

2002), thus, the records presented here represent not only a significant eastern range extension for the species, but also new state and national records.

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LITERATURE CITED

- ANDERSON, S. C. 1999.** The lizards of Iran. Society for the Study of Amphibians and Reptiles, Oxford, Ohio. vii + 442 pp., 25 pls.
- CARRANZA, S. & E. N. ARNOLD. 2005.** Systematics, biogeography, and evolution of *Hemidactylus* geckos (Reptilia: Gekkonidae) elucidated using mitochondrial DNA sequences. *Molecular Phylogenetics and Evolution*. 38(2):531-545.
- CHAMPION, H. G. & S. K. SETH. 1968.** A revised survey of the forest types of India. Manager of Publication, Government of India, New Delhi. 7 map + 103 Pl. + 404 pp.
- GAYEN, N. C. 1999.** A synopsis of the reptiles of Gujarat, western India. *Hamadryad* 24:1-22.
- MINTON, S. A. 1966.** A contribution to the herpetology of West Pakistan. *Bulletin of the American Museum of Natural History* 134:27-184.
- MURTHY, T. S. N. 1990.** A field book of the lizards of India. *Records of the Zoological Survey of India, Occasional Papers* (115):1-122.
- SHARMA, R. C. 2000.** Reptilia. In: State Fauna Series no. 8 Fauna of Gujarat (Part 1) Vertebrates. pp: 243-297. Q. H. Bagri (Ed). *Zoological Survey of India, Calcutta*.
- _____. 2002. The fauna of India and adjacent countries. *Reptilia, Volume II (Sauria)*. *Zoological Survey of India, Kolkata, India*. xxv + 430 pp.
- SMITH, M. A. 1935.** The fauna of British India, including Ceylon and Burma. *Reptilia and Amphibia*. Vol. II. Sauria. Taylor and Francis, London. xiii + 440 pp., 1 pl.
- TIKADER, B. K. & R. C. SHARMA. 1992.** Handbook. Indian lizards. *Zoological Survey of India, Calcutta*. xv + 250 pp., 42 pls.
- VYAS, R. 2000.** Comments on 'A synopsis of the reptiles of Gujarat, India'. *Hamadryad* 25:203-207.
- _____. 2005. Herpetofauna of the Jassore Wildlife Sanctuary. A technical report submitted to Gujarat Ecological Education Research (GEER) Foundation, Gandhinagar. 7 pl. +18 pp.

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LEPIDODACTYLUS (SQUAMATA: GEKKONIDAE) IN ISLANDS ASIA: A *L. AUREOLINEATUS* FROM SULAWESI

Lepidodactylus geckos are modestly abundant lizards in many Oceania herpetofaunas but become increasingly uncommon to rare in the faunas of the larger islands and island groups of the Pacific Rim, and even more uncommon in Islands Asia. This rarity has no current explanation, nor am I aware that anyone has attempted to explain it. Thus, a specimen of *Lepidodactylus* from Sulawesi in the Naturalis collection was unexpected.

Presently, four species of *Lepidodactylus* are reported from Islands Asia. *L. lugubris* is the most widespread of these four and occurs in Cu Lao (Vietnam), Borneo, Sulawesi, Ambon, Halmahera, Ternate, Komodo, and Lombok in this area (Ineich, 1999). Because of its occurrence also throughout the Pacific and coastally from other Asian islands and mainland (de Rooij, 1915), *L. lugubris* must be considered an exotic species, probably beginning its human-mediated dispersal within the last five centuries through European shipping. Its hybrid origin lies in east-

ern Micronesia and is relatively recent (Radtkey et al., 1996). The other species are older island residents, arriving and differentiating presumably well before the arrival of humans in Asia. These species have limited distributions: *L. lombocensis*, Lombok; *L. intermedius*, Komodo and Rintja Islands.; *L. ranauensis*, Borneo (Sabah). Another species, *L. listeri*, occurs to the west on Christmas Island in the Indian Ocean.

