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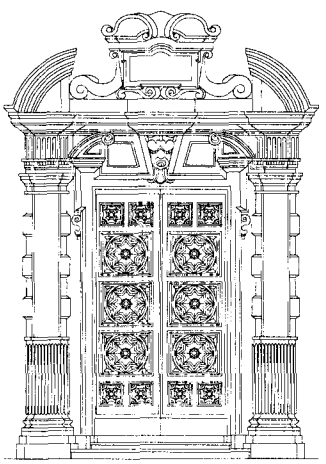

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First record of *Mabuya comorensis* (Reptilia: Scincidae) for the Madagascan fauna, with notes on the reptile fauna of the offshore island Nosy Tanikely

ABSTRACT

Mabuya comorensis is recorded for the first time for Madagascar. Specimens were observed on the island Nosy Tanikely, south of Nosy Be, northern Madagascar. The species was most probably introduced from the Comoro Islands and exhibits greatest similarities to *M. comorensis* from Mohéli (Comoros). At Nosy Tanikely the species is very abundant and occurs in syntopy with the likewise abundant *Zonosaurus madagascariensis*. Composition and origin of the reptile fauna of Nosy Tanikely are discussed.

INTRODUCTION

The lygosomine scincid genus *Mabuya* Fitzinger, 1826 includes about 100 species with a nearly cosmopolitan distribution. According to Angel (1942) and Blanc (1971) three species of *Mabuya* were considered to occur on the Comoros: *M. comorensis* (Peters, 1854), *M. maculilabris* (Gray, 1845) and *M. striata* (Peters, 1844). However, in 1982, Brygoo reviewed the *Mabuya* species from the islands in the western Indian ocean (Comoros, Europa Island and Seychelles) and concluded that *M. comorensis* is probably the only *Mabuya* species on the Comoro Islands, whereas *M. maculilabris* and *M. striata* occur in continental Africa. Brygoo (1982) further investigated the two species from the Seychelles (*M. sechellensis* and *M. wrightii*) and elevated the taxon from Europa Island (*M. comorensis infralineata*) from subspecies to species rank. In a subsequent paper, Brygoo (1983) studied the *Mabuya* species from Madagascar. He recognized five valid

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species (*M. gravenhorstii, M. elegans, M. madagascariensis, M. aureopunctata, M. boettgeri*) and described the subspecies *Mabuya elegans delphinensis*. The status of *M. betsileana*, only known by a single type specimen with a dubious locality, remained uncertain. Recently two new *Mabuya* species have been described from southern Madagascar: *M. vato* by Nussbaum & Raxworthy (1994) and *M. dumasi* by Nussbaum & Raxworthy (1995). These authors recognized eight valid *Mabuya* species for Madagascar, which they classified into two groups: the *aureopunctata* group (*M. aureopunctata, M. betsileana, M. boettgeri, M. dumasi,* and *M. vato*) characterized by a rectangular subocular scale, and the *elegans* group (*M. elegans, M. gravenhorstii,* and *M. madagascariensis*) characterized by a trapezoidal subocular scale (Nussbaum & Raxworthy 1995). However, these authors did not consider a *Mabuya* record from Nosy Tanikely which was identified as *Mabuya maculilabris* and accompanied by a photograph (Koller 1993). The figured specimen was apparently different from all known Madagascan *Mabuya* species and briefly discussed by Glaw & Vences (1994), who provided a photograph of this form (as *Mabuya* sp.; Fig. 483) which was made by Bill Love on Nosy Tanikely in the early 1990s. During a recent visit to Nosy Tanikely in November 1995 J. Köhler and J. Steinbrecher had the opportunity to make several field observations on this population.

The small offshore island Nosy Tanikely is located at the northwestern coast of Madagascar between Nosy Be and the mainland (Fig. 1). Nearest distance to Nosy Be is ca. 8 km, to Nosy Komba ca. 9 km, and approximately 13 km to the Madagascan mainland. Square dimension of Nosy Tanikely is less than 30 ha. Highest elevation is 47 metres above sea level. The surface is covered by bushy vegetation and low forest. Some small areas within the forest were used for banana planting. Fresh waters could not be observed in November 1995. The sandy shore is partly interrupted by large rocks.

