

A NEW *PLATYMANTIS* (AMPHIBIA: RANIDAE) FROM
NEW IRELAND, WITH NOTES ON THE AMPHIBIANS
OF THE BISMARCK ARCHIPELAGO

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Abstract.—A new species of *Platymantis*, *P. magnus*, is described from New Ireland, Bismarck Archipelago, and its probable relationship to other platymantids in the Bismarck, Solomon, and Fiji Islands is discussed. Lists of amphibians recorded from New Ireland and New Britain are also given.

Zweifel (1960) noted the apparent impoverished nature of the amphibian fauna of the Bismarck Archipelago when the number of known species (8) was compared with the Solomon Islands to the southeast (16 species at that time, now 24) and New Guinea to the southwest (123 species). He suggested that more species, but not a large number, might be added as a result of further exploration. He further suggested that a more recent geologic origin of the Bismarck group might account for the impoverished fauna.

It is of interest, therefore, to summarize briefly the history of our knowledge of this faunal element in the Archipelago prior to 1960 and of additions to our knowledge since 1960. Werner (1900) listed a total of 5 species of amphibians, all 5 from New Britain, one each from Mioka and New Lanenburg (=Duke of York), small islands at the east end of New Britain, and none from New Ireland or New Hanover. Actually, he placed *Pelodryas militarius* Ramsay, for which the type locality is New Ireland, in the synonymy of *Hyla dolichophis* Boulenger, but failed to note this in his distributional summary. Zweifel corrected this in his 1960 paper.

Sternfeld (1920) referred a specimen from New Ireland to *Cornufer punctata*, but from his brief description we suspect that it was an example of *Platymantis papuensis schmidtii*.

Hediger (1934, p. 537 ff) also listed 5 species of amphibians for New Britain with some differences. His list did not include *Hyla brachypus* or *Platymantis boulengeri*, but he recognized *Hyla* (=Litoria) *militaria* and *Hyla* (=Litoria) *infrafnata* as distinct species and included *Rana* (=Disco-*deles*) *bufoniformis*.

Zweifel (1960), as noted above, recognized 8 species on New Britain, including *Disco-*deles* guppyi* and a new *Platymantis*, *P. gilliardi*. He listed only one species, *Hyla* (=Litoria) *infrafnata militaria*, as occurring on New Ireland.

More intensive field work in the Bismarcks since 1960 has added greatly

to our knowledge and indicates that the amphibian fauna may not be as impoverished as it appeared in 1960. Tyler (1965), with a sample of the population on New Britain, transferred *brachypus* from *Hyla* to the microhylid genus, *Oreophryne*, and in 1967 he added a second species of this family, *Sphenophryne mehelyi*. Brown and Tyler (1968) described 3 new species of *Platymantis* and Zweifel (1975) another 2, all from New Britain. It is therefore not surprising that recent field work by one of us (Menzies) and Fred Parker on New Ireland has not only added to the species known from that island but also revealed another new species of *Platymantis*. Further exploration of the forested mountains, especially of New Ireland, will doubtless reveal populations of additional species. Although no comment can be made, at this stage, on the validity of some of the names, the species presently recorded from New Britain and New Ireland are:

New Britain

Oreophryne brachypus
Sphenophryne mehelyi
Litoria infrafronata militaria
Litoria thesaurensis
Litoria bicolor
Discodeles guppyi
Platymantis akarithymus
Platymantis boulengeri
Platymantis gilliardi
Platymantis macroceles
Platymantis mimicus
Platymantis nexipus
Platymantis papuensis schmidtii
Platymantis rhipiphalcus
Rana papua novaebritanniae

New Ireland

Litoria infrafronata militaria
Litoria thesaurensis
Platymantis magnus, new species
Platymantis papuensis schmidtii
Rana papua novaebritanniae

Platymantis magnus, new species
 (Fig. 1)

Holotype.—CAS 143640, adult female, collected at Madina High School, 88 km southeast of Kavieng, New Ireland, September 25, 1976, by J. I. Menzies.

Paratypes.—New Ireland: same locality as holotype, CAS 143639, UPNG 5626, 5628–30, MCZ 92671–73; Kavieng area: AMNH 98079, UPNG 4856, 5599–5600, PMAG 13233, BMNH 1977436, USNM 205190; Lamerika area: UPNG 5625.

