

Notes & Shorter Contributions

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The bats of Aldabra atoll, Seychelles

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INTRODUCTION

Four bat species are recorded from the Aldabra group of islands and all are recorded from Aldabra itself. Two species, *Pteropus aldabrensis* and *Chaerephon pusilla*, are endemic and are included in the IUCN Red List of Threatened Animals. General accounts can be found in HILL (1971), CHEKE & DAHL (1981) and RACEY & NICOLL (1984). This paper updates these earlier works, adding further records and further information that has become available. It is likely that additional information is lodged with the records of the Research Station on the island. No attempt has been made to obtain such

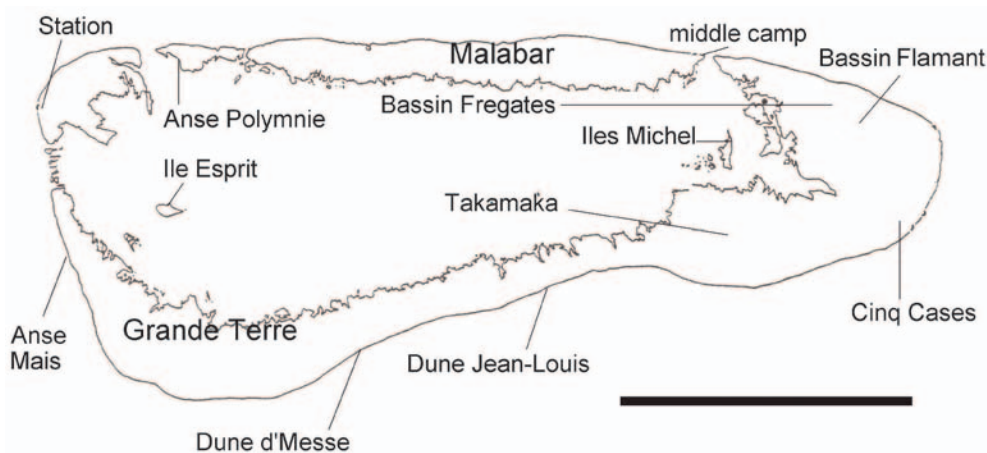


Fig. 1 Localities on Aldabra atoll. Scale bar 10km

data for this paper, but a summary is provided by BRANDIS (2004).

Pteropus aldabrensis TRUE, 1893 (Pteropodidae)

A small-sized flying fox (forearm: 128-141mm), endemic to Aldabra and assessed as Vulnerable in the IUCN Red List of Threatened Animals and in MICKLEBURGH *et al.* (1992). Although described as a separate species, this form was for a long time regarded as a subspecies of *P. seychellensis*, known from the Seychelles, Comoro Islands

and Mafia Island off Tanzania (e.g. HILL 1971). BERGMANS (1990) elevated it to a full species and this has been accepted.

Apart from the original material collected by Abbott in 1893, early records include a skull collected by DR A. VOELTZKOW in 1895 from the house on Aldabra that had been occupied by ABBOTT. FRYER (1911) obtained a further six specimens in 1908, and singles were taken by THIBAUT in 1906, THOMASSET in 1907 and CHARBONNIER in 1954 (BERGMANS, 1990). The species occurs on all main islands of Aldabra Atoll, but in relatively small numbers and no major colony site (camp) has been identified. The largest group located in 1968 was on the small lagoon islet of Iles Michel, where bats were roosting scattered among coconut palms. No full count was made, but the colony was probably well under 100 (A.M.HUTSON, *pers.obs.*). They were also noted roosting among mangroves at Takamaka landing. The only other site where significant numbers were seen was among the coconuts at Settlement (West Island), but these were bats that arrived at night to feed and no roost was identified on this island. It is likely that at that time any major roost would be fairly obvious on an island like Aldabra, but it is possible that the majority of the population was located on Middle Island, which was relatively little explored at that time. FRYER (1911) also noted that, unlike the Seychelles flying fox, this bat does not “form large gatherings in a tree during the daytime”.

Apart from the bats foraging around Settlement (West Island), in early 1968 single bats were noted at Frigate Pool (20 January), Flamingo Pool (21 January), Cinq Cases (27 January), reasonable numbers in the Takamaka area (1-15 February), one crossing from East to West over East Channel to Middle Camp (20 February), several around Dune Jean-Louis (20 March) and one at Dune d’Messe (21 March); all on South Island (A.M. HUTSON, *pers. obs.*)

During a brief visit to Cosmoledo Atoll on 6 March 1968, Jack Frazier thought that he may have seen a fruit bat at dusk on Menai Island (J. FRAZIER, *pers.comm.*).

