Zootaxa 5512 (2): 240–271
https://www.mapress.com/zt/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

https://doi.org/10.11646/zootaxa.5512.2.8
http://zoobank.org/urn:lsid:zoobank.org:pub:88AC6441-16E7-4A2A-96FB-16B871FA94F0

New species of *Gehyra* (Squamata: Gekkonidae) from Papua New Guinea

FRED KRAUS
Department of Ecology and Evolutionary Biology, University of Michigan Ann Arbor, Michigan 48109, U.S.A
fkraus@umich.edu; https://orcid.org/0000-0003-4194-4959

Abstract

I describe four new species of *Gehyra* from New Guinea and immediately adjacent islands. Two of these are giant species that have long been misassigned to either *G. vorax* or *G. membranacruralis*; the other two were previously referred to *G. oceanica*. Each of the new species has a very circumscribed geographic distribution, with one being known from only a single island, a second from a small portion of southeastern New Guinea and immediately adjacent islands, a third from a small archipelago, and the fourth from foothill forest along the northern versant of eastern New Guinea. Three of these species are found only in the Milne Bay Region of southeastern Papua New Guinea, a region previously identified as having a globally high density of narrow-range endemic reptile and amphibian species. These species provide further extension of that pattern by increasing the number of known endemic herpetofaunal species from that small region to 165. Variation in subcaudal shape is taxonomically useful in *Gehyra*, but its character-state coding must rely on original tails because aberrant development of subcaudals in some regenerated tails could lead to mischaracterization of this feature.

Key words: Gecko, *Gehyra oceanica*, *Gehyra vorax*, Melanesia, Milne Bay Province

Introduction

Geckos of the genus *Gehyra* comprise 68 species distributed from Southeast Asia to Australia and eastward across much of the Pacific Ocean Basin (Bauer & Henle 1994; Uetz *et al.* 2023), with the large majority of species (n = 50) restricted to Australia (Uetz *et al.* 2023). Melanesia —that area east of Lyddeker's Line extending to Fiji—is reported to have approximately 12–15 species of *Gehyra*, but the exact number is uncertain because of unresolved taxonomic problems, unclear distributions of species, and the paucity of research on New Guinean members of the genus (Bauer & Henle 1994; Oliver *et al.* 2010; Skipwith & Oliver 2014). Two species are endemic to eastern Melanesia: *G. georgpotthasti* Flecks, Schmitz, Böhme, Henkel & Ineich in Vanuatu and the Loyalty Islands, and *G. vorax* Girard in Fiji. Thirteen names currently remain applied to *Gehyra* in western Melanesia: *G. baliola* (Duméril); *G. barea* Kopstein; *G.* cf. *dubia* (Macleay); *G. insulensis* (Girard); *G. interstitialis* Oudemans; *G. lampei* Andersson; *G. leopoldi* Brongersma; *G. marginata* Boulenger; *G. membranacruralis* King & Horner; *G. oceanica* (Lesson); *G. papuana* Meyer; *G. rohan* Oliver, Clegg, Fisher, Richards, Taylor & Jocque; and *G. serraticauda*, Skipwith & Oliver. Among the taxonomic uncertainties in *Gehyra* of western Melanesian, it is thought that *G. lampei* may be a synonym of *G. papuana* (Brongersma 1934; Uetz *et al.* 2023), *G. leopoldi* may be a synonym of *G. mutilata* (Bauer & Henle 1994), and *G. marginata* may not inhabit Melanesia but be restricted to the Moluccas (Bauer & Henle 1994). Furthermore, in their key for the genus, Bauer & Henle (1994) could identify no distinguishing morphological differences between *G. papuana* and *G. interstitialis*, suggesting that clarification of the taxonomic status of the latter is also needed. Unfortunately, holotypes of both species have been lost, so collection of new material from type localities will be needed.

As well as this, two species are widely distributed thoughout many islands of the Pacific and are found throughout Melanesia: the name *Gehyra mutilata* was long applied to one species throughout the Pacific and Indian Ocean basins, but deep molecular divergences separate lizards from these regions into two lineages that overlap in southeastern Asia (Fisher 1997; Rocha *et al.* 2009), and the name *G. insulensis* has now been applied to the lineage

 Accepted by A. Bauer: 2 Sept. 2024; published: 19 Sept. 2024

found throughout Melanesia and the Pacific. Similarly, molecular studies have determined that several divergent molecular lineages are found in *G. oceanica* (Fisher 1997; Tonione *et al.* 2016), but nomenclatural changes have not yet followed that work. Other species in western Melanesia have far more restricted ranges, and several are known from only a few reliably identified specimens. Morphological differences among *Gehyra* species are often minor, and a paucity of recent specimens across much of New Guinea and loss of some type specimens during WWII has hindered resolution of the taxonomy of this genus in western Melanesia.

In their catalogue of the geckos of Australia and Oceania Bauer & Henle (1994) immediately dichotomized their key for *Gehyra* by whether the subdigital lamellae on the fourth toe are entire or divided on at least some lamellae. This feature characterizes the lamellae on all the other digits too. However, the phylogenetic relationships for the genus retrieved by Heinicke *et al.* (2011) showed that neither character state diagnoses a monophyletic group, though the feature remains heuristically necessary for discriminating among species in this taxonomically difficult group. Of the taxonomic problems noted above, all involve species having divided subdigital lamellae.

In conducting a series of herpetological surveys in Papua New Guinea from 2002–2018 I collected many specimens of *Gehyra* of uncertain taxonomic assignment, all of which have entire subdigital lamellae. Although previous collections of *Gehyra* from the same or nearby areas were assigned to existing names, examination indicates that those nomenclatural assignments are not credible due to character conflict with topotypic material and biogeographic discordances. Other samples require further analysis. Especially problematic are those lizards that key out to *G. oceanica* (Bauer & Henle 1994), and several of those samples must be examined in a broader review of that species, which has been shown to comprise several divergent molecular lineages (Fisher 1997; Tonione *et al.* 2016; Kraus *et al.* in press). It is the purpose of this paper to describe some of the Papuan *Gehyra* species collected by me that are suffiently distinct morphologically to justify description at this time.

Materials and methods

I measured snout-vent length of specimens using a ruler, tail length with either a ruler (on straight tails) or a non-elastic string laid along the tail and then placed along a ruler (for curled tails), and all other measurements using either vernier calipers or a binocular dissecting scope with an attached micrometer. I measured snout-vent length, tail length, and trunk length to the nearest 0.5 mm and all other measurements to the nearest 0.1 mm. Measurements include: snout-vent length (SVL), from tip of snout to vent; trunk length (TrL), from posterior edge of forearm insertion to anterior edge of hindleg insertion; tail length (TL), from vent to tip of tail; tail width (TW), measured at widest point of tail behind the cloacal sacs; head length (HL), directly measured from tip of snout to anterior margin of ear opening, not in lateral projection; head width (HW), maximum width of head; forearm length (FA), from central base of palm to elbow; crus length (CS), from central base of heel to knee; ear diameter (Ear), longest dimension of ear, typically on a diagonal axis; eye diameter (EY), greatest horizontal diameter of eye between the surrounding scales; eye-naris distance (EN), from anteriormost point of eye to center of naris; snout length (SN), directly measured from anteriormost point of eye to tip of snout, not in lateral projection; internarial distance (IN), distance between centers of nares; ear-to-eye distance (EE), shortest straight-line distance between anterior edge of ear opening to posterior corner of eye; length of the fourth toe, from terminal lamella to the base of the web between T4 and T5 (T4L); width of the fourth toe across its widest point (T4W); length of the series of complete lamellae on the fourth toe (T4lamellaeL); length of webbing between T3 and T4 from base of this webbing to its center of emargination (T3T4webL), and length of webbing between T4 and T5 from base of this webbing to its center of emargination (T4T5webL).

I counted numbers of supralabials to mid-eye, infralabials to corner of jaw, lamellae (scales at least twice as wide as long) under digits T1 and T4, number of enlarged precloacal/femoral scales in the pore-bearing row, number of precloacal/femoral pores (in males), and number of precloacal scales in a straight line between the apex of the precloacal pore-bearing series and the cloaca. In instances of males with a damaged series of femoral pores on one leg I took the number from the undamaged leg and doubled it to estimate the pore count for that individual. I recorded subcaudals as comprising either a single row of transversely expanded scales or comprising several smaller, subequal scales across the transverse axis of the tail. The former can be characterized as "expanded" or "wide". Transversely "wide" subcaudals can be either of normal size or, sometimes, unusually "thin" in the longitudinal axis. I sexed individuals by presence/absence of precloacal/femoral pores and by examination of gonads and sexual ducts in cases in which the pore-bearing scale row had shallow dimples on each scale.

I compared specimens of the new species to other Melanesian species of *Gehyra* either directly against museum specimens (Appendix I) or to data presented in the literature (de Rooij 1915; King & Horner 1989; King *et al.* 1989; Beckon 1990, 1992; Bauer & Henle 1994; Oliver *et al.* 2010, 2016; Flecks *et al.* 2012; Zug 2013; Skipwith & Oliver 2014). Specimens of the new species are deposited in the Bishop Museum, Honolulu (BPBM), and the University of Michigan Museum of Zoology, Ann Arbor (UMMZ).

Some specimens of *Gehyra* from the trans-Fly region of southern New Guinea have previously been referred to *G. dubia* (Macleay 1877) (cf. Bauer & Henle 1994), but on the basis of molecular evidence Oliver *et al.* (2019) have shown these are not true *G. dubia*, and they referred to the lineage found in the trans-Fly as "CYsp.". It is possible that a name currently in synonymy applies to this lineage, though Oliver *et al.* (2019) did not address that question. Regardless of what name is applied to them, there is a lineage of weakly webbed *Gehyra* inhabiting that region, and for the purposes of this report I shall refer to them as "*Gehyra* cf. *dubia*".

In comparing the species treated herein to *Gehyra membranacruralis* I have largely relied on data I have taken from four specimens. Comparison to data provided in the original description of that species (King & Horner 1989) is somewhat problematic. King & Horner (1989) provided in their table 2 ranges for the key features of numbers of subdigital lamellae beneath T4 and numbers of precloacal/femoral pores in males. They also provided counts specifically for the holotype. These ranges are based on seven specimens, yet there are only five specimens in the type series, so it is unclear which additional two specimens were used to derive these ranges. Further, they give a range of T4 lamellae from 15–23, and the number for the holotype as 20. They defined their lamellar count as "only those lamellae under the expanded portion of the fourth toe." However, their photograph of the left foot of the holotype (fig. 5c) shows only 14 lamellae as defined by them and 18 as defined by me (see above). Hence, I presume that their counts for lamellae are overestimated relative to mine. They note the range of precloacal/femoral pores in males to be 32–44 and that of the holotype to be 37. I agree with this last count but note that approximately three scales in this series are damaged on the right leg of the holotype, and there are, consequently, no pores in this region. The undamaged leg would most likely have contained an additional three pores, which would give a total count for the holotype of 40 pores.

***Gehyra chrysopeleia* sp. nov.**

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Figs. 2, 3A, 4A

Gehyra vorax Beckon 1992: 451 [part].
Gehyra membranacruralis Flecks *et al*. 2012: 205 [part].
Gehyra sp. Sudest, PNG Heinicke *et al*. 2011: 588.

Holotype.—BPBM 19772 (field tag FK 9751), mature male, given to F. Kraus by local villagers, forest just west of Araeda, Sudest Island, 11.4362° S, 153.4301° E, ~10 m a.s.l., Milne Bay Province, Papua New Guinea, 21 April 2004.

Paratypes (n=2).—Papua New Guinea: Milne Bay Province : Joe Landing, [11.416° S, 153.383° E], 0–100 m a..s.l., Sudest Island, 15 August 1956 (AMNH 76753), west slope Mt. Rio, 250–350 m a.s.l., Sudest Island, 23 August 1956 (AMNH 76763).

Diagnosis.—A large (SVL of adult males 133–142 mm, of adult female 125.5 mm) species of *Gehyra* having entirely undivided subterminal lamellae on all toes; 17–20 T4 lamellae; 15–16 T1 lamellae; extensive webbing between all toes (T3–T4webL/T4L = 0.38–0.48, T4–T5webL/T4L = 0.21–0.30); small eye (EY/EN = 0.48–0.53); long snout (SN/HL = 0.51–0.55, EN/HL = 0.44–0.45); 44–46 precloacal/femoral pores in a continous row in males (AMNH 76753 has 23 pores on right leg, so that count doubled to arrive at 46); single row of enlarged subcaudal scales; rounded tail lacking serrations; lateral, antecubital, and popliteal skin folds well developed; rostral quadrangular; postmentals elongate; supranasal bordered posteriorly by at least one scale that is >50% the size of supranasal; and dorsal color pattern pale yellow gray with vaguely defined brown bands on the dorsum and limbs.

Comparisons with other species.—Among Melanesian *Gehyra, G. chrysopeleia* is easily distinguished from *G. baliola*, *G. barea*, *G. insulensis*, *G. interstitialis*, *G. lampei*, *G. leopoldi*, and *G. papuana* by having undivided (vs. divided) subapical lamellae under all toes. *Gehyra chrysopeleia* differs from *G.* cf. *dubia* in having extensive webbing between the digits (vs. absent or only basal in *G.* cf. *dubia*); from *G. oceanica* and *G. serraticauda* in

its much larger adult size (SVL = 133–142 mm vs. ≤ 102 mm in *G. oceanica* and 91 mm in *G. serraticauda*) and well-developed skin folds on trunk and on anterior of arm (vs. absent in *G. oceanica* and *G. serraticauda*) as well as in having a single row of enlarged subcaudals (vs. small, subequal subcaudals in multiple rows in *G. oceanica*) and a rounded tail lacking lateral serrations (vs. tail dorsoventrally compressed and with lateral serrations in *G. serraticauda*); from *G. marginata* in having a rounded tail in cross section (vs. flattened in *G. marginata*), a single row of enlarged subcaudals (vs. small, subequal subcaudals in multiple rows in *G. marginata*), and fewer T4 lamellae (17–20 vs. 20–27 in *G. marginata*); from *G. rohan* in having fewer T4 lamellae (17–20 vs. 22–26 in *G. rohan*), homogeneous (vs. heterogeneous in *G. rohan*) dorsal scales, elongate (vs. short in *G. rohan*) postmentals, and brown (vs. orange in *G. rohan*) scales encircling the eye; and from *G. vorax* in having fewer precloacal/femoral pores (44–46 vs. 58–90 in *G. vorax*), fewer T4 lamellae (17–20 vs. 23–34 in *G. vorax*), a relatively longer snout (SN/HL = 0.51–0.52 vs. 0.44–0.48 in *G. vorax*), a uniformly white chin and throat (vs. heavily fleckd with brown in *G. vorax*), and similarly pale dorsal and ventral colors (vs. dorsum much darker than venter in *G. vorax*).

G. chrysopeleia is morphologically most similar to *G. georgpotthasti* and *G. membranacruralis*. It differs from the former in having postmentals that are elongate (approximately twice as long as wide) but not longer than the mental (vs. postmentals three times longer than wide and longer than mental in *G. georgpotthasti*), fewer T4 lamellae (17–20, mean 19.0 vs. 18–30, mean 23.2 in *G. georgpotthasti*), prominent dermal folds on the trunk (vs. indistinct in *G. georgpotthasti*), prominent dermal folds on the posterior forelimbs (vs. none in *G. georgpotthasti*), postsupranasals including one scale that is >50% the size of supranasal (vs. all postsupranasals <<50% size of supranasal in *G. georgpotthasti*), and a pale yellow-gray ground color (vs. darker brown or orange in *G. georgpotthasti*).

Gehyra chrysopeleia differs from *G. membranacruralis* in its larger size (SVL = 133–142 vs. up to 127 mm in *G. membranacruralis*), smaller eye (EY/EN = 0.52–0.53 vs. 0.56–0.59 in *G. membranacruralis*), more extensive toe webbing (T3–T4webL/T4L = 0.38–0.48, T4–T5webL/T4L = 0.25–0.30 vs. 0.25–0.29 and 0.15–0.22, respectively, in *G. membranacruralis*), elongate postmentals (vs. short in *G. membranacruralis*), a prominent dermal fold on both anterior and posterior of forelimb (vs. absent in *G. membranacruralis*), the enlarged scales anterior to the pore-bearing series extending laterally 14–17 scales on either side of the pore series' apex before transitioning abruptly to small scales (vs. the enlarged scales decreasing gradually in size away from the apex of the pore series, with no abrupt transition in size in *G. membranacruralis*), and postsupranasals include at least one scale that is >50% the size of supranasal (vs. all postsupranasals <<50% size of supranasal in *G. membranacruralis*).

Gehyra chrysopeleia is most easily visualized as different from the other large species *G. vorax* and *G. georgpotthasti* in bivariate space by contrasting numbers of T4 lamellae and numbers of precloacal/femoral pores for males (Fig. 1). This serves to supplement and confirm the comparisons among these species noted above.

