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A New Species of *Bavayia* (Squamata: Diplodactylidae) from the Loyalty Islands

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A small species of diplodactylid gecko of the genus *Bavayia* is described from Maré, the southernmost of the main Loyalty Islands chain, immediately to the east of the New Caledonian mainland. It is a member of the *Bavayia sauvagii* complex of geckos and is distinguished from its Grande Terre (mainland) relatives by its smaller size and distinctive row of precloacal pores. It is the 13th known member of the genus and joins *B. crassicollis* as the second Loyalty Islands endemic. The cause of the new species' restriction to Maré is unknown but may relate to the island's geological distinctiveness and/or to prevailing ocean currents. Another gecko restricted to Maré and surrounding islets, *Gehyra georgpotthasti*, has its affinities with Vanuatu.

Bavayia Roux, 1913 is one of eight genera of diplodactylid geckos that are endemic to the New Caledonian region, with 12 species currently recognized (Bauer and Sadlier 2000; Bauer et al. 2008, 2012a). Members of the genus occur throughout the mainland (Grande Terre) and on all offshore islands that support adequate vegetation to provide foraging opportunities. Species of *Bavayia* are extremely conservative in morphology and color pattern. Although specimens referable to *Bavayia* were first reported in 1869 (Bavay 1869) and described in the following decades (Günther 1872; Bocage 1873; Sauvage 1879; Boulenger 1883), the genus was only erected by Roux in 1913. Roux recognized only two species, *B. sauvagii* (Boulenger, 1883) and *B. cyclura* (Günther, 1872), each with subspecies. These two species form the basis of what, today, are considered to be species groups within the genus. Members of the former group are generally smaller, more gracile, and are characterized by the claw of digit I placed lateral to a single apical adhesive scansor or between a large medial and much smaller lateral scansor, a single row of precloacal pores, and a white or brown venter, whereas members of the latter group are larger, more robust, have the claw of digit I lying within a cleft in an asymmetrically divided scansor, two or three rows of pores, and have yellow venters. *Bavayia sauvagii* group species also often utilize terrestrial retreat sites under logs or in rock crevices, whereas *cyclura* group taxa are usually more strictly arboreal, although there are exceptions.

Beginning with the work of Sadlier (1989) and Bauer (1990), new species of *Bavayia* were described or raised from subspecific status and, over the course of the intervening decades, a series of additional species, mostly fairly distinctive in morphology, have been described (Bauer et al. 1998, 2008, 2012a; Wright et al. 2000). Concomitant with morphological studies of *Bavayia*, molecular phylogenetic studies (Bauer and Jackman 2006; Bauer et al. 2012b; Skipwith et al. 2016; Bernstein et al. 2021) have revealed that many more candidate species exist and a major revision of the genus, describing 28 new taxa supported both by genetic data and morphology is currently being finalized for submission (Bauer et al., in prep.). However, one these new taxa, a species from the Loyalty Islands, lacks genetic data but is geographically and morphologically distinctive and we here take the opportunity to formally describe it.

The Loyalty Islands constitute the Province des Îles Loyauté, one of three provinces in New Caledonia. The islands lie on the Loyalty Ridge parallel to the long axis of the Grande Terre of New Caledonia, separated from it by an average of about 110 km across the Loyalty Basin, which has a maximum depth of about 2000 m. The main Loyalties extend 215 km from Ouvéa (160 km^2) in the northwest of the archipelago, through Lifou (1150 km^2), to Maré (650 km^2) in the southeast (Fig. 1). The raised rims of the islands are uplifted Pliocene to Quaternary atolls, with lower elevation interior regions representing an older (Miocene) limestone platform. Maré is distinctive in having the highest point (138 m) in the Loyalties and in having small areas of basaltic outcrops, remnants of the volcanic base upon which the Miocene reefs were built (Maurizot et al. 2020). Precipitation is low compared to the New Caledonian mainland (1300–1700 mm/yr; Maitrepierre 2012) and the vegetation is also comparatively depauperate with fewer than 400 plant species (Jaffré 1993), mostly similar to the coastal strand vegetation and inland humid forests of the Grande Terre (Däniker 1931; Schmid 1981).

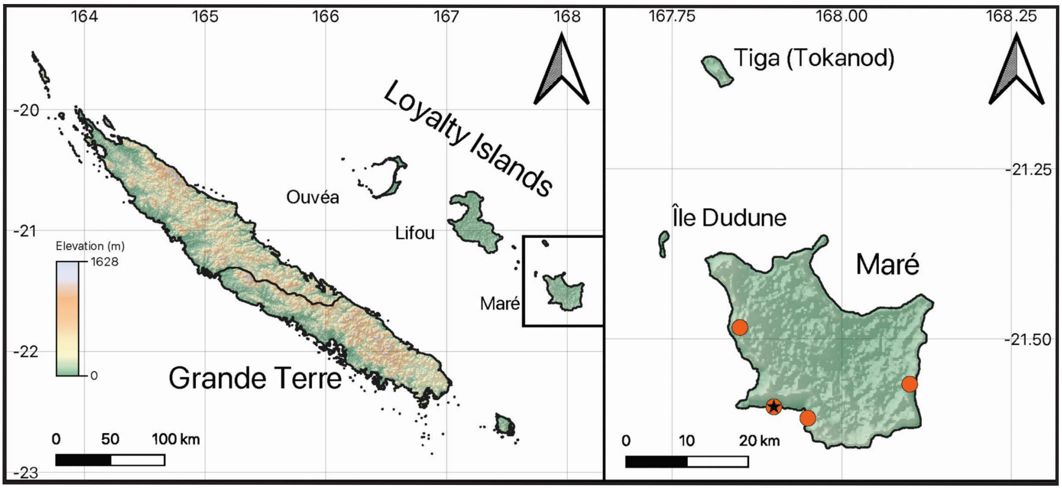

FIGURE 1. Map of New Caledonia and the Loyalty Islands (left)with enlargement of Maré and adjacent islets showing distribution of *Bavayia loyaltiensis*. Star indicates type locality, dots indicate other vouchered locations. Cartography by Jonathan DeBoer.

