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A new species of *Hemiphyllodactylus* Bleeker, 1860 (Squamata: Gekkonidae) from Pulau Enggano, southwestern Sumatra, Indonesia

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Abstract

A new species of gekkonid lizard *Hemiphyllodactylus engganoensis* **sp. nov.** from Pulau Enggano, southwestern Sumatra, Indonesia is differentiated from all other congeners by having the unique combination of a maximum SVL of 37.3 mm; six chin scales; no enlarged postmentals; five circumnasal scales; three or four scales between the supranasals; 12 supralabials; 24 dorsal scales; 15 ventral scales; a lamellar hand formula of 4554 or 4454; a lamellar foot formula of 4555; four subdigital lamellae on the first finger; four or five subdigital lamellae on the first toe; a continuous, femoroprecloacal pore series of 42; five cloacal spurs in males; no enlarged subcaudal scales; no dark postorbital stripes or striping on body; small dark blotches on dorsum; a yellowish postsacral mark bearing anteriorly projecting arms; and a pigmented caecum and gonads. *Hemiphyllodactylus engganoensis* **sp. nov.** is part of the speciose *H. typus* group.

Key words: Gekkonidae, *Hemiphyllodactylus, Hemiphyllodactylus engganoensis* **sp. nov.**, Sumatra, new species

Introduction

The gekkonid genus *Hemiphyllodactylus* Bleeker, 1860 currently comprises 24 confirmed species (Grismer *et al.* 2013, 2014; Ngo *et al.* 2014). Most are geographically restricted to upland areas or islands and collectively extend from the Mascarene Islands in the western Indian Ocean, eastward through southern Asia and Indochina. From here the genus ranges southward through the Philippines and Sundaland, through the Indo-Australian Archipelago, and continues into much of Oceania at least as far eastward as Hawaii. Grismer *et al.* (2013) demonstrated that *Hemiphyllodactylus* was far more diverse than the most recent taxonomic revision based solely on morphology (see Zug 2010) indicated. Ten of the 22 species Grismer *et al.* (2013) identified were differentiated on the basis of genetic and or preliminary morphological evidence and their descriptions were deferred to subsequent, more in depth morphological analyses (e.g. Grismer *et al.* 2014; Ngo *et al.* 2014). One of these species is endemic to Pulau Enggano, a very remote, deep-water island residing 113 km off the southwestern coast of Sumatra, Indonesia (Fig. 1). This species was originally identified as *H. typus* (Zug 2010) but is actually the sister species to another undescribed species from Pulau Sibu, Johor, Peninsular Malaysia (Grismer *et al.* 2013; Fig. 2). Based on the examination of three specimens (MZB.Lace 4568, MVZ 239345–46), we support the conclusion of Grismer *et al.* (2013) in that this population is distinct from *H. typus* and has several morphological characteristics clearly separating it from all other known species of *Hemiphyllodactylus.* As such, we describe it here as new.

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FIGURE 1. Location of the type locality, Pulau Enggano, Indonesia.

Material and methods

Color notes were taken using digital images of specimens obtained prior to preservation. For purposes of comparison the terminology and methodology involving the evaluation of mensural and meristic characters follows Grismer *et al.* (2014) which is generally based on Zug (2010). Mensural data were taken with Mitutoyo dial calipers to the nearest 0.1 mm under a Nikon SMZ 1500 dissecting microscope on the left side of the body where appropriate: snout-vent length (SVL), taken from the tip of snout to the vent; tail length (TailL), taken from the vent to the tip of the tail, original or regenerated; trunk length (TrunkL), taken from the posterior margin of the