Description of holotype.—A mature male of large size (SVL = 133.0 mm) with a right-lateral incision behind the pectoral region; liver removed. Head relatively long (HL/SVL = 0.21) and wide (HW/HL = 0.84), distinct from neck. Loreal region inflated; no distinct canthus rostralis. Top of snout and area above central supralabials shallowly concave. Snout tapered and rounded at tip, relatively long (SN/HL = 0.52), more than twice eye diameter (SN/EY = 2.2). Eye of modest size (EY/HL = 0.24, EY/EN = 0.52); pupil vertical, constricted into four lobes; supraciliaries only slightly larger than adjacent granules. Ear opening small (Ear/HL = 0.077), narrowly compressed dorsoventrally; distance between ear and eye one-third again as large as eye diameter (EE/EY = 1.3). Rostral almost twice as wide (5.6 mm) as high (3.2 mm), quadrangular but slightly higher just medial to nares, length 1.0 mm, with medial suture extending half its length. Supranasals separated by two large internasals along posterior rostral margin. Rostral in contact with first supralabials, two supranasals, and two internasals. External nares circular; each bordered by rostral, single supranasal, first supralabial, and three postnasals. Each supranasal bordered posteriorly by two postsupranasals, one of which is >50% size of supranasal (Fig. 2A). Mental triangular, 4.2 mm wide, rear margin scalloped. Mental bordered posteriorly by two elongate postmentals that are longer than mental (Fig. 2B), each bordered posteriorly by four round scales, two of which larger than those on chin, two subequal to chin granules. Postmentals bordered laterally by shorter elongate subinfralabials, gradually decreasing in size posteriorly. First infralabial bordered below by single subinfralabial, second and third infralabials by two subinfralabials, and fourth infralabials by three subinfralabials. Supralabials to mid-orbital position 14 on right, 12 on left; three small supralabials posterior to this; angle of jaw bordered with granular scales. Infralabials 12 on each side.

Body of fairly robust habitus (TrL/SVL = 0.42), slightly depressed. Dorsal scales on head, limbs, body, throat and sides small juxtaposed granules, smallest on neck, head, dorsal patches, and limbs, largest on sides and remainder of dorsum; tubercles absent. Two dorsal and several lateral patches of skin with smaller granules that likely represent

regenerated skin. Ventral scales larger, flat, smooth, subimbricate, larger midventrally, gradually decreasing in size laterally to become granular. Well-developed lateral fold present on body; popliteal fold prominent; dermal folds on front and rear of forelimbs prominent.

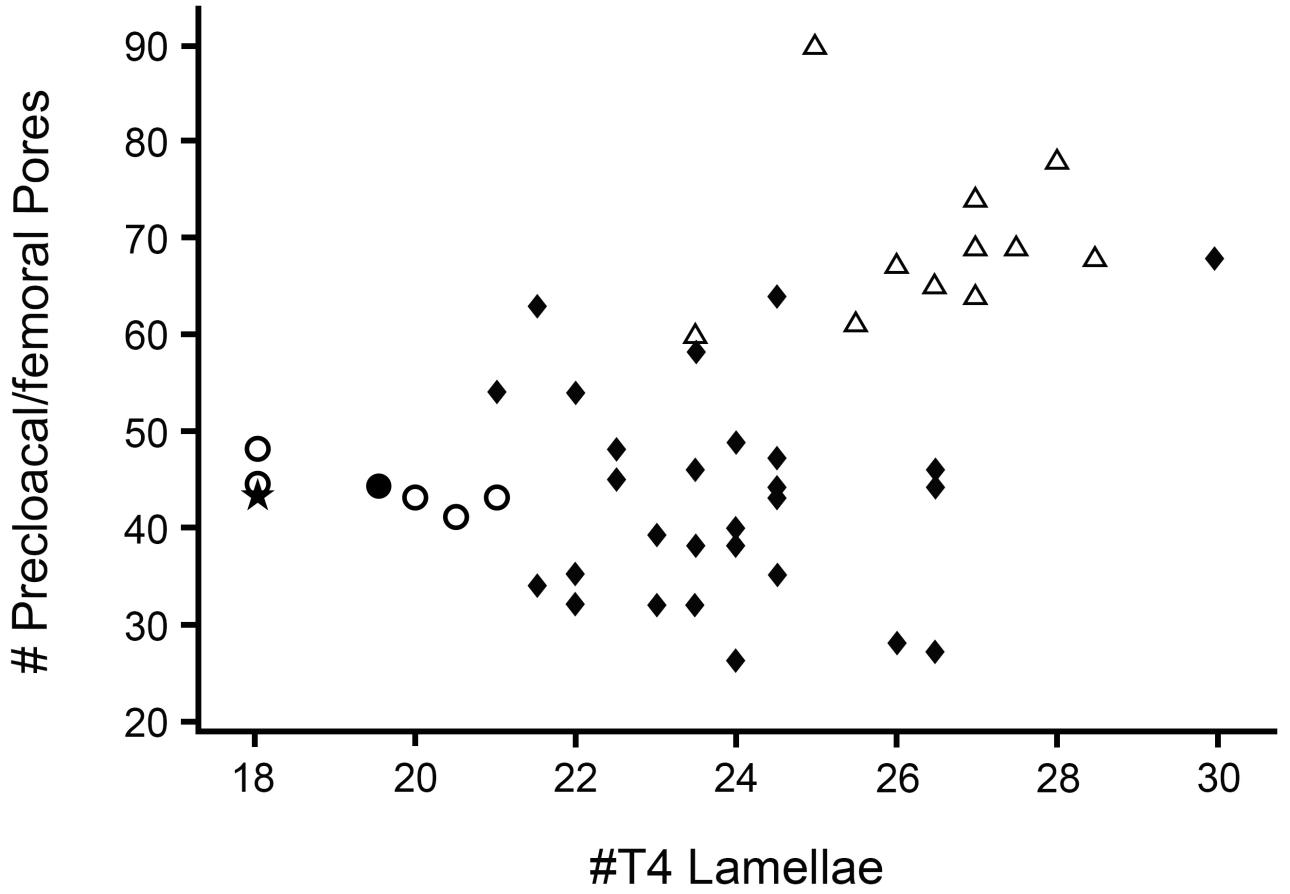

FIGURE 1. Bivariate plot of numbers of precloacal/femoral pores vs. numbers of subdigital lamellae on the fourth toe. Lamellae numbers for each specimen are averages of the numbers from each foot. Star = *Gehyra aquilonia*, solid circle = *G. chrysopeleia*, diamonds = *G. georgpotthasti*, open circles = *G. membranacruralis*, triangles = *G. vorax*.

Enlarged precloacal/femoral scales in single series of 44 scales extending in a curved chevron to near end of each thigh (Fig. 2D), each containing a single pore, series on left thigh interrupted by two small scales; thigh scales anterior to this row flat, subimbricate, much larger than those posterior to row, which are round to granular; enlarged scales anterior to pore-bearing series extending laterally 18 (R) or 17 (L) scales from apex of pore series before transitioning abruptly to small scales. Enlarged, imbricate scales form a pubic patch between precloacal series and vent, decreasing in size posteriorly; 14 scales in a row between apex of enlarged precloacal series and vent, first ten large, last four rows tiny, granular. Scales under arms granular, those under hindlimbs granular anteriorly, enlarged, flat, and imbricate posteriorly; scales on palms and soles rounded, flattened, smooth, subimbricate.

Fore- and hindlimbs well-developed (FA/SVL = 0.10, CS/SVL = 0.12). Digits well-developed, with broad pads on toes (T4W/T4L = 0.46), all but first fingers with recurved claws; clawed terminal phalanges on all digits except T1 laterally compressed, free above, arising from toe pad, inset from its margin, extending slightly beyond it; claw on T1 small, terminal, extending slightly beyond toe-pad margin. Subdigital lamellae narrow and smooth, all undivided, most forming a shallowly curved chevron medially (Fig. 2C); lamellae extend for more than half length of each toe (T4lamellaeL/T4L = 0.60). Lamellae of manus 14-15-19-20-16 on right, 14-16-19-20-16 on left; of pes 16-17-21-20-19 on right, 16-17-21-20-18 on left. Relative lengths of digits on manus and pes I < II < V < III < IV. Webbing present between all digits, most extensive between T3 and T4 (T3T4webL/T4L = 0.38, T4T5webL/T4L = 0.25).

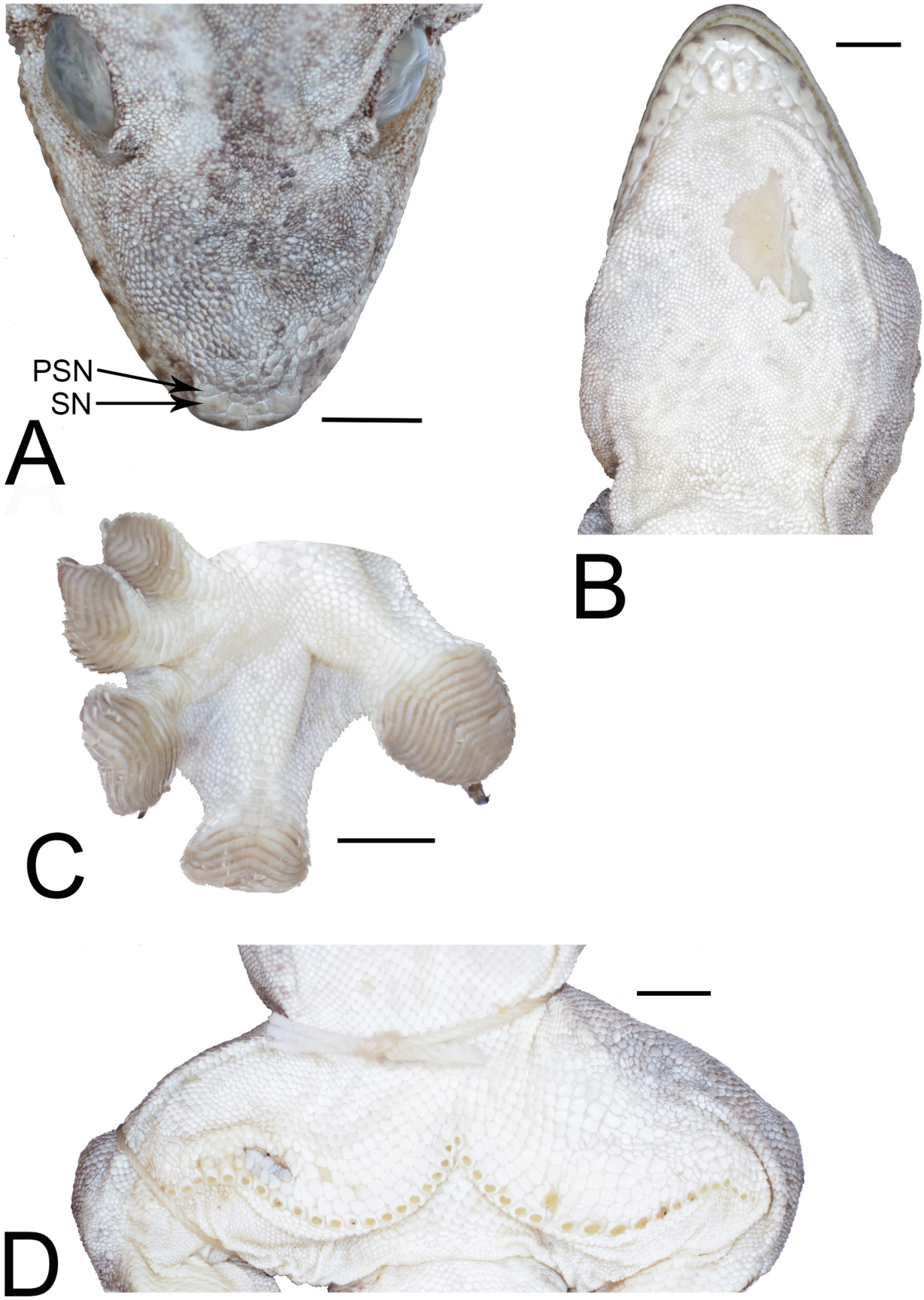

FIGURE 2. Details of holotype of *Gehyra chrysopeleia*, BPBM 19772. (A) close-up of snout showing supranasal (SN) and enlarged postsupranasal (PSN), (B) chin, (C) right foot, and (D) precloacal/femoral pore series. Scale bars = 5 mm.

Tail 103 mm, seemingly slightly truncated at end, dorsoventrally compressed but not flat, no lateral serrations. Tail with small subimbricate scales dorsally; under tail with single midventral row of enlarged, flat, imbricate subcaudals, bordered laterally by much smaller, flat, subimbricate scales that decrease in size laterally and dorsally (Fig. 3A). Cloacal sacs swollen, with single external orifice situated near each lateral margin of vent; two enlarged, blunt postcloacal spurs on each side of tailbase; midventral scales of sac flat, subimbricate, larger posteriorly, slightly larger than those ventrolaterally.

FIGURE 3. Ventral views of tails of (A) *Gehyra chrysopeleia*, BPBM 19772, holotype; (B) *G. aquilonia*, BPBM 34745, holotype; (C) *G. maculicincta*, BPBM 19771, paratype, showing small, subequal subcaudals of an original tail; (D) *G. maculicincta*, UMMZ 244055, holotype, showing wide, thin subcaudals of a regenerated tail; (E) *G. louisiadensis*, BPBM 19763, holotype. Scale bars = 5 mm.

Color in preservative: Dorsal ground color on body, head, and limbs pale tan with very vague, poorly defined, slightly darker-brown markings, paler laterally; supralabials with darker-brown markings. All ventral surfaces white, lacking markings. Lamellae slightly darker gray tan. Iris pale tan with network of brown veins.

Color in life.—In life, the holotype was pale yellow gray with vaguely defined brown bands on the dorsum and limbs and scattered, tiny black spots (Fig. 4A). The lateral skin folds were white, and the iris was the same color as the dorsum with narrow brown veins.

Measurements (in mm).—SVL = 133.0, TailL = 103, TrL = 56.1, FA = 13.9, CS = 15.5, HL = 28.5, HW = 23.8, HH = 16.2, Ear = 2.2, EE = 8.5, EY = 6.7, SN = 14.8, EN = 12.8, IN = 5.3, T4L = 16.0, T4W = 7.3, T4lamellaeL = 9.6, T3T4webL = 6.0, T4T5webL = 4.0, mass in life = 51.7 g.

Variation.—The two males are larger than the sole female (SVL = 133–142 mm vs. 125.5 mm). Greatest mensural variation of importance in the small sample available is in the extent of webbing, which extends approximately one-third to one-half the length of T4 between that toe and T3 and 20–30% the length of T4 between that toe and T5 (Table 1). Meristically, variation in numbers of lamellae under the first and fourth toes is not high, and this is true as well for numbers of supralabials and infralabials, though the holotype does have an anomalously high number of 14

supralabials to mid-eye on its right side. Numbers of enlarged precloacal/femoral scales varies from 40–44, and the sole male with undamaged scalation in this region (the holotype) has 44 precloacal/femoral pores, with the second specimen having 35 and estimated to have 46 were the left series not damaged. The number of internasals is two or three, postnasals are uniformly three, and a large number of tiny granular scales borders the posterior margin of the postmentals (Table 1).

TABLE 1. Mensural and meristic data for the type series of *Gehyra chrysopeleia*. Bilateral scale counts are right/left.

Specimen	BPBM 19772 **holotype**	AMNH 76753 **paratype**	AMNH 76763 **paratype**
Sex	M	M	F
SV	133.0	142.0	125.5
HL	28.5	30.7	26.6
T4L	16.0	13.8	14.3
TrunkL/SV	0.42	0.39	0.45
CrusL/SV	0.12	0.11	0.14
TailL/SV	0.77	0.67	
TailW/SV	0.087	0.099	0.081
HL/SV	0.21	0.22	0.21
HW/SV	0.18	0.18	0.18
ForearmL/SV	0.10		0.11
HW/HL	0.84	0.85	0.84
EN/HL	0.45	0.44	0.45
EarL/HL	0.077	0.114	0.094
SN/HL	0.52	0.51	0.55
EY/HL	0.24	0.23	0.21
T4L/SV	0.12	0.10	0.11
T4W/T4L	0.46	0.46	0.43
T4 scansor L/T4L	0.60	0.59	0.56
T3–T4 web L/T4L	0.38	0.48	0.33
T4–T5 web L/T4L	0.25	0.30	0.21
#T4 scansors	20/19	18/17	20/20
#T1 scansors	16/15	16/15	–/15
SL to mid-eye	14/12	11/11	12/11
infralabials	12/12	11/11	12/12
#enl. precloacal/femoral scales	44	35†	40
#enl. precloacal/femoral pores	44	35†	NA
# internasals	3	2	2
# postnasals	3	3	3
# scales behind postmentals	8	10	10

† damaged, scales missing; 23 on right side, estimated 46 total

TABLE 2. Mensural and meristic data for the type series of *Gehyra aquilonia*. Bilateral scale counts are right/left.

