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A new species of the genus *Platymantis* (Amphibia: Ranidae) from Luzon Island, Philippines

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Abstract.—A new species, *Platymantis mimulus*, is described from Mt. Maquiling, southeastern Luzon Island, Philippines. This population was previously confused with juveniles of *Platymantis dorsalis* because of their very similar appearance, based on general morphological characters. However, the diminutive size of this species (19–24.5 mm snout-vent length for males and 22–27.5 mm for females) and its call distinguish it from *P. dorsalis* (26–35 mm snout–vent length for males and 33–43 mm for females) from Luzon Island.

Platymantis dorsalis and *Platymantis corrugatus* are the names that have long been applied to Philippine populations of common forest-floor *Platymantis*. They fit the following diagnosis: moderate in size, about 27 to 50 mm SVL at maturity; blunt or rounded terminal phalanges; small finger disks, not or not much wider than subtending phlanges (*dorsalis*) or blunt finger tips without disks (*corrugatus*); and distinctive patterns of dorsal ornamentation involving either short or long ridges and tubercles. Two other species, *Platymantis levigatus* with similar terminal phlanges but with moderate finger disks and smooth skin was described from Tablas Island (Brown & Alcala 1974), and *Platymantis spelaeus*, fitting the above diagnosis in terms of the finger disks and terminal phalanges but differing in its larger size and lack of ridges or tubercles in the dorsal ornamentation, was described in 1982 from Negros Island (Brown & Alcala 1982). These species are the *dorsalis* Group of Philippine *Platymantis* (Brown, Brown & Alcala 1997).

Recently, two of us (Alcala & Diesmos), while collecting on Mt. Maquiling, southeastern Luzon Island, noted that several small, *dorsalis*-like frogs were actually calling males and that the call differed from that of typical *dorsalis*. The diminutive size of this species differentiates it not only from *dorsalis* but also from the other three species noted above. A reexamination of more than 100 specimens assigned to *P. dorsalis* that were collected by E. H. Taylor on Mt. Maquiling in 1920 and 1921 (Taylor 1922a) and assigned by him to *P. meyeri* (= *dorsalis*), includes, among those treated as juveniles, a number of examples of this new, small species. At the time he noted that the large series possibly included more than one species. Inger (1954) also assigned all of the small-disked populations to *dorsalis* or *corrugatus*.

Materials and Methods

Holotypes of *Platymantis dorsalis*, *corrugatus*, *meyeri*, *levigatus*, and *spelaeus* as well as extensive early collections from some mountains on Luzon that have been referred to *dorsalis* were examined (Appendix A). Repositories for the types are British Museum of Natural History (BMNH), Museum National de Histoire Naturelle (MNHN), and California Academy of Sci-

Fig. 1. *Platymantis mimulus* (CAS 201191, a paratype). Dorsal view showing characteristic ornamentation.

ences (CAS). The other specimens are at the CAS and the Philippine National Museum (PNM).

Morphometric characters: snout–vent length (SVL), head length (HL), head breadth (HW), snout length (SnL), diameter of eye (ED), diameter of tympanum (TD), tibia length (TiL), third finger length from proximal edge of basal tubercle (3FL) were measured to the nearest 0.1 mm using a Helios dial caliper. Other non-metric, morphological characters include: webbing of fingers and toes, skin ornamentation, shape of snout, color pattern, vomerine teeth, tubercles of hands and feet, and shape of terminal phalanges. Advertisement calls were recorded for both *dorsalis* and *mimulus*. They were analyzed, using a Kay Electrics SonaGraph (Model #550) and SIGNAL Sound Analysis System software.

Platymantis mimulus, new species
Fig. 1

Platymantis meyeri (part) Taylor, 1922b, p. 129

Holotype.—CAS 196362, an adult male, Mt. Maquiling, Los Banos, Laguna Province, Luzon Island, at an elevation of about 400 m, collected by A. C. Alcala, 30 Jul 1994.

Paratypes.—CAS 196359–61, 196363, 201176–77, 201189–94, 201483; PNM 5061 (same general locality as holotype), collected 1994–1996; CAS 61002–04, 61006–08, 61010, 61012, 61016–22, 61024, 61029–30, 61032, 61037, 61040–42, 61225–26, 61229–30, 61232, 61235–38, 61244–45, 61247–49, 61251–57, 61259–63, 61266–68, PNM 5060 Mt. Maquiling, Laguna Province, Luzon Island, collected by E. H. Taylor in 1920–21.

