THE LIZARDS OF THE MARQUESAS ISLANDS

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The Pacific Entomological Survey, conducted by E. P. Mumford and A. M. Adamson, under the auspices of Bernice P. Bishop Museum, began its work in the South Pacific in 1928, concentrating chiefly on the Marquesan archipelago. In the course of the Crane Pacific Expedition of Field Museum of Natural History the senior author met Mr. Mumford and Mr. Adamson at Atuona, their headquarters in the Marquesas. In conversation with them, the opportunity for study offered by the lizard fauna was a topic of mutual interest; and the suggestion was made by the senior author that if sufficient series of specimens of each of the species from the individual islands were available for statistical examination, some clue to the beginnings of species formation by isolation might be detected. The numbers of specimens required for such a study would be large, and it would be necessary to have them especially prepared for rapid examination. Such a collection was felt to be beyond the scope of the Pacific Entomological Survey. In the course of their work, however, Mr. Mumford and Mr. Adamson and others at their direction collected 223 specimens of lizards. These were forwarded to Field Museum for identification and study. The following list records this material with its distribution. The highlight of the collection lies in its record of the presence in the Marquesas of the gecko *Hemiphyllodactylus leucostictus,* hitherto known only from Hawaii. The writers are indebted to E. H. Bryan, Jr., Curator of Collections, Bernice P. Bishop Museum, for the opportunity to examine this material, and to Mr. Mumford and Mr. Adamson for their interest in collecting it.

The senior author [1] has recorded his impressions of the distributional significance of the Polynesian lizards, six species of which range from island to island throughout the Pacific. The species of *Hemiphyllodactylus* in the Hawaiian islands apparently afforded a reptilian element of faunal distinctness to that most remote of oceanic island groups; but with the present records of this species from the Marquesas, the uniformity of the lizard fauna of the Pacific islands is more emphasized than ever.

The collection at hand includes two species of geckos and one of skinks from Tahiti; these are *Gehyra oceanica* from Tuaru Valley, September 6, 1928, a *Lepidodactylus lugubris* from Fautaua Valley, September 13, 1928, and a second specimen of the same species from Paea, August 29, 1928, and one *Leiolopisma noctua* from Tuaru Valley, September 6, 1928, all collected by A. M. Adamson. These species have previously been recorded from Tahiti.

The remainder of the collection comes from the Marquesas, with nine islands represented. With the exception of the few specimens recorded from Nukuhiva and Hivaoa by the senior author,[2] actual records of the species of lizards in this archipelago appear to be wanting. The present list accordingly fills a conspicuous gap in our knowledge of the Polynesian lizard fauna.

To increase the usefulness of the present paper to visitors to the South Sea islands who may interest themselves in the lizards, we have included a key to the species as an aid to their identification, inserting figures to illustrate the technical characters employed. These illustrations, with the exception of figures 1*a*, 3*c*, and 4*c*, are from Stejneger's report [3] on the Hawaiian lizards.

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[1] Schmidt, K. P., Essay on zoögeography of the Pacific islands: appendix in Shurcliff, S. N., Jungle Islands, pp. 275-292, 1930.

[2] Schmidt, K. P., A list of the lizards collected by R. H. Beck in the southern Pacific, November, 1920, to May, 1921: Copeia, pp. 90-92, 1921. Second report on lizards secured by the Whitney South Seas Expedition: Copeia, pp. 23-24, 1922.

[3] Stejneger, Leonhard, The land reptiles of the Hawaiian islands: U. S. Nat. Mus., Proc., vol. 21, pp. 783-813, 1899.