Specimen	BPBM 34745 **holotype**	AMNH 95215 **paratype**	AMNH 95216 **paratype**	AMNH 100088 **paratype**
Locality	Prince Alexander Mts.	Lae	Lae	Lumi, Torricelli Mts.
Sex	M	M	F	F
SV	130.0	124.0	108.0	114.5
HL	29.3	28.0	25.4	25.8
T4L	15.3	14.8	12.7	13.6
TrunkL/SV	0.43	0.36	0.48	0.45
CrusL/SV	0.13	0.14	0.14	0.14
TailL/SV	0.65			0.72
TailW/SV	0.072	0.090	0.118	0.098
HL/SV	0.23	0.23	0.24	0.23
HW/SV	0.19	0.19	0.19	0.19
ForearmL/SV	0.10	0.12	0.12	0.10
HW/HL	0.83	0.85	0.81	0.83
EN/HL	0.42	0.41	0.42	0.43
EarL/HL	0.028	0.033	0.031	0.017
SN/HL	0.51	0.48	0.52	0.48
EY/HL	0.23	0.22	0.23	0.24
T4L/SV	0.12	0.12	0.12	0.12
T4W/T4L	0.45	0.47	0.50	0.42
T4 scansor L/T4L	0.61	0.56	0.62	0.53
T3–T4 web L/T4L	0.29	0.32	0.36	0.36
T4–T5 web L/T4L	0.28	0.23	0.24	0.25
#T4 scansors	16/20	19/16	19 /20	18/19
#T1 scansors	14/13	11 /11	16 /13	14/12
SL to mid-eye	13/13	11 /12	12 /13	12/13
infralabials	13/14	11 /11	12 /10	12/13
#enl. precloacal/femoral scales	43	46	number indeterminate	45
#enl. precloacal/femoral pores	43	46	NA	NA
# internasals	1	0	2	1
# postnasals	4	3	3	4
# scales behind postmentals	4	2*	6	3

* Left postmental a wedge that doesn't reach these scales, so number for only right side.

TABLE 2 (Continued)

Specimen	AMNH 100089 **paratype**	AMNH 100090 **paratype**	AMNH 103191 **paratype**	AMNH 105032 **paratype**
Locality	Lumi, Torricelli Mts.	Lumi, Torricelli Mts.	Wanuma, Adelbert Mts.	Sempi, Adelbert Mts.
Sex	F	M	M	M
SV	118.0	134.0	133.0	128.0
HL	26.9	28.8	30.1	29.5
T4L	13.8	14.6	16.0	14.5
TrunkL/SV	0.42	0.44	0.44	0.45
CrusL/SV	0.14	0.13	0.14	0.13
TailL/SV		0.77		0.88
TailW/SV	0.086	0.087		0.077
HL/SV	0.23	0.21	0.23	0.23
HW/SV	0.19	0.20	0.17	0.19
ForearmL/SV	0.11	0.10	0.11	0.11
HW/HL	0.82	0.92	0.75	0.82
EN/HL	0.39	0.40	0.37	0.40
EarL/HL	0.031	0.026	0.024	0.020
SN/HL	0.46	0.49	0.47	0.48
EY/HL	0.25	0.22	0.20	0.21
T4L/SV	0.12	0.11	0.12	0.11
T4W/T4L	0.47	0.43	0.42	0.45
T4 scansor L/T4L	0.64	0.62	0.58	0.61
T3–T4 web L/T4L	0.33	0.32	0.26	0.38
T4–T5 web L/T4L	0.20	0.20	0.15	0.21
#T4 scansors	22/20	20/20	20/21	–/18
#T1 scansors	14/15	13/14		14/15
SL to mid-eye	13/13	10/9	9/10	13/13
infralabials	14/13	10/11	11/9	11/13
#enl. precloacal/femoral scales	48	49	50	34*
#enl. precloacal/femoral pores	NA	47	45	34*
# internasals	3	2	2	1
# postnasals	4	4	3	4
# scales behind postmentals	6	6	6	4

* Row incomplete, broken by small scales in center of right side.

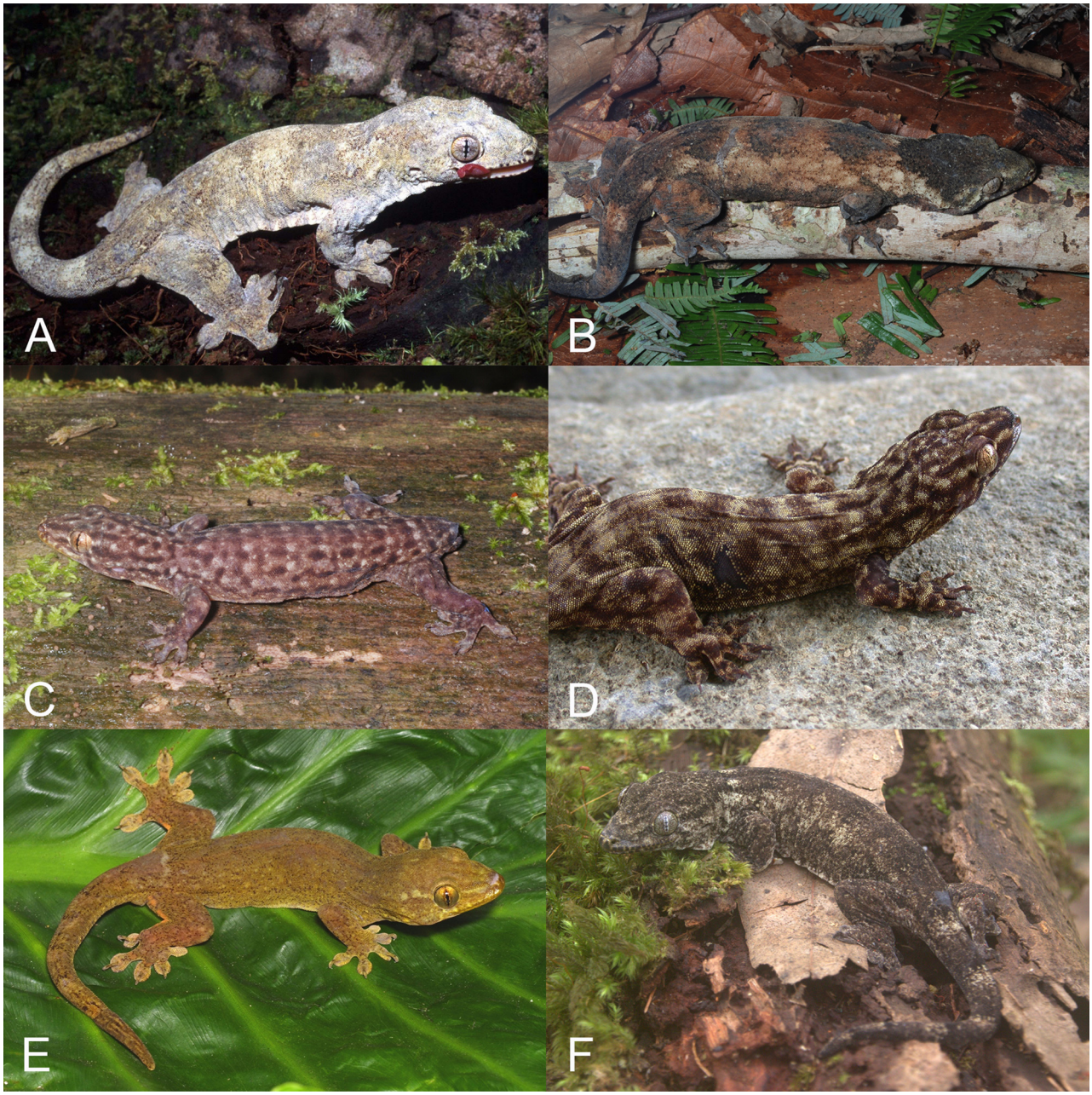

FIGURE 4. Portraits in life of (A) *Gehyra chrysopeleia*, BPBM 19772, holotype; (B) *G. aquilonia*, BPBM 34745, holotype; (C) *G. maculicincta*, UMMZ 244056, paratype; (D) *G. louisiadensis*, BPBM 19764, paratype; (E) *G. oceanica*, American Samoa; (F) *G. membranacruralis*, UMMZ 247752, Varirata National Park, Central Province, PNG. Photo credits: (A) G. Shea, (E) U.S. Geological Survey, (F) V. Weijola, remainder F. Kraus.

Color pattern shows little variation among the three specimens, with all being pale grayish white dorsally with tiny black dots and white ventrally.

Etymology.—*Chrysopeleia* is the Latinized name of one of the Greek hamadryads, nymphs of trees and woodlands. The name literally means "golden dove", which is appropriate for this lizard with a slightly yellowish cast.

Range.—Known from three nearby localities on Sudest Island from sea level to approximately 300 m elevation a.s.l. (Fig. 5). It may occur on some of the many small islets that comprise the Calvados Chain, all of which lie within the large fringing reef that encompasses Sudest Island and would have been connected to Sudest with lower sea levels during the Pleistocene.

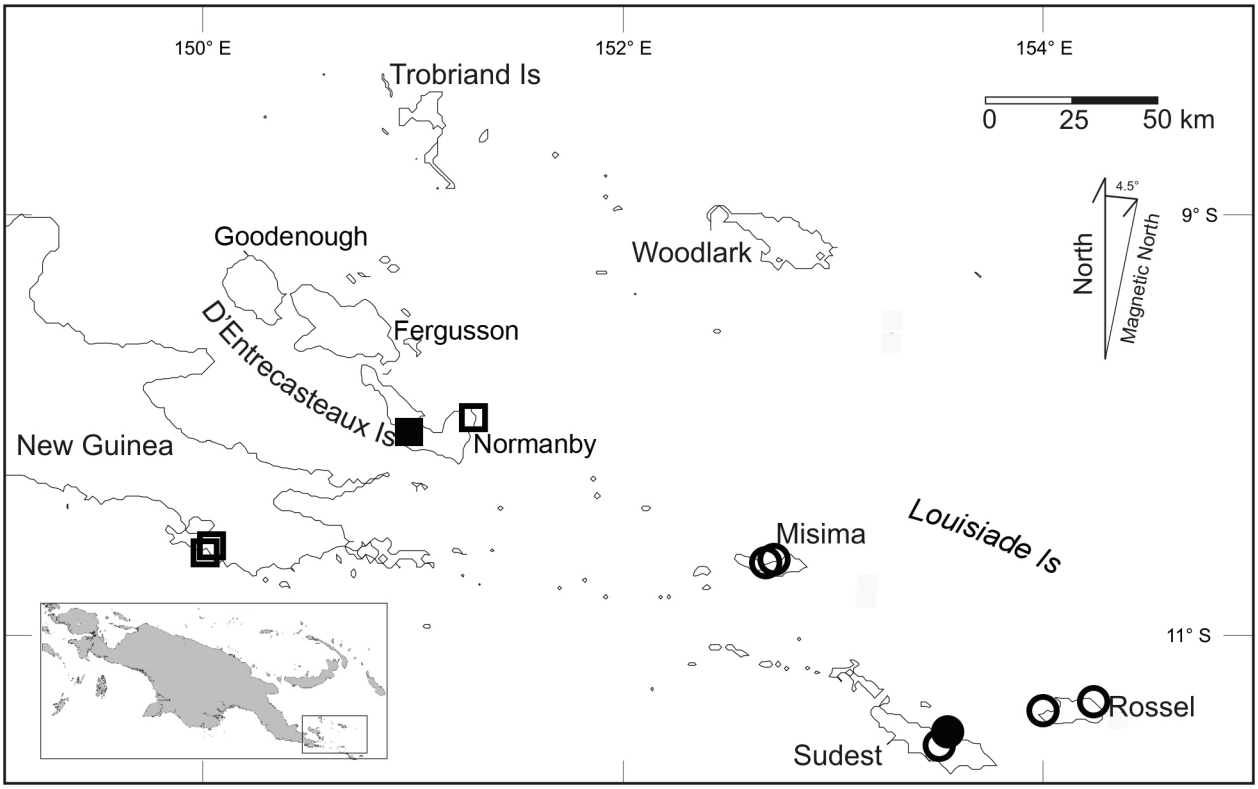

FIGURE 5. Map of the Milne Bay region of Papua New Guinea showing collecting localities for species described herein. Solid circle = type locality for both *Gehyra chrysopeleia* and *G. louisiadensis*, open circles = additional localities for *G. louisiadensis*, solid square = type locality for *G. maculicincta*, open squares = additional localities for *G. maculicincta*.

Ecology.—The holotype was collected active at night in a disturbed low-elevation forest near the coast. One of the paratypes also came from low-elevation forest, likely near the coast, but the second came from inland primary rainforest. Otherwise, no ecological information is available for this species.

Remarks.—The skin on the underside of the forearms in *G. chrysopeleia* is relatively loose and expansive, giving it a "baggy" appearance, and this can result in the impression of either an antecubital skin fold, a postcubital skin fold, or both, depending on how the specimen was arranged during fixing. Irrespective of this appearance in any particular specimen, this extensive loose skin clearly serves to distinguish *G. chrysopeleia* from *G. membranacruralis*.

This species has historically been known from only the two paratypes, and it had been assigned to *Gehyra vorax* once Beckon (1992) clearly distinguished that large Pacific island species from *G. oceanica* and assigned all large *Gehyra* with entire lamellae ranging from the Moluccas through Melanesia to *G. vorax*. The Sudest animals were later assigned to *G. membranacruralis* once Flecks *et al.* (2012) removed *G. georgpotthastii* from *G. vorax* and referred all western Melanesian specimens to *G. membranacruralis*. On the basis of DNA-sequence data, Heinicke *et al.* (2011) correctly surmised that the population of large *Gehyra* residing on Sudest Island was in fact a distinct species, diagnosed and described herein. A study in progress by P. Oliver and co-authors shows that *G. vorax* and *G. georgpotthasti* are rather distantly related to the lineage containing *G. membranacruralis*, *G. chrysopeleia*, and the next species (partially shown too in Oliver *et al.* 2016).

***Gehyra aquilonia* sp. nov.**

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Figs. 3B, 4B, 6

Gehyra membranacruralis Flecks *et al*. 2012: 205 [part].
Gehyra membranacruralis Heinicke *et al.* 2011: 592.

Holotype.—BPBM 34745 (field tag FK 13301), mature male, given to F. Kraus by local villagers, collected at Mindangua Stream, Prince Alexander Mts., 3.6056° S, 143.4921° E, 410 m a.s.l., East Sepik Province, Papua New Guinea, 15 September 2009.

Paratypes (n=7).—Papua New Guinea: Madang Province: Wanuma, Adelbert Mts, 4.90° S, 145.32° E, ~670 m a.s.l., 23 October 1967 (AMNH 103191), near Sempi, 5.01° S, 145.79° E, 12 July 1969 (AMNH 105032); Morobe Province: Lae (AMNH 95215–16); West Sepik Province: Lumi, Torricelli Mts., 3.48° S, 142.04° E, 550 m a.s.l., July 1966 (AMNH 100088–89), Miliom, 3.2 km E Lumi, Torricelli Mts., 3.48° S, 142.05° E, 460 m a.s.l., 24 July 1966 (AMNH 100090).

Diagnosis.—A large (SVL of adult males 124–134 mm, of adult females 108–118 mm) species of *Gehyra* having entirely undivided subterminal lamellae on all toes; 16–22 T4 lamellae; 11–16 T1 lamellae; extensive webbing between all toes (T3–T4webL/T4L = 0.26–0.38, T4–T5webL/T4L = 0.15–0.28); short snout (SN/HL = 0.46–0.52, EN/HL = 0.37–0.43); wide head (HW/HL = 0.75–0.92); 43–50 enlarged precloacal/femoral scales; 43–47 precloacal/femoral pores in a continuous chevron in males; single row of enlarged subcaudal scales; tail rounded anteriorly, somewhat depressed posteriorly, lacking serrations; lateral, antecubital, and popliteal skin folds well developed; elongate postmentals; 3–6 scales in posterior contact with postmentals; typically four (but sometimes three) postnasals; all postsupranasal scales small, with none >50% size of supranasal; dorsal color pattern varying shades of brown with or without obscure darker-brown blotches; chin and throat white, often with brown markings.

