

Status of *Zonosaurus madagascariensis insularis* on Cosmoledo atoll

JUSTIN GERLACH

University Museum of Zoology Cambridge, Downing Street, Cambridge CB2 3EJ,
U.K

PO Box 207, Victoria, Mahé, SEYCHELLES

[jstgerlach@aol.com]

Abstract. - The status of the Malagasy girdled lizard *Zonosaurus madagascariensis insularis* on Cosmoledo atoll, Seychelles is assessed. It is recorded from three islands on the atoll although it is assumed to be present on all islands. The whole atoll population is estimated $4,260 \pm 154$ individuals. As this subspecies is restricted to low lying islands (Cosmoledo atoll and Grande Glorieuse island) it is considered to be Vulnerable to sea-level rise.

Key words. - Seychelles, Gerrhosauridae, Reptilia, population, status

INTRODUCTION

The Malagasy girdled lizard *Zonosaurus madagascariensis* (GRAY, 1841) is widely distributed in northern and western Madagascar. It is the only member of the family Gerrhosauridae to occur on the coral islands of the Western Indian Ocean, being recorded from the Gloreuses islands and from Cosmoledo atoll, Seychelles. These populations are described as a distinct subspecies *Z. madagascariensis insularis* BRYGOO, 1985. The population on Grande Glorieuse is reported to be “quite common” (LE CORRE, quoted in MATYOT 2003). There is little published data on the Cosmoledo population, it was first reported in 1907 when a specimen was collected from the “north-east islands” (BOULENGER 1911; FRYER 1911; MATYOT 2003). Further sightings were made on Menai in 1937 (by VESEY FITZGERALD, listed in MATYOT 2003), 1981 (A.S. GARDNER pers. comm.) and 2002 (MATYOT 2003). Population estimates were made in December 2005 on several islands of the Cosmoledo group.

METHODS & RESULTS

Four islands (Menai, North, North-East and Grande Ile) were visited on the 17-18th December 2005. Only 1-2 hours were spent ashore on each island. As much of the island as possible was searched and a record was kept of the number of lizards observed 1m either side of the observer and their location. The distance covered (subsequently determined from maps) provided a density estimate for that island. Dividing the area surveyed into 100m sections provided replicated areas for error estimation.

Girdled lizards were located on Menai, North and Grande Ile. Survey results are shown in Table 1.

Table 1 Girdled lizard numbers on Cosmoledo atoll

Island	Time of day	Area searched (m ²)	Number observed	Density estimate (per hectare)
Menai	6:30-8:30	1200	1	8.333±3.4
North	10:30-12:00	1200	1	8.333±3.4
North-East	10:00-12:00	1200	0	<8.333
Grande Ile	15:00-17:00	2032	2	9.843±2.077
overall				9.025±0.327

Table 2 Population estimated of girdled lizards on Cosmoledo. The area used for Menai is for dry land only, the mangrove area has not been included.

Island	Area	Density estimate (per hectare)	Population estimate
Menai	230*	8.333±3.4	1,917±782
North	21	8.333±3.4	175±71
North-East	c10	<8.333	<83
Grande Ile	192	9.843±2.077	1,890±399
overall	472	9.025±0.327	4,260±154

**Fig. 1.** *Zonosaurus madagascariensis insulanus* on North island, Cosmoledo

DISCUSSION

A significant population of *Z. madagascariensis insulanus* is present on Cosmoledo, their presence is confirmed on three islands, but they are probably present on all the islands. In 1907 the species may have had a more restricted distribution, as FRYER noted “a lizard, *Zonosaurus madagascariensis*, found on the North-East Islands” (FRYER 1914), implying that it was not abundant on the other islands he visited (Menai, Wizard [=Grande Ile], Polyte and Goëlette). The lizards are currently present in the abandoned coconut plantation and settlement area on Menai and mixed scrub on the other islands.

These habitats are all comparable, being open habitats with sparse bushes and small trees. From the available data it is estimated that the population on Cosmoledo occupies a maximum area of 472 hectares of dry land and numbers $4,260 \pm 154$ individuals. This is a substantial population for such small islands. As the species occurs in all of the dry habitats of the atoll and coexists in substantial numbers with introduced cat and rat populations it appears to be secure in current conditions. However, the long-term future of the subspecies may not be secure as the two populations (Cosmoledo and Grande Glorieuse) are both on low coral islands threatened by sea-level rise. Stable habitats are restricted to 1-3m above sea level, although Cosmoledo reaches a maximum altitude of 17m (a sand dune on Grande Ile). Long-term sea-level rise would flood these areas. Accordingly *Z. madagascariensis insulanus* should be considered to be Vulnerable (IUCN Red List criterion D2) due to its very restricted range and vulnerability to sea-level rise.

REFERENCES

- BOULENGER, G.A. 1911 List of the batrachians and reptiles obtained by Prof. Stanley Gardiner on his second expedition to the Seychelles and Aldabra. *Trans. Linn. Soc. Lond. (Zool)*. **14**; 375-378
- FRYER, J.C.F. 1911 The structure and formation of Aldabra and neighbouring islands - with notes on their flora and fauna. *Trans. Linn. Soc. Lond. (Zool)*. **14**; 397-442
- MATYOT, P. 2003 Observations on some reptiles in Seychelles. *Phelsuma* **11**; 80-84