KEY TO THE SPECIES

a. No large symmetrical shields on top of head; body covered with small granules or minute scales; digits dilated; pupil vertical.....GEKKONIDAE

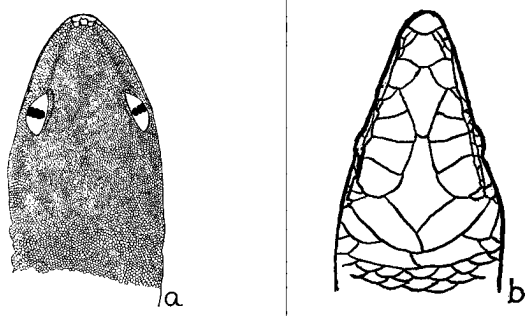

FIGURE 1. Top of head: *a,* gecko (*Gehyra*) showing granular scales; *b,* skink (*Emoia*), showing large symmetrical shields.

b. Compressed distal phalanx of digits adhering to the dilated portion and extending somewhat beyond it, but not rising angularly from within the edge; chin shields not differentiated.....**Lepidodactylus lugubris**

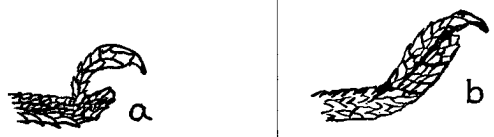

FIGURE 2. Side view of digit: *a, Lepidodactylus; b, Hemidactylus.*

bb. Compressed distal phalanx of digits free, rising angularly from within the edge of the dilated portion.

c. Inner digits with distal phalanx compressed and clawed.....**Hemidactylus garnotii**

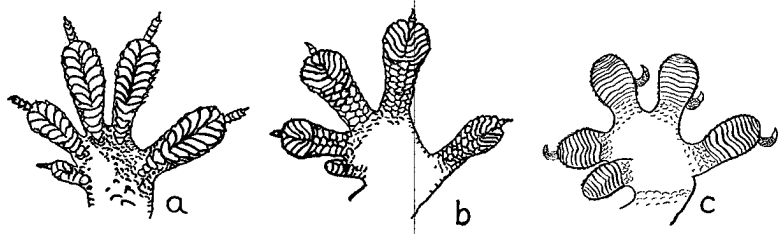

FIGURE 3. Underside of foot: *a, Hemidactylus garnotii,* showing lamellae in two series; *b, Hemiphyllodactylus leucostictus; c, Gehyra oceanica,* showing single lamellae.

cc. Inner digits without a distal compressed phalanx.
d. Chin-shields large; a series of transverse plates under tail.
e. Subdigital lamellae in two series..... **Peropus mutilatus**
ee. Subdigital lamellae single..... **Gehyra oceanica**
dd. Chin-shields not differentiated; no transverse plates under tail.....
.....**Hemiphyllodactylus leucostictus**

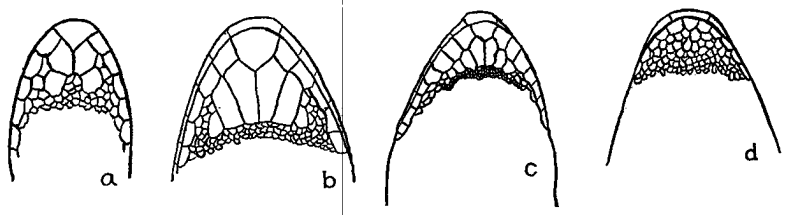

FIGURE 4. Chin-shields: *a, Hemidactylus garnotii; b, Peropus mutilatus; c, Gehyra oceanica; d, Lepidodactylus lugubris.* Showing variously enlarged plates.

aa. Top of head with large symmetrical shields; body scales large, cycloid; digits not dilated; pupil round.....SCINCIDAE
b. Eyelids well developed, movable.
c. Nostril pierced in the nasal; no supranasal; frontoparietals and interparietals distinct; two or three pairs of nuchals.... **Leiolopisma noctua**