Diagnosis.—Differs from other Philippine species of small-disked *Platymantis* in the following combination of characters: small size, 19.0–27.5 mm SVL for 40 mature specimens (Table 1); finger disks about same size as those of toes, not or scarcely broader than digits proximal to disks; terminal phalanges blunt or rounded; and a few tubercles and some short, irregular folds on anterior dorsum.

Table 1.—SVL (mm) of adults for Philippine small-disked species of *Platymantis* (*n* = number).

Species	Male	Female
corrugatus	27.2–38.2	35.3–47.7
	n = 23	*n* = 20
Holotype		44.7 (sex unknown)
dorsalis	26.7–35.0	33.0–42.9
	n = 22	*n* = 13
Holotype		36.6
levigatus	29.5–30.3	34.3–38.5
	n = 4	*n* = 3
Holotype		38.5
mimulus	19.0–24.5	22.0–27.5
	n = 26	*n* = 14
Holotype	23.3	
spelaeus	41.5–46.9	52.8–60.5
	n = 6	*n* = 11
Holotype		60.5

Description of holotype.—A mature male, measurements in mm: SVL 23.3, HL 8.1, HW 8.8, SnL 3.0, ED 2.6, TD 1.2, TiL 11.5, 3FL 3.3; dorsum grayish brown with some darker blotches; dorsum with a few scattered tubercles and some short ridges anteriorly; venter nearly smooth.

Description.—SVL 19.0–24.5 mm for 26 adult males and 22.0–27.5 mm for 14 mature females; HW 1.06–1.19 of HL and 0.37–0.43 of SVL; snout rounded; upper jaw only slightly protruding; SnL 0.32–0.42 of HL and 0.28–0.38 of HW; ED 0.72–0.94 of SnL and 0.25–0.30 of HW; tympanum exposed, TD 0.50–0.88 of ED; canthus rounded; lores moderately oblique, concave; vomerine teeth strongly protruding, patches widely separated; fingers not webbed; fingers with small, grooved disks; first, second and fourth fingers nearly equal in length; 3FL 1.00–1.24 of SnL and 0.13–0.16 of SVL; subarticular tubercles large, strongly protruding but not pointed; one row of large supernumerary tubercles; inner and middle metacarpal tubercles large, oval; outer small, elongate; hind limbs long, TiL 0.49–0.62 of SVL and HW 0.67–0.77 of TiL; toes webbed at base: first, second, and third to base of subarticular tubercle, to distal edge of basal subarticular tubercle on fifth and short of basal tubercle on fourth; disks of toes about equal to or slightly larger than those of fingers; subarticular tubercles as for fingers; inner metatarsal tubercle elongate; outer round, strongly protruding; plantar area smooth; tubercle at heel absent; dorsum, head, snout, eyelids, and limbs with a few to numerous tubercles; short, low, often irregularly shaped ridges on posterior head and anterior parts of dorsum; posterior belly and thighs with small granules; throat and chin smooth.

Color (in preservative).—Dorsal background tan to grayish-tan, with dense brown to blackish-brown blotching anteriorly and on head, occasionally a pale, vertebral stripe; venter creamy, densely blotched and flecked with brown anteriorly and on throat and chin, only lightly on belly; lips with dark bars; hind limbs and lower fore limbs with transverse light and dark bars; upper fore limbs uniform creamy or flecked with brown for recently preserved; color is faded to light brownish-tan with varied patterns of pale blotches for those in preservative for many years.

Color (in life).—Dorsal background pale brownish with variable darker blotches; lips and limbs with dark bars.

Reproduction.—Gravid females of *Platymantis mimulus* have 10–14 large, unpigmented eggs in the ovaries. No information is available on egg deposition site or development, but presumably the mode is direct development as is characteristic for other known species of the genus. Advertisement calls were heard and recorded. Other species such as *Platymantis montanus*, *P. dorsalis*, and *Philautus surdus* were also heard and recorded at the same time.

Etymology.—The name *mimulus* (noun in apposition) meaning "little mimic" refers to size at maturity and appearance when compared with individuals of the sympatric species, *Platymantis dorsalis*.

