

New distribution record of *Lygodactylus blancae*, a poorly known dwarf gecko from Madagascar

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Dwarf geckos of Madagascar are a poorly known group of small, typically inconspicuous diurnal lizards (Glaw & Vences 2007). According to the revision of Puente et al. (2009) the group contains 22 species in two genera, *Lygodactylus* and *Microscalabotes*, but Röhl et al. (2010) have recently synonymized these two genera and transferred the single species of *Microscalabotes* to *Lygodactylus* as *L. bivittis*.

Similar to what occurs with other vertebrate groups of Madagascar (e.g., frogs: Vieites et al. 2009), dwarf geckos contain a large number of microendemic species restricted often to single localities only, and can show a high amount of cryptic variability. This includes the existence of genetic variation within populations (Chiari et al. 2009) and the presence of undescribed candidate species (Puente et al. 2009).

One of the least known species of dwarf geckos in Madagascar is *L. blancae*. This species was originally described from the area of Lac Itasy in central Madagascar, in and near Ampefy village (Pasteur 1995), based on material collected between 1966-1973. Puente et al. (2005, 2009) reported on a new collection from the type locality and provided the first photographs of living specimens and DNA sequences. Randrianantoandro & Hobinjatovo (2011) undertook the first systematic field study on the species and mapped its occurrence in the Ampefy region in more detail. These data confirmed that the species is not particularly rare, and is able to cope with heavily disturbed habitat. However, despite this significant increase of knowledge, the known distribution of the species still remained restricted to the Lac Itasy area, and the species was not found in

Miarinarivo, a site located eastwards along the National Road 1 (RN1) towards Antananarivo.

In the context of a recent workshop for the Global Reptile Assessment in Madagascar in January 2011, and while discussing the Red List status of various microendemic dwarf geckos, populations of *L. blancae* occurring in Madagascar's capital, Antananarivo (located ca. 50 km east of Ampefy) were mentioned. At this occasion, the first author (NAR) collected one specimen from the backyard of his house in Ambohidavenona Ampitatafika, at about 7 km from the town. This is among the suburban area around Antananarivo capital, at E 47.476616° and S 18.944122°, altitude at about 1400 m above sea level. The area is very open with some trees and many plants garden. The habitat is characterized by cracks and fissures in walls, between pieces of wood, and of other kind. Animals were observed basking on different vertical surfaces at daytime, such as tree trunks, wooden supports, walls and windows, and plants (Fig. 1). One specimen was collected sleeping under a flowerpot in the garden during the night of January 26th, 2011. It died soon after collection and was preserved in 70% ethanol, labelled with the field number (Zoological Collection Miguel Vences) ZCMV 12147 (to be catalogued in the collection of the Université d'Antananarivo, Département de Biologie Animale – UADBA).

Examination revealed the specimen (Fig. 2) showing the colour and scalation characters typical for *Lygodactylus blancae*. A newly determined DNA sequence of the mitochondrial 16S rRNA gene obtained from this specimen (Genbank accession number JF934723) was 100% identical compared to those of two specimens of *L. blancae* from the type locality which had been reported in Puente et al. (2005) and deposited in Genbank under accession numbers AY653245- AY653246.

This new record thus extends considerably the distribution area of *L. blancae* (by ca. 75 km eastwards) and confirms that this species is able to survive even in urban areas, similar to *L. pictus*, another central high plateau dwarf gecko (Glaw & Vences 2007). It is likely

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Figure 1. Urban garden habitat (a) of *Lygodactylus blancae* at Ambohidavenona Ampitatafika near Antananarivo, and basking specimen (not collected) on a wood support (b) in the garden. Photographs by A. M. Ny A. Rakotondrazafy.

that *L. blancae* also occurs in between Antananarivo and Ampify in suitable habitat such as villages, forest fragments with big trees, and rock outcrops. We cannot exclude that this species might have been transported along with wood, bricks or other goods, and thereby introduced by humans into a part of its distribution area.

This hypothesis would be supported by the fact that the collection locality is close to the road (RN1) that links the Lake Itasy area with Antananarivo (Fig. 3). However, it is more likely that its natural distribution area simply extends over a larger portion of Madagascar's central highlands. The high environmental tolerance and



Figure 2. Freshly dead specimen of *Lygodactylus blancae* from Ambohidavenona Ampitatafika near Antananarivo (ZCMV 12147) in dorsolateral and ventral views.