The herpetofauna of the Loyalty Islands has been understudied, but its composition is nonetheless reasonably well known (Sadlier and Bauer 1997; Bauer and Sadlier 2000; Flecks et al. 2012; Daza et al. 2015). *Bavayia* spp. were first recorded from the Loyalties by Roux (1913) who recognized two forms of *B. cyclura*, the nominate form and a subspecies, *B. cyclura crassicollis* (now *B. crassicollis*) from Lifou and Maré, and reported *B. sauvagii* from Maré only. Subsequent research (Bauer and Jackman 2006; Bernstein et al. 2021; Bauer et al., in prep.), has revealed that only one member of the *B. cyclura* group, *B. crassicollis*, occurs in the Loyalties and that it is an endemic that is present on all three main islands. It has also been found in 3000 year old deposits on Tiga (Tokanod), a small (10 km^2) island between Maré and Lifou, where it is certainly still present, although uncollected, today, and reported anecdotally from Île Dudune, a small satellite off of northern Maré. To date, however, *B. sauvagii* group geckos have only been found on Maré. No *Bavayia* spp. are present on Île Walpole, 160 km ESE of Maré (Sadlier et al. 2019).

Our research on *Bavayia* has shown that the majority of species are microendemics, with individual taxa inhabiting only small portions of New Caledonia. The occurrence of a morphologically distinctive *B. sauvagii*-like gecko restricted to Maré, isolated from all other members of its species group, is an extension of this pattern of speciation in the region. Unfortunately, vouchered collections of this species do not appear to have been made subsequent to 1987 (Sadlier and Bauer 1997) and no tissue samples are available to compare it to its many named and unnamed congeners. However, a review of available material in the context of a genus-wide revision reveals that it is unambiguously diagnosable from all other described taxa (and from all soon-to-be-described taxa).

MATERIALS AND METHODS

Specimens from the collections of the Australian Museum (AMS), California Academy of Sciences (CAS), Muséum National d'Histoire Naturelle, Paris (MNHN), and Naturhistorisches Museum Basel (NHMB) were examined using a Keyence VHX 6000 digital microscope. Measurements were taken with Brown and Sharpe Digit-cal Plus digital calipers. The following measurements were recorded for each specimen (see Table 1): snout-vent length (SVL); trunk length, measured between the limb insertion midpoints (TrunkL); forearm length, from elbow to wrist (ForeaL); shank length, from kneed to ankle (CrusL); tail length (TailL); tail width at base (TailW); head length from retroarticular process of mandible to snout tip (HeadL); maximal head width (HeadW); maximal head height (HeadH); maximal dimension of ear opening (EarL); orbital diameter (OrbD); distance from nares to anterior margin of orbit (NarEye); distance from snout tip to anterior margin of orbit (SnEye); distance from posterior border of orbit to anterior margin of ear (EyeEar); distance between nostrils (InterNar) and distance between the anterior margins of the orbits (InterOrb). Measurements were recorded for the right side only. Meristic data recorded (see Table 1) were midbody scale count (MidbodSCR), supralabial scales (SupraL), infralabial scales (InfraL), internasal scales (IntNas), Subdigital lamellae of the manus (ManusLam) and pes (PesLam), and number of precloacal pores. Counts of interorbital scales and scales across the narrowest point of the frontal bone are reported for the holotype only. Left (L) and right (R) counts are provided for labial scales and subdigital lamellae). Subdigital lamellae were counted from the basalmost plate that was at least twice the width of a typical scale beneath the metacarpals or metatarsals and included the terminal, undivided scansor. In the case of digit I, the paired apical plates were not included in lamellar counts (note that the method of counting used here is not identical to that used by us in earlier *Bavayia* papers, e.g. Wright et al. 2000, Bauer et al. 2008, 2012a but has been adopted here as being less ambiguous than alternative methods).

Although we prefer to use an integrative taxonomic approach (*sensu* Padial et al. 2010), the lack of genetic material for the new species forces us to rely on morphological comparisons. However, as this description is a satellite to a comprehensive and integrative review of the genus *Bavayia* in its entirety, our assessment of distinguishing features was made in the context of variation across all congeners. Adopting a general lineage species concept (de Queiroz 1999) we interpret the presence of diagnostic morphological features as evidence of lineage independence and, therefore, describe the *Bavayia sauvagii* group species endemic to Maré as a new species.

TABLE 1. Mensural and meristic features of the type series of *Bavayia loyaltiensis*. All tails are partly regenerated. See Materials and Methods for character abbreviations.