Comparisons with other species.—Among Melanesian *Gehyra, G. aquilonia* is easily distinguished from *G. baliola*, *G. barea*, *G. insulensis*, *G. interstitialis*, *G. lampei*, *G. leopoldi*, and *G. papuana* by having undivided (vs. divided) subapical lamellae under the toes. *Gehyra aquilonia* differs from *G.* cf. *dubia* in having extensive webbing between the digits (vs. absent or only basal in *G.* cf. *dubia*); from *G. oceanica* and *G. serraticauda* in its much larger size (SVL = 114–130 mm vs. ≤ 102 mm in *G. oceanica* and 91 mm in *G. serraticauda*), presence of well-developed skin folds on trunk and anterior of arm (vs. absent in *G. oceanica* and *G. serraticauda*), and in having a single row of enlarged subcaudals (vs. small, subequal subcaudals in multiple rows in *G. oceanica*) and a tail lacking lateral serrations (vs. tail with lateral serrations in *G. serraticauda*); from *G. marginata* in having a rounded tail in cross section (vs. flattened in *G. marginata*), a single row of enlarged subcaudals (vs. small, subequal subcaudals in multiple rows in *G. marginata*), and fewer T4 lamellae (16–22 vs. 20–27 in *G. marginata*); from *G. rohan* in having fewer T4 lamellae (16–22 vs. 22–26 in *G. rohan*), homogeneous (vs. heterogeneous in *G. rohan*) dorsal scales, elongate (vs. short in *G. rohan*) postmentals, and brown (vs. orange in *G. rohan*) scales encircling the eye; and from *G. vorax* in its smaller size (up to 134 mm SVL vs. up to 188 mm in *G. vorax*), fewer precloacal/femoral pores (43–47 vs. 58–90 in *G. vorax*), and fewer T4 lamellae (16–22 vs. 23–34 in *G. vorax*).

Gehyra aquilonia differs from *G. membranacruralis* in having elongate postmentals (vs. short in *G. membranacruralis*), a prominent antecubital skin fold (vs. absent in *G. membranacruralis*), a prominent skin fold on trunk (vs. weakly developed in *G. membranacruralis*), wider head (HW/HL = 0.75–0.92 vs. 0.71–0.80 in *G. membranacruralis*), the enlarged scales anterior to the pore-bearing series extending laterally ~10 scales on either side of the pore series' apex before transitioning abruptly to small scales (vs. the enlarged scales decreasing gradually in size away from the apex of the pore series, with no abrupt transition in size in *G. membranacruralis*), usually four postnasals (vs. three in *G. membranacruralis*), and dorsal coloration of varying shades of brown (vs. pale yellow gray in *G. membranacruralis*).

Gehyra aquilonia is most similar morphologically to *G. georgpotthasti* and *G. chrysopeleia*. It differs from the former in having postmentals that are not as elongate (approximately twice as long as wide vs. three times longer than wide in *G. georgpotthasti*), fewer T4 lamellae (16–22, mean 19.2 vs. 18–30, mean 23.2 in *G. georgpotthasti*), and distinct dermal folds on the sides of the body (vs. indistinct in *G. georgpotthasti*). *Gehyra aquilonia* differs from *G. chrysopeleia* in its somewhat smaller size (SVL = 108–134 vs. 133–142 mm in *G. chrysopeleia*); all postsupranasals small, with all <<50% size of supranasal (vs. one postsupranasal >50% size of supranasal in *G. chrysopeleia*); typically four postnasals (vs. three in *G. chrysopeleia*); and dorsal coloration of varying shades of brown (vs. pale yellow gray in *G. chrysopeleia*).

As seen for *Gehyra chrysopeleia*, *G. aquilonia* is most easily visualized as different from the other large species *G. vorax* and *G. georgpotthasti* in bivariate space by contrasting numbers of T4 lamellae and numbers of precloacal/femoral pores for males (Fig. 1). This serves to supplement the comparisons among these species noted earlier.

Description of holotype.—A mature male of large size (SVL = 130.0 mm) with a right-lateral incision behind the pectoral region; liver removed; left arm missing. Head relatively long (HL/SVL = 0.23) and wide (HW/HL = 0.83), distinct from neck. Loreal region slightly inflated; no distinct canthus rostralis. Top of snout and area above central supralabials shallowly concave. Snout tapered and rounded at tip, relatively long (SN/HL = 0.51), more than twice eye diameter (SN/EY = 2.2). Eye of modest size (EY/HL = 0.23, EY/EN = 0.54); pupil vertical, narrowly constricted into slit; anterior supraciliaries slightly larger than adjacent granules, posterior ones subequal to adjacent granules. Ear opening small (Ear/HL = 0.028), narrowly compressed dorsoventrally; distance between ear and eye half again as large as eye diameter (EE/EY = 1.5). Rostral almost twice as wide (5.9 mm) as high (3.1 mm), highest just medial to nares, lower medially; length 1.6 mm. Supranasals separated by single large internasal along posterior rostral margin. Rostral in contact with first supralabials, two supranasals, and one internasal. External nares circular; each bordered by rostral, single supranasal, first supralabial, and four postnasals. Supranasal bordered posteriorly by three (R) or five (L) small postsupranasals, all <<50% size of supranasal (Fig. 6A). Mental triangular, 4.4 mm wide, rear margin scalloped. Mental bordered posteriorly by two elongate postmentals that are longer than mental (Fig. 6B), these each bordered posteriorly by two round scales larger than those on chin. Postmentals bordered laterally by shorter elongate subinfralabials, gradually decreasing in size posteriorly. First infralabial bordered below by single subinfralabial, second infralabial by two subinfralabials, and third and fourth infralabials by three subinfralabials; infralabials 5–9 bordered below by two rows of smaller subinfralabials that are still much larger than adjacent chin granules. Supralabials to mid-orbital position 13 on each side; four (R) or three (L) small supralabials posterior to this; angle of jaw bordered with granular scales. Infralabials 13 on right, 14 on left.

Body of fairly robust habitus (TrL/SVL = 0.43), slightly depressed. Dorsal scales on head, body, limbs, and throat small juxtaposed granules, smaller on neck, head, and limbs, largest on sides and dorsum; tubercles absent. Ventral scales larger, flat, smooth, subimbricate, larger midventrally, gradually decreasing in size laterally to become granular. Well-developed lateral skin fold present on trunk; popliteal and antecubital skin folds prominent; no dermal fold on rear of forelimb.

Enlarged precloacal/femoral scales in single series of 43 scales extending in a curved chevron to center of each thigh (Fig. 6D), each containing a single pore, pores larger medially; thigh scales anterior to this row flat, subimbricate, much larger than those posterior to row, which are round and subimbricate to granular; enlarged scales anterior to pore-bearing series extending laterally approximately ten (R) or six (L) scales from apex of pore series before transitioning abruptly to small scales. Enlarged, imbricate scales form a pubic patch between precloacal series and vent, decreasing in size posteriorly; 13 scales in a row between apex of enlarged precloacal series and vent, first nine large, last four rows tiny, granular. Scales under arms granular, those under hindlimbs enlarged, flat, imbricate; scales on palms and soles rounded, flattened, smooth, subimbricate.

Fore- and hindlimbs well-developed (FA/SVL = 0.10, CS/SVL = 0.13). Digits well-developed, with broad pads on toes (T4W/T4L = 0.45), all but first fingers with recurved claws; clawed terminal phalanges on all digits except T1 laterally compressed, free above, arising from toe pad, inset from its margin, extending slightly beyond it; claw on T1 small, terminal, extending slightly beyond toe-pad margin. Subdigital lamellae narrow and smooth, all undivided, most forming a shallowly curved chevron medially (Fig. 6C); lamellae extend for more than half length of each toe (T4lamellaeL/T4L = 0.61). Lamellae of manus 15-16-18-18-17 on right; of pes 13-20-18-18-18 on right, 14-18-20-20-19 on left. Relative lengths of digits on manus and pes I < II < III < V < IV. Webbing present between all digits, about the same between T3, T4, and T5 (T3T4webL/T4L = 0.29, T4T5webL/T4L = 0.28).

Original tail 45 mm, regenerated tail 40 mm, dorsoventrally compressed but not flat, no lateral serrations. Tail with small subimbricate scales dorsally; under tail with single midventral row of enlarged, flat, imbricate subcaudals, bordered laterally by much smaller, flat, subimbricate scales that decrease in size laterally and dorsally (Fig. 3B); subcaudals under regenerated tail wider and thinner than those on original tail. Cloacal sacs swollen, with single external orifice situated near each lateral margin of vent; three (R) or two (L) slightly enlarged, blunt postcloacal spurs on each side of tailbase; midventral scales of sac flat, subimbricate, larger posteriorly, slightly larger than those ventrolaterally.

Color in preservative: Dorsal ground color on body, head, and limbs light brown, irregularly marked with dark-brown blotches and ragged spots and flecks, with black flecks on nape, between hindlimbs, and on anterior tail; dark markings concentrated into four vague large blotches from nape to between hindlimbs. Original tail as for trunk; regenerated tail darker brown. Labials and rostral heavily dusted with dark brown. Venter white, heavily marked with brown flecks on chin and throat; palms and soles same as venter; lamellae under expanded portions of digits gray. Iris pale tan heavily veined with dark brown.

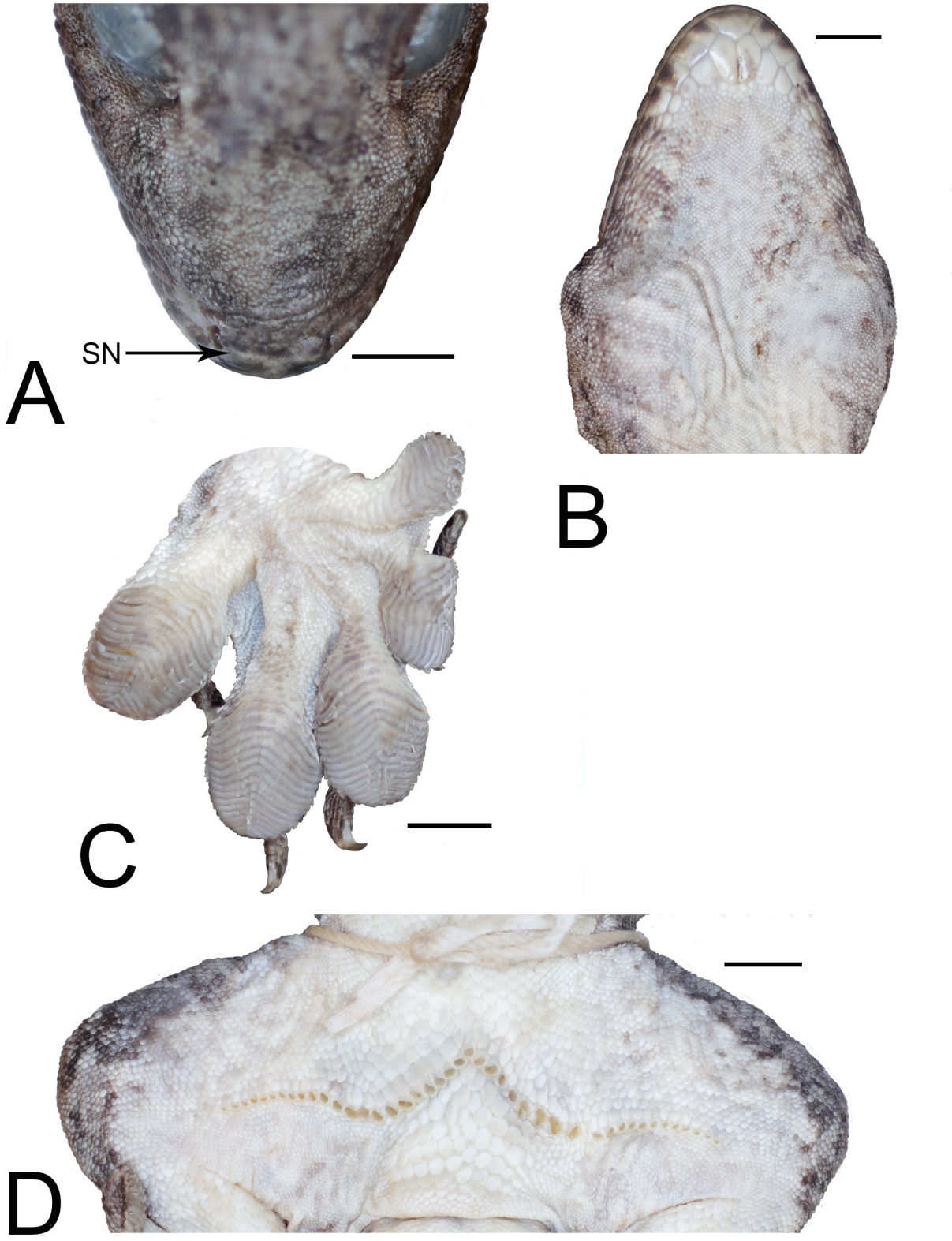

FIGURE 6. Details of holotype of *Gehyra aquilonia*, BPBM 34745. (A) close-up of snout showing supranasal (SN) with small postsupranasals behind it, (B) chin, (C) left foot, and (D) precloacal/femoral pore series. Scale bars = 5 mm.

Color in life.—Field notes for the holotype read "Dorsum brown with 5 obscure darker-brown blotches on body, giving it a rather mottled appearance. Iris tan veined with dark brown. Venter yellow, paler laterally and on throat, lemon yellow medially." A photo of this animal (Fig. 4B) also shows the ground color to be darker mid-

dorsally than dorsolaterally or laterally, with several scattered, tiny dark-brown spots on the dorsum, a very dark-brown field on the posterior of the head and nape, a whitish postocular stripe, whitish loreal spot, and a whitish field behind the dark-brown blotch on the nape.

Measurements (in mm).—SVL = 130.0, TrL = 55.3, FA = 13.3, CS = 17.3, HL = 29.3, HW = 24.4, HH = 14.4, Ear = 3.7, EE = 9.8, EY = 6.7, SN = 14.9, EN = 12.4, IN = 5.5, T4L = 15.3, T4W = 6.9, T4lamellaeL = 9.3, T3T4webL = 4.5, T4T5webL = 4.3, mass in life = 49.8 g.

Variation.—Males are larger than females (SVL = 124–134 mm vs. 108–118 mm). Greatest mensural variation of importance is in snout length, toe width, and the extent of toe webbing, which extends approximately one-third the length of T4 between that toe and T3 and one-fifth to one-quarter the length of T4 between that toe and T5 (Table 1). Meristically, variation in numbers of lamellae under the toes is rather high (16–22 under T4, 11–16 under T1). Variation in numbers of supralabials and infralabials is also rather large (Table 1). Numbers of enlarged precloacal/femoral scales varies from 43–50, and precloacal/femoral pores in undamaged males from 43–47. The number of internasals varies from zero to three, postnasals are three or four, and most specimens have six granular scales bordering the posterior margin of the postmentals (Table 1). The enlarged row of subcaudal scales varies significantly in size and shape. The three animals from Lumi, Torricelli Mts. (AMNH 100088–90) have thinner and wider subcaudals on the regenerated portions of their tails than on the basal original tails of the same specimens.

Dorsal color pattern for most specimens is generally uniform pale brown; however, AMNH 95216 is reddish brown, and BPBM 34745 and AMNH 100089 have a head band and wide body bands that are darker than the remainder of dorsum. AMNH 100089 also has five bands of large beige spots across the body and base of tail, and AMNH 100090 has two narrow dark-brown bands across the nape. All specimens have labials heavily suffused with brown, with darker specimens having more brown suffusion. All specimens are white or white with a faint yellow cast ventrally, and three have a small amount of brown dusting on the chin and angle of jaw, with the holotype having the most.

Etymology.—The species name is the feminine Latin adjective meaning "northern" in recognition of the distribution of this species across the foothills of the northern coastal mountain ranges of Papua New Guinea.

Range.—Known from several localities along the north-coast ranges of Papua New Guinea, from near sea level to ~670 m a.s.l. (Fig. 7).