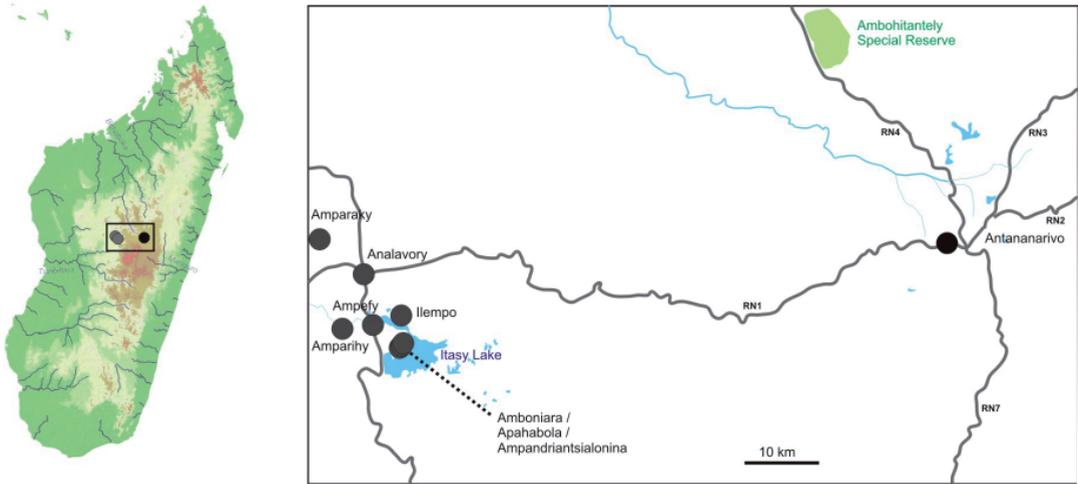


Figure 3. Map showing the known distribution area of *Lygodactylus blancae*. The area highlighted by a square in the map to the left corresponds to the detail map on the right. Grey localities are those recorded by Randrianantoandro & Hobinjatovo (2011). The new (easternmost) locality is in black. National Roads (RN) are in grey, rivers and water bodies in blue, reserves in green.

presumed wider distribution lead us to suggest a Red List status of Least Concern for this species.

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References

- Chiari, Y., Vieites, D.R., Guo, J., Bora, P., Vences, M. (2009): High haplotype diversity in a microendemic Malagasy gecko species, *Lygodactylus mirabilis* (Pasteur, 1962). *Zootaxa* **2269**: 43-52.
- Glaw, F., Vences, M. (2007): A Field Guide to the Amphibians and Reptiles of Madagascar. Third Edition. Köln, Vences & Glaw, 496 pp.
- Pasteur, G. (1995) Biodiversité et reptiles: diagnoses de sept nouvelles espèces fossiles et actuelles du genre de lézards *Lygodactylus* (Sauria, Gekkonidae). *Dumerilia* **2**: 1-21.
- Puente, M., Glaw, F., Vieites, D.R., Vences, M. (2009): Review of the systematics, morphology and distribution of Malagasy dwarf geckos, genera *Lygodactylus* and *Microscalabotes* (Squamata: Gekkonidae). *Zootaxa* **2103**: 1-76.
- Puente, M., Thomas, M., Vences, M. (2005): Phylogeny and biogeography of Malagasy dwarf geckos, *Lygodactylus* Gray, 1864: Preliminary data from mitochondrial DNA sequences (Squamata: Gekkonidae). 229-235 in: Huber, B. A. and Lampe, K. H. (eds.): African Biodiversity: Molecules, Organisms, Ecosystems. Proc. 5th Intern. Symp. Trop. Biol., Museum Koenig, Bonn. Springer.
- Randrianantoandro, C., Hobinjatovo, T. (2011): New observations of Blanc's dwarf gecko (*Lygodactylus blancae* Pasteur 1995) from the central highlands of Madagascar. *Herpetology Notes* **4**: 233-237.
- Röll, B., Pröhl, H., Hoffmann, K.P. (2010): Multigene phylogenetic analysis of *Lygodactylus* dwarf geckos (Squamata: Gekkonidae). *Molecular Phylogenetics and Evolution* **56**: 327-335.
- Vieites, D.R., Wollenberg, K.C., Andreone, F., Köhler, J., Glaw, F., Vences, M. (2009): Vast underestimation of Madagascar's biodiversity evidenced by an integrative amphibian inventory. *Proceedings of the National Academy of Sciences of the U.S.A.* **106**: 8267-8272.