

An introduced population of *Hemidactylus mabouia* (MOREAU DE JONNÉS, 1818) on Madeira Island

Madeira is a large volcanic island (circa 750 km²) lying about 700 km from the western coast of Africa. Despite its constant subaerial existence for 4.6 million years (GELDMACHER et al. 2000), it has a very depauperate native herpetofauna, probably due to its great geographical isolation from any continental source populations. The lizard *Lacerta dugesii* MILNE-EDWARDS, 1829 is the sole extant flightless vertebrate endemic to Madeira. Introduced *Tarentola mauritanica* (LINNAEUS, 1758) was first reported almost ten years ago (BÁEZ & BISCOITO 1993) from Garajau, 7 km east of Funchal. To survey the spread of *T. mauritanica*, geckos were collected in the area around the capital, Funchal. However, one specimen from Achada in Funchal found in October 2001 was morphologically clearly not *Tarentola*, but a *Hemidactylus* (figs. 1-3). Further surveying in this region uncovered two more *Hemidactylus* more than 500 m from the first site, in Rua Carreira, Funchal. This leads us to believe that a large population exists.

Hemidactylus is a specious genus of over 80 species, and identification to the species level is often difficult using morphological characters. To gain additional insight into the taxonomy of the *Hemidactylus* specimens found we sequenced parts of the cytochrome *b* and 12S rRNA mitochondrial genes from the three individuals to compare with data already available on GenBank.

Genomic DNA was extracted following standard phenol-chloroform protocols. For each individual, cytochrome *b* and 12S rRNA fragments were amplified by PCR using the primers published in KOCHER et al. (1989) and conditions described in HARRIS et al. (1998). Amplified products were sequenced on an automated sequencer (ABI® 310), in both directions. This resulted in unambiguous sequences of 299 base pairs of the cytochrome *b* gene and 370 base pairs of the 12S rRNA gene. New sequences were deposited on Genbank, accession numbers AY 156908 to AY 156909. All three individ-

uals observed are vouchers, housed in the collection at the University of Madeira (collection numbers 362, 364, 365).

Alignment by eye of the sequences from the three individuals showed them all to be identical. Comparison of these to sequences from GenBank shows they are also identical for both regions to one sequence of *Hemidactylus mabouia mabouia* (MOREAU DE JONNÉS, 1818) from São Vicente, Cape Verde islands (JESUS et al. 2001). Another individual of *H. mabouia* of unknown origin has been sequenced for the same region of cytochrome *b*, and differs by just six transition changes (CAMPBELL, B., unpublished data). Therefore we can be confident that the specimens found are introduced *H. mabouia*.

Hemidactylus mabouia is an extremely widespread species found across sub-Saharan Africa and many islands. It has been introduced to various Central and South American places (WERMUTH 1965) and Florida, USA (POWELL et al. 1998). Therefore we cannot say with any certainty where the lizards were introduced from without more comparable sequences from other localities.

In just ten years *T. mauritanica* has spread along a stretch of Madeiran coast of more than 7 km from Garajau to Funchal (FERRAND DE ALMEIDA et al. 2001). It is likely, given the success of other introduced populations that *H. mabouia* will also spread. This situation clearly deserves careful monitoring. It is worrying from a conservation point of view that only one extant lizard colonized the island of Madeira naturally in 4.6 million years, while at least two have been introduced in just over a decade. BISCHOFF (1997) also reported the existence of introduced *Gallotia* in Funchal, but extensive surveys done since that observation do not confirm it at all and we discard today the possibility of *Gallotia* being present in Madeira.

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Figs. 1-3: *Hemidactylus mabouia* (MOREAU DE JONNÉS, 1818) from Achada in Funchal, Madeira (Collection at the University of Madeira, voucher number 362).

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Records of *Trimeresurus insularis* KRAMER, 1977 from Bali, Indonesia

Trimeresurus insularis KRAMER, 1977, formerly known as *Trimeresurus albolabris* GRAY, 1842 or *T. albolabris insularis*, was elevated to species status by GIANNASI et al. (2001). The occurrence of this species in eastern Java and several of the Lesser Sunda islands east of Bali is well documented, but records from Bali were apparently lacking (KOPSTEIN 1938; REGENASS & KRAMER 1981; HOW et al. 1996; ISKANDAR & COLIJN 2001), and recent surveys failed to produce Balinese specimens (HOW & KITCHENER 1997). Molecular studies, however, have established that East Javan populations are very closely related to populations from the eastern Lesser Sunda islands (MALHOTRA & THORPE 1997, 2000), offering no reason to

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