In the early part of 1968, the present author trapped 14 fruit bats, at Settlement (6M and 2F on 30/31 January), Takamaka Grove (1M on 12 February, 3 M on 15 February), Dune Jean-Louis (2F on 20 March). Many were regarded as juvenile. For the eight at Settlement sex, weight, total length, forearm, pollex length, hind foot, calcar, vibrissae, inner and outer ear length were recorded. Weights were for males 257, 290, 295, 295, 300, 395g (mean: 305g), for females 218 and 228g (mean: 223g); overall mean: 285g. Forearm lengths were for males 135, 135, 137.5, 138, 140, 141mm (mean: 137.8mm), for females 128 and 129mm (mean: 128.5mm); overall mean: 135.4mm. Of adult museum specimens measured by BERGMANS (1990), including some of the above individuals, seven males had a range of 133.8 - 140.8mm, two females 131.5 and 136.0mm. Ear lengths (inner notch to tip) of the Settlement animals ranged from 24 – 27.5mm.

Little information on breeding has been published (CHEKE & DAHL 1981). Mating has been observed in March, June, October and November, but females carrying young have only been recorded in December and January.

Food plants identified (FRYER 1911, CHEKE & DAHL 1981, RACEY & NICOLL 1984; ROBERTS & SEABROOK 1989; A.M.HUTSON, *pers. obs.*) include fruits of *Ficus lutea*, *F. rubra* (as *F. avi-avi*) and *F. reflexa*, *Calophyllum inophyllum*, *Terminalia catappa*, *Mystroxyloa aethiopicum*, and flowers of *Cocos nucifera* and *Agave sisalana*. Bats have also been recorded eating the foliage of *Avicennia marina*.

ROBERTS & SEABROOK (1989) also record feeding on honeydew produced by in-

festations of the coccoid *Icerya seychellarum* on *Ficus lutea*. In August 1986 at Cinq Cases (South Island), a fruit bat was observed licking the upper side of the leaves of a heavily infested plant. In September 1986, one bat was watched licking the underside of the leaves of a light to moderately infested tree on 3rd September at Anse Badamier (Middle Island) and on 8th September at Anse Malabar (Middle Island) and the upper surface of the leaves of a more heavily infested tree at Anse Malabar on 15th September. This behaviour was observed for up to 45 minutes. Rats (*Rattus rattus*) were observed carrying out similar behaviour.

CHEKE & DAHL (1981) record interactions with birds, such as mobbing by frigate birds, drongo and kestrel, and crows pecking at the feet of bats roosting from coconut leaves.

The absence of any insect ectoparasites on these bats (usually Diptera Nycteribiiidae) was noted by SCOTT (1914) and again by the present author in 1968 (COGAN *et al.* 1971). Indeed, in 1968 only some demodid-type mites were collected from 16 fruit bats examined. The absence of Nycteribiidae may be related to a practice in the species of not roosting in large dense colonies at sites of long tradition.

The present author considered that it was unlikely that the adult population exceeded 250 in 1968, which would make the species one of the rarest bats in the world and extremely vulnerable to extinction should any significant adverse changes occur to the island.

There is a clear need to get better and up-to-date population estimates and to collect more information on the reproduction and ecological needs of the species. As a UNESCO World Heritage site and a special reserve under the Seychelles National Parks and Nature Conservancy Act, the habitat should be protected, but consideration should be given to giving the species individual legal protection (and the same should apply to *Chaerephon pusilla* – see below).

Taphozous mauritianus E. GEOFFROY, 1818 (Family Emballonuridae)

A middle-sized sheath-tailed bat (forearm: 60-65 mm), widely distributed from Mauritius, through Madagascar and much of sub-Saharan Africa (TAYLOR 2000). It would appear to be widely distributed but rare in Madagascar (BENNETT & RUSS 2001; GARBUTT 1999; PETERSON *et al.* 1995).