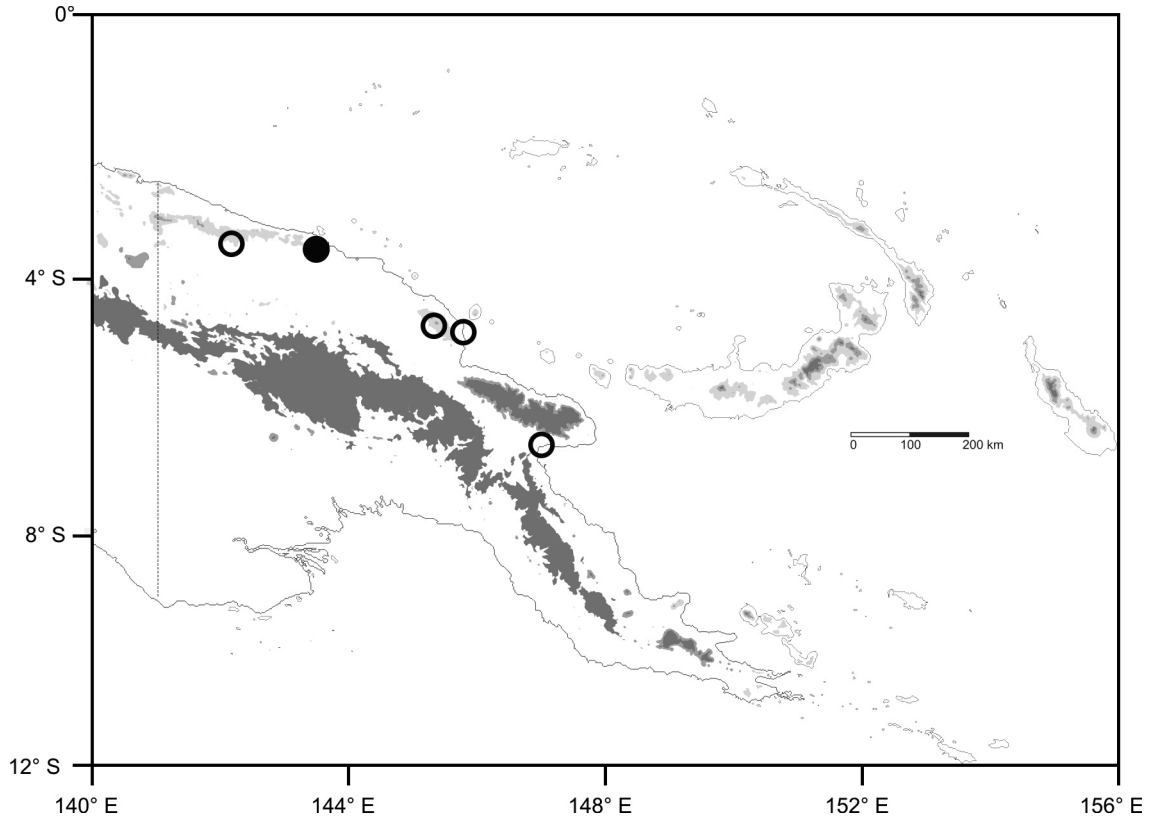

FIGURE 7. Map of Papua New Guinea showing collecting localities for *Gehyra aquilonia* along its northern coast. Solid circle = type locality; open circles = additional localities.

Ecology.—The holotype came from lowland rainforest in the vicinity of a stream. The paratypes were collected near villages, suggesting that they may have come from secondary forests. All animals have been found in foothill forest.

Remarks.—As also seen in *Gehyra chrysopeleia*, the skin on the underside of the forearms in *G. aquilonia* is relatively loose and expansive, giving it a "baggy" appearance, and this can result in the impression of either an antecubital skin fold, a postcubital skin fold, or both, depending on how the specimen was arranged during fixing. Irrespective of this appearance in any particular specimen, this feature clearly serves to distinguish *G. aquilonia* from *G. membranacruralis*.

Heinicke *et al.* (2011: 588, 592) included in their phylogenetic tree of *Gehyra* a specimen of "*G. membranacruralis*" from Sibilanga, West Sepik Province, PNG. Judging from its locality, this specimen will surely represent *G. aquilonia*. They found it to be sister taxon to *G. chrysopeleia* but with a deep divergence from that species. They did not have true *G. membranacruralis* in their sample.

Gehyra maculicincta **sp. nov.**

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Figs. 3C, D, 4C, 9

Gehyra oceanica Goldberg, Bursey & Kraus 2010: 139 [part].

Holotype.—UMMZ 244055 (field tag FK 17096), mature male, F. Kraus, collected at Sibonai, Normanby Island, 10.0338° S, 150.9701° E, 5 m a.s.l., Milne Bay Province, Papua New Guinea, 17 March 2015.

Paratypes (n=8).—Same data as holotype except collected 18 March 2015 (UMMZ 244056–57), and 10.033° S, 150.9771° E, 40 m a.s.l., 25 May 2004 (BPBM 19771); Suau, 10.5936° S, 150.0508° E, 100 m a.s.l., Milne Bay Province, Papua New Guinea, 29 March 2017 (UMMZ 245458); Opea Island, 10.6034° S, 150.0113° E, 1 m a.s.l., Milne Bay Province, Papua New Guinea, 31 March 2017 (UMMZ 245459–62).

Diagnosis.—A medium-sized (SVL of adult males 58.0–69.5 mm, of adult females 59.5–69 mm) species of *Gehyra* having entirely undivided subterminal lamellae on all toes; 11–13 T4 lamellae; 8–11 T1 lamellae; relatively little webbing between all toes (T3–T4webL/T4L = 0.13–0.30, T4–T5webL/T4L = 0.04–0.19); short snout (SN/HL = 0.44–0.50, EN/HL = 0.35–0.39); wide head (HW/HL = 0.80–0.94); 32–45 enlarged precloacal/femoral scales; 37–45 precloacal/femoral pores in a continuous chevron in males; multiple rows of small, subequal subcaudal scales in original tails; tail depressed, flattened when regenerated, lacking lateral serrations; lateral skin fold absent on trunk (n = 3) or small (n = 6); antecubital and popliteal skin folds absent; elongate postmentals; 3–6 scales in posterior contact with postmentals; three postnasals; all postsupranasal scales small, <<50% size of supranasal; dorsal color pattern of bold dark-brown and pale yellow-tan spots arrayed in alternating bands across the dorsum on a medium-brown ground color.

Comparisons with other species.—Among Melanesian *Gehyra, G. maculicincta* is easily distinguished from *G. baliola*, *G. barea*, *G. insulensis*, *G. interstitialis*, *G. lampei*, *G. leopoldi*, and *G. papuana* by having undivided (vs. divided) subapical lamellae under the toes. *Gehyra maculicincta* differs from *G.* cf. *dubia* in having more webbing between the digits (vs. absent or only basal in *G.* cf. *dubia*) and a boldly marked dorsum (vs. pale gray in *G.* cf. *dubia*); from *G. aquilonia*, *G. chrysopeleia*, *G. georgpotthasti*, *G. marginata*, *G. membranacruralis*, and *G. rohan* by its much smaller size (up to 70 mm SVL in *G. maculicincta* vs. >100 mm in those other species), and in having multiple rows of small subcaudals (vs. single median row of enlarged subcaudals in those other species) in original tails; and from *G. serraticauda* in its smaller size (90 mm SVL in *G. serraticauda*), in having multiple rows of small subcaudals (vs. single median row of enlarged subcaudals *G. serraticauda*) in original tails, and in lacking lateral serrations on the tail (vs. present in *G. serraticauda*).

Gehyra maculicincta is most similar to *G. oceanica*, from which it differs in its generally smaller size (up to 70 mm SVL vs. up to 102 mm in *G. oceanica*), fewer T4 lamellae (11–13, mean 12.4 vs. 13–19, mean 15.7 in 157 Polynesian *G. oceanica*, 15–20, mean 17.7 in 80 Micronesian *G. oceanica*); and color pattern of bold pale-tan and dark-brown spots arrayed in bands across the dorsum (vs. dorsum uniform gray, brown, or with small scattered spots but not arrayed in bold bands in *G. oceanica*). These scalational differences are most clear in a bivariate plot of numbers of precloacal/femoral pores vs. numbers of T4 lamellae (Fig. 8).

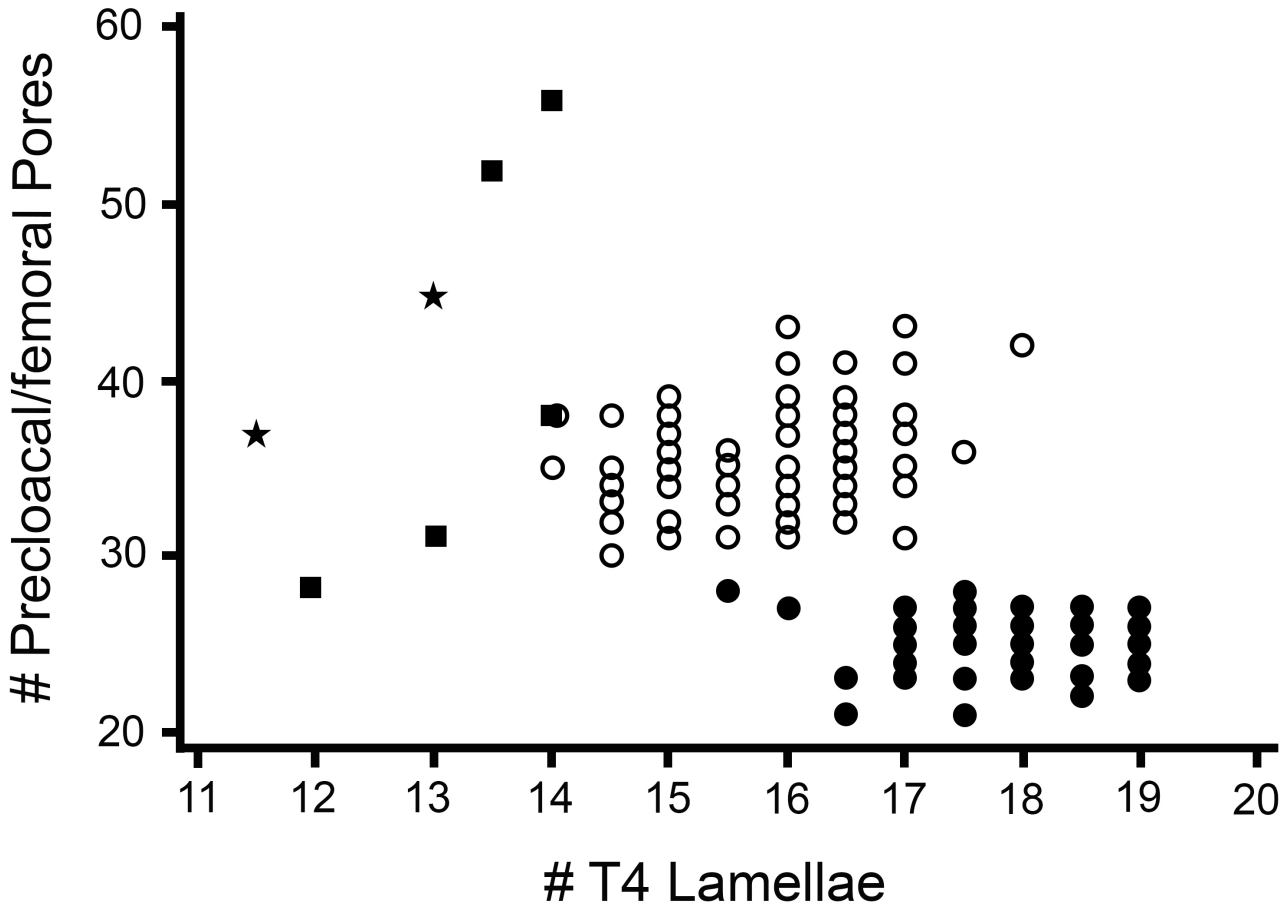

FIGURE 8. Bivariate plot of numbers of precloacal/femoral pores vs. numbers of subdigital lamellae on the fourth toe. Lamellae numbers for each specimen are averages of the numbers from each foot. Stars = *Gehyra maculicincta*, squares = *G. louisiadensis*, solid circles = Micronesian lineage of *G. oceanica*, open circles = Pacific lineage of *G. oceanica*.

Description of holotype.—A mature male of medium size (SVL = 69.5 mm) with a right-lateral incision behind the pectoral region; liver removed. Head relatively long (HL/SVL = 0.23) and wide (HW/HL = 0.94), distinct from neck (Fig. 9A). Loreal region slightly inflated; no distinct canthus rostralis. Top of snout and area behind nares shallowly concave. Snout tapered and rounded at tip, relatively short (SN/HL = 0.44), almost twice eye diameter (SN/EY = 1.9). Eye of modest size (EY/HL = 0.23, EY/EN = 0.64); pupil vertical, constricted into four lobes; a few anterior supraciliaries slightly larger than adjacent granules, remainder subequal to adjacent granules. Ear opening of moderate size (Ear/HL = 0.075), vertically elliptical; distance between ear and eye almost half again as large as eye diameter (EE/EY = 1.4). Rostral approximately half again as wide (2.9 mm) as high (1.9 mm) ; length 1.1 mm; highest just medial to nares, lower medially, with medial suture on dorsal half. Supranasals separated by single large internasal along posterior rostral margin. Rostral in contact with first supralabials, two supranasals, and one internasal. External nares circular; each bordered by rostral, single supranasal, first supralabial, and three postnasals. Each supranasal bordered posteriorly by three small postsupranasals, all <<50% size of supranasal. Mental triangular, 2.0 mm wide, rear margin slightly scalloped. Mental bordered posteriorly by two elongate postmentals that are longer than mental (Fig. 9B), these each bordered posteriorly by three round scales same size as those on chin. Postmentals bordered laterally by shorter squarish subinfralabials, gradually decreasing in size posteriorly. First infralabial bordered below by postmental and barely touching (on left side) subinfralabial, second infralabial bordered by two subinfralabials, and third infralabials by three subinfralabials; subinfralabials behind this increasingly smaller, becoming granular posteriorly. Supralabials to mid-orbital position eight on each side; four tiny supralabials posterior to this; angle of jaw bordered with granular scales. Infralabials ten on each side.

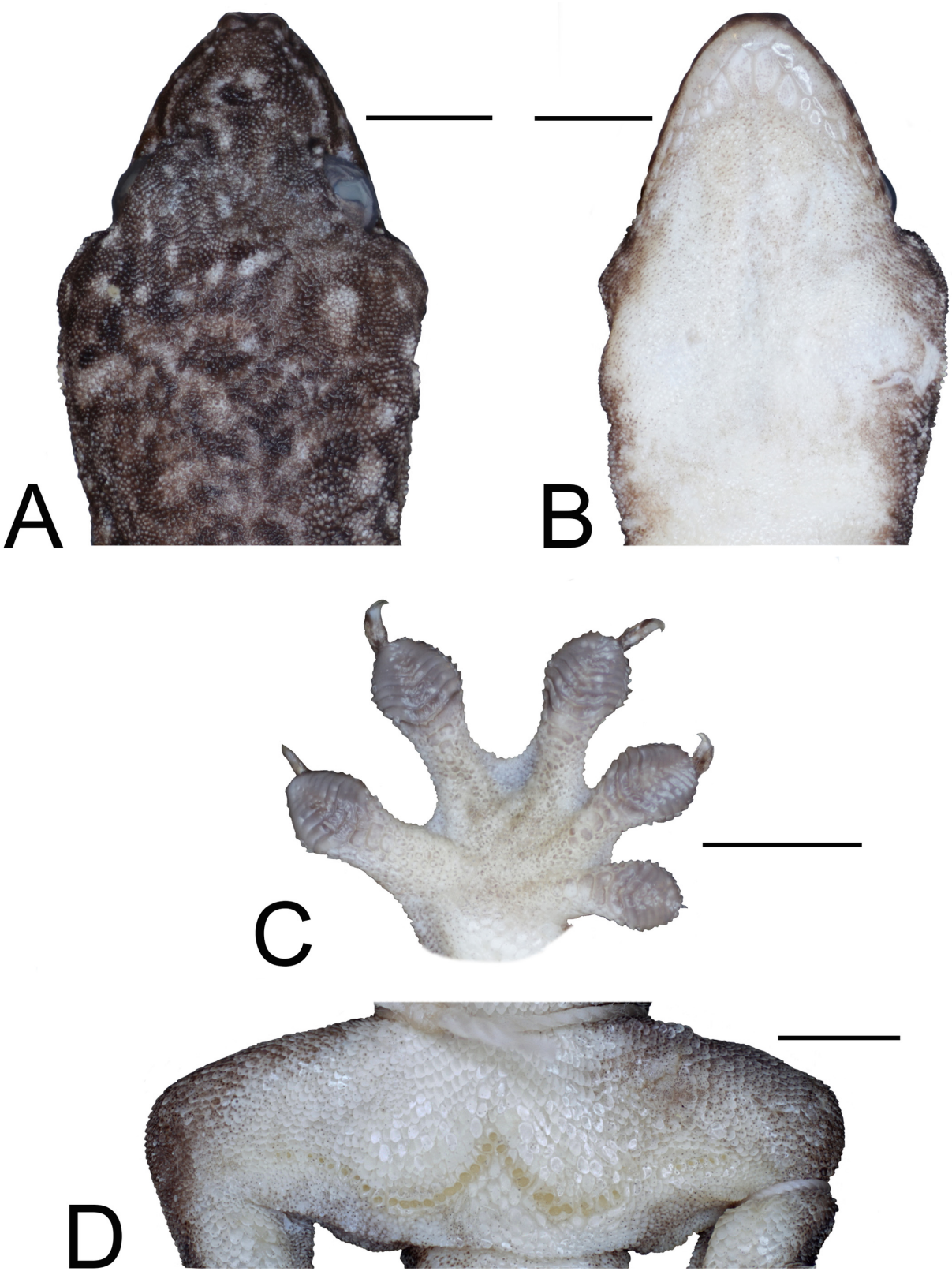

FIGURE 9. Details of holotype of *Gehyra maculicincta*, UMMZ 244055. (A) head, (B) chin, (C) right foot, and (D) precloacal/femoral pore series. Scale bars = 5 mm.