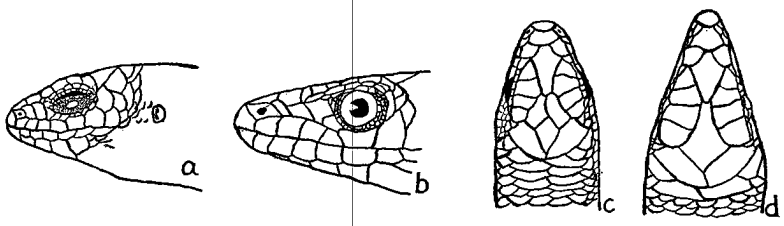

FIGURE 5. Head: side view, *a, Leiolopisma noctua,* showing lower eyelid with transparent disk; *b, Ablepharus boutonii poecilopleurus,* showing eyelid indistinguishable; top, *c, Leiolopisma noctua; d, Emoia cyanura.*

cc. Nostril pierced between three small shields, a nasal, a postnasal, and a supranasal; frontoparietal and interparietal fused into a single large shield; a pair of nuchals..... **Emoia cyanura**
bb. Eyelids indistinguishable, not movable.....
.....**Ablepharus boutonii poecilopleurus**

GEKKONIDAE

Lepidodactylus lugubris (Duméril and Bibron). Mourning Gecko

Platydactylus lugubris Duméril and Bibron, Erpét. Gén., vol. 3, p. 304, 1836.

Lepidodactylus lugubris Fitzinger, Syst. Rept., p. 98, 1843.

This common species is represented by 33 specimens from seven islands. It may usually be distinguished at a glance from the other Polynesian geckos by its pale coloration with black spots or markings.

Mohotani: altitude 700 feet, 1 specimen, February 2, 1931, LeBronnec and H. Tauraa.

Tahuata: Vaitahu, 7 specimens, May 31, 1930, LeBronnec and H. Tauraa.

Fatuhiva: Omoa [Oomoa] Valley, 1 specimen, September, 1930; Omoa [Oomoa] Valley, altitude 150 feet, 4 specimens, September, 1930, LeBronnec.

Uapou: Hakahetau Valley, sea level, 8 specimens, December 4, 1931, LeBronnec.

Eiao: altitude 1,600 feet, 3 specimens, April 23, 1931, LeBronnec and H. Tauraa. Middle of island, altitude 1,400 feet, 1 specimen, October 20, 1929; uplands, northeast, altitude 1,850 feet, 1 specimen, September 29, 1929; altitude 1,600 feet, 3 specimens, September 29, 1929, A. M. Adamson. Altitude 1,600 feet, 1 specimen, April 30, 1931, LeBronnec and H. Tauraa.

Hivaoa: Atuona, 1 specimen, February 16, 1928, Mumford and Adamson.

Uahuka: Teavamataiki, altitude 750 feet, 3 specimens, March 19, 1931, LeBronnec and H. Tauraa.

Hemidactylus garnotii Duméril and Bibron. Fox Gecko

Hemidactylus garnotii Duméril and Bibron, Erpét. Gén., vol. 3, p. 368, 1836.

This species is represented by six specimens from four islands. The development of calcareous deposits in the post-auricular region is noteworthy in the larger specimens. *H. garnotii* is distinguished most easily by its longer head and distinctive chin-shields.

Mohotani: altitude 350 feet, 1 specimen, February 4, 1931, LeBronnec and H. Tauraa.

Uapou: Hakahetau Valley, sea level, 3 specimens, December 4, 1931, LeBronnec.

Eiao: altitude 1,600 feet, 1 specimen, April 30, 1931, LeBronnec and H. Tauraa.

Hivaoa: Tepehi, altitude 1,500 feet, 1 specimen, June 1, 1929, Mumford and Adamson.

Peropus mutilatus (Wiegmann). Stump-toed Gecko

Hemidactylus mutilatus Wiegmann, Herpet. Mex., vol. 1, p. 54, 1834.

Peropus mutilatus Stejneger, U. S. Nat. Mus., Proc., vol. 21, p. 796, 1899.

Seventeen specimens from six islands. The combination of elongate chin-shields with divided lamellae on the subdigital expansions suffices to distinguish this species.

Mohotani: altitude 350 feet, 2 specimens, February 4, 1931; altitude 700 feet, 2 specimens, February 2, 1931; LeBronnec and H. Tauraa.

Tahuata: Vaitahu Valley, 1 specimen, November 15, 1929, Victor Doom.