In this paper we will discuss the taxonomic status of the *Mabuya* population from Nosy Tanikely.

Abbreviations: SVL - snout to vent length; TL - tail length. Museum acronym: ZFMK - Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn.

RESULTS AND DISCUSSION

Identity of the *Mabuya* population at Nosy Tanikely

The specimens from Nosy Tanikely (ZFMK 62190 - 62192) differ from all other known Madagascan *Mabuya* species with a rectangular subocular scale, when compared with the data given by Brygoo (1982) and Nussbaum & Raxworthy (1995): from *M. vato* (max. SVL 55 mm) and *M. dumasi* (max. SVL 55 mm) by much larger size (see Tab. 1), from *M. boettgeri* and *M. aureopunctata* by higher number of supraoculars (6 versus 3 - 4), and from *M. betsileana* by

a lower number of ventrals (60-61 versus 73). From all these five species they are also distinguished by colouration.

The large Seychellean species *M. wrightii* differs from the Nosy Tanikely specimens by a larger number of scales around midbody and larger number of ventrals, and the other Seychellean species *M. sechellensis* by smaller SVL, a higher number of ventrals and colouration (Tab. 1). *M. infralineata* from Europa Island differs by the lower number of supraocular scales (4 versus 6). The African *M. maculilabris* is distinguished by the lower number of supraoculars (5 versus 6), lower number of lamellae under the fourth toe (15 - 20 versus 23), and by smaller size.

Table 1 shows that morphometric and meristic data of the specimens from Nosy Tanikely are within the range of *Mabuya comorensis* as given by Brygoo (1982). The data of Brygoo (1982) were confirmed by our investigation on *M. comorensis* specimens from the ZFMK (Tab. 1). We therefore conclude, that the Nosy Tanikely population belongs to the species *M. comorensis*, which is hereby recorded for the first time for the Madagascan fauna.

As is obvious from the table, *M. comorensis* from Nosy Tanikely is most

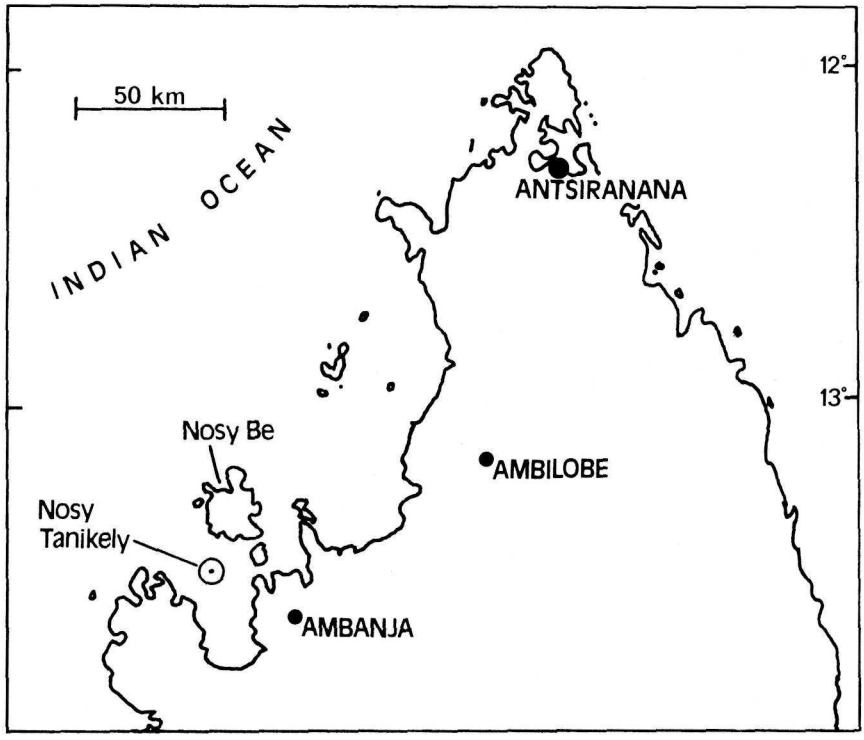

Fig. 1. Map of northern Madagascar.