Comparisons.—The very small size of this species readily differentiates it from all previously described Philippine species with small, digital disks (Table 1). The oth-

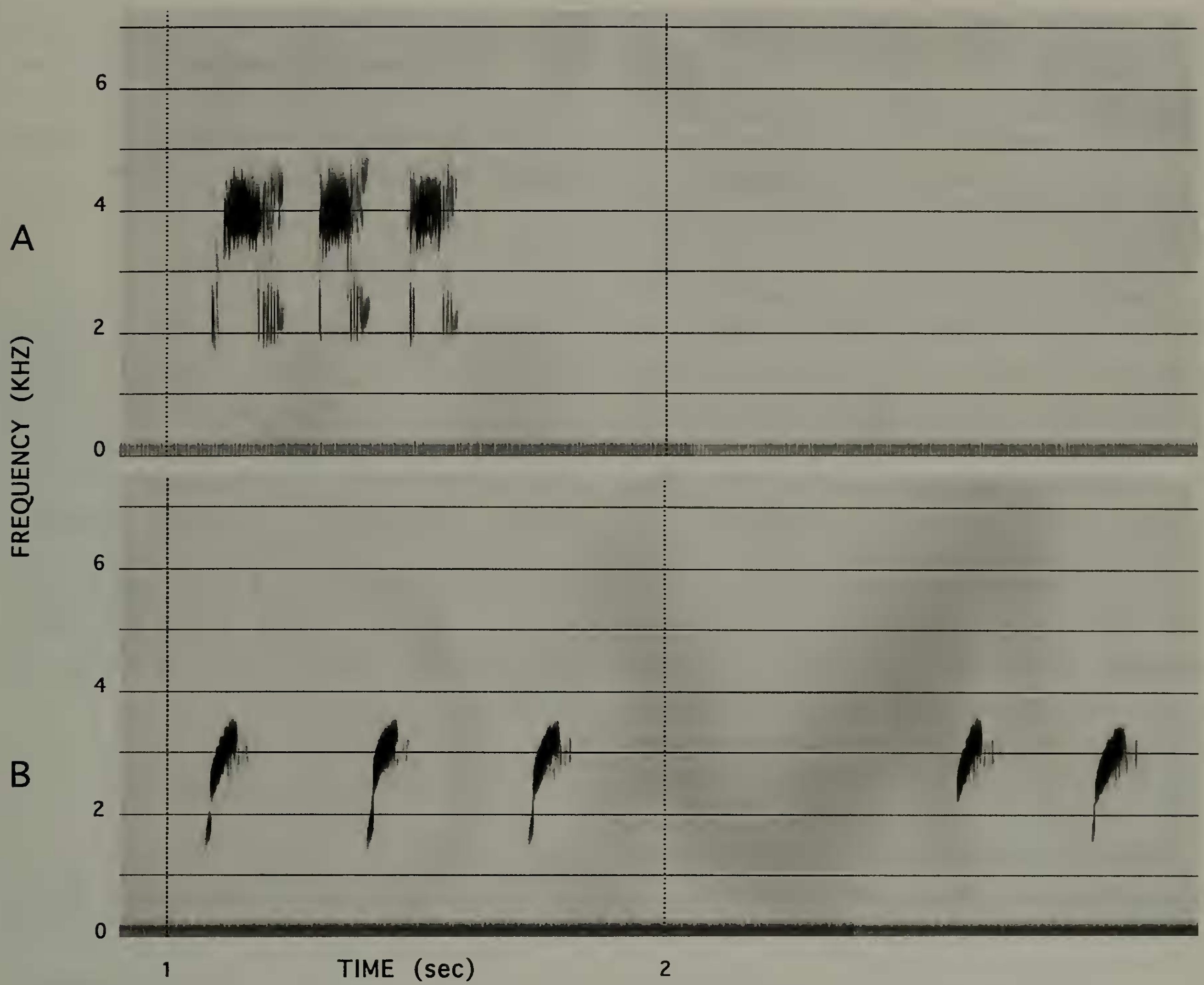

Fig. 2. Audiospectrograms of advertisement calls of (A) *Platymantis dorsalis* (CAS 201561) and (B) *Platymantis mimulus* (CAS 201191) both from Mt. Maquiling, Luzon Island.

er species similarly small in size for mature specimens (most notably *subterrestris*, *montanus*, and *polilloensis*) have large finger disks and broad "T"-shaped, terminal phalanges. In terms of the finger and toe disks, finger length, subarticular tubercles, and ornamentation of the dorsum and limbs, *mimulus* and *dorsalis* are very similar. Adults of *mimulus* have heretofore been confused with juveniles of *dorsalis* (Taylor 1922b).