Fatuhiva: Omoa [Oomoa] Valley, altitude 150 feet, 6 specimens, September, 1930, LeBronnec.

Uapou: Hakahetau Valley, sea level, 3 specimens, December 4, 1931, LeBronnec.

Hatutu [Hatutaa]: altitude 1,080 feet, near middle, 1 specimen, September 3, 1929, A. M. Adamson. Altitude 1,000 feet, 1 specimen, April 28, 1931, LeBronnec and H. Tauraa.

Fatuuku: altitude 990 feet, 1 specimen, September 13, 1931, H. Tauraa.

Gehyra oceanica (Lesson). Polynesian Gecko

Gecko oceanicus Lesson, Zool. Voy. Coquille, vol. 2, pt. 1, p. 48, pl. 3, fig. 4, 1830.

Gehyra oceanica Gray, Zool. Misc., p. 58, 1842.

Forty specimens from six islands. Seven eggs of this species were collected at Omoa [Oomoa] Valley, Fatuhiva Island, by LeBronnec, on September 16, 1930. These vary in length from 13.2 mm. to 14.3 mm., and in shorter diameter from 12.0 mm. to 12.6 mm. They are laid separately, like those of *Gehyra vorax,* not in pairs as in *Lepidodactylus lugubris.* *Gehyra oceanica* is the largest lizard

of the Marquesas. The broad expansion of its toes, with curved undivided lamellae on the under side, are characteristic.

Mohotani: altitude 700 feet, 1 specimen, February 2, 1931, LeBronnec and H. Tauraa.

Tahuata: Vaitahu, 10 specimens, May 31, 1931, LeBronnec and H. Tauraa.

Fatuhiva: Omoa [Oomoa] Valley, altitude 350 feet, 1 specimen, September 16, 1930; altitude 150 feet, 5 specimens, September, 1930, LeBronnec.

Uapou: Hakahetau Valley, sea level, 20 specimens, December 4, 1931, LeBronnec.

Eiao: altitude 1,600 feet, 2 specimens, April 30, 1931, LeBronnec and H. Tauraa.

Hivaoa: Atuona, 1 specimen, February 15, 1929, Mumford and Adamson.

Hemiphyllodactylus leucostictus Stejneger. Stejneger's Gecko

Hemiphyllodactylus leucostictus Stejneger, U. S. Nat. Mus., Proc., vol. 21, p. 800, fig. 7-9, 1899.

Three specimens from three islands form the first record of this species outside the Hawaiian archipelago. These agree in detail with both generic and specific diagnosis given by Stejneger for Hawaiian specimens. The agreement in such details of coloration as the five white spots on the bases of the digits and the transverse white mark at the base of the tail convinces us that the Marquesan specimens should unquestionably be referred to the Hawaiian species. Two of the Marquesan specimens lack the median brown marbling of the underside of the tail mentioned by Stejneger, but this is indicated in the third specimen. The coloration of the adult *H. leucostictus* corresponds closely with that of juvenile *Gehyra oceanica*.

The occurrence of this species in the Marquesas suggests that it should be looked for in Tahiti and other Polynesian Islands. It may most readily be distinguished by the absence of chin-shields, brown color with white spots, and the shortness of the expanded portion of the fingers and toes.

Without East Indian material for comparison we are not ready to accept the reference of this species to the synonymy of *Hemiphyllodactylus typus* (Bleeker) as has been suggested by Brongersma.[4]

[4]Brongersma, L. D., Reptilia: Res. Sci. Voy. Indes Orientales Neerlandaises, vol. 5, fasc. 2, pp. 1-39, 1 map, pls. 1-4, 1931.

Mohotani: altitude 700 feet, 1 specimen, February 2, 1931, LeBronnec and H. Tauraa.

Eiao: altitude 1,600 feet, 1 specimen, April 23, 1931, LeBronnec and H. Tauraa.

Hivaoa: Kopaafaa, altitude 2,800 feet, 1 specimen, August 3, 1929, Mumford and Adamson.