Two specimens (both male) were collected from around the settlement on West Island (Ile Picard) on 5th and 17th June 1968 by J.G.FRAZIER and are in the British Museum (BM 69.16-17). No other confirmed records are available. However, ABBOTT (1894) records that, apart from the large fruit bat, he saw two smaller bats (one of which was collected and is discussed under *Chaerephon pusilla*), and FRYER (1911) recorded the species from sight records, but stated that it was scarce. One bat seen in January 1968 over White Cross camp, near Frigate Pool on South Island (Grande Terre) was described as a 'noctule-sized bat' (*Nyctalus noctula*) and may have been this species (A.M. HUTSON, pers.obs.). BETTS (2000) records a large bat (suggested to be *Taphozous mauritianus*) to be regular around the Research Station and Bassin Flamant, with a roost at the station in July/August 1998.

The island would appear to offer suitable habitat for both roosting and foraging. For roosting, the species will occupy any site offering shelter from sun and rain, including dead palm leaves that have collapsed against the trunk of the tree. They will also roost in

quite exposed situations.

A single record for Assumption (SCOTT 1914) is based on specimens collected by Fryer in September 1908. The bats were found clinging to the stem of a big coconut palm (“the only big one on the island”) just below the crown of leaves. Two specimens were collected while others escaped capture.

SCOTT (1914) described a new species of Nycteribiidae, *Nycteribia (Acrocholidia) fryeri*, from 18 specimens collected from Fryer’s bats (and a single specimen from La-buan). FRYER (1911) makes no mention of these bats - or, indeed of any bats for Assumption, Cosmoledo and Astove. In 1917, SCOTT designated *N. fryeri* as the type species of a new genus *Tripselia*, but the species is now regarded as a synonym of *Basilia (Tripselia) blainvillii*, a widespread parasite of *T. mauritanus* (see THEODOR 1967).

It is likely that the species is resident in small numbers on Aldabra; its present status on Assumption is unknown. It is generally a high flying bat (above the canopy and in open areas) and so is less likely to be caught in mist nets, but its echolocation calls would be distinctive (see TAYLOR 2000).

***Triaienops furculus* TROUESSART, 1906 (Hipposideridae)**

A small distinctive leaf-nosed bat (forearm: 42-47 mm) described from Madagascar, where it is distributed around the north-western coastal areas.

FRYER (1911) reports that this species was “not uncommon on Picard near the Settlement”. A specimen was sent to TROUESSART who confirmed the identification. Apart from this record from Ile Picard (West Island, Aldabra), Fryer apparently obtained two specimens from Cosmoledo which are now in the British Museum (BM 13.2.18.1-2). There is an additional specimen in the British Museum (BM 78.185) collected by J.J. WHITELAW, 4th May 1977 from Aldabra, possibly from the Research Station on West Island. The bat weighed 6.5g and was preserved in alcohol. F.A.HARRINGTON (in litt., 25.1.1993) reported seeing a *T. furculus* on Aldabra in 1992, but no further details were forthcoming. There are no other records from the Aldabra group and its status here remains uncertain.

In Madagascar it is essentially a cave bat (often sea caves), often forming large colonies and sometimes mixed with other species. The Aldabra group of islands has no true caves. On Aldabra, there are shallow undercut cliffs which might provide temporary shelter but which would be frequently wave-washed. Inland there are some vertical solution holes, which are at most about 5m deep, and other small hollows which might provide a limited cave-like environment. It is notable that of the four main islands of Aldabra, West Island would seem to offer the least opportunity to a cave bat. At least the largest islands of Cosmoledo Atoll, Wizard and Menai Islands, would appear to be even less suitable with very limited suitable foraging areas and even less cave-like situations (BAYNE *et al.* 1970). The possibility of these being vagrants from Madagascar cannot be ruled out, but this is unlikely to be a migratory species and the coincidence of finding three individuals on the same expedition is curious. These and the more recent records suggest a small resident population.

The species is likely to stay close to or within vegetation when foraging and the echolocation calls, although distinctive (see BENNETT & RUSS 2001), would be difficult to pick up, especially without the use of a broad band detector.

Chaerephon pusilla (MILLER 1902) (Molossidae)

A very small endemic free-tailed bat (forearm 36.5-39 mm). Included in HUTSON *et al.* (2001) as vulnerable (D1+2).

The species is closely related to *C. pumila* (CRETZSCHMAR, 1826), a widespread species of Madagascar and Africa. The original specimens, collected from Aldabra by Abbott in 1893, were identified by True (in ABBOTT 1894) as *C. pumila* and subsequently described as a new species, *Nyctinomus pusilla*, by MILLER (1902). Hill (1971), on the basis of the original and more recently collected specimens, recognised *pusilla* as distinct, but noted that it is 'clearly closely related to *pumila* and may prove conspecific'. It is much smaller and darker than any *pumila* seen by the current author and HILL (op.cit.) notes their 'very much smaller, less massive skulls and smaller teeth'. However, HAYMAN & HILL (1971) considered *pusilla* a synonym of *pumila*. The forthcoming 3rd edition of *Mammalian Species of the World* (SIMMONS, *in press*) treats it as a distinct and endemic species.

