Fig. 1.** Islands of the Chagos group

*Diaplocodes trivialis* (Rambur, 1842). This small dragonfly was recorded on islands in the Salomon and Egmont Islands, and also on the main island of Diego Garcia. Large populations were present at all of these locations.

*Ischnura senegalensis* (Rambur, 1842). This damselfly was recorded on Diego Garcia and Ile Lubine in the Egmont Atoll in low numbers.

*Macrodiplox cora* Brauer, 1867. Previously unknown from Chagos. Two specimens of this medium-sized nocturnal dragonfly were recorded on Diego Garcia when they were attracted to the insect catch of a light trap, run overnight.

*Pantala flavescens* (Fabricius, 1798). This highly migratory dragonfly was only recorded on Diego Garcia where there was a substantial population present.

*Tramnea limbata* Desjardins, 1832. This dragonfly was recorded on Diego Garcia where there was a large population present over most of the island, and also on Ile Lubine in the Egmont Atoll.

### Orthoptera

*Acheta domesticus* Linnaeus. Previously unknown from Chagos. This house cricket was found only on Diego Garcia, where it was associated closely with human dwellings.

*Aiolopus s. simulatrix* Walker. This grasshopper was recorded on eleven islands throughout the Chagos and found on every atoll. Large populations were present wherever there was short vegetation.

*Atractomorpha acutipennis* (Guerin). Previously unknown from Chagos. This species was only recorded on the main island of Diego Garcia, from a single location.

*Conocephalus maculatus* (Guillou). Previously unknown from Chagos. This cricket was only recorded on Iles Boddam and Takamaka in the Salomon Atoll. There appeared to be thriving populations present on both islands.

*Euconocephalus chagosensis* (Bolivar, 1913). This species was only recorded on South and Middle Brother in The Great Chagos Bank Atoll.

*Phaneroptera nana* Fieber, 1853. *sparsa* Stal. Previously unknown from Chagos. This species was only recorded from the main island of Diego Garcia, where there appeared to be a thriving population at at least one site.

### Dictyoptera

*Blattella germanica* (Linnaeus). This cockroach was recorded from two widely dispersed locations in the archipelago: Ile Takamaka in the Salomon Atoll and Middle Brother in The Great Chagos Bank Atoll. On both islands it was found to be nocturnal.

*Blattellidae* sp. An unidentified species only recorded on Ile Takamaka in the Salomon Atoll.

*Margattea longicercata* Bolivar. Previously unknown from Chagos. This cockroach was recorded from only one location: Ile du Coin in the Peros Banhos Atoll.

*Periplaneta americana* (Linnaeus). This large cockroach was recorded on Ile Takamaka in the Salomon Atoll and the main island of Diego Garcia. On both islands it was observed at night in large numbers amongst the vegetation of the islands. On Diego Garcia it was also recorded frequently in human accommodation blocks.

*Pycnoscelus indicus* (Fabricius). This cockroach was only recorded from Ile Boddam in the Salomon Atoll.

### **Hemiptera**

*Canthecondea furcellata* (Wolfe). Previously unknown from Chagos. This species was only recorded from Ile Parasol in the Peros Banhos Atoll.

*Pondskater* spp. Previously unknown from Chagos. A small population of this species was recorded in a fresh-water ditch at the landfill site on Diego Garcia. Only nymphs were captured and these could not be identified down to species level.

### **Lepidoptera**

*Adoxophyes privatana* Walker. Previously unknown from Chagos. This moth was only recorded on Middle Brother in the Great Chagos Bank Atoll.

*Agrius convolvuli* Linnaeus, 1758. This large hawkmoth was recorded from Ile Petite Coquillage in the Peros Banhos Atoll and from Middle Brother in the Great Chagos Bank Atoll.

*Amyna natalis* Walker. Previously unknown from Chagos. This moth was only recorded on Middle Brother in the Great Chagos Bank Atoll.

*Anomis sabulifera* Guenee. This moth was only recorded from the main island of Diego Garcia.

*Anticarsia irrorata* Fabricius. Previously unknown from Chagos. This moth was only recorded on Ile du Coin in the Peros Banhos Atoll.

*Bradina admixtalix* Walker. This moth species was only recorded on Ile du Coin in the Peros Banhos Atoll.