	Holotype	Paratypes								
Character	MNHN-RA 2022.0037	AMS R.125763	AMS R.125767	AMS R.125768	AMS R.125776	AMS R.125777	AMS R.125802	AMS R.125811	AMS R.125823	CAS 38826
Sex	male	female	female	male	female	male	male	male	male	male
SVL	44.9	45.1	44.1	39.6	43.0	43.3	41.4	40.5	40.0	36.7
TrunkL	20.2	18.9	20.0	16.7	20.2	19.6	17.1	18.1	16.7	15.1
ForeaL	5.7	5.0	5.3	5.0	5.7	5.4	4.3	4.7	4.8	5.9
CrusL	6.5	5.3	6.4	5.7	6.1	6.2	5.7	6.0	6.0	6.5
TailL	45.0	34.5	42.1	36.7	33.5	41.6	38.9	35.5	31.6	35.1
TailW	5.0	4.7	5.1	4.5	5.1	4.6	4.1	4.2	4.4	4.1
HeadL	12.9	13.4	12.5	12.5	13.3	13.1	12.8	12.9	12.3	13.4
HeadW	8.7	8.2	8.3	8.0	8.7	8.2	8.3	7.9	7.7	8.2
HeadH	5.3	5.1	4.7	4.7	5.0	4.8	5.0	4.6	5.0	5.0
EarL	1.1	1.4	1.2	1.2	1.3	1.0	1.0	1.0	0.8	1.1
OrbD	2.7	2.8	2.5	2.6	2.5	2.8	2.3	2.6	2.8	2.6
NarEye	3.7	3.9	3.9	3.4	3.6	3.3	3.6	3.5	3.7	3.7
SnEye	5.0	4.9	4.7	4.5	4.9	4.5	4.8	4.7	4.9	5.1
EyeEar	3.5	2.9	3.2	2.7	3.3	2.8	2.9	3.0	3.1	3.2
InterNar	1.3	1.7	1.7	1.4	1.5	1.7	1.4	1.6	1.6	1.7
InterOrb	1.9	2.0	1.8	2.0	2.1	2.0	2.2	2.1	2.0	2.1
MidbodScR	139	133	140	145	135	135	143	134	131	137
SupraLab (L/R)	11 L/ 12 R	11 L/11 R	11 L/9 R	11 L/9 R	10 L/10 R	9 L/10 R	11L/11 R	10 L/11 R	10 L/12 R	10 L/11 R
InfraLab (L/R)	11 L/9 R	11 L/9 R	9 L/8 R	8L/ 8R	10 L/9 R	8 L/8 R	10 L/9 R	11 L/9 R	10 L/8 R	9 L/ 9 R
IntNas	5	5	5	5	5	5	5	5	5	5
ManusLam L	5-10-11-10-10	6-10-10-9-8	6-9-10-9-9	6-10-11-11-9	6-9-9-10-8	6-9-10-10-8	6-9-10-10-9	5-9-11-10-8	5-9-11-11-9	5-10-11-11-9
ManusLam R	6-10-9-10-10	5-9-10-10-10	5-9-9-8-8	6-9-10-11-9	6-8-10-10-9	5-8-9-10-9	5-9-12-11-10	6-9-9-10-9	5-8-9-10-9	4-7-11-10-10
PesLam L	6-9-11-10-10	5-9-10-11-9	5-9-10-10-9	5-9-11-11-9	6-9-9-10-9	5-8-9-10-9	6-9-10-10-9	5-8-11-11-10	5-9-11-11-10	5-10-12-11-10
PesLam R	5-10-10-10-10	5-9-11-10-10	6-9-11-10-9	6-10-11-10-10	5-10-11-12-9	5-8-10-10-9	5-10-11-11-9	6-9-11-11-10	5-8-11-11-9	5-9-11-11-9
PrclPores	23	—	—	23	—	22	24	23	24 + 1	16

SYSTEMATICS

Bavayia loyaltiensis **sp. nov.**

Figures 2–4.

Holotype (Fig. 2A).— MNHN-RA 2022-0037 (ex. AMS R.125775) Cengeite, Maré Island, Loyalty Islands, Province des Îles Loyauté, New Caledonia, 21°36′ S, 167°54′ E, coll. H.G. Cogger and R.A. Sadlier, 19 August 1987.

Paratypes (Fig. 2B).— AMS R.125763, R.125767–68, R.125776–77, same data as holotype; AMS R.125802, R.125811, same locality and collectors as previous, 20 August 1987; AMS R.125823, same locality and collectors as previous, 21 August 1987; CAS 38826, Maré Island, Loyalty Islands, Province des Îles Loyauté, New Caledonia, coll. F. Sarasin and J. Roux, December 1911.

Referred Material (all localities in Province des Îles Loyauté)**.**— AMS R125764–66, R.125769–74, R.125786, R.125803, R.125812–14, Cengeite, Maré Island, Loyalty Islands, 21°36′ S, 167°54′ E; NHMB 7007–22, Netché, Maré Island, Loyalty Islands, 21°29′ S, 167°51′ E; NHMB 7020–21 Medou [= Medu], Maré Island, Loyalty Islands, 21°37′ S, 167°57′ E; NHMB 7022, Penelo, Maré Island, Loyalty Islands, 21°34′ S, 168°06′ E.