forelimb at its insertion point on the body to the anterior margin of the hind limb at its insertion point on the body; head length (HeadL), the distance from the posterior margin of the retroarticular process of the lower jaw to the tip of the snout; head width (HeadW), measured at the angle of the jaws; eye diameter (EyeD), the horizontal diameter of the eyeball; snout-eye length (SnEye), measured from anteriormost margin of the eyeball to the tip of snout; nares-eye length (NarEye), measured from the anterior margin of the eye ball to the posterior margin of the external nares; and internarial width (SnW), measured between the nares across the rostrum. Meristic character states evaluated on the holotype and comparative material (see Appendix; Zug [2010]) were the number of scales contacting the nares (circumnasal scales); the number of scales between the supranasals (postrostrals); the numbers of supralabial and infralabial scales counted from the largest scale immediately posterior to the dorsal inflection of the posterior portion of the upper jaw to the rostral and mental scales, respectively; the number of longitudinal ventral scales at midbody contained within one eye diameter; the number of longitudinal dorsal scales at midbody contained within one eye diameter; the number of subdigital lamellae wider than long beneath the first fingers and toes; lamellar formulae determined as the number of U-shaped, subdigital lamellae on the digital pads on digits 2–5 of the hands and feet; the total number of precloacal and femoral pores (*i.e*. the contiguous or discontinuous rows of femoral and precloacal scales bearing pores); and the number of cloacal spurs. Color pattern characters evaluated were the presence or absence of dark pigmentation in the gonadal tracts and caecum; presence or absence of a dark postorbital stripe extending to at least the neck; the presence or absence of a linear series of white postorbital spots above the dark postorbital stripe; and coloration features concerning the postsacral marking (see Table 1).

Some of the information on character states and their distribution in other species was obtained from Grismer *et al.* (2014). MVZ refers to the Museum of Vertebrate Zoology, University of California at Berkeley, Berkeley, California, USA, MZB refers to Museum Zoologicum Bogoriense (LIPI) collection, Cibinong, Bogor, Indonesia and LSUHC refers to the La Sierra University Herpetological Collection, La Sierra University, Riverside, California, USA.

Systematics

***Hemiphyllodactylus engganoensis* sp. nov.**
Pulau Enggano Dwarf Gecko
Cicak Kerdil Enggano
Figs. 3, 4

Holotype. Adult female (MZB.Lace 4568) collected at 2220 hours on 11 May, 2013 by Jimmy A. McGuire, Djoko T. Iskandar, Awal Riyanto, and Mulyadi near the village of Malakoni on the island of Enggano (Kecamatan Enggano, Kabupaten Bengkulu, Propinsi Bengkulu, Indonesia; S 05.35290, E 102.27742, 1 m elevation).

Paratype. Subadult female (MVZ 239345) and adult male (MVZ 239346) bear the same collection data as the holotype.

Diagnosis. *Hemiphyllodactylus engganoensis* **sp. nov.** is differentiated from all other congeners by having the unique combination of a maximum SVL of 37.3 mm; six chin scales; no enlarged postmentals; five circumnasal scales; three or four scales between the supranasals; 12 supralabials; 24 or 25 dorsal scales; 14 ventral scales; a lamellar hand formula of 4554 or 4454; a lamellar foot formula of 4555; four or five subdigital lamellae on the first finger; four or five subdigital lamellae on the first toe; a contiguous femoroprecloacal pore series of 42; five cloacal spurs in males; no enlarged subcaudal scales; no dark postorbital stripes or striping on body; small dark blotches on dorsum; a yellowish postsacral mark bearing anteriorly projecting arms; and a pigmented caecum and gonads. (Table 1).

Description of holotype. Adult female; head triangular in dorsal profile depressed, distinct from neck; lores and interorbital regions flat; rostrum relatively long (NarEye/ HeadL = 0.30); prefrontal region flat to weakly concave; canthus rostralis smoothly rounded, barely discernable; snout moderate, rounded in dorsal profile; eye large; ear opening oval, small; eye to ear distance greater than diameter of eye; rostral wider than high, partially divided dorsally, bordered posteriorly by large supranasals; three internasals (=postnasals); external nares bordered anteriorly by rostral, dorsally by supranasal, posteriorly by two postnasals, ventrally by first supralabial (collectively the circumnasals 5 R, L); 12 (R, L) square supralabials tapering to below posterior margin of orbit; 12

TABLE 1. Diagnostic and potentially diagnostic (color pattern and morphometric ratios) characters separating *Hemiphyllodactylus engganoensis* sp. nov. from all other nominal taxa of *Hemiphyllodactylus* . Diagnostic and potentially diagnostic charcters are in bold. / = data unavailable.