Diagnosis.—This species differs from the other three large species of

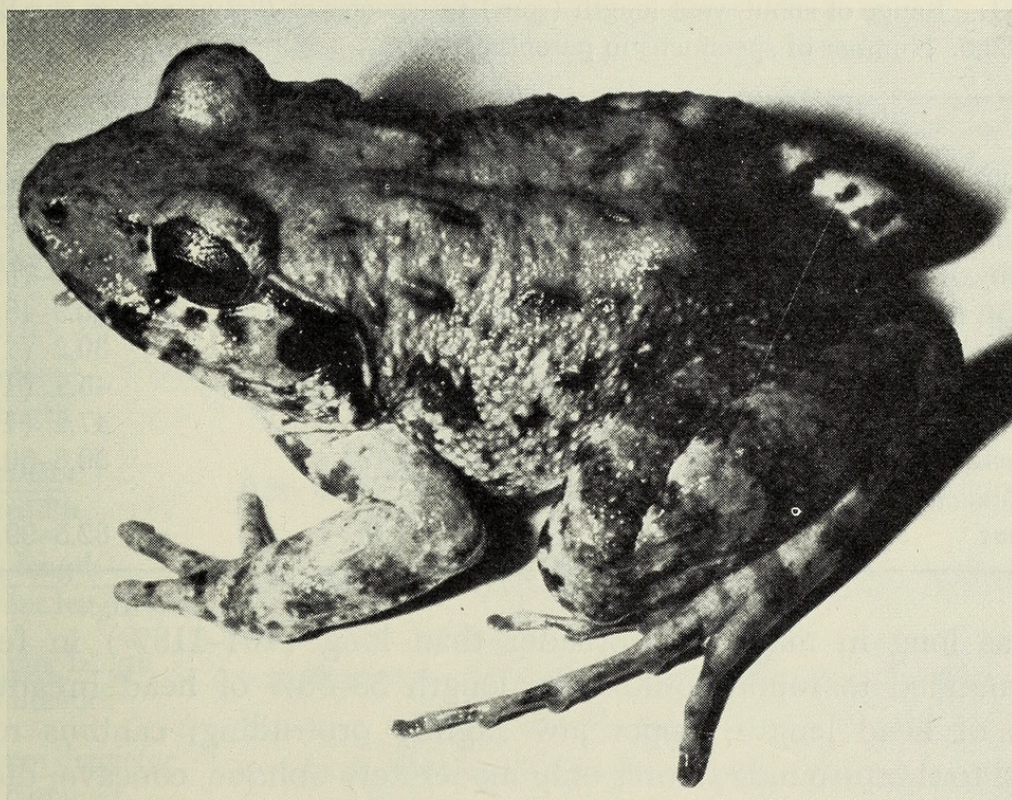


Fig. 1. *Platymantis magnus* from Kavieng, New Ireland. Photograph by Fred Parker.

the genus (*P. Boulengeri*, *P. solomonis*, and *P. vitianus*) which lack greatly dilated finger disks in the following combination of characters: (1) its very large size is indicated by snout-vent length of mature specimens (Table 1), closest to that of *P. vitianus* (but females not reaching maturity before attaining more than 80 mm snout-vent length whereas females of *P. vitianus* may reach maturity between 60 and 65 mm snout-vent length); (2) the slightly more narrow head relative to tibia length, which readily distinguishes it from *P. vitianus* and *P. Boulengeri* (Table 2); (3) the diameter of the eye relative to snout length or head breadth, which distinguishes it from *P. solomonis* (Table 2); (4) the somewhat larger tympanum relative to the eye, which distinguishes it from *P. solomonis*; (5) the somewhat longer tibia relative to the snout-vent length, which tends to distinguish it from all three species (Table 2); (6) the relatively smooth skin of the abdomen, which distinguishes it from *P. Boulengeri* and *P. vitianus*; (7) color pattern, marked by a wide dark transverse bar across the lips at the anterior corner of the eye, the light and dark mottling of the dorsal and lateral surfaces, and the light and dark transverse bands on the limbs (Fig. 1). *Platymantis magnus* also differs in voice characters from other species in the area (Fig. 2); the call is suggestive of the yelp