Diagnosis.— *Bavayia loyaltiensis* sp. nov. is a small member of the *Bavayia sauvagii* group (maximum 45 mm SVL), characterized by its gracile body, relatively short tail, digits II–V relatively narrow, claw of digit I of manus and pes borne lateral to a single medial apical scansor, usually single row of precloacal pores occupying a distinctive scale row, large number of cloacal spur scales, dorsal pattern of four largely symmetrical, well demarcated, dark transverse markings between the limb insertions, and pale head dorsum with a pair of pale nape stripes. It is distinguished from members of the *B. cyclura* group (*B. cyclura*, *B. montana*, *B. crassicollis*, *B. robusta*, *B. goroensis*, *B. nubila* and a number of undescribed species in this group) by having the claw of digit I of the manus and pes borne lateral to a single medial apical scansorial pad (vs. in a notch within an asymmetrically divided apical scansor), having beige to brownish ventral coloration (vs. yellow ventral coloration), having a gracile habitus (vs. robust) and small size (maximum 45 mm SVL vs. >50 mm except in *B. goroensis* [max. SVL 48.6 mm]), and in usually having a single row of precloacal pores (vs. usually two or more). Within the *B. sauvagii* group it may be distinguished from *B. geitaina* by its much smaller size (45 mm vs. 72 mm maximum SVL), lower number of dorsal dark markings (4 vs. 5 between limb insertions), dorsal scale rows per tail whorl 7 (vs. 9), and absence of a dark "H" or "X"-shaped marking on parietal region; from *B. ornata* by its much smaller size (45 mm vs. 69 mm maximum SVL), shorter snout (<40% HeadL vs. >40% HeadL), shorter tail (< 110% SVL vs. >110% SVL), and absence of distinct whitish spots or small blotches on limbs; and from *B. septuiclavis* by its greater number of precloacal pores (16–25, usually >20 vs. 8–14), and predominantly transverse body markings (vs. predominantly longitudinal body markings or patternless). It differs from the similarly sized *B. exsuccida* and *B. pulchella* and several related undescribed taxa in having digit I of the manus and pes borne lateral to a single medial apical scansor (Figs. 3D–E; versus lying between a larger medial and a smaller lateral scansor) and in having transverse body markings (vs. predominantly longitudinal markings, patternless, or with a bright white "V" shaped marking on the nape), and pale markings on tail much longer than darker interspaces (vs. dark interspaces longer). *Bavayia loyaltiensis* is most similar to *B. sauvagii* and a suite of related undescribed taxa, with which it shares a similar color pattern and morphology of digit I. It differs in body size from its mainland relatives (maximum 45 mm vs. 60 mm SVL in *B. sauvagii sensu stricto* and at least 50 mm in undescribed taxa) and exhibits a distinctive differentiation of the precloacal pore-bearing scale row from the adjacent scale rows both anterior and posterior to it (Fig. 3F; vs. no such differentiation). Male *B. loyaltiensis* also may have cloacal spurs comprising clusters of up to at least 8 enlarged scales (see Fig. 3G), whereas in *B. sauvagii* and related taxa this number may be up to 6 but is usually 3 or 4.

Description.— (based on holotype — MNHN-RA 2022-0037 (ex. AMS R.125775), an adult male; Figs. 2A, 3–4). Snout-vent length (SVL) 44.9 mm; trunk relatively long (TrunkL 45% SVL) gracile, depressed. Head oblong, large (HeadL 29% SVL), relatively slender (HeadW 67% HL), not depressed (HeadH 41% HeadL), distinct from neck; interorbital/frontal region with slight midline depression, canthus well developed; snout short (SnEye 39% HeadL), less than twice eye diameter (OrbD 21% HL). Granular scales on anterior snout approximately 2–3 times diameter of those on occipital region. Pupil vertically oriented with crenelated margins; several superciliary scales in posterodorsal quadrant of orbit conical, moderately elongate, pointed. Ear opening approximately 1.5 times higher than wide, canted slightly posterodorsally to anteroventrally; eye to ear distance greater than the diameter with of eye (EyeEar 126% OrbD). Rostral rectangular, much broader than high, no median crease, contacted posteriorly by five, roughly rectangular internasals and two slightly enlarged supranasals, contacted posteroventrally by first supralabial. Nostrils oval and anterolaterally oriented, surrounded by two postnasals, one supranasal, the rostral, and in broad contact with first supralabial. Mental subtriangular, approximately as wide as deep; a single elongate, median, septagonal postmental in narrow contact with apex of mental, separating first infralabials form one another; first infralabials each in contact posteriorly with median postmental and one (L) or two (R) smaller lateral postmental chin shields. First 4–5 rows of chin shields larger than remaining throat scales. 11 L, 12 R enlarged supralabial scales, of which 7th–11th (L) and 8th–12th (R) beneath the eye; 11 L, 9 R infralabial scales; 48 interorbital scale rows between superciliaries at midpoint of orbit, 18 interorbitals between the orbital margins of the frontal bone.

Dorsal scales small, homogeneous, very slightly conical, granular; ventral scales slightly larger than dorsals, juxtaposed anteriorly becoming subimbricate and somewhat enlarged posteriorly on the body. Posterior abdominal scales rounded, mid-abdominal scales elongate, diamond-shaped. Approximately 139 scale rows around midbody. Scales of the limbs not differing from dorsals. Scales on palms and soles smooth, flattened. Precloacal pores variable in size, in a single scale row of 23 pored scales, clearly set off from the anterior scale rows and the single following scale row. Forearm and crus relatively short (ForeaL 13% SVL, CrusL 14% SVL); axillary pockets shallow. Digits long and moderately narrow, all bearing claws, those on digit I of both manus and pes reduced and partially sheathed; relative length of digits of manus: IV~III>II~V>I, and of pes: IV~V>III>II>I; digits weakly webbed; digits III and IV of pes tightly bound along length of elongate metatarsals. Subdigital lamellae typically paired, except variably single or fragmented at the base of digits. Distalmost lamella of digits II–V, manus and pes, undivided. Claw of digit I positioned lateral to a single apical scansor. Lamellar counts from right side of holotype 6-10-9-10-10 manus and 5-10-10-10-10 pes.

Tail 45.0 mm (distal ~26 mm regenerated), approximately 100% of snout-vent length, tapered, stout, roughly cylindrical in cross-section; tail base at cloacal spurs swollen. Caudal scales small, flat, rectangular, arranged in regular rows. Surface of tail weakly segmented, caudal scale rows forming whorls, each whorl 7–8 dorsal scale rows and 6 ventral scale rows long; midventral caudal scales not enlarged. Scales on pygal portion of tail one third to one half size of those on postpygal tail. Cloacal spurs consisting of five large, compressed, flattened, conical, posterodorsally directed scales, just posterolateral of the colaca.