	aurantiacus	*banaensis*	*chiangmaiensis*	*ganoklonis*	*harterti*	*insularis*	*laruensis*
max SVL	37.9	**51.0**	**41.2**	34.2	39	37.3	**52.2**
chin scales	**10–14**	6–7	**8–12**	**9–12**	6–8	**8–14**	6–10
postmentals distinctly enlarged (1) or not (0)	0	**1**	**1**	0	**1**	0	**1**
circumnasal scales	2–4	**3**	3,4	2–4	2–5	1–4	3–5
scales between supranasals	3–6	4–11	1–3	3–5	3–4	2–4	3
supralabial scales	10–13	9–12	9–11	8–11	10–11	9–13	9,10
infralabial scales	8–12	9–11	9–12	**8–10**	10–11	**9–11**	**7–10**
dorsal scales	**11–17**	**17–20**	**11–21**	**11–18**	**14–19**	**13–18**	**13–20**
ventral scales	**8–12**	**9–12**	**6–10**	**9–12**	6–14	8–14	7–13
lamellar formula on hand	**2222**	3444, 4554	**3333, 3433**	**3443**	**3333**	**3333**	**
lamellar formula on foot	2232/2233	4555	3333, 3444	3444	3343	34444	***
subdigital lamellae on first finger	3,4	5	3,4	3–5	**3**	2–5	3,4
subdigital lamellae on first toes	4,5	5	3,4	3–5	4	3–6	3–5
precloacal and femoral pore series separate (1) or continuous (0)	1	0	0	1	0	1	0
precloacal and femoral pores	**16–25**	**18–21**	**17–25**	**16–28**	42–45	**17–38**	**27–36**
cloacal spurs on each side	**1–3**	**1**	1	1–4	**1,2**	**0–3**	**2,3**
subcaudals enlarged, plate-like (1) or not (0)	0	0	0	0	0	0	0
dark postorbital stripe present (1) or absent (0)	**1**	**1**	**1**	**1**	**1**	**1**	**1**
light postocular or trunk spots (1) or absent (0)	**1**	**1**	**1**	**1**	**1**	**1**	**1**
dark dorsolateral stripe on trunk present (1) or not (0)	0	**1**	0	0	1,0	0	0
dorsal pattern unicolor (1) or not (0)	0	0	0	0	0	0	**1**
dark dorsal transverse blotches (1) or not (0)	1	1	1	**0**	**0**	**0**	**0**
longitudinal series of white (1) or yellow or red (0) dorsal spots	**1**	0	**0**	**0**	**0**	**0**	**0**
postsacral mark brown or orange (2), outer edge yellow or red (1), outer edge red (0)	**2**	**0**	**2**	1	**0**	**0**	1
postsacral mark lacking anterior arms (1) or arms present (0)	**1**	1	0	0	**1**	0	0
caecum pigmented (1) or not (0)	1	0	1	1	**0**	**0**	**0**
gonads pigmented (1) or not (0)	1	0	1	1	/	/	**0**
Trunk/SVL	0.44–0.51	0.44–0.49	0.46–0.56	0.49–0.57	0.48–0.53	0.45–0.58	0.46–0.51
HeadL/SVL	0.21–0.26	0.22–0.24	0.25–0.43	0.20–0.23	0.22–0.24	0.21–0.24	0.21–0.24
HeadW/SVL	0.14–0.19	0.15–0.16	**0.18–0.23**	0.12–0.15	0.16–0.18	0.12–0.18	0.15–0.17
HeadW/HeadL	0.57–0.79	0.65–0.7	0.41–0.8	0.53–0.65	0.65–0.85	0.54–0.82	0.63–0.73
SnEye/HeadL	0.34–0.42	0.34–0.45	0.23–0.49	0.36–0.45	0.41–0.48	0.26–0.44	0.39–0.51
NarEye/HeadL	0.27–0.33	0.25–0.32	0.17–0.33	0.28–0.34	0.28–0.33	0.27–0.42	0.27–0.36
EyeD/HeadL	0.22–0.28	0.22–0.25	0.13–0.24	0.23–0.28	0.22–0.30	0.23–0.32	0.22–0.28
SnW/HeadL	0.14–0.20	0.13–0.17	0.08–0.23	0.13–0.19	0.15–0.22	0.14–0.21	0.11–0.15
EyeD/NarEye	0.69–0.96	0.71–0.84	0.68–0.81	0.73–0.95	0.81–1.00	0.74–0.95	0.66–0.90
SnW/HeadW	0.21–0.30	0.2–0.24	0.17–0.32	0.23–0.32	0.20–0.32	0.20–0.37	0.18–0.21