*Callopietria maillardi* Guenee. This moth was recorded from two widely separated islands: Ile Boddam in the Salomon Atoll and the main island of Diego Garcia.

*Chasmina candida* Walker, 1865. This large white moth was found to be common on the perimeters of many islands in the Salomon and Peros Banhos atolls and also on the main island of Diego Garcia. It appeared to be closely associated with its larval foodplant the Takamaka tree *Calophyllum inophyllum*.

*Chrysodeixis eriosoma* Doubleday, 1843. This moth was recorded on Iles Boddam and Takamaka in the Salomon Atoll and Middle Brother in the Great Chagos Bank Atoll.

*Chrysodeixis illuminata* Robinson. Previously unknown from Chagos. This moth was only recorded on Ile de la Passe in the Salomon Atoll.

*Comostola p. pyrrhoga* Walker. This moth was only recorded on the main island of Diego Garcia.

*Cryptophlebia encarpa* Meyrick. This moth was only recorded on the main island of Diego Garcia.

*Diaphania indica* Saunders, 1851. This moth was only recorded on the main island of Diego Garcia.

*Eilema antica* Walker. This moth was recorded in good numbers on Iles Boddam and Takamaka in the Salomon Atoll, Ile du Coin in the Peros Banhos Atoll and on the main island of Diego Garcia.

*Endotricha m. mesenterialis* Walker. This small moth was recorded on two widely separated islands: Ile Takamaka in the Salomon Atoll and the main island of Diego Garcia.

*Euchrysops cnejus* Fabricius. Previously unknown from Chagos. This small blue butterfly was found to have large populations on many of the islands visited excluding those in the Egmont Atoll (where it was not recorded). It was also recorded at the land-refill/incinerator site on Diego Garcia. This butterfly appears to be a recent addition to the Chagos fauna and may well have been aided in its dispersal by the rapid colonisation of its main larval foodplant *Vigna marina* on the northern atolls during the last decade. Interestingly its larval foodplant on Diego Garcia was *Macroptilium lathyroides*.

*Herpetogramma licarsisalis* Walker, 1859. This moth was only recorded on the main island of Diego Garcia.

*Hippotion velox* Fabricius, 1793. This medium-sized hawkmoth was only recorded on Middle Brother in the Great Chagos Bank Atoll.

*Hyblaea pueria* Cramer. Previously unknown from Chagos. This moth was only recorded on Ile Boddam in the Salomon Atoll.

*Hydriris ornatalis* Duponchel. Previously unknown from Chagos. This moth was only recorded on Ile du Coin in the Peros Banhos Atoll and on the main island of Diego Garcia.



*Hypolimnys bolina euphonoides* Linnaeus, 1764. This large butterfly was recorded from Iles Anglaise, Takamaka and de la Passe in the Salomon Atoll, and South Brother, North Brother and Danger Island in the Great Chagos Bank. The males of this species appear to be highly territorial and only small numbers were noted on each island. The subspecies *euphonoides* is endemic to the Chagos (Barnett & Emms 1998; Poulton 1924).

*Junonia villida chagoensis* Fabricius, 1787. This butterfly was recorded on eight islands in the Salomon, Peros Banhos and Great Chagos Bank atolls. In contrast to *H. bolina*, it was found in substantial numbers on most of the islands where it was recorded, not only as the adult butterfly but also as larva on the foodplant *Scaevola sericea*. The subspecies *chagoensis* is endemic to the Chagos (Barnett & Emms 1998; Watkins 1925).

*Lamprosema niphealis* Walker. This moth was recorded on Ile Boddam in the Salomon Atoll and Middle Brother in the Great Chagos Bank Atoll.

*Macroglossum corythus oceanicum* Walker, 1856. This medium-sized hummingbird hawkmoth was recorded on Iles Boddam and Takamaka in the Salomon Atoll and North Brother, Nelson and Danger Islands in the Great Chagos Bank Atoll. It was recorded in very high numbers and the population appears to be strong on these islands. The subspecies *oceanicum* is endemic to the Chagos (Barnett *et al.* in press).

*Mocis frugalis* Fabricius, 1775. This species was only recorded on the main island of Diego Garcia.

*Omiodes indicata* (Fabricius). Previously unknown from Chagos. This moth was only recorded on Ile du Coin in the Peros Banhos Atoll.