Body of fairly robust habitus (TrL/SVL = 0.46), slightly depressed. Dorsal scales on head, body, limbs, and throat small juxtaposed granules, slightly smaller on neck, head, and limbs, largest on sides and dorsum; tubercles

absent. Ventral scales larger, flat, smooth, subimbricate, larger midventrally, gradually decreasing in size laterally to become granular. Skin folds absent on body and limbs.

Enlarged precloacal/femoral scales in single series of 44 scales, containing 37 pores extending in a curved chevron to center of each thigh (Fig. 9D), pores larger medially; thigh scales anterior to this row flat, subimbricate, subequal in size to those immediately posterior to row; enlarged scales anterior to pore-bearing series extending laterally along entire length of pore series. Enlarged, imbricate scales form a pubic patch between precloacal series and vent, decreasing slightly in size posteriorly; seven scales in a row between apex of enlarged precloacal series and vent. Scales under arms flat, small, subimbricate; those under hindlimbs enlarged, flat, imbricate; scales on palms and soles granular to subimbricate.

Fore- and hindlimbs well-developed (FA/SVL = 0.12, CS/SVL = 0.15). Digits well-developed, with broad pads on toes (T4W/T4L = 0.44), all but first fingers with well-developed recurved claws; clawed terminal phalanges on all digits except T1 laterally compressed, free above, arising from toe pad, inset from its margin, extending slightly beyond it; claw on T1 small, terminal, extending slightly beyond toe-pad margin. Subdigital lamellae narrow and smooth, all undivided, most forming a shallowly curved chevron medially (Fig. 9C); lamellae extend for only half length of each toe (T4lamellaeL/T4L = 0.54). Lamellae of manus 8-10-11-11-11 on right, 8-9-11-11-10 on left; of pes 10-10-12-11-11 on right, 10-11-12-12-11 on left. Relative lengths of digits on manus and pes I < II < III ≈ V < IV. Webbing present between all digits, reduced on hands, most extensive between T3 and T4 (T3T4webL/T4L = 0.21, T4T5webL/T4L = 0.13).

Original tail 4 mm, regenerated tail 32 mm, wide (TW/SVL = 0.13) and flattened, no lateral serrations. Tail with small subimbricate scales dorsally; under tail with mix of midventral row of narrow, wide, flat, imbricate scales and smaller interspersed scales, the latter predominating posteriorly (Fig. 3D); laterally scales much smaller, flat, subimbricate, decreasing in size laterally and dorsally. Cloacal sacs swollen, with single oblong external orifice situated near each lateral margin of vent; three slightly enlarged, blunt postcloacal spurs on each side of tailbase; midventral scales of sac flat, subimbricate, larger posteriorly, slightly larger than those ventrolaterally.

Color in preservative: Dorsal ground color on body, head, and limbs medium brown, with numerous pale-brown spots of varying sizes and with extensive dark-brown marbling. Top of head similar; dark-brown preocular stripe, bordered above by dirty-white preocular stripe, bordered above by dark brown. Supralabials spotted with pale tan and dark brown. Regenerated tail medium gray brown with scattered dark-brown granules and no pale-brown spots, contrasting with pattern on trunk. Venter white with pale-brown dusting on throat and palmar and plantar surfaces; lamellae gray brown. Iris pale bronze with red-brown veins and dots, densest near pupil.

Measurements (in mm).—SVL = 69.5, TrL = 32.0, FA = 8.5, CS = 10.1, HL = 16.1, HW = 15.2, HH = 8.3, Ear = 1.2, EE = 5.3, EY = 3.7, SN = 7.1, EN = 5.8, IN = 2.6, T4L = 6.1, T4W = 2.7, T4lamellaeL = 3.3, T3T4webL = 1.3, T4T5webL = 0.8, mass in life = 7.25 g.

Variation.—The sexes are the same size, and little mensural variation is evident in the sample (Table 3), with variation in toe width and webbing being most significant. Meristic variation is nominal. Though digital lamellae are complete, the subterminal lamellae are sometimes deeply notched and may superficially appear to be divided, though the sides of each seem to be connected across their proximal edge. This state is clearest in two of the specimens (UMMZ 245460–61) from Opea Island but does not appear in specimens from Normanby Island.

Subcaudal shape varies depending on whether the tail is original or regenerated. The tail of the holotype is regenerated and contains many wide and thin subcaudals (Fig. 3D), as does that of UMMZ 245462; however, the only paratype with an original tail (BPBM 19771) clearly has small, subequal subcaudals (Fig. 3C) that are like those seen in *G. oceanica* and in contrast to the giant species described above. The regenerated tails of the holotype and two paratypes (UMMZ 245458, 245462) are also much wider than the original tail of BPBM 19771; both observations suggest the possibility of a different growth pattern in the morphology of regenerated tails in this species.

In BPBM 19771, the dorsal color pattern on the tail is similar to the dorsal trunk, being medium-brown with small dark-brown flecks, the ventral color is white with small dark-brown flecks. UMMZ 244057 is similar in color pattern to the holotype but with less dark-brown marbling, and UMMZ 244056 and 245059–60 have even less contrast in dorsal pattern elements. BPBM 19771 has more of a reddish cast than do the other specimens and the darker elements dorsally more concentrated in narrow bands and with scattered dark-brown granules. All eight paratypes have more brown dusting on the belly and under the legs.

TABLE 3. Mensural and meristic data for the type series of *Gehyra maculicincta*. Bilateral scale counts are right/left.

Specimen	BPBM 19771 **paratype**	UMMZ 244055 **holotype**	UMMZ 244056 **paratype**	UMMZ 244057 **paratype**
Locality	Normanby Is.	Normanby Is.	Normanby Is.	Normanby Is.
Sex	imm. F	M	F	F
SV	46.5	69.5	64.0	59.5
HL	11.4	16.1	14.7	13.6
T4L	4.5	6.1	6.0	5.6
TrunkL/SV	0.46	0.46	0.46	0.43
CrusL/SV	0.13	0.15	0.13	0.14
TailL/SV	0.83	0.52		
TailW/SV	0.11	0.13		
HL/SV	0.25	0.23	0.23	0.23
HW/SV	0.22	0.22	0.21	0.21
ForearmL/SV	0.13	0.12	0.12	0.12
HW/HL	0.90	0.94	0.90	0.91
EN/HL	0.35	0.36	0.39	0.38
EarL/HL	0.11	0.07	0.11	0.09
SN/HL	0.44	0.44	0.48	0.49
EY/HL	0.26	0.23	0.27	0.25
T4L/SV	0.097	0.088	0.094	0.094
T4W/T4L	0.38	0.44	0.40	0.41
T4 scansor L/T4L	0.56	0.54	0.58	0.52
T3–T4 web L/T4L	0.13	0.21	0.17	0.23
T4–T5 web L/T4L	0.04	0.13	0.12	0.13
#T4 scansors	12/13	11/12	11/11	12/12
#T1 scansors	10/8	10/10	10/11	8/10
SL to mid-eye	9/8	8/8	8/9	9/9
infralabials	10/11	10/10	10/10	10/11
#enl. precloacal/femoral scales	33	44		38
#enl. precloacal/femoral pores	NA	37	NA	NA
# internasals	2	1	2	1
# postnasals	3	3	3	3
# scales behind postmentals	5	5	4	6

TABLE 3 (Continued)

Specimen	UMMZ 244058 **paratype**	UMMZ 244059 **paratype**	UMMZ 244060 **paratype**	UMMZ 244061 **paratype**	UMMZ 244062 **paratype**
Locality	Suau	Opea Is.	Opea Is.	Opea Is.	Opea Is.
Sex	F	imm. M	F	M	M
SV	69.0	53.5	61.0	60.0	58.0
HL	15.8	13.0	14.3	14.4	13.5
T4L	6.1	4.8	5.4	5.7	5.3
TrunkL/SV	0.46	0.45	0.45	0.43	0.48
CrusL/SV	0.13	0.14	0.13	0.14	0.14
TailL/SV					
TailW/SV	0.11				0.09
HL/SV	0.23	0.24	0.23	0.24	0.23
HW/SV	0.18	0.21	0.21	0.21	0.21
ForearmL/SV	0.11	0.12	0.11	0.12	0.12
HW/HL	0.80	0.85	0.89	0.88	0.90
EN/HL	0.39	0.38	0.37	0.39	0.39
EarL/HL	0.095	0.085	0.091	0.104	0.096
SN/HL	0.48	0.48	0.48	0.47	0.50
EY/HL	0.25	0.24	0.24	0.24	0.27
T4L/SV	0.088	0.090	0.089	0.095	0.091
T4W/T4L	0.43	0.46	0.46	0.40	0.45
T4 scansor L/T4L	0.57	0.60	0.63	0.63	0.64
T3–T4 web L/T4L	0.30	0.25	0.28	0.23	0.25
T4–T5 web L/T4L	0.10	0.19	0.15	0.16	0.09
#T4 scansors	13/13	13/13	13/13	13/13	13/13
#T1 scansors	10/11	10/10	11/10	10/10	9/9
SL to mid-eye	9/9	9/10	9/9	10/8	8/9
infralabials	10/10	11/11	11/10	10/9	10/10
#enl. precloacal/femoral scales	20	32	35	30	45
#enl. precloacal/femoral pores	NA	NA	NA	43*	45
# internasals	2	1	1	2	1
# postnasals	3	3	3	3	3
# scales behind postmentals	6	5	2†	5	3

* Row incomplete on right side, count doubled from 21 on left side.

† Right postmental not in contact with postmentals.

Color in life.—Field notes for the holotype read "Dorsum brown with pale tan, black-margined ocelli. Venter lemon yellow. Iris pale tan. Pale-tan spots on head. Margins of ocelli unevenly black." UMMZ 244056–57 were also noted to have bands of yellow-tan spots margined in dark brown, yellowish brown ground color with some brown spots, and lemon-yellow venter. BPBM 19771 was noted to have a pale-yellow chin and throat and bright-orange subcaudal surface, and UMMZ 245458 had a lemon-yellow venter. The pale spots in UMMZ 244056 are clearly arrayed in bands across the body, as are many of the dark-brown markings (Fig. 4C); iris color in this animal was pale bronze in life.

Etymology.—The species name is a feminine compound adjective from the Latin *macula*, meaning "spot" and *cinctum*, meaning "belt", meaning "banded with spots".

Range.—Known from Normanby Island and from the Suau area of southernmost mainland New Guinea, from roughly sea level to 100 m a.s.l. (Fig. 5).

Ecology.—All animals on Normanby Island came from the area surrounding a dispersed village with low human density; habitat here is a mix of advanced secondary forest and open clearings around the houses. The Suau animal came from primary rainforest; those from Opea Island were from undisturbed coastal forest.

Remarks.—The bold color pattern seen in life (Fig. 3C) fades significantly in preservative, but the pale spots remain evident although the dark-brown interstices can become significantly more clouded.

One specimen from Guleguleu, Normanby Island, 9.99° S, 151.29° E (AMS 129847) likely belongs to this species because of its presence on Normanby Island and its previous assignment to *G. oceanica* (Sistrom *et al.* 2009). I have not seen this specimen to confirm this, but I map its locality on eastern Normanby Island (Fig. 5).

***Gehyra louisiadensis* sp. nov.**

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Figs. 3E, 4D, 10

Gehyra oceanica Kraus & Shea 2005: 471.
Gehyra oceanica Goldberg, Bursey & Kraus 2010: 139 [part].

Holotype.—BPBM 19763 (field tag FK 9893), mature male, F. Kraus, collected at Araeda, Sudest Island, 11.4362° S, 153.4301° E, 1–20 m a.s.l., Milne Bay Province, Papua New Guinea, 28 April 2004.

Paratypes (n=14).—Papua New Guinea: Milne Bay Province: Sudest Island: same data as holotype (BPBM 19762), same data as holotype except collected 11 April 2004 (BPBM 19759), ridge N of Camp 1, 11.48° S, 153.41° E, 120–130 m a.s.l., 26 April 2004 (BPBM 19760–61); Rossel Island: Damunu, 11.365° S, 154.001° E, 0–40 m a.s.l., 1 May 2004 (BPBM 19764–67), Cheme, 11.3231° S, 154.2428° E, 5 m a.s.l. 5 May 2004 (BPBM 19768); Misima Island: Liak, 10.6608° S, 152.6854° E, 0–20 m a.s.l., 11–15 January 2003 (BPBM 17218, 17220–22), Bwaga Bwaga Ridge, 10.674° S, 152.683° E, 440–480 m a.s.l.,12 January 2003 (BPBM 17219).

Diagnosis.—A medium-sized (SVL of adult males 68.0–83.0 mm, of adult females 53.0–77.0 mm) species of *Gehyra* having entirely undivided subterminal lamellae on all toes; 11–15 T4 lamellae; 10–15 T1 lamellae; moderate amount of webbing between all toes (T3–T4webL/T4L = 0.17–0.31, T4–T5webL/T4L = 0.08–0.19); long snout (SN/HL = 0.46–0.51, EN/HL = 0.37–0.42); narrow head (HW/HL = 0.73–0.86); 38–56 enlarged precloacal/femoral scales; 28–55 precloacal/femoral pores in a continuous chevron; a medial row of enlarged subcaudal scales with some smaller scales interspersed; tail depressed, flattened, lacking lateral serrations; skin folds absent on trunk and forearms; popliteal skin fold absent (n = 13) or small (n = 2); elongate postmentals; 1–6 scales in posterior contact with postmentals; three postnasals; all postsupranasal scales small, with none >50% size of supranasal; dorsal color pattern of large, dark-brown, anastomozing maculations on a medium-brown or yellow-brown ground color.

Comparisons with other species.—Among Melanesian *Gehyra, G. louisiadensis* is easily distinguished from *G. baliola*, *G. barea*, *G. insulensis*, *G. interstitialis*, *G. lampei*, *G. leopoldi*, and *G. papuana* by having undivided (vs. divided) subapical lamellae under the toes. *Gehyra louisiadensis* differs from *G.* cf. *dubia* in having extensive webbing between the digits (vs. absent or only basal in *G.* cf. *dubia*); from *G. chrysopeleia*, *G. georgpotthasti*, *G. marginata*, *G. membranacruralis*, and *G. rohan* by its much smaller size (up to 83 mm SVL in *G. louisiadensis* vs. >100 mm in those other species), lack of popliteal and antecubital skin folds (vs. prominent skin folds in those other species), and fewer T4 lamellae (11–15 vs. 16–27 in those other species); and from *G. serraticauda* in its smaller

size (up to 83 mm SVL vs. 90 mm SVL in *G. serraticauda*), absence of lateral serrations on the tail (vs. present in *G. serraticauda*), and dorsum boldly maculated with dark brown (vs. dorsum gray with or without red markings in *G. serraticauda*).

Gehyra louisiadensis is most similar to *G. oceanica* and *G. maculicincta*. It differs from *G. oceanica* in its generally smaller size (up to 83 mm SVL vs. up to 102 mm in *G. oceanica*), fewer T4 lamellae (11–15, mean 13.8 vs. 13–19, mean 15.7 in 157 Polynesian *G. oceanica*, 15–20, mean 17.7 in 80 Micronesian *G. oceanica*); medial row of enlarged subcaudal scales (vs. subcaudals small and subequal in *G. oceanica*); and color pattern of large dark-brown maculations on a lighter-brown ground (vs. dorsum uniform gray, brown, or with small scattered spots but not boldly maculated in *G. oceanica*). These meristic differences are most clear in a bivariate plot of numbers of precloacal/femoral pores vs. numbers of T4 lamellae (Fig. 8).

Gehyra louisiadensis differs from *G. maculicincta* in its larger size (up to 83 mm SVL vs. up to 69.5 mm in *G. maculicincta*), greater number of T4 lamellae (11–15, mean 13.8 vs. 11–13, mean 12.4 in *G. maculicincta*), greater number of T1 lamellae (10–15, mean 11.8 vs. 8–11, mean 9.8 in *G. maculicincta*), medial row of enlarged subcaudal scales (vs. subcaudals small and subequal in *G. maculicincta*), relatively narrower head (HW/HL = 0.73–0.86, mean 0.80 vs. 0.80–0.94, mean 0.89 in *G. maculicincta*), and dorsum with large dark-brown maculations on a medium-brown or yellow-brown ground color (vs. dorsum with alternating bands of bold dark-brown and pale yellow-tan spots in *G. maculicincta*).