similar to *M. comorensis* from Mohéli. This is further confirmed by the nearly identical colouration of specimens from both localities (see Fig. 2). Thus, it can be assumed that the population of Nosy Tanikely was probably introduced from Mohéli.

ECOLOGICAL NOTE: *Mabuya comorensis* (Figs. 3 and 4) was

ZFMK	Species	Location	SVL (mm)	TL (mm)	Scales around midbody	Ventral scales	Lamellae under 4. toe	Supra-oculars
29920	*M. comorensis*	Anjouan	85	103	36	61	19	6
29921	*M. comorensis*	Anjouan	85	—	36	62	19	6
29922	*M. comorensis*	Anjouan	72	111	38	61	19	6
Brygoo (1982)	*M. comorensis*	Anjouan	< 85	< 133	34 - 36	?	19 - 22	6 - 7
29966	*M. comorensis*	Grande Comore	66	(66)	34	57	—	6
29967	*M. comorensis*	Grande Comore	74	78	35	59	22	6
30560	*M. comorensis*	Grande Comore	71	133	37	59	23	6
30561	*M. comorensis*	Grande Comore	65	120	37	58	20	5
32141	*M. comorensis*	Grande Comore	64	—	35	59	19	6
Brygoo (1982)	*M. comorensis*	Grande Comore	< 77	< 143	32 - 36	60 - 67	19 - 25	6
29919	*M. comorensis*	Mayotte	79	110	36	61	24	6
30562	*M. comorensis*	Mayotte	95	—	35	64	21	6
30563	*M. comorensis*	Mayotte	89	—	37	58	22	6
30564	*M. comorensis*	Mayotte	84	160	34	58	25	6
30565	*M. comorensis*	Mayotte	88	—	38	61	23	6
32122	*M. comorensis*	Mayotte	96	—	38	61	22	6
Brygoo (1982)	*M. comorensis*	Mayotte	< 103	< 160	34 - 36	60 - 68	21 - 25	6
32123	*M. comorensis*	Mohéli	95	(110)	34	57	23	6
32124	*M. comorensis*	Mohéli	97	135	34	56	23	6
32125	*M. comorensis*	Mohéli	103	(105)	33	56	23	6
41972	*M. comorensis*	Mohéli	98	154	32	60	24	6
Brygoo (1982)	*M. comorensis*	Mohéli	< 91	< 155	30 - 34	?	21 - 24	6
62190	***M. comorensis***	**Nosy Tanikely**	**107**	**122**	**34**	**60**	**23**	**6**
62191	***M. comorensis***	**Nosy Tanikely**	**104**	**142**	**34**	**61**	**23**	**6**
62192	***M. comorensis***	**Nosy Tanikely**	**112**	**—**	**33**	**61**	**23**	**6**
59801	*M. wrightii*	Cousin	114	134	44	73	25	6
59802	*M. wrightii*	Cousin	123	(90)	40	70	26	6
Brygoo (1982)	*M. wrightii*	Seychelles	< 128	< 195	38-42	?	26 - 30	5 - 7
51648	*M. sechellensis*	Silhouette	66	125	35	64	25	6
51649	*M. sechellensis*	Silhouette	73	(104)	35	66	28	6
Brygoo (1982)	*M. sechellensis*	Seychelles	< 88	< 163	34 - 39	?	26 - 32	5 - 7
Brygoo (1982)	*M. infralineata*	Europa Island	< 69	< 145	34 - 36	62 - 66	16 - 20	4
Brygoo (1982)	*M. maculilabris*	Africa	< 85	< 166	30 - 34	58 - 67	15 - 20	5