*Omiodes poeonalis* Walker. Previously unknown from Chagos. This species was only recorded on the main island of Diego Garcia.

*Parotis suralis* Lederer. This moth was only recorded on Ile Takamaka in the Salomon Atoll.

*Petrelaea dana* de Niceville, 1883. This small blue butterfly was only recorded from the nature reserve area on the main island of Diego Garcia. Two individuals were observed and it appears to be surviving in low numbers.

*Sameodes cancellalis* Zeller. Previously unknown from Chagos. This species was only recorded on the main island of Diego Garcia.

*Spodoptera litura* Fabricius, 1775. This moth was only recorded on Middle Brother in the Great Chagos Bank Atoll.

*Spodoptera mauritia acronyctoides* Boisduval This species was only recorded on the main island of Diego Garcia.

*Spoladea recurvalis* Fabricius. Previously unknown from Chagos. This moth was only recorded on South Brother in the Great Chagos Bank Atoll.

*Stictoptera hirsutii*. This species was recorded on Ile Takamaka in the Salomon Atoll and from Minni-minni on the main island of Diego Garcia. Three female specimens were taken at light and proved to be a new species to science. A previously unidentified male specimen from an earlier expedition that was captured and preserved by Mr Mont Hirsut was found upon return to the United Kingdom and is now the holotype of this species lodged at the British Museum of Natural History in London (Barnett, Emms & Holloway in press). It is likely that this species is endemic to the Chagos.

*Synclera univocalis* (Walker). Previously unknown from Chagos. This moth was only recorded on Ile du Coin in the Peros Banhos Atoll.

*Utetheisa pulchelloides* Hampson. This brightly-coloured day-flying moth was recorded on 14 of the islands surveyed and was found to occupy islands in every atoll of the Chagos. It was present in very large numbers and larvae were noted on several plants of *Tournefortia argentea*.

*Vanessa cardui* Linnaeus, 1758. Previously unknown from Chagos. This well-known migratory butterfly was recorded on Ile Lubine in the Egmont Atoll. Only a single specimen was observed and no larval foodplants of this species have been recorded on the islands of the Chagos (Topp 1988).

## Diptera

*Clinopogon nicobarensis* (Schiner) This robber fly was recorded on all atolls apart from Diego Garcia. It appeared to favour the strand line on the islands perimeter beaches.

*Musca domestica* Linnaeus. Previously unknown from Chagos. This fly was only recorded from the main island of Diego Garcia.

*Chrysomya megacephala* (Fabricius). This fly was recorded on Iles Diamante and Yeye in the Peros Banhos Atoll, the main island of Diego Garcia and Nelson Island in the Great Chagos Bank Atoll.

*Chrysosoma leucopogon* (Wiedemann). This fly was recorded on Ile Yeye and Moresby Islands in the Peros Banhos Atoll, the main island of Diego Garcia and Nelson Island and South Brother in the Great Chagos Bank Atoll.

*Eristalinus laetus* (Wiedemann). Previously unknown from Chagos. This hoverfly was only recorded on the main island of Diego Garcia.

*Homoneura* sp. Previously unknown from Chagos. This species was recorded on several islands in the Peros Banhos and Great Chagos Bank atolls, as well as on the main island of Diego Garcia.

*Pygophora respondens* (Walker). Previously unknown from Chagos. This fly was only recorded on the main island of Diego Garcia.

*Sarcophaga dux* Thomson. This fly was only recorded on Ile Poule in the Salomon Atoll.

*Sarcophaga peregrina* (Robineau-Desvoidy). This fly was only recorded on Ile Diamante in the Peros Banhos Atoll.

*Scholastes cinchus* Guerin. This fly was recorded on all Chagos atolls (14 islands in total) and appeared to be abundant wherever it was observed.

### Hymenoptera

*Ampulex* sp. probably *A. concessa* (Fabricius). This species was only recorded from the main island of Diego Garcia.

*Apis mellifera* Linnaeus. This honeybee was only recorded from the main island of Diego Garcia. It appeared to be common throughout the island and a nest was observed in a hollow tree at Point Marianne.

*Camponotus* sp. probably *C. maculatus* Forel. This species was recorded on several islands in the Salomon and Peros Banhos Atolls, as well as on the main island of Diego Garcia.