Description of holotype.—A mature male of medium size (SVL = 72.5 mm) with a right-lateral incision behind the pectoral region; liver removed for molecular studies and most viscera removed for prior parasite studies. Head relatively long (HL/SVL = 0.23) and narrow (HW/HL = 0.83), distinct from neck (Fig. 10A). Loreal region slightly inflated; no distinct canthus rostralis. Top of snout concave, area behind nares shallowly concave. Snout tapered and rounded at tip, relatively long (SN/HL = 0.48), almost twice eye diameter (SN/EY = 1.9). Eye of modest size (EY/HL = 0.26, EY/EN = 0.65); pupil vertical, constricted into four lobes; anterior supraciliaries slightly larger than adjacent granules and posterior supraciliaries, remainder subequal to adjacent granules. Ear opening of moderate size (Ear/HL = 0.095), squarish; distance between ear and eye one-third again as large as eye diameter (EE/EY = 1.3). Rostral approximately half again as wide (3.0 mm) as high (1.9 mm), highest medial to supranasals, lower medially, with medial suture on dorsal quarter; length 1.0 mm. Single large internasal separates supranasals, with smaller internasal between this and rostral. Rostral in contact with first supralabials, two supranasals, and two internasals (narrow contact only with larger, posterior internasal). External nares circular; each bordered by rostral, single supranasal, first supralabial, and three postnasals. Each supranasal bordered posteriorly by three (R) or four (L) small postsupranasals, all <<50% size of supranasal. Mental triangular, 2.8 mm wide, rear margin slightly scalloped. Mental bordered posteriorly by two elongate postmentals that are longer than mental (Fig. 10B), these each bordered posteriorly by two round scales slightly larger than chin granules. Two shorter subinfralabials lie sequentially lateral to each postmental, decreasing in size posteriorly. First infralabial bordered below by postmental and first subinfralabial, second by both subinfralabials and a smaller round scale, and third by four small scales; subinfralabials behind this increasingly smaller, becoming granular posteriorly. Supralabials to mid-orbital position nine on each side; four tiny supralabials posterior to this; angle of jaw bordered with granular scales. Infralabials ten on each side.

Body of fairly robust habitus (TrL/SVL = 0.43), slightly depressed. Dorsal scales on head, body, limbs, throat, and tail small juxtaposed granules; tubercles absent. Ventral scales larger, flat, smooth, subimbricate, larger midventrally, gradually decreasing in size laterally to become granular. Skin folds absent on body and limbs.

Enlarged precloacal/femoral scales in series of 26 scales on right side (absent from left), containing 24 pores extending in a curve from center of precloacal region to center of thigh (Fig. 10D), pores larger medially, smaller laterally; thigh scales anterior to this row flat, subimbricate, larger than those immediately posterior to row; enlarged scales anterior to pore-bearing series extending laterally along most of length of pore series but decreasing in size near lateral end of pore series. Enlarged, imbricate scales form a pubic patch between precloacal series and vent, smaller anteriorly, larger posterior to that, then decreasing slightly in size posteriorly to vent; 12–13 scales in a row between apex of enlarged precloacal series and vent. Scales under arms flat, small, subimbricate; those under hindlimbs larger, flat, imbricate; scales on palms and soles granular to subimbricate.

Fore- and hindlimbs well-developed (FA/SVL = 0.11, CS/SVL = 0.13). Digits well-developed, with broad pads on toes (T4W/T4L = 0.46), all but first fingers with well-developed recurved claws; clawed terminal phalanges on all digits except T1 laterally compressed, free above, arising from toe pad, inset from its margin, extending slightly

beyond it; claw on T1 small, terminal, extending slightly beyond toe-pad margin. Subdigital lamellae narrow and smooth, all undivided, most forming a shallowly curved chevron medially (Fig. 10C); lamellae extend for two-thirds length of each toe (T4lamellaeL/T4L = 0.65). Lamellae of manus 12-13-14-13-13 on right, 12-13-14-14-13 on left; of pes 13-14-14-15-15 on right, 13-13-15-15-15 on left. Relative lengths of digits on manus and pes I < II < III < V < IV. Webbing present between all digits, reduced on hands, most extensive between T3 and T4 (T3T4webL/T4L = 0.22, T4T5webL/T4L = 0.19).

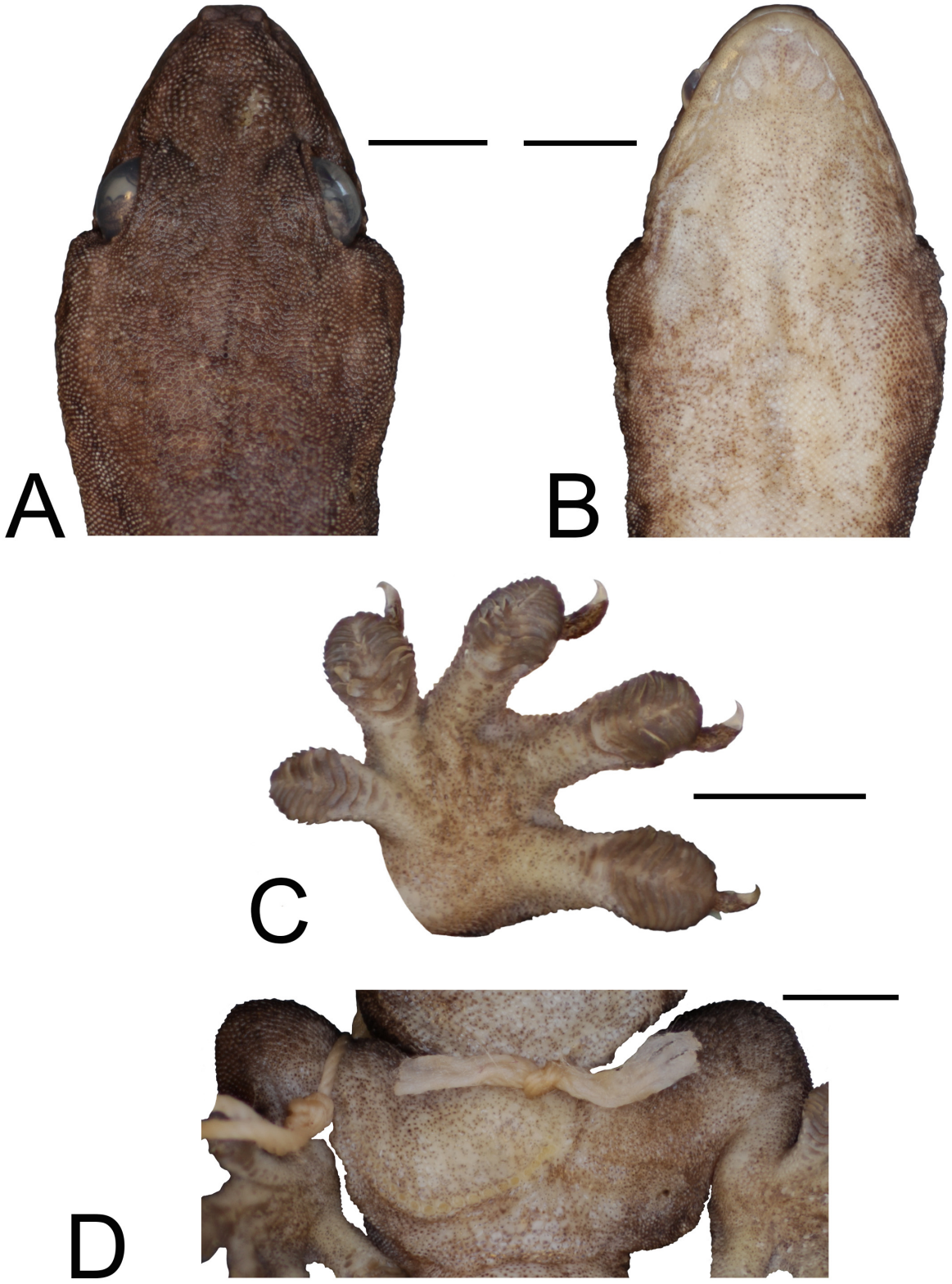

FIGURE 10. Details of holotype of *Gehyra louisiadensis*, BPBM 19763. (A) head, (B) chin, (C) left foot, and (D) precloacal/femoral pore series. Scale bars = 5 mm.

Tail relatively long (TL/SVL = 0.68), wide (TW/SVL = 0.11) and flattened, no lateral serrations; approximately 4–6 mm of tip missing. Tail constricted slightly just behind cloacal sacs, denoting fracture plane, but scale size and arrangement and coloration continuous on either side of this constriction, suggesting tail is original. Dorsally, tail with granules anteriorly, becoming slightly larger and subimbricate posteriorly; under tail with midventral row of enlarged hexagonal scales and smaller scales laterally (Fig. 3E); lateral scales decreasing in size laterally and posteriorly. Cloacal sacs swollen, with single oblong external orifice situated near each lateral margin of vent; four slightly enlarged, blunt postcloacal spurs on each side of tailbase; midventral scales of sac flat, subimbricate, larger posteriorly, slightly larger than those ventrolaterally.

Color in preservative: Dorsal ground color on body, head, limbs, and tail medium brown, with small, slightly darker-brown scattered flecks. Supralabials medium brown; infralabials pale whitish yellow with brown punctations. Ventral surfaces pale whitish yellow heavily punctated with brown, less densely mid-ventrally. Lamellae below expanded portions of digits brown. Iris pale gold around margins, brown around pupil, with brown veins.

Measurements (in mm).—SVL = 72.5, TrL = 31.2, FA = 8.3, CS = 9.2, HL = 16.8, HW = 13.9, HH = 7.3, Ear = 1.6, EE = 5.4, EY = 4.3, SN = 8.1, EN = 6.6, IN = 3.0, T4L = 6.3, T4W = 2.9, T4lamellaeL = 4.1, T3T4webL = 1.4, T4T5webL = 1.2.

Variation.—Males are larger than females (SVL of adult males 68.0–83.0 mm, of adult females 53.0–77.0 mm). As for *Gehyra maculicincta*, *G. louisiadensis* develops a number of wide but thin subcaudals in regenerated tails (e.g., BPBM 17222, 19760); one specimen (BPBM 19766) has a mix of thin, widened subcaudals with smaller interspersed scales. Nonetheless, there is still a medial row of enlarged subcaudals in original tails (Fig. 3E), with the subcaudals not being as wide or thin as is seen in regenerated tails, nor being small and subequal, as seen in *G. maculicincta* or *G. oceanica*. Even by the friable tail standards seen within *Gehyra*, *G. louisiadensis* has a remarkable number of missing or damaged tails: nine of 15 specimens lack tails (with the break in each being at the post-cloacal cleavage plane), and two others have clearly regenerated portions of their tails, leaving only four that retain original tails.

Variation in numbers of precloacal/femoral pores in males is striking, varying from 28–55 in series that are complete; two incomplete series (left side damaged or missing in each) include 24 and 36 pores. Precloacal/femoral pores lie within scales that decrease gradually in size laterally and are not greatly different from scale rows anterior to that, so it is impossible to arrive at a reliable count of scales in the pore-bearing series in females or in males having fewer pores. Other mensural and meristic differences between the sexes seem minor (Table 4).

In preservative, many specimens are a uniform brown, but BPBM 19761 also has patches of gray mottling, BPBM 19762 has many tiny brown flecks, BPBM 17222 and BPBM 19759 have dark dorsal markings that are faded anteriorly, and BPBM 17219, 19760, and 19764–65 have a mixture of some pale spots and dark-brown markings, especially anteriorly. Venters vary in degree of brown punctation, with BPBM 19760 and 19764 having extensive punctation and appearing brown to the naked eye, whereas BPBM 17220 and 17222 have very little, appearing white to the naked eye. Irises of all paratypes appear brown, with many showing little of the underlying gold background, though a few do; none has the distinct separation of the gold and brown into separate fields as seen in the holotype.

Color in life.—Field notes for BPBM 17218 recorded the animal as light ashy gray with a pale lemon-yellow venter and tan iris. Color pattern of BPBM 17219, as determined from photographs, comprised a network of dark-brown maculations on a medium-brown ground color, with paler, off-white markings behind the eye and a tan iris. BPBM 19764 was similar though with the dark-brown markings more arrayed in bands across the dorsum and with the markings on the head and neck comprising pale-brown spots and the dark-brown markings arrayed as lines anterior and posterior to the eye (Fig. 4D).

Etymology.—The species is named in recognition of its restriction to the Louisiade Archipelago of Papua New Guinea.

Range.—Known from Misima, Sudest, and Rossel Islands, the three main islands of the Louisiade Archipelago (Fig. 5); it is likely to range across the islands of the Calvado Chain, which all lie within the fringing reef that surrounds Sudest and this island chain. It is currently known to occur from sea level to 480 m a.s.l.

Ecology.—All but two animals came from the environs of villages. Habitat in these instances was either gardens or disturbed secondary forest. One animal from Misima and another from Sudest came from inland primary rainforest, the former at 440–480 m a.s.l., the second from 120–130 m a.s.l. Both sites had complete canopy cover with emergents to 25+ m, and both sites were along small streams.

TABLE 4. Mensural and meristic data for the type series of *Gehyra louisiadensis*.

	Males (n = 8)		Females (n = 7)	
	Mean	Range	Mean	Range
SV	74.4	68.0–83.0	68.6	53.0–77.0
HL	17.4	16.2–19.3	15.9	13.2–17.3
T4L	7.0	6.0–8.0	6.7	5.1–7.5
TrunkL/SV	0.42	0.39–0.44	0.45	0.42–0.48
CrusL/SV	0.14	0.13–0.16	0.14	0.13–0.14
TailL/SV	0.74	0.68–0.78	0.74	0.60–0.86
TailW/SV	0.12	0.10–0.14	0.12	0.12–0.13
HL/SV	0.23	0.22–0.24	0.23	0.22–0.25
HW/SV	0.19	0.18–0.20	0.18	0.17–0.19
ForearmL/SV	0.12	0.11–0.13	0.12	0.12–0.13
HW/HL	0.82	0.76–0.86	0.78	0.73–0.83
EN/HL	0.40	0.39–0.42	0.39	0.37–0.40
EarL/HL	0.085	0.065–0.098	0.075	0.058–0.088
SN/HL	0.48	0.47–0.51	0.48	0.46–0.50
EY/HL	0.24	0.22–0.26	0.25	0.23–0.27
T4L/SV	0.094	0.084–0.101	0.098	0.094
T4W/T4L	0.45	0.41–0.50	0.43	0.41
T4 scansor L/T4L	0.62	0.53–0.71	0.59	0.52
T3–T4 web L/T4L	0.24	0.19–0.31	0.22	0.23
T4–T5 web L/T4L	0.13	0.09–0.19	0.12	0.13
#T4 scansors	13.4	11–15	14.2	13–15
#T1 scansors	12.2	11–15	11.6	10–13
SL to mid-eye	9.3	8–10	9.6	8–11
infralabials	9.8	9–11	10.3	9–12
#enl. precloacal/femoral scales*	46.7	38–56	NA	NA
#enl. precloacal/femoral pores*	40.2	28–55	NA	NA
# internasals	1	1	1.4	1–2
# postnasals	3	3	3.1	3–4
# scales behind postmentals	3.5	3–5	3.7	1–6

* complete series only

Remarks.—Like many *Gehyra* species, *G. louisiadensis* is prone to significant regional intergumentary loss and tail autotomy when captured. As a result, none of the available specimens is perfect for designation as a holotype. The specimen chosen has the virtue of having an original tail (though the tip is missing), thereby showing the size of the original subcaudals, and it has available tissues and little skin damage. It has the disadvantage of having precloacal/femoral pores only on the right leg, with a total on that side of only 24 pores. If the left side were symmetrical in pore distribution, the total number would have been approximately 47–48 pores. All of the paratypes

with complete series of precloacal/femoral pores lack original tails, have more skin damage, or are missing their viscera. All other specimens with original tails are either female, also have a damaged precloacal/femoral pore series, or have long, but possibly regenerated, tails. I view determination and illustration of the expanded subcaudals of greater diagnostic importance than the number of precloacal/femoral pores, thereby explaining choice of BPBM 19763 for holotype.

Differences between *Gehyra louisiadensis* and *G. maculicincta* in toe lamellae were given above as averages and ranges for T4 lamellae and T1 lamellae because these are standard and quick counts to make. However, the true magnitude of the lamellar differences between these species is more striking when total numbers of lamellae on all digits are contrasted. I did not make these counts for all specimens, but I did so for their respective holotypes. The holotype of *G. maculicincta* has a total of 210 lamellae under its digits whereas *G. louisiadensis* has 273, emphasizing the large difference between these two specimens, which averages to approximately a 3-lamellar difference for each toe (273—210 lamellae/20 toes = 3.15 lamellae/toe).