Color in preservative: Dorsum and flanks mottled light brown with small, irregularly distributed darker brown markings, with a bold pattern of four medium brown, wavy transverse markings

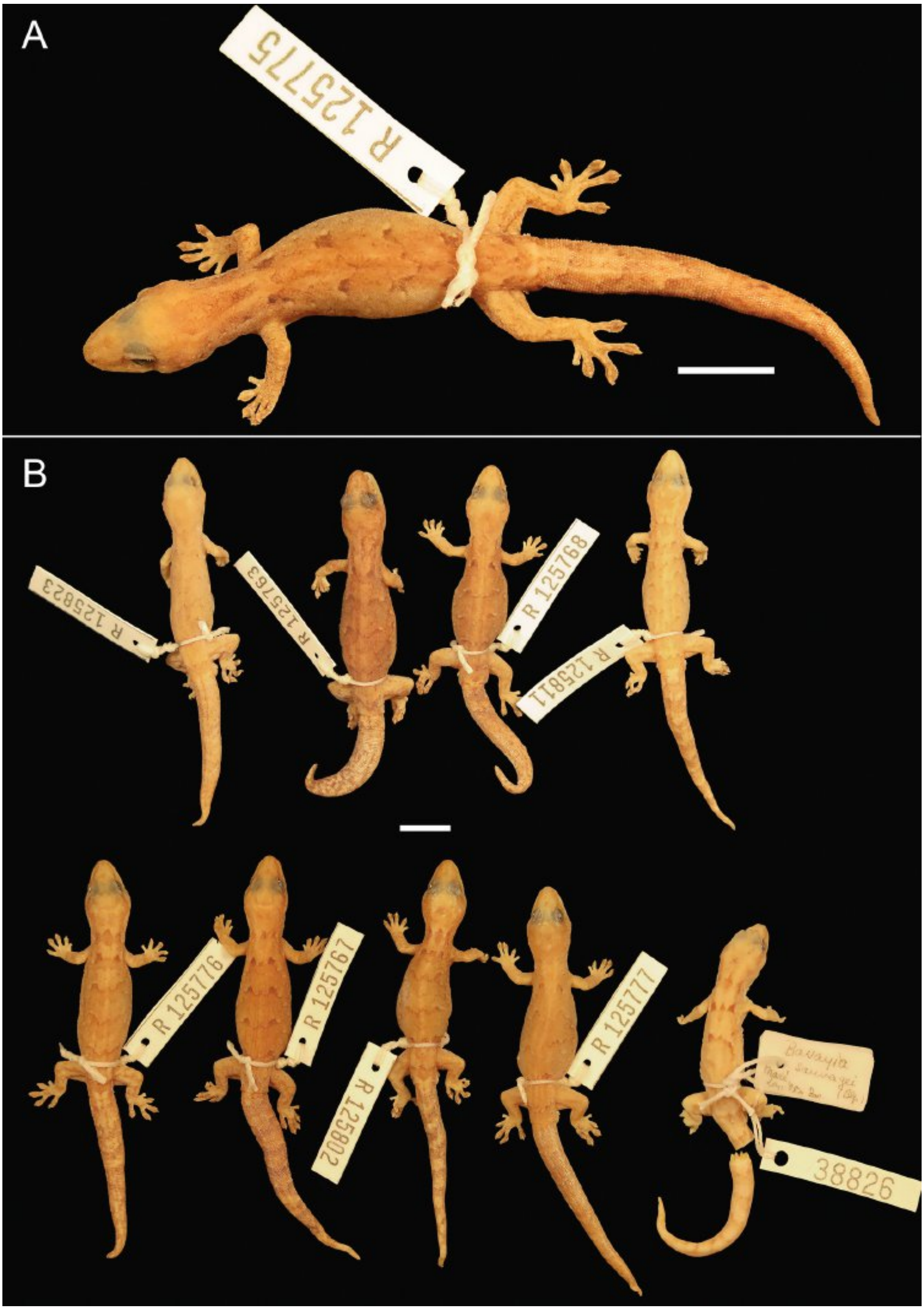

FIGURE 2. *Bavayia loyaltiensis* sp. nov. A) Holotype, MNHN-RA 2022-0037 (ex. AMS R.125775). B) Paratype series. Scale bars = 10 mm.