*Chalicodoma* sp. Previously unknown from Chagos. This species was recorded on two widely separated islands, Ile Boddam in the Salomon Atoll and the main island of Diego Garcia.

*Chalybion bengalense* (Dahlbom). This species was only recorded on Iles Boddam and Anglaise in the Salomon Atoll.

Eumenidae sp. 1. This species was recorded in every atoll of the Chagos (10 islands in total).

Eumenidae sp. 2. This species was only recorded on Ile Sepulture in the Salomon Atoll.



*Eumenidae* sp. 3 This species was recorded on the main island of Diego Garcia and South Brother in the Great Chagos Bank.

*Eumenidae* sp. 4 This species was only recorded from the main island of Diego Garcia.

*Eumenidae* sp. 5 This species was only recorded from the main island of Diego Garcia.

*Paratrechina bourbonica* (Forel, 1886). This species was recorded on two widely separated islands: Ile Boddam in the Salomon Atoll and the main island of Diego Garcia.

*Paratrechina longipes* Forel. Previously unknown from Chagos. This species was only recorded on Ile Boddam in the Salomon Atoll.

*Pison* sp. This species was only recorded from the main island of Diego Garcia.

*Polistes* sp. probably *P. olivaceus* (Degeer, 1773). This species of yellow wasp was the most widespread of all the Chagos insect species recorded. It was observed on 23 islands located in every atoll on the Chagos. It appeared to be very numerous and also aggressive. This was the only wasp that regularly stung members of the expedition.

*Ponerini* sp. Previously unknown from Chagos. This species was only recorded on Ile Boddam in the Salomon Atoll.

*Rhopalidia* sp. Previously unknown from Chagos. This species was only recorded from the main island of Diego Garcia.

*Sphex sericeus* (Fabricius). Previously unknown from Chagos. This species was only recorded from the main island of Diego Garcia.

*Technomyrmex albipes* (Smith, 1861). This was recorded on two widely separated islands. Ile Anglaise in the Salomon Atoll and the main island of Diego Garcia.

*Xylocopa* sp. This carpenter bee was only recorded from the main island of Diego Garcia where it was mainly observed at the plantation site.

### **Coleoptera**

*Ananca aldabrana* Champion, 1917. This species was recorded on Ile Takamaka in the Salomon Atoll, Petite Ile Mapou in the Peros Banhos Atoll and on the main island of Diego Garcia.

*Cheilomenes sexmaculatus* (Fabricius). This species was recorded on Iles Poule and Takamaka in the Salomon Atoll.

*Coccinella transversalis* Fabricius. Previously unknown from Chagos. This ladybird was only recorded on the main island of Diego Garcia.

*Colasposoma rugiceps* Lef. Previously unknown from Chagos. This species was only recorded on the main island of Diego Garcia.

*Cratopus adspersus* Waterhouse. This species was recorded on 11 islands in all atolls of the Chagos.

*Exochomus nigrita*. Previously unknown from Chagos. This ladybird was only recorded on the main island of Diego Garcia.

*Gametis versicolor* Fabricius. This medium-sized beetle was only recorded on Ile Paraso in the Peros Banhos Atoll. It appeared to associate with *Tournefortia argentea* and several adults were observed feeding on the pollen of this shrub.

*Melanoxanthus* sp. probably *M. puerulus* Candeze. This species was only recorded on the main island of Diego Garcia.

*Oryctes rhinoceros* (Linnaeus). This large beetle was only recorded on the main island of Diego Garcia and South Brother in the Great Chagos Bank. It is a pest of *Cocos nucifera* and its history on the Chagos has been well documented (Hutson 1981).

*Platynaspis capicola* Crotch. This species was only recorded on the main island of Diego Garcia.

### **Class: Amphibia**

*Bufo marinus* Linnaeus, 1758. Several specimens of an unidentified toad were brought back from the expedition and are lodged with the British Museum Natural History (Barnett & Emms 1997a). A series of more than one hundred specimens collected from Diego Garcia, lodged at the Smithsonian Institution in Washington, have been identified as *B. marinus* (pers. comm. Ronald I. Crombie). It is likely therefore that both series are of the same species. This toad was only recorded in 1996 on the main island of Diego Garcia, where it was very common. Many tadpoles were also recorded in fresh water habitats on the island.