SCINCIDAE

Leiolopisma noctua (Lesson). Moth Skink

Scincus noctua Lesson, Zool. Voy. *Coquille,* vol. 2, pt. 1, p. 48, pl. 3, fig. 4, 1830.

Leiolopisma noctua Stejneger, U. S. Nat. Mus., Proc., vol. 21, p. 805, 1899.

This species is represented by no less than 87 specimens from seven islands. The usual recognition character for this species is a median light line on the back which stops on the occiput with a distinct expansion into a spot. The edges of the line are diffused, never sharp as in *Emoia.* Rare specimens may have the dorsal line and spot obscure.

Mohotani: 2 specimens, February, 1931; altitude 700 feet, 17 specimens, February 2, 1931; altitude 325 feet, above Anaoa, 2 specimens, August 13, 1929; altitude 700 feet, coconut plantation, 1 specimen, January 31, 1931, LeBronnec and H. Tauraa.

Taahuata: Vaitahu, 22 specimens, May 31, 1930, LeBronnec and H. Tauraa.

Fatuhiva: Omoa [Oomoa] Valley, 24 specimens, September, 1930, LeBronnec.

Uapou: Hakahetau Valley, sea level, 8 specimens, December 4, 1931; Koputukea, altitude 1,150 feet, 1 specimen, November 16, 1931, LeBronnec.

Hivaoa: Atuona, 1 specimen, February 16, 1928, Mumford and Adamson.

Fatuuku: altitude 990 feet, 4 specimens, September 19, 1930, H. Tauraa.

Eiao: altitude 1,600 feet, middle of island, 1 specimen, September 28, 1929, A. M. Adamson.

Emoia cyanura (Lesson). Azure-tailed Skink

Scincus cyanurus Lesson, Zool. Voy. *Coquille,* vol. 2, pt. 49, pl. 4, fig. 2, 1830.

Emoia cyanura Stejneger, U. S. Nat. Mus., Proc., vol. 21, p. 807, 1899.

Twenty-three specimens from four islands. This species is immediately distinguishable from the other skinks by the sharply defined, light mid-dorsal line which extends to the tip of the snout, and the bright blue tail. Six specimens have the mid-dorsal line to a varying extent confined to a single mid-dorsal row of scales; this variation, however, appears to be erratic, for it is represented in the series from each island.

Mohotani: 2 specimens, February 1, 1931; 1 specimen, February 2, 1931; altitude 1,700 feet, 1 specimen, February 1, 1931, LeBronnec and H. Tauraa.

Tahuata: Vaitahu, 4 specimens, May 30, 1930; 2 specimens, May 31, 1930, LeBronnec and H. Tauraa.

Fatuhiva: Omoa [Oomoa] Valley, 8 specimens, September, 1930, LeBronnec.

Uapou: Hakahetau Valley, sea level, 5 specimens, December 4, 1931, LeBronnec.

Ablepharus boutonii poecilopleurus (Wiegmann). Snake-eyed Skink

Ablepharus poecilopleurus Wiegmann, Nova Acta Acad. Ceas. Leop.-Carol., vol. 17, pt. 1, p. 202, pl. 18, figs. 1-1a, 1835.

Ablepharus boutonii poecilopleurus Boulenger, Cat. Liz. Brit. Mus., vol. 3, p. 347, 1887.

Two specimens from Hatutu [Hatutaa] are the only ones secured by the Pacific Entomological Survey. These agree excellently with the recent diagnosis of this form by Mertens,[5] and we have followed his nomenclature. Specimens from the Fiji Islands are distinguished as *A. b. eximius* by Mertens, and the validity of this form is supported by the characters of Field Museum specimens from Fiji.

The snake-eyed skink is at once distinguished by the apparent absence of eyelids and the lack of a mid-dorsal light line.

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[5] Mertens, Robert, Ablepharus boutonii (Desjardin) und seine geographische Variation: Zool. Jahrb., Syst. Abt., vol. 61, pp. 63-210, 6 figs., 3 pls., 1931.