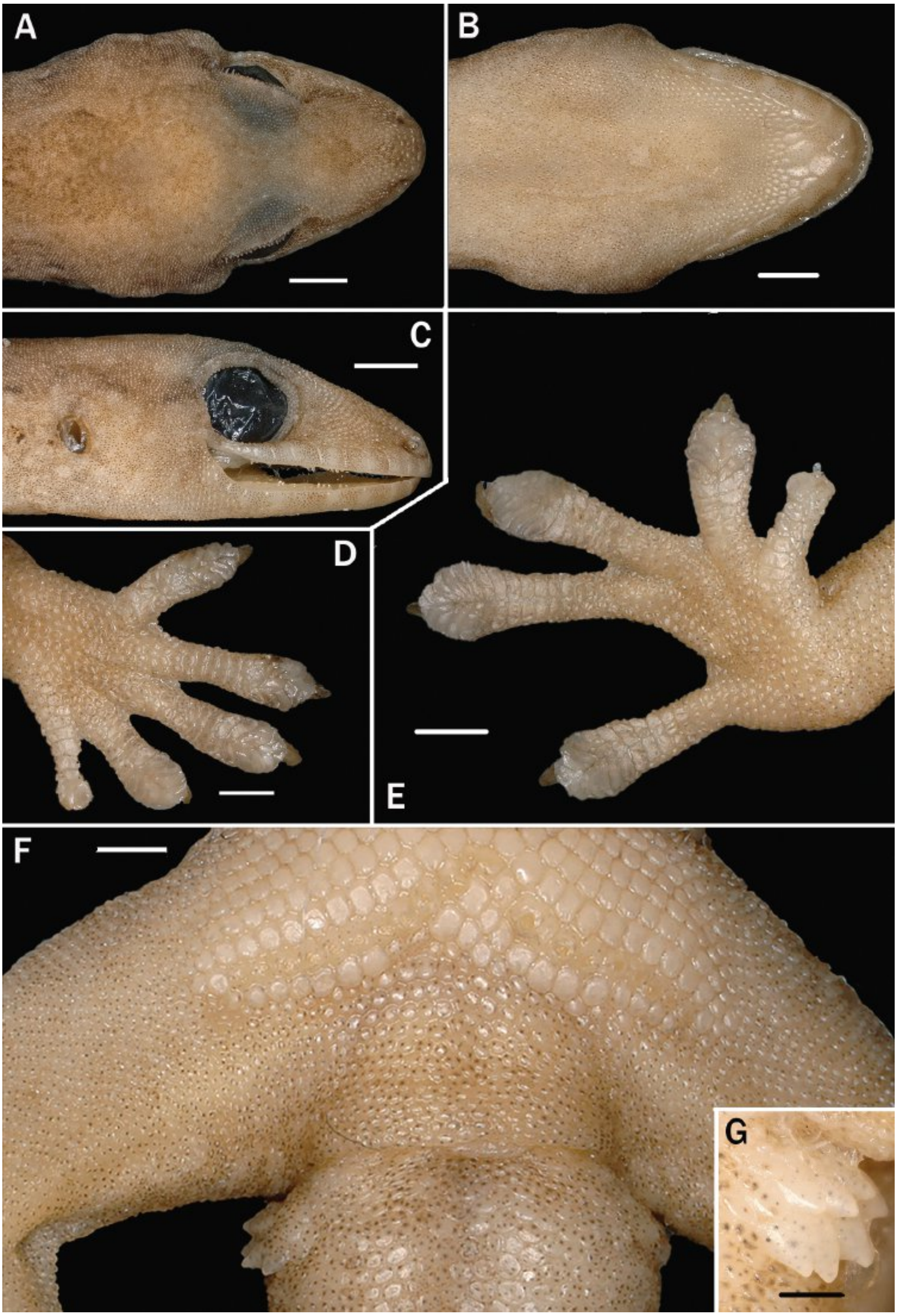

FIGURE 3. Holotype of *Bavayia loyaltiensis* sp. nov. (MNHN-RA 2022-0037). A) Dorsal view of head. B) Ventral view of head. C) Lateral view of head. D) Right manus. E) Right pes. F) Cloacal region showing distinctive pore-bearing scale row and closacal spurs. G) Close up of left cloacal spure of paratype AMS R.125811 showing the diagnostic large cluster of enlarged scales. Scale bars A–C = 5 mm, D–F = 1 mm, G = 0.5 mm.

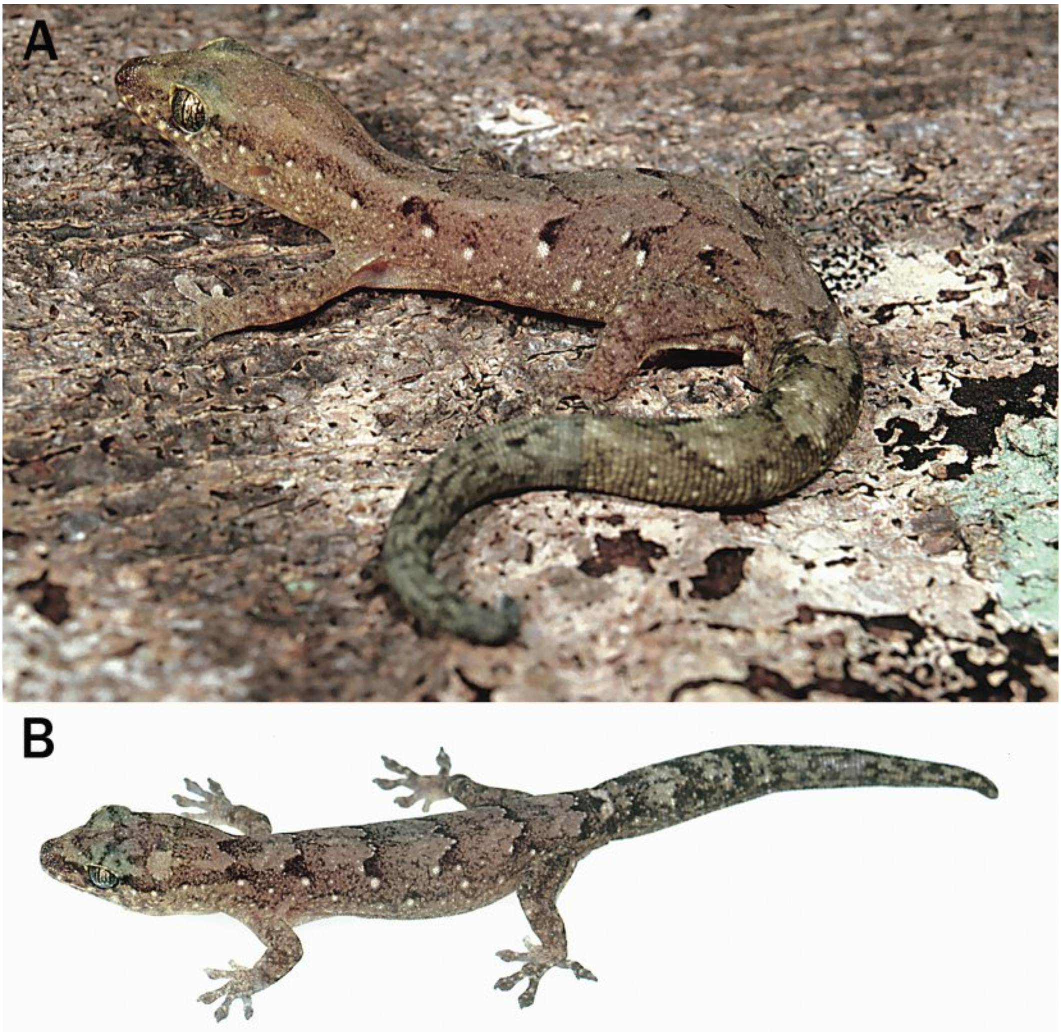

FIGURE 4. *Bavaya loyaltiensis* sp. nov. in life. A) Holotype (MNHN-RA 2022-0037). B) Paratype AMS R.125776. Photos courtesy of H.G. Cogger.