The preceding five taxa represent the three phenetic groups (Brown and Parker, 1977) of *Lepidodactylus*. *L. lugubris* is a Group III member, *L. intermedius* and *L. lombocensis* Group II, *L. listeri* Group I, and *L. ranauensis* intermediate between Group I and II (Ota and Hikida, 1988; Bauer, 1994; Ota et al., 2000). Group III appears to be most derived "clade" of *Lepidodactylus*, and with the exception of *L. lugubris*, Group III members occur on Pacific islands with the greatest diversity in the Philippines. The Naturalis specimen (RMNH 7341, Groot Sanghis, e/o [= vicinity of] Soemalata) from the north coast of Sulawesi was hidden under the *lugubris* epithet but a close examination revealed its misidentification and dissection revealed that it was a mature male. My initial assumption was that this specimen represented a new species, but further examination revealed it to be a *L. aureolineatus* and a likely introduction from the Philippines.

Brown and Alcalá (1994:78–101) provide a thorough overview of the Philippine *Lepidodactylus*. They recognize two sections of Group III *Lepidodactylus*. Section A geckos have 4ToeL (see Zug et al., 2003 for character abbreviations and definitions) greater than 12, tail only moderately depressed and no lateral skin flange, and combined femoral-precloacal pores greater than 26. RMNH 7341 has 13 4ToeLm, moderately depressed tail without flange, and 29 FemPor + PrecIPor. Additionally, it has 115 Midb, which differentiates it from *L. hervei*, the other section A *Lepidodactylus*. In summary, RMNH 7341 is an adult male with large testes and epididymides, 35.7 mm SVL, 15.7 mm TrunkL, 42 mm TailL (regenerated tip), 9.4 mm HeadL, 6.5 mm HeadW, 9 Suplab, 8 Inflab, 3 CircNa, 31 InorbS, 2 CloacS, 16 PrecIP, and 8 4FingLm.

The northern peninsula of Sulawesi is ca. 400 km from southern Mindanao and linked by an arc of islands (Kepulauan Sangihe). This arc

might have permitted natural dispersal; however, regular boat traffic occurs between these two coasts (C. A. Ross, pers. comm. Sept. 2005). As a regular resident of coconut palms and aerial ferns, individuals of *Lepidodactylus aureolineatus* might commonly be transported to Sulawesi. Fortuitously, a single individual was captured and preserved by a Dutch biologist in the late 1930s.

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LITERATURE CITED

- BAUER, A. M.** 1994. Familia Gekkonidae (Reptilia, Sauria). Part I Australia and Oceania. Das Tierreich 109. Berlin, Walter de Gruyter. xiii + 306 pp.
- BROWN, W. C. & A. C. ALCALÁ.** 1977. Philippine lizards of the family Gekkonidae. Silliman University, Dumaguete City, Philippines. 146 pp.
- BROWN, W. C. & F. PARKER.** 1977. Lizards of the genus *Lepidodactylus* (Gekkonidae) from the Indo-Australian Archipelago and the islands of the Pacific, with descriptions of new species. Proceedings of the California Academy of Sciences, 4th ser. 41:253–265.
- DE ROOIJ, N.** 1915. The reptiles of the Indo-Australian Archipelago. I. Lacertilia, Chelonia, Emydosauria. E. J. Brill Ltd., Leiden. xiv + 384 pp.
- INEICH, I.** 1999. Spatio-temporal analysis of the unisexual-bisexual *Lepidodactylus lugubris* complex (Reptilia, Gekkonidae). In: Tropical island herpetofauna: origin, current diversity, and conservation. pp:199–228. H. Ota (Ed). Elsevier Science B.V., Amsterdam.
- OTA, H, R. I. S. DAREVSKY, I. INEICH & S. YAMASHIRO.**

2000. Reevaluation of the taxonomic status of two *Lepidodactylus* species (Squamata: Gekkonidae) from the Lesser Sunda Archipelago, Indonesia. *Copeia* 2002(4):1109–1113.
- _____ & T. HIKIDA. 1988. A new species of *Lepidodactylus* (Sauria: Gekkonidae) from Sabah. *Copeia* 1988:616–621.
- RADTKY, R. R., B. BECKER, R. D. MILLER, R. RIBLET, & T. J. CASE. 1996. Variation and evolution of class I Mhc in sexual and parthenogenetic geckos. *Proceedings of the Royal Society of London B* 263:1023–1032.
- ZUG, G. R., D. WATLING, T. ALEFAIO, S. ALEFAIO & C. LUDESCHER. 2003. A new gecko (Reptilia: Squamata: genus *Lepidodactylus*) from Tuvalu, south-central Pacific. *Proceedings of the Biological Society of Washington* 116:38–46.

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