Platymantis mimulus differs morphologically from *dorsalis* primarily in its much smaller size at maturity and minor differences in ornamentation of the dorsum. Their very similar general appearance contributed to the confusion of *mimulus* with juveniles of *dorsalis*. This is supported by the fact that the only significant, proportional difference, among those examined, is a slight difference in head shape (SnL/HW for *mimulus*: mean = 33.300, SD = 2.849, n = 20; for *dorsalis*: mean = 35.850, n = 20; t = 3.010, df = 38, P = 0.005).

These two species also have very different advertisement calls. The call of *Platymantis dorsalis* sounds like whet-whet (produced by whistling). The first part starts at about 1400 to 1500 Hz but is the dominent frequency between 2200 and 3600 Hz (Fig. 2A). The duration of each call ranges from about 0.056 to 0.075 seconds, and the intervals between calls from about 0.22 to 0.80 seconds for those recorded.

The call of *Platymantis mimulus* sounds like osek-sek-sek. The dominant frequency is 3300 or 3400 to 4500 or 4600 Hzl, sweeping up at the beginning from about 2000 Hz and at the end dropping back to the same level (Fig. 2B). The duration of each call is about 0.13 to 0.15 seconds. The intervals between calls, for those recorded, ranged from 0.20 to about 1.5 seconds.

Habitat.—*Platymantis mimulus* is recorded from original lowland forest and man-made forest (mostly exotic Mahogany species) on Mt. Maquiling at 200 to 650 m. It is a ground dwelling, forest species, as is *P. dorsalis*. Taylor (1922b) notes that young frogs of *dorsalis* (including his examples of *mimulus*) are usually found along streams, whereas adults of *dorsalis* are usually further away in the forest. Our recent samples of *mimulus* are mostly from the forest floor and thick grasses at the forest edge, one is from under a rotting log and one from inside a curled leaf on a shrub about 30–40 cm above ground.

Range.—Known thus far only from Mt. Maquiling in southern Luzon Island.

Discussion

The discovery of this diminutive *Platymantis* on Mt. Maquiling, Luzon Island, that has long been identified with juveniles of *P. dorsalis* indicates the need to reexamine other populations from throughout the islands that have been assigned to *P. dorsalis*. Field studies as well as reexamination of existing samples in numerous museums may be necessary in the effort to identify other mimics of *dorsalis*.

Other examples possibly already exist based on our evidence of populations of diminutive, dorsalis-like frogs on Mt. San Cristobal and Mt. Banahao at Lucban, Luzon. However, because of the small size of these samples (six males and two females and eight males respectively) and the need for verification of some field observations, we hold in abeyance our taxonomic assignment of these populations. Their calls appear different from the calls of either *P. mimulus* or *P. dorsalis*. However, we still need a recording of the voices for analysis and comparison and larger samples for information on intra-population variation.

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Appendix A
Specimens Examined

Cornufer dorsalis A. Duméril, 1853. Philippines (Java is an error): MNHN 4880 (holotype) and Mt. Isarog, Camarines Sur Province, Luzon Island: FMNH 251648, 251656, 251653, 251660, 251662–63, 251665, CAS 200414–416; Mt. Maquiling, Laguna Province, Luzon Island: CAS 61005, 61009, 61011, 61013, 61015, 61027–28, 61030–31, 61033, 61227, 61231, 61233–34, 61239–40, 61242–43, 61264–65, 196358, 196365–67, 200417–18, 200420–27; Mt. Banahao, Quezon Province, Luzon Island: CAS 61180, 201013–14, 201186–88.

Hylodes corrugatus A. Duméril, 1853. Philippines (Java is an error.): MNHN 4884 (holotype).

Platymantis meyeri Günther, 1873. Laguna del Bay, Luzon Island, Philippines: BMNH 1947.2.5–5 (holotype).

Platymantis levigatus Brown and Alcala, 1974. Tablas Island, Philippines: CAS 136097 (holotype) and CAS 136098 (same locality).

Platymantis spelaeus Brown and Alcala, 1982. southern Negros Oriental, Philippines: CAS 153469 (holotype) and CAS 153470–83, (same locality).

Platymantis mimulus new species. Mt. Maquiling, Luzon Island, Philippines: (See account of this species.)

Platymantis sp. Mt. San Cristobal and Mt. Banahao at Lucban (Mt Banahao massive), Luzon Island, Philippines: CAS 201009–11, 201178–85, 201197–200.