……continued on the next page

TABLE 1. Continued.

	margarethae	*titiwangsaensis**	*typus**	*yunnanensis**	*tehtarik*	*zugi*	*engganoensis* **sp. nov.**
max SVL	**46.9**	**62.1**	**46.1**	**49.3**	40.4	**46.6**	37.3
chin scales	6–11	**8,9**	**9–14**	6–11	**8**	**9–12**	6
postmentals distinctly enlarged (1) or not (0)	**1**	**1**	**1**	**1**	**1**	**1**	0
circumnasal scales	**2 or 3**	**3**	1–5	2–4	5r,l	**2 or 3**	5
scales between supranasals	2–4	1–3	1–5	2–5	3	3–5	3 or 4
supralabial scales	10–13	9–11	9–14	8–13	11	10–13	12
infralabial scales	9–12	**8–10**	7–13	8–12	**10**	10 or 11	12
dorsal scales	**11–17**	**14–19**	**12–19**	**9–18**	**18**	20–22	24 or 25
ventral scales	**6–12**	**7–9**	8–14	**6–12**	**12**	15 or 16	14
lamellar formula on hand	**4444**	**3444**	**3444**	**3333**	**3333**	**3444**	4554/4454
lamellar formula on foot	4555	4555	4454	3444	3454	4555	4555
subdigital lamellae on first finger	4–8	4–6	4,5	4–6	5	4 or 5	4 or 5
subdigital lamellae on first toes	4–7	5–8	5,6	4–7	5	4 or 5	4 or 5
precloacal and femoral pore series separate (1) or continuous (0)	1	0	1 or 0	1	no pores	0	0
precloacal and femoral pores	**0–29**	**17–39**	**0–26**	**11–25**	**0**	**18–21**	42
cloacal spurs on each side	**1,2**	1–4	1–5	**0–2**	**3**	**1**	5
subcaudals enlarged, plate-like (1) or not (0)	0	0	0	0	/	0	0
dark postorbital stripe present (1) or absent (0)	/	**1**	**1**	**1**	**1**	**1**	0
light postocular or trunk spots (1) or absent (0)	/	**1**	**1**	**1**	0	**1**	0
dark dorsolateral stripe on trunk present (1) or not (0)	/	0	0	0	0	0	0
dorsal pattern unicolor (1) or not (0)	/	0	0	0	**1**	0	0
dark dorsal transverse blotches (1) or not (0)	**0**	**0**	**0**	**0**	**0**	**0**	1
longitudinal series of white (1) or yellow or red (0) dorsal spots	**0**	**0**	**1**	**0**	**0**	**0**	/
postsacral mark brown or orange (2), outer edge yellow or red (1), outer edge red (0)	**0**	**0**	**2**	**0**	**2**	**0**	1
postsacral mark lacking anterior arms (1) or arms present (0)	0	**1**	0	**1**	0	0	0
caecum pigmented (1) or not (0)	**0**	**0**	1	**0**	**0**	**0**	1
gonads pigmented (1) or not (0)	0,1	**0**	1	**0**	**0**	**0**	1
Trunk/SVL	0.40–0.54	0.42–0.50	0.40–0.65	0.40–0.55	**0.55**	0.50–0.56	0.49–0.51
HeadL/SVL	0.21–0.26	0.23–0.27	0.18–0.24	0.21–0.26	**0.20**	0.21–0.24	0.24–0.26
HeadW/SVL	0.15–0.19	0.16–0.19	0.10–0.16	0.14–0.22	0.16	0.17–0.18	0.16
HeadW/HeadL	0.66–0.79	0.64–0.73	0.51–0.77	0.59–0.83	**0.8**	**0.74–0.79**	0.62–0.67
SnEye/HeadL	0.39–0.46	0.37–0.43	0.34–0.48	0.34–0.46	**0.47**	0.43–0.49	0.41–0.43
NarEye/HeadL	0.29–0.35	0.26–0.32	0.24–0.40	0.26–0.35	**0.4**	0.29–0.39	0.29–0.30
EyeD/HeadL	0.16–0.25	0.21–0.30	0.20–0.32	0.22–0.29	**0.28**	/	0.23–0.24
SnW/HeadL	0.15–0.19	0.14–0.21	0.11–0.21	0.11–0.22	0.16	0.16–0.17	0.13–0.15
EyeD/NarEye	0.47–0.81	0.68–0.94	0.61–1.06	0.63–1.00	**0.72**	/	0.77–0.82
SnW/HeadW	0.22–0.28	0.21–0.31	0.16–0.34	0.15–0.36	0.2	0.21–23	0.20–0.24