between the limb insertions, each with scattered small, ill-defined buff spots along its anterior margin, especially evident at the lateral extremes of the dark markings. These markings each preceded by a pale blotch with vague lateral and anterior margins. Additional dark markings present on the sacrum and extending on to the postaxial margins of the thighs as a thin line, and on the nape, appearing as a medial marking and a pair of lateral ones, separated from one another by a pair of bifurcating buff-colored longitudinal stripes. Buff neck stripes converge posteriorly to form the pale blotch anterior to the first dark transverse markings of the trunk (i.e., at the shoulder). Anteriorly the buff stripes curve inward to meet the posterolateral corners of a large buff area on the parietal table. The area enclosed by the stripes laterally and the parietal anteriorly is darkest and narrowest posteriorly, becoming much lighter and quadrupling in width anteriorly yielding a bulb-shaped outline. The sides of the neck, lateral to the buff stripes, are a very diffuse brown and this coloration extends forward across the lower temporal region, through and beneath the eye and on to the snout, although anterior to the orbit it is incomplete in places. The dorsum of the head bears some faint, irregular markings formed by individual darker granules or small clusters of granules; a faint irregular blotch is present over the nasal bones and continues to the tip of the snout as a thin wavy dark line. The margins of the orbit are pale with some diffuse whitish markings; the labial scales are brown with scattered pigment-poor areas yielding a whitish spotting on the margins of the jaw. The sides of the head posterior to the orbit and ventral to the temporal streak are densely spotted with ill-defined whitish to cream spots, which continue posteriorly on to the flanks. The largest and most conspicuous longitudinal row of such spots extends from the ventral margins of the temporal streak, over the forelimb insertions, down the flanks, over the hindlimb insertions and on to the ventrolateral margins of the original tail. Limbs similar to ground color of trunk, with irregular, faint, scattered medium brown markings. The pygal portion of the tail bears a cream to buff-colored dorsal marking that traverses the tail base constriction and extends on to the first segment of the postpygal tail. This is bordered posteriorly by a thin, broken, border of medium brown and then by a pale brown interspace that is shorter than the cream marking. Two similar markings and a portion of a third continue on the original portion of the tail, with each cream marking with irregular, but mostly symmetrical shape and with a faint brown central marking. The regenerated tail is predominantly buff with irregular, ill-defined medium brown dashes. Body venter beige with darker pigmentation under the limbs, around the cloaca, at the body margins and on the chin and throat. Subcaudal surfaces light to medium brown with scattered beige to cream markings.

Color in life.— Based on images (Fig. 4) of the holotype and a paratype (AMS R.125776) in life. Ground color grayish- to pinkish-brown with very small dark brown and white granules and clusters of granules interspersed. Dorsal dark transverse bars dark brown, each with a thin (one granule wide) anterior margin. Dorsal pale blotches and streaks on neck and temporal region grayish brown. Lateral spots bright white; larger, more prominent dorsal series extending from behind eye to sacrum. Ventral series of smaller spots running from posteroventral aspect of orbit, below ear and above forelimb insertion to flanks; anteriorly this row of spots is in series with white spots on the supralabials. Snout dark brown; orbital rims pale yellowish; iris coppery. Limbs and lower sides of neck light brown, with neither grayish- or pinkish-undertones, similar to flanks at ventrolateral margins. Tail grayish-brown to gray. Original portion of post-pygal tail bearing gray dorsal blotches with dark brown margins, alternating with mottled gray-brown interspaces. Regenerated portion of tail gray with scattered, irregular, dark brown longitudinal lines and dashes.

Variation.— Mensural and some meristic features of paratypes are presented in Table 1. All paratypes with 5 internasals contacting the rostral. First infralabials separated behind the mental in all paratype except AMS R.125776 (in contact) by an enlarged median postmental chin shield. Collectively, the first infralabials border 2–5 (usually 3) enlarged chin shields. Midbody scale rows 131–145 (mean 137). Male paratypes with a single row of ~16–24 precloacal pores (except AMS R.125823 in which there is a single median pored scale in a second row); no pores or dimpled scales in females. Cloacal spurs up to eight enlarged scales on each side (e.g. AMS R.125811). Subdigital lamellae vary contralaterally within individuals as well as between individuals; usually 5–6 under digit I of both manus and pes and a maximum of 12 under the longest digits. All specimens have partly regenerated tails, a common condition among *Bavayia* spp. Longest regenerated tail 100% SVL (holotype). Color pattern very conservative, differing among the paratypes primarily in the boldness, extent and continuity of the dark markings of the trunk, and the nape and head markings. In paratypes with more complete original tails as many as 10 pale tail markings are present (e.g., AMS R.125802).

Etymology.—Named for the Loyalty Islands (Îles Loyauté), to which the species is restricted.

Distribution.— Restricted to Maré, the southernmost island of the Loyalties (Province des

Îles Loyauté). It is possible that it may occur on the nearby islands of Tiga (Tokanod) and Dudune (Fig. 1).

Natural History.— The species occupies daytime retreats under exfoliating tree bark (Fig. 5) and has been found active on building walls on Maré (Sadlier and Bauer 1997).

FIGURE 5. Habitat of *Bavayia loyaltiensis* in forest near the Trou de Bone, southern Maré.