### **Class: Reptilia**

*Hemidactylus frenatus* Dumeril & Bibron. This gecko was recorded on Iles Boddam and Poule in the Salomon Atoll, Iles Diamante, Yeye and Moresby Islands in Peros Banhos Atoll, on the main island of Diego Garcia and on Danger Island on the Great Chagos Bank Atoll. It appears to be a widespread but uncommon animal throughout most of the Chagos.

*Lepidodactylus lugubris* Dumeril & Bibron. This gecko was recorded on Ile Takamaka in the Salomon Atoll, Ile du Coin in the Peros Banhos Atoll and on the main island of Diego Garcia. It appeared to be nocturnal and in the Downtown area of Diego Garcia at least, also appeared to be very numerous.

#### **Class: Mammalia**

*Felis catus* Linnaeus, 1758. This species was recorded on Ile Boddam in the Salomon Atoll, Ile du Coin in the Peros Banhos Atoll and on the main island of Diego Garcia. The cats on Diego Garcia are most numerous and appear to be semi-domesticated while the animals on the other atolls appear to be wholly feral.

*Rattus rattus* (Linnaeus, 1758). This species of rat was recorded on most of the islands in the Chagos, sometimes in very large numbers. Its presence appears to be a prime factor in regulating the number of sea-birds that breed on each island (Bellamy 1979; Symens 1996). It is unknown what effect it is having on invertebrates or the slowly recolonising native vegetation, but this is likely to be significant as the species is omnivorous (MacDonald & Barrett 1993; Symens 1996).

*Equus asinus* Linnaeus, 1758. Feral Donkeys were recorded on the main island of Diego Garcia where a small population is tolerated. Feral animals were also recorded on Ile du Coin in the Peros Banhos Atoll.

#### **Additional Notes**

Two species of land crab were recorded that are terrestrial in the adult phase of their life cycle. These were the coconut crab *Birgus latro* (Linnaeus, 1766), which was present throughout the islands of the archipelago with a thriving population (Barnett *et al.* in press), and *Cardisoma carnifex* (Herbst), which was only present, albeit in very high numbers, on the main island of Diego Garcia, where it was often encountered as a casualty on the main road around the island.

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# A short study of the wedge-tailed shearwater (*Puffinus pacificus*) on Cousine Island, Seychelles.

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**Abstract:** The size of the colony of wedge-tailed shearwaters (*Puffinus pacificus*) on the island of Cousine in the central Seychelles was estimated for the first time, using belt transects and quadrat counts. The results indicate that Cousine hosts the second largest colony in the central Seychelles, smaller only than the one on Cousin. A ringing study performed at the same time show a high return rate between the 1996 and 1997 breeding season.

**Keywords:** Wedge-tailed shearwater, Cousine, population estimate, return rate, population density

## Introduction

The wedge-tailed shearwater (*Puffinus pacificus* Gmelin, 1789) has a widespread distribution across the Pacific and Indian Oceans. Within the Seychelles archipelago it breeds on islands in the central Seychelles and the Amirantes (Diamond 1994). The largest known colonies in Seychelles exist on Aride and Cousin (Diamond 1994; Stoddart 1984), both of which are rat-free (Racey & Nicoll 1984). Since the eradication of a population of cats in the 1980's (Laboudallon 1984), the island of Cousine is now the only island in the central Seychelles devoid of alien mammals. There is an established colony of wedge-tailed shearwaters on the island (Penny 1974), however its size has never been determined.

Copsey (1997), in a census of lesser noddies (*Anous t. tenuirostris* Temminck, 1815), divided Cousine into three principle areas: a coastal plateau on the eastern side, a forested hill region and an unforested coastal rim, which, together with the beach, encircles the island. He provided baseline figures for the number of shearwaters nesting in the forest, but as this study was directed at lesser noddies, the unforested coastal rim was not taken into account, due to a lack of suitable nest sites for this species. As the wedge-tailed shearwater breeds in burrows (Penny 1984), the abundance of rocks and the availability of soil makes this area ideal nesting ground for this species.

The following study was conducted to determine a more comprehensive estimate for the wedge-tailed shearwater population breeding on Cousine. A ringing and biometric study was performed to aid in the long-term monitoring of the species on Cousine.