*Taxa containing multiple undescribed species but encopmapssed within the taxonomy of Zug (2010). ** 2444, 3333, 3443, 3444. *** 3343, 3444, 3554, 4555

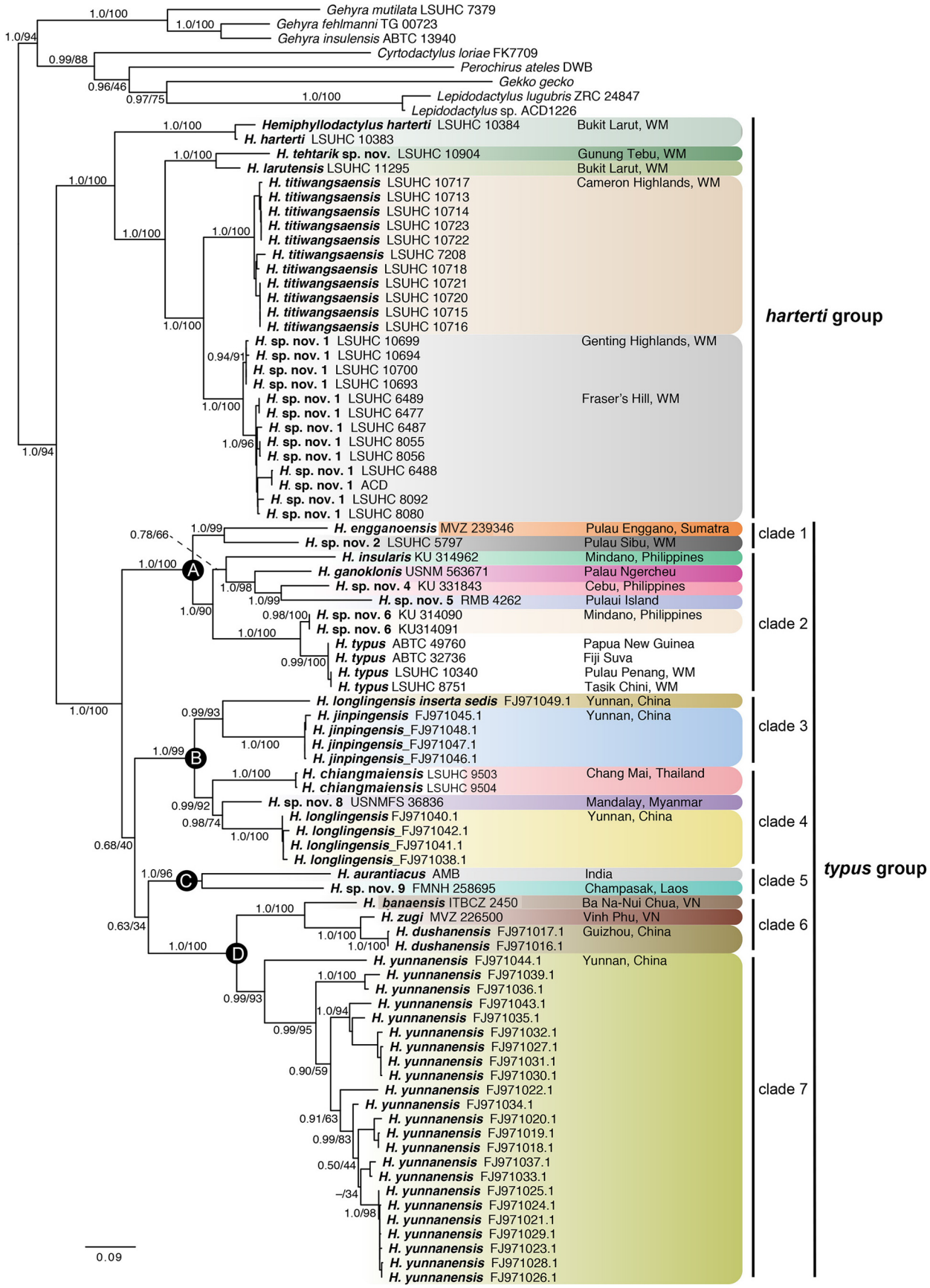

FIGURE 2. Maximum-likelihood phylogram (–lnL 22097.690183) of the genus *Hemiphyllodactylus* Bleeker, 1860 with Bayesian posterior probabilities and maximum-likelihood bootstrap values, respectively.

(R, L) square infralabials tapering to below posterior margin of orbit; scales of rostrum and lores, raised; scales on top of head and occiput small, granular; dorsal superciliaries raised, rectangular; mental triangular, bordered laterally by first infralabials and posteriorly by two non-enlarged postmentals; each postmental bordered laterally by a single sublabial; row of smaller scales extending transversely from juncture of second and third infralabials and contacting mental; gular scales triangular, small, granular, grading posteriorly into slightly larger, subimbricate throat and pectoral scales which grade into slightly larger, subimbricate ventrals.

FIGURE 3. Paratype MVZ 239345 (subadult female) of *Hemiphyllodactylus engganoensis* **sp. nov.** from Pulau Enggano, Indonesia.

Body elongate, dorsoventrally compressed; ventrolateral folds absent; dorsal scales small, granular, 25 scales contained within one eye diameter; ventral scales flat, subimbricate, much larger than dorsal scales, 14 scales contained within one eye diameter; no enlarged, precloacal scales; no pore-bearing scales femoral or precloacal scales; forelimbs short, robust in stature, covered with granular scales dorsally and slightly larger, flat, subimbricate scales ventrally; palmar scales flat, subimbricate; all digits except digit I well-developed; digit I vestigial, clawless; distal, subdigital lamellae of digits II–V divided, angular and U-shaped; lamellae proximal to these transversely expanded, undivided; lamellar formula of digits II–V 4-4-5-4 (R, L); four transversely expanded lamellae on digit I; claws on digits II–V well-developed, unsheathed; distal portions of digits strongly curved, terminal joint free, arising from central portion of lamellar pad; hind limbs