Conservation Status.— *Bavayia loyaltiensis* meets the criteria (B1ab(ii, iii, v) + 2ab(ii, iii, v)) to be categorized as Vulnerable on the IUCN Red List. The species is endemic to Maré Island in the Loyalty Islands and has a very small distribution with an estimated extent of occurrence of 650 km^2. It is presumed to have suffered past declines in population size and extent of occurrence as a result of loss of forest habitat from clearance for occupation and agriculture. It is considered to be at a high level of threat from further loss and degradation of forest habitat from clearance for agriculture and settlement, from predation by cats, and from the introduced Fire Ant *Wasmania auropunctata*, which has the potential to displace geckos from ground sheltering sites and arboreal foraging sites, and to affect the abundance and composition of invertebrate prey (Jourdan et al. 2001).

Remarks.— This species has previously been consistently included within *Bavayia sauvagii sensu stricto* (Roux 1913; Bauer and Vindum 1990; Bauer and Henle 1994; Sadlier and Bauer 1997; Bauer and Sadlier 2000). Roux (1913) noted the small size of specimens from Maré (SVL 45 mm) relative to *B. sauvagii* from the Grande Terre which is, in fact, diagnostic for this species. Subfossil material from Tiga may be referrable to this species (Daza et al. 2015). Recent collections are lacking from Tiga, but its proximity to Maré makes the occurrence of *B. loyaltiensis* plausible, at least historically.

DISCUSSION

The description of *Bavayia loyaltiensis* is one small step in the taxonomic recognition of the true diversity of *Bavayia* within the New Caledonian region. The composite nature of *B. sauvagii* has been suspected for at least 25 years (Sadlier and Bauer 1997; Wright et al. 2000; Bauer and Sadlier 2000). Bauer and Jackman (2006) identified previously unrecognized genetic diversity within the genus and this has recently been confirmed by Bernstein et al. (2001), who verified that barcoding data based on the CO1 mitochondrial marker was consistant with the recognition of up to 39 species. More extensive sampling based on the ND2 mitochondrial gene and several nuclear genes (Bauer et al., in prep.) has identified the same pattern and 28 new species will be described shortly. Unfortunately, no genetic material is available for *B. loyaltiensis*, so the description presented here, of necessity, relied on morphological characters only. These are sufficient to diagnose the new species and though we are unable to place the species into a molecular phylogeny, the evidence from other congeners certainly suggests that there is geographically coherent substructure in both *B. cyclura* and *B. sauvagii*, as previously construed, that is at least heuristically supportive of the recognition of a Loyalty Islands endemic. Without molecular data we cannot be certain of the phylogenetic placement of *B. loyaltiensis* within *Bavayia*, but its morphological similarity to southern Grande Terre *B. sauvagii*, first noted by Sadlier and Bauer (1997), suggests it is a member of the clade including *B. sauvagii sensu stricto* (and two as yet unnamed species from the south of the Province Sud; Bernstein et al. 2021).

Sadlier and Bauer (1997) and Bauer and Sadlier (2000) reported nine gecko species from the Loyalty Islands. These include all of the six gekkonid geckos known from New Caledonia more generally, *Hemidactylus frenatus*, *H. garnotii*, *Hemiphyllodactylus typus*, *Lepidodactylus lugubris*, *Nactus pelagicus*, and *Gehyra georgpotthasti*. All but the last of these are also known from the Grande Terre and have been proposed to have been introduced in conjunction with human colonization, possibly as late as the arrival of Europeans in the Pacific (Grant-Mackie et al. 2003; although it is clear that on Tiga, at least *Nactus* predates European contact, Daza et al. 2015). The last species, *Gehyra georgpotthasti* is certainly native and was recently recognized (Flecks et al. 2012) to be one of several terrestrial squamates in the Loyalties with affinities to Vanuatu, to the north and east, not to the New Caledonian mainland.

With respect to diplodactylid geckos, which make up the majority of New Caledonian regional geckos, three species were earlier recognized in the Loyalties (Sadlier and Bauer 1997; Bauer 1999; Bauer and Sadlier 2000). Two of these have since been found to be conspecific and are here recognised as *B. crassicollis*, a Loyalties endemic that accounts for all *B. cyclura* group records from the Province des Îles Loyauté (Geneva et al. 2013; Daza et al. 2015). With the recognition of *B. loyaltiensis* as an endemic species, *B. sauvagii* is removed from the Loyalty Islands species list. *Bavayia loyaltiensis* joins *Emoia loyaltiensis* (Roux), *Ramphotyphlops willeyi* (Boulenger), and *Bavayia crassicollis* as the only known Loyalty reptile endemics and, with its congener, the only endemic with Grande Terre affinities. Why *B. loyaltiensis* should be restricted to Maré is unknown, although if we are correct in assuming affinities with *B. sauvagii* sensu stricto, Maré would be the closest landfall in the chain to a southern Grande Terre source population, and movement would have been facilitated by the Southern Tropical Countercurrent. Alternatively, the species may have once been more widespread in the Loyalties and may have suffered extirpation from the northern islands. *Gehyra georgpotthasti*, although of Outer Melanesian Arc affinities, has likewise reached Maré (and neighboring Dudune and Tiga, Flecks et al. 2012; Daza et al. 2015) although it seems never to have colonized Lifou or Ouvéa (a single old record from Lifou, without specific locality, is doubtful, Daza et al. 2015). While the granitic exposures of Maré make it geologically distinctive among the Loyalties, neither *Gehyra* nor *B. loyaltiensis* require, nor are even known to use, this substrate, nor, if all gekkoinids except *Nactus* are recent arrivals, would either be excluded by competitors on the more northern islands. Thus, it seems likely that the restriction in distribution reflects historical contingency.

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