The original material of Abbott (ABBOTT 1894) comprised two specimens, including one adult female (MILLER 1902). A male was collected by C.A. WRIGHT on 4 October 1966 from the eastern shore of East Channel (Passe Houareau), South Island (BM66.5573). The present author observed bats presumed to be this species in 1968 at Cinq Cases (singles on 11 January and 27th January), several around Takamaka (8-14th February), Dune Jean-Louis (16-19th March) and Dune d'Messe (21st March); all on South Island. At the same time there were reports of small ('pipistrelle-sized') bats around the Settlement on West Island. Specimens were trapped at Takamaka Grove (1M, 1F on 12th February, 2F on 13th February and 1F on 14th February) and are in the British Museum (BM.68.938-942). Subsequently, single females were caught at Takamaka Grove by R. LOWERY on 6 and 13 June 1968 (BM69.784/5), and a male at Settlement on 7 June by J.G. FRAZIER (BM69.18) (HILL 1971).

SEABROOK & ROBERTS (1986) noted Microchiroptera, probably this species, at Anse Mais (West Island) as seen frequently between March 1985 and February 1986 where the bats were foraging within coconut and casuarina 'parkland'; infrequently around the Research Station (West Island) between May and June 1986 (again in coconut and casuarina 'parkland') and on the beach crest; and individuals at Anse Cedre (South Island) on 14th and 15th October 1986. A single roost, occupied by about 30 individuals of *C. pusilla* was located within 30m of a house in the Settlement (West Island) in holes in a *Casuarina* tree. Two entrances (one 120 x 50mm, the other 100 x 70mm) were at about 6.5m above ground and approximately 300mm apart. The roost was first located in August 1986 and was still occupied when the observers left the island at the end of November 1987. Repeated observations indicated that the bats emerged soon after dusk (19.00 hrs) and returned at dawn. Twelve individuals (10F, 2M) were caught and examined (?in late August).

A single specimen from the Amirante Islands, collected by Capt. K. PERCON and presented by G.E. MASON to the British Museum (Natural History) (BM 28.1.24.4) was regarded by HILL (1971) as *C. pusilla*.

The species is host to an endemic ectoparasitic polyctenid bug, *Hypoctenes hutsoni* MAA 1970.

Bats caught by the current author in 1968 were noted (and photographed) as generally very dark, almost black, with no ventral mid- or lateral bands, and no obvious post-

aural crest in the single male examined.

The weights of four of the five bats trapped by the current author were 6.0g (M), 7.0g (F), 7.0g (F), 7.5g (F) (mean 6.9g). Weights for the twelve individuals examined by SEABROOK AND ROBERTS were 6.3 and 7.4g for two males (mean: 6.9g), and 6.7, 6.7, 6.9, 7.0, 7.1, 7.2, 7.3, 7.3, 7.4, 7.6g for ten females (mean: 7.1g); overall mean: 7.1 g. This is much lighter than weights given for *C. pumila* from elsewhere, e.g. 9–11.5g in Madagascar (BENNETT & RUSS 2001), 10–16g (mean 11g for M, 12g for F, n=118) for southern Africa (TAYLOR 2000).

For the nine specimens collected between 1966 and 1968, HILL (1971) gives a forearm range of 37.4 – 38.6mm (mean: 38.1mm). Forearm lengths for the twelve individuals examined by SEABROOK & ROBERTS were 36.5 and 37.5mm for males (mean: 37.0), and 37.0, 37.5, 38.0 (x5), 38.8 and 39.0mm (mean: 38.1mm); overall mean: 37.9mm. These forearm lengths can be compared with forearm lengths for *pumila* of 38 – 41mm for Madagascar (BENNETT & RUSS 2001) and 35–40 (mean: 37mm for M and F; n=91) for southern Africa (TAYLOR 2000).

The species appears to catch readily in mist-nets, but could also be surveyed for using bat detectors; the echolocation calls are unknown, but assuming them to be similar to those of *C. pumila* (see TAYLOR 2000), they would be readily distinguishable from other recorded species. Its occurrence on the Amirantes needs confirmation.

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