short, more robust than forelimbs, covered with slightly pointed, juxtaposed scales dorsally and by larger, flat, subimbricate scales ventrally; plantar scales low, flat, subimbricate; all digits except digit I well-developed; digit I vestigial, clawless; distal, subdigital lamellae of digits II–V divided, angular and U-shaped; lamellae proximal to U-shaped lamellae transversely expanded, undivided; lamellar formula of digits II–V 4-5-5-5 (R, L); five transversely expanded lamellae on digit I; claws on digits II–V well-developed, unsheathed; distal portions of digits strongly curved, terminal joint free, arising from central portion of lamellar pad; all caudal scales flat, imbricate, not occurring in caudal segments, no enlarged subcaudals. Morphometric data are presented in Table 2.

Coloration in alcohol. Top of head, body and limbs nearly unicolor tan; ground color of dorsal surface of tail tan bearing nine, dark-colored, diffuse bands; lores slightly darker; no postorbital striping; faint, diffuse light-colored spots on dorsum barely discernable; light-colored, postsacral marking bearing faint, anteriorly projecting arms; ground color of gular region beige with small, dark-brown spots; ground color of ventral surfaces of body and limbs beige, immaculate; dorsal coloration invades lateral sections of abdomen.

Variation. The paratype MVZ 239345 approaches the holotype in general dorsal coloration and pattern (Fig. 3, 4). In life, the dorsal ground color of the head is dull-yellow and that of the body, limbs, and tail is tan with faint, darker bands. All dorsal surfaces are overlain with a reticulum of darker markings that tend to form thin, zig-zag lines across the body and wider bands on the tail. The light-colored, postsacral marking is more vivid. The iris is

silver. The tail is complete, original, and round in cross-section (Fig. 4). The male paratype MVZ 239346 is missing a tail and has a uniform tan dorsal ground color (Fig. 4) . It also has a continuous series of 42 femoroprecloacal pores and five cloacal spurs, both of which are lacking in the two female specimens. Differences in meristics and morphometrics are listed in Table 2.

TABLE 2. Scale counts, color pattern characteristics, and morphometric ratios of the type series of *Hemiphyllodactylus engganoensis* **sp. nov.** (variable features only).

	MZB.Lace 4568 holotype	MVZ 239345 paratype	MVZ 239246 paratype
Sex	f	f	m
SVL	34.6	30.6	37.3
dorsal scales	25	25	24
ventral scales	14	14	15
lamellar formula on hand	4-4-5-4	4-5-5-4	4-4-5-4
subdigital lamellae on first toe	5	5	4
dark dorsal transverse blotches	very faint	faint	absent
Trunk/SVL	0.47	0.51	0.49
HeadL/SVL	0.25	0.26	0.24
HeadW/SVL	0.16	0.16	0.16
HeadW/HeadL	0.62	0.62	0.67
SnEye/HeadL	0.41	0.41	0.43
NarEye/HeadL	0.30	0.29	0.3
EyeD/HeadL	0.24	0.24	0.23
SnW/HeadL	0.14	0.15	0.13
EyeD/NarEye	0.80	0.82	0.77
SnW/HeadW	0.22	0.24	0.2
SVL	34.6	30.6	37.3
trunk	16.4	15.7	18.3
HeadL	8.7	7.9	8.9
HeadW	5.4	4.9	6
SnEye	3.6	3.2	3.8
NarEye	2.6	2.3	2.7
EyeD	2.1	1.9	2.1
SnW	1.2	1.2	1.2
TaiL	30.0	/	28.3

Distribution. *Hemiphyllodactylus engganoensis* **sp. nov.** is known only from the type locality near the village of Malakoni on the island of Enggano. We presume it to be endemic to the entire island, though it may be restricted to Enggano's coastal perimeter. All three specimens in the original series were collected within a few hundred meters of one another in beachside vegetation.

Natural history. The three specimens of *Hemiphyllodactylus engganoeneis* **sp. nov.** were collected where lowland forest habitat interfaced with a sandy beach near the mouth of a small river along the Enggano coastline. The holotype was collected approximately 1 m above the ground on the leaf of a sapling, and the two paratypes were collected about 1 m above the ground on and between *Pandanus* leaves. The specimens were all collected between 2200 and 2225 hrs. *Pandanus* was abundant along the forest edge, and the crevices between its serrated, strap-shaped leaves were also inhabited by two other gecko species, *Lepidodactylus lugubris* (Duméril & Bibron) and *Hemidactylus frenatus* Schlegel.

Etymology. The specific epithet *engganoensis* is an adjective in reference to the type locality Pulau Enggano, Bengkulu Province, Indonesia.

FIGURE 4. Type series of *Hemiphyllodactylus engganoensis* sp. nov from Pulau Enggano, Indonesia. Upper: holotype MZB.Lace 4568 (adult female). Middle: paratype MVZ 239346 (adult male). Lower: paratype MVZ 239345 (subadult female).

Comparisons. The taxonomy of Grismer *et al.* (2013, 2014), Ngo *et al.* (2014); Nguyen *et al.* (2013), and Zug (2010) is used in the comparisons below for *H. titiwangsaensis* Zug, *H. typus* Bleeker and *H. yunannensis* (Boulenger). *Hemiphyllodactylus engganoensis* **sp. nov.** is one of the smallest species of the genus and differs from *H. banaensis* Ngo, Grismer, Thai, & Wood; *H. chiangmaiensis* Grismer, Wood, & Cota; *H. larutensis* (Boulenger); *H. margarethae* Brongersma; *H. titiwangsaensis* Zug; *H. typus* Bleeker; *H. yunnanensis*; and *H. zugi* Nguyen, Lehmann, Le Duc, Bonkowski, & Ziegler by its maximum SVL of 37.3 mm vs a SVL >41.0 mm. Its postmentals are not distinctly enlarged which separates it from *H. banaensis, H. chiangmaiensis; H. harterti* (Werner); *H. larutensis; H. margarethae; H. titwangsaensis; H. typus; H. yunnanensis; H. tehtarik* Grismer, Wood, Anuar, Muin, Quah, McGuire, Brown, Ngo, & Thai; and *H. zugi. Hemiphyllodactylus engganoensis* **sp. nov.** can be differentiated from *H. banaensis, H. larutensis, H. titwangsaensis,* and *H. zugi* by having five vs. two or three circumnasal scales. It differs from all other species except *H. zugi* in having 24 or 25 dorsal scales (as opposed to having fewer than 22) and having 14 ventral scales separates it from *H. banaensis, H. aurantiacus* (Beddome), *H. chiangmaiensis, H. ganoklonis* Zug, *H. margarethae, H. titwangsaensis, H. yunnanensis,* and *H. tehtarik* which have 12 or less. *Hemiphyllodactylus engganoensis* **sp. nov.** has a unique lamellar formula on the hand (4-5-5-4 or 4-4-5-4) that separate if from all other species except *H. banaensis* that have various other combinations (see Table 1). Having a series of femoral and precloacal pores that are not contiguous separates *H. engganoensis* **sp. nov.** from *H. aurantiacus, H. ganoklonis, H. insularis* Taylor, *H. margarethae,* some *H. typus,* and *H. yunnanensis* which all have a contiguous pore series. Additionally, having a total pore count of 42 further differentiates *H. engganoensis* **sp. nov.** from all other species (except *H. harterti*) who have less than 40 (0–39 collectively). *Hemiphyllodactylus engganoensis* **sp. nov.** has a high number (5) of cloacal spurs which at least distinguishes it from *H. auratiacus, H. banaensis, H. harterti, H. insularis, H. larutensis, H. margarethae, H. yunnanaensis,* and *H. zugi* which collectively have 0–3 cloacal spurs. There are a number of morphometric ratios concerning various structures that are potentially diagnostic (Table 1). However, due to the incomplete sample sizes across all age classes for all species, we consider their diagnostic utility as tentative at this point. Additionally, *H. engganoensis* **sp. nov.** is possibly separated from various other species on the basis of a number color pattern characters (Table1). However, because the color variation in the type series (three specimens) is extensive (Fig. 3), we defer judgment as to the utility of these characters as well until the acquisition of additional material. Based on the mitochondrial ND2 gene, Grismer *et al.* (2013) noted that *H. engganoensis* **sp. nov.** has an uncorrected sequence divergence of 17.5% from its closest relative from Pulau Sibu, Malaysia.

Discussion

Pulau Enggano is a small (~403 km^2), isolated, uplifted, limestone island of oceanic origin located approximately 113 km off the southwest coast of Sumatra. The island is relatively flat, reaching no higher than 300 m in elevation. Although it is part of the same uplifted chain of islands comprising the Mentawai Archipelago, whose islands have a relatively rich herpetological history (Boulenger 1885, 1890; Modigliani 1889; van Lidth de Jeude 1890; Vinciguerra 1892; Werner 1892; De Rooij 1915a,b, 1922; Roux, 1925; Kopstein 1937; Smith 1926; Dring *et al.* 1990; Das 2005), Pulau Enggano's isolation has left it relatively unstudied. Although its herpetofauna has been listed in a number of regional studies (i.e., De Rooij 1915b; Brongersma 1934; Smith 1935) only Vinciguerra (1892) an Kopstein (1937) dealt exclusively with the Pulau Enggano herpetofauna. To date, *Draco modiglianii* Vinciquerra and *Cnemaspis modiglianii* Das are the only known endemics (although *Coelognathus subradiatus enganensis* is separated from its putative conspecifics in the Lesser Sundas by more than 1500 km and the intervening islands of Java and Bali). To these we add *Hemiphyllodactylus engganoensis* **sp. nov.** This latter discovery and description based on a single expedition during May 2003, highlights the understudied nature of this island's herpetofauna. We predict that further study of the specimens obtained on our 2003 expedition, as well as additional fieldwork on Pulau Enggano, will yield additional new species, and descriptions will be forthcoming.

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