Tab. 1: Morphometric and meristic data of *Mabuya* species (measurements in parentheses for regenerated tails).

extremely abundant in all habitat types (forest, banana plantation, rocky shore) at Nosy Tanikely. Mostly, specimens were observed on the ground in the leaf litter or on tree roots, and less frequently on vertical trunks. They always occurred in syntopy with large numbers of *Zonosaurus madagascariensis*, except for vegetation-free parts of the shore. No interactions between these two species could be recognized, whereas aggressive behaviour between males of *M. comorensis* was commonly observed. A high percentage of the observed specimens had regenerated tails. In juveniles and subadults the lateral bright greenish spots were a little bit more distinct than in adults.

Composition and origin of the reptile fauna of Nosy Tanikely

We are not aware of any amphibian record from Nosy Tanikely. The only available reptile records from that island were provided by Koller (1993) who mentioned the following species: *Blaesodactylus* (= *Homopholis*) *boivini*, *Phelsuma laticauda*, *Phelsuma abbotti*, *Mabuya gravenhorstii*, and *Mabuya maculilabris* (here identified as *M. comorensis*). Beside *M. comorensis* the following species were observed in November 1995: *Hemidactylus* sp., *Zonosaurus madagascariensis*, *Cryptoblepharus boutonii*, *Furcifer pardalis*, and *Liophidium torquatum*.

It is remarkable that the records of Koller (1993) and our records all concern different species except for the large *Mabuya comorensis*. However, it seems possible that Koller's record of *Homopholis boivini* actually belongs to *Hemi-*

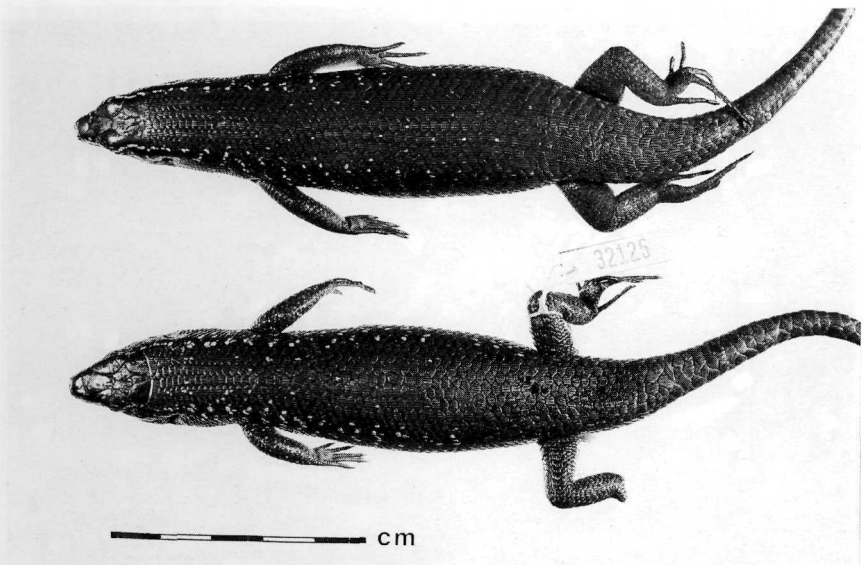

Fig. 2. Dorsal view of *Mabuya comorensis* from Nosy Tanikely, Madagascar (ZFMK 62190, above) and from Mohéli, Comoros (ZFMK 32125, below).

Fig. 3. *Mabuya comorensis* at Nosy Tanikely.