Discussion

Recognition of the four new species described herein raises the number of *Gehyra* species reported from Melanesia to 19, with the presence of *G. marginata* in Melanesia requiring verification, and *G. interstitialis*, *G. lampei*, and *G. leopoldi* needing further investigation to confirm their taxonomic validity. Hence, 15 species are known to occur in Melanesia with certainty. With the exception of the divergent molecular lineages reported from within *G. oceanica*, known samples having entire subdigital lamellae appear to now be well resolved, although it certainly remains possible that additional species remain to be discovered. In contrast, the taxonomic situation among most species with divided lamellae (*G. baliola*, *G. barea*, *G. insulensis*, *G. interstitialis*, *G. lampei*, *G. leopoldi*, *G. papuana*) requires a denser sampling of specimens and further investigation of character variation to resolve taxonomic uncertainties, although at least three of those names will prove valid.

All of the species described herein have previously been assigned to other taxa. *Gehyra chrysopeleia* was variously assigned to *G. vorax* (Beckon 1992) or *G. membranacruralis* (Flecks *et al*., 2012), *G. aquilonia* to *G. membranacruralis* (Heinicke *et al.* 2011; Flecks *et al.* 2012), and *G. maculicincta* and *G. louisiadensis* to *G. oceanica* (Kraus & Shea 2005; Goldberg *et al.* 2010). Recognition of the first two clears up long-standing confusion among the giant *Gehyra* of northern New Guinea and Sudest Island, whereas recognition of the latter two contributes to better understanding of the plethora of lineages of medium-sized insular *Gehyra* that have been placed into *G. oceanica*, though neither of these species was included among the six major molecular lineages identified by Tonione *et al.* (2016). Identification of these species confirms and lends greater support to the conclusion that the greatest diversity of the *G. oceanica* group lies within western Melanesia (Tonione *et al.* 2016; Kraus *et al.* in press). Admittedly, *G. louisiadensis* differs from other *Gehyra* in this group by having enlarged subcaudals, but preliminary molecular evidence supports its placement in the *G. oceanica* group (P. Oliver *et al.* unpubl. data).

One finding of this study has been the frequency with which regenerated tails in members of *Gehyra* exhibit widened subcaudals, although these differ from the enlarged subcaudals characterizing species having that condition in original tails by being thin. I reported this feature above for *G. maculicincta*, *G. louisiadensis*, and the holotype of *G. aquilonia*, and I have seen that same condition in regenerated tails of additional *G. aquilonia* (AMNH 100088–90). Further, I have seen this in *G. oceanica* specimens from Pohnpei, Federated States of Micronesia (BPBM 12563–65, 125670); and from Wagabu Island (BPBM 15833) and Woodlark Island (BPBM 39277) in Milne Bay Province, PNG. This is in another species (along with *G. maculicincta*) diagnosed in part by having small, subequal subcaudals in original tails. Development of wide, thin subcaudals in regenerated tails is not invariant, however, inasmuch as I have seen regenerated tails in many other *Gehyra* that retain the subcaudal morphology characteristic of original tails for those species. Presumably some individuals in these species are prone to developmental aberrancy in regenerating tails. I mention this variation because, as pointed out here and by others (e.g., Flecks *et al.* 2012), presence of a median row of wide subcaudals vs. multiple subcaudals of subequal size (Fig. 3) is a critical character distinguishing among many Melanesian species of *Gehyra*, so care must be taken to assess this feature only from original tails.

A large number (at least 8 of 15) of Melanesian *Gehyra* are of limited distribution allopatric to relatives of similar appearance. For example, the giant species all have distributions far removed from each other: *G. aquilonia* across the foothills of the north-coast ranges of New Guinea, *G. membranacruralis* in the savannah regions and

adjacent forests of southern New Guinea, *G. chrysopeleia* on Sudest Island, *G. rohan* on the Admiralty and St. Matthias islands, *G. georgpotthasti* in Vanuatu and the Loyalty Islands, and *G. vorax* in Fiji. As seen from this study and from previous work (Tonione *et al.* 2016; Kraus *et al.* in press), several Melanesian lineages of the *G. oceanica* group are also of limited distribution, though the geographical limits for several additional lineages need to be better resolved. This high degree of endemism in Melanesian *Gehyra* is unsurprising in a region characterized by numerous islands arrayed across extensive expanses of ocean.

Kraus (2021) documented the high degree of narrow-range endemism in the herpetofauna of the Milne Bay Region of Papua New Guinea, with approximately 60% of the species found there being endemic to only that region, most to within one of 11 much smaller areas of local endemism. He documented 161 endemic species in that study, which has been supplemented with two endemic species identified since then (Kraus 2023; Slavenko *et al.*, 2023), one endemic species inadvertently omitted in that study (*Papuascincus* sp. nov. 2), and the description of *G. louisiadensis* here (*G. chrysopeleia* and *G. maculicincta* were identified as "*Gehyra* sp. nov. 1" and "*Gehyra* sp. nov. 3", respectively, in that study). Now there is a total of 165 endemic species identified from that region, with only 105 additional, non-endemic species of reptiles and amphibians known from there, making a total of 61% of the herpetofauna found nowhere else. This further emphasizes the tremendous importance of the Milne Bay Region to biodiversity conservation for the global herpetofauna.

Given the significant percentage of new *Gehyra* species described from Melanesia in this study and earlier works (Flecks *et al.* 2012; Skipwith & Oliver 2014; Oliver *et al.* 2016), the key provided by Bauer & Henle (1994) for *Gehyra* requires updating. That key is still relevant for those species having divided subdigital lamellae, but a new key for Melanesia *Gehyra* with entire lamellae will be useful and is provided here.

Key to Melanesian *Gehyra* with entire lamellae

1a)	Webbing between T3 and T4 absent or basal only	*G.* cf. *dubia*
b)	Webbing between T3 and T4 extensive, 20% or more	2
2a)	Subcaudals small and subequal, not arrayed in median row	3
b)	Subcaudals enlarged in median row	5
3a)	Original tail flattened; prominent lateral, antecubital, and popliteal skin folds; SVL > 130 mm	*G. marginata*
b)	Original tail rounded; no skin folds on body or limbs; SVL < 105 mm.	4
4a)	Size small (SVL up to 70 mm); 11–13 T4 lamellae; dorsal pattern of rows of alternating dark and white spots (Fig. 4C)	*G. maculicincta*[a]
b)	Size larger (SVL up to 102 mm); 13–20 T4 lamellae; dorsum uniform gray or brown or, if patterned, markings not arrayed in regular bands (Fig. 4E)	*G. oceanica*
5a)	Original tail flattened, with prominent lateral serrations; subapical T4 lamellae deeply notched; adult SVL < 100 mm	*G. serraticauda*
b)	Original tail rounded, without lateral serrations; subapical T4 lamellae shallowly notched; adult SVL > 100 mm	6
6a)	Antecubital skin fold absent	7
b)	Antecubital skin fold prominent	8
7a)	Popliteal skin fold absent; postmentals elongate; 11–15 T4 lamellae; adult SVL < 85 mm; dorsal pattern unicolor or boldly spotted (Fig. 4D).	*G. louisiadensis*[b]
b)	Popliteal skin fold present; postmentals short; 15–23 T4 lamellae; adult SVL > 100 mm; dorsal pattern lichenose (Fig. 4F).	*G. membranacruralis*[c]
8a)	Skin fold on trunk weak, indistinct.	9
b)	Skin fold on trunk prominent	10
9a)	Postmentals short; orange eye ring present	*G. rohan*[d]
b)	Postmentals very elongate; orange eye ring absent	*G. georgpotthasti*[e]
10a)	58–90 precloacal/femoral pores; 23–34 T4 lamellae	*G. vorax*[f]
b)	43–47 precloacal/femoral pores; 16–22 T4 lamellae	11
11a)	All postsupranasals small, << 50% size of supranasal; typically 4 postnasals; dorsal color brown (Fig. 4B)	*G. aquilonia*[g]
b)	One postsupranasal >50% size of supranasal; 3 postnasals; dorsal color pale yellow gray (Fig. 4A).	*G. chrysopeleia*[h]

[a] restricted to Normanby Island and southernmost tip of New Guinea
[b] restricted to Louisiade Islands
[c] restricted to savannahs of southern New Guinea
[d] restricted to Admiralty and St. Matthias islands
[e] restricted to Vanuatu and Loyalty Islands
[f] restricted to Fiji

[g] restricted to northern New Guinea
[h] restricted to Sudest Island

Acknowledgements

I thank P. Oliver and G. Zug for helpful comments on the manuscript; C. Bernard, F. Francisco, R. Henry, J. Jiramori, S. John, P. Lagalaga, F. Malesa, A. Nakung, M. Nakung, W. Nemani, M. Samson, B. Seta, G. Shea, J. Slapcinsky, J. Volo, and D. Yaripina for field assistance; L. Doni, N. Doni, C. Graham, D. Mitchell, B. Yawi, and Conservation International for logistical assistance; R. Fisher, G. Shea, and V. Weijola for use of their photos in Fig. 4; D. Kizirian (AMNH), S. Kennedy-Gold (MCZ), M. Hagemann (BPBM), and G. Schneider (UMMZ) for loans of comparative specimens; the PNG National Museum and Art Gallery for providing in-country collaborative assistance; and the PNG Department of Environment and Conservation, PNG National Research Institute, and East Sepik and Milne Bay provincial governments for permission to conduct this work. The field work for this research was supported by a grant from Conservation International and by NSF grants DEB-0103794 and DEB-1345063.

References

Bauer, A.M. & Henle, K. (1994) Familia Gekkonidae (Reptilia, Sauria). Part I. Australia and Oceania. *Das Tierreich*, 109, 1–306.
https://doi.org/10.1515/9783110885958

Beckon, W.N. (1990) *Patterns of colonization and distribution, the species-area relation, and other aspects of the biogeography of island vertebrates, with particular reference to the Fiji Archipelago*. PhD dissertation, University of California, Davis, California, 394 pp.

Beckon, W.N. (1992) The giant Pacific geckos of the genus *Gehyra*: morphological variation, distribution, and biogeography. *Copeia*, 1992, 443–460.
https://doi.org/10.2307/1446204

Brongersma, L.D. (1934) Contributions to Indo-Australian herpetology. *Zoologische Mededeelingen*, 17, 161–251.

de Rooij, N. (1915) *The reptiles of the Indo-Australian Archipelago. I. Lacertilia, Chelonia, Emydosauria*. E.J. Brill, Leiden, 384 pp.
https://doi.org/10.5962/bhl.title.10610

Fisher, R.N. (1997) Dispersal and evolution of the Pacific Basin gekkonid lizards *Gehyra oceanica* and *Gehyra mutilata*. *Evolution*, 51, 906–921.
https://doi.org/10.2307/2411165

Flecks, M., Schmitz, A., Böhme, W., Henkel, F.W. & Ineich, I. (2012) A new species of *Gehyra* Gray, 1834 (Squamata, Gekkonidae) from the Loyalty Islands and Vanuatu, and phylogenetic relationships in the genus *Gehyra* in Melanesia. *Zoosystema*, 34, 203–221.
https://doi.org/10.5252/z2012n2a1

Goldberg, S.R., Bursey, C.R. & Kraus, F. (2010) Helminths of ten species of geckos (Squamata: Gekkonidae) from Papua New Guinea, with comparisons between immigrant and endemic geckos. *Pacific Science*, 64, 131–139.
https://doi.org/10.2984/64.1.131

Heinicke, M.P., Greenbaum, E., Jackman, V & Bauer, A.M. (2011) Phylogeny of a trans-Wallacean radiation (Squamata, Gekkonidae, *Gehyra*) supports a single early colonization of Australia. *Zoologica Scripta*, 40, 584–602.
https://doi.org/10.1111/j.1463-6409.2011.00495.x

King, M. & Horner, P. (1989) Karyotypic evolution in *Gehyra* (Gekkonidae: Reptilia). V. A new species from Papua New Guinea and the distribution and morphometrics of *Gehyra oceanica* (Lesson). *The Beagle, Records of the Northern Territory Museum of Arts and Sciences*, 6, 169–178.
https://doi.org/10.5962/p.262847

King, M., Sadlier, R.A. & Horner, P. (1989) A note on the status of *Gehyra baliola* (Duméril and Duméril, 1851) in Australia. *The Beagle, Records of the Northern Territory Museum of Arts and Sciences*, 6, 163–167.
https://doi.org/10.5962/p.262846

Kraus, F. (2021) A herpetofauna with dramatic endemism signals an overlooked biodiversity hotspot. *Biodiversity and Conservation*, 30, 3167–3183.
https://doi.org/10.1007/s10531-021-02242-3

Kraus, F. (2023) A revision of *Gerrhopilus inornatus* (Squamata: Gerrhopilidae) reveals a multi-species complex. *Zootaxa*, 5231 (1), 1–23.
https://doi.org/10.11646/zootaxa.5231.1.1

Kraus, F. & Shea, G. (2005) Additional reptile and amphibian range extensions for Milne Bay Province, Papua New Guinea. *Herpetological Review*, 36, 471–473.
Oliver, P.M., Ashman, L.G., Bank, S., Laver, R.J., Pratt, R.C., Tedeschi, L.G. & Moritz, C.C. (2019) On and off the rocks: persistence and ecological diversification in a tropical Australian lizard radiation. *BMC Evolutionary Biology*, 19, 1–15. https://doi.org/10.1186/s12862-019-1408-1
Oliver, P.M., Clegg, J.R., Fisher, R.N., Richards, S.J., Taylor, P.N. & Jocque, M.M.T. (2016) A new biogeographically distinct giant gecko (*Gehyra*: Gekkonidae: Reptilia) from the East Melanesian Islands. *Zootaxa*, 4208 (1), 61–76. https://doi.org/10.11646/zootaxa.4208.1.3
Oliver, P.M., Sistrom, M., Tjaturadi, B., Krey, K. & Richards, S. (2010) On the status and relationships of the gecko species *Gehyra barea* Kopstein 1926, with description of new specimens and a range extension. *Zootaxa*, 2354 (1), 45–55. https://doi.org/10.11646/zootaxa.2354.1.4
Rocha, S., Ineich, I. & Harris, D.J. (2009) Cryptic variation and recent bipolar range expansion within the Stump-toed Gecko *Gehyra mutilata* across Indian and Pacific ocean islands. *Contributions to Zoology*, 78, 1–8. https://doi.org/10.1163/18759866-07801001
Sistrom, M.J., Hutchinson, M.N., Hutchinson, R.G. & Donnellan, S.C. (2009) Molecular phylogeny of Australian *Gehyra* (Squamata: Gekkonidae) and taxonomic revision of *Gehyra variegata* in south-eastern Australia. *Zootaxa*, 2277 (1), 14–32. https://doi.org/10.11646/zootaxa.2277.1.2
Skipwith, P.L. & Oliver, P.M. (2014) A new *Gehyra* (Gekkonidae: Reptilia) from New Guinea with unique caudal scalation. *Zootaxa*, 3827 (1), 57–66. https://doi.org/10.11646/zootaxa.3827.1.5
Slavenko, A., Tamar, K., Tallowin, O.J.S., Kraus, F., Allison, A., Carranza, S. & Meiri, S. (2022) Revision of the montane New Guinean skink genus *Lobulia* (Squamata: Scincidae), with the description of four new genera and nine new species. *Zoological Journal of the Linnaean Society*, 195, 220–278. https://doi.org/10.1093/zoolinnean/zlab052
Tonione, M.A., Fisher, R.N., Zhu, C. & Moritz, C. (2016) Deep divergence and structure in the tropical oceanic Pacific: a multilocus phylogeography of a widespread gekkonid lizard (Squamata: Gekkonidae: *Gehyra oceanica*). *Journal of Biogeography*, 43, 268–278. https://doi.org/10.1111/jbi.12645
Uetz, P., Freed, P., Aguilar, R., Reyes, F. & Hošek, J. (Eds.) (2023) The Reptile Database, http://www.reptile-database.org. (accessed 26 December 2023)
Zug, G.R. (2013) *Reptiles and amphibians of the Pacific islands: a comprehensive guide*. University of California Press, Berkeley, California, 306 pp. https://doi.org/10.1525/9780520955400

Appendix. Additional specimens examined.

Gehyra membranacruralis—Papua New Guinea: Central Province: Varirata National Park (UMMZ 247752); National Capitol District: Port Moresby, University of Papua New Guinea (UMMZ 175393–94); Western Province: Woroi (MCZ 136092).

Gehyra oceanica—Caroline Islands: Pohnpei: Pingelap Atoll (BPBM 12563–68); Cook Islands: Rarotonga (BPBM 14963–65); Mariana Islands: Guam (UMMZ 129056–58); Papua New Guinea: Milne Bay Province: Woodlark Island (BPBM 39271–79, 39832–34); Society Islands: Moorea (BPBM 11064), Tahiti (BPBM 5865); Solomon Islands (UMMZ 99963).

Gehyra vorax—Fiji: Viti Levu (UMMZ 180470–71).