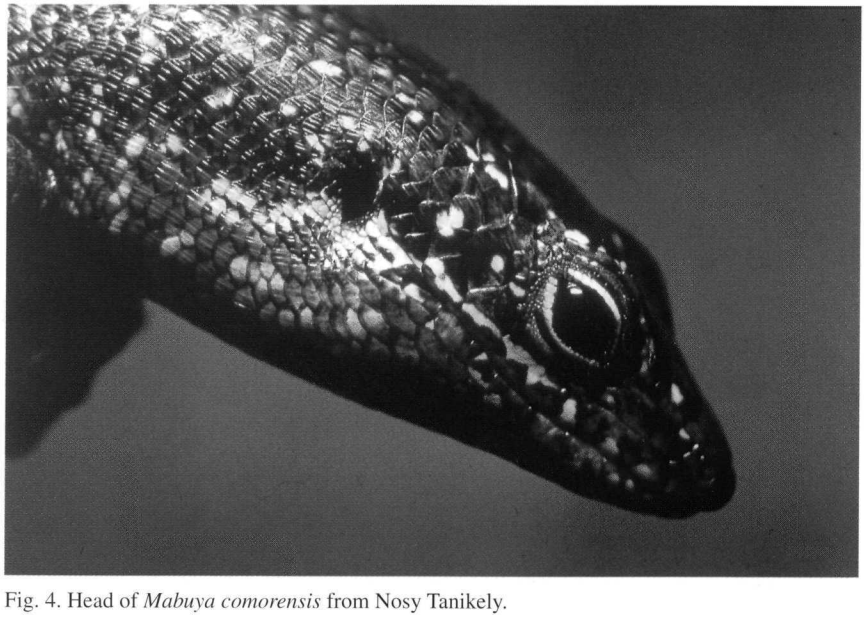

Fig. 4. Head of *Mabuya comorensis* from Nosy Tanikely.

dactylus (see picture in Koller 1993:94), which are known to be very large at Nosy Be, and therefore probably also at Nosy Tanikely (see Glaw & Vences 1994; the specific identity of the Madagascan *Hemidactylus* populations has not yet been sufficiently investigated).

Nevertheless, with at least nine species the small island Nosy Tanikely harbours a relatively high diversity of reptiles. This diversity may partly be the result of active and/or passive introductions, especially since the island is frequently visisted by tourists. While active introduction for touristic purposes could be expected for the colourful diurnal *Phelsuma* species and *Furcifer pardalis*, it seems improbable for *Mabuya comorensis*. Date and mode of the assumed introduction remain obscure. However, we strongly assume that this species did not reach Nosy Tanikely by natural rafting. The reasons are as follows: the distance between Nosy Tanikely and the nearest Comoro Island Mayotte is about 340 km and the distance between Nosy Tanikely and Mohéli is about 480 km. With less than 30 ha, Nosy Tanikely is an extremely small island, making the arrival of specimens over such large distances very improbable. A drift from the Comoros to Nosy Be or the Madagascan mainland and from there to Nosy Tanikely would be more probable, but until now *M. comorensis* was never noticed at Madagascar or Nosy Be and currently there is no reason to assume that this species occurs (or once occurred) there.

On the other hand it seems not unlikely that *M. comorensis* could extent its range to Nosy Be, Nosy Komba or the Madagascan mainland by passive transport, considering its high abundance at Nosy Tanikely and the frequent traffic to this island. Such a possible range extension could constitute a significant threat to the endemic fauna.

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The senior author is indebted to Jochen Steinbrecher (Aachen) for his kind help in the field. Thanks are also due to Bill Love (USA) who first sent us a photograph of *Mabuya comorensis* from Nosy Tanikely, thus stimulating further research. We also thank Wolfgang Böhme (Bonn) who critically read the manuscript.

RIASSUNTO

Mabuya comorensis viene segnalata per la prima volta in Madagascar. Alcuni esemplari sono stati osservati sull'isola di Nosy Tanikely, a Sud di Nosy Be, Madagascar settentrionale. Tale popolazione molto probabilmente è stata introdotta dalle Comore, in quanto mostra notevoli somiglianze con esemplari di *M. comorensis* dell'isola di Mohéli (Comore). A Nosy Tanikely la specie è molto abbondante ed è sintopica con *Zonosaurus madagascariensis*. Si discutono anche la composizione e l'origine della fauna erpetologica (rettili) di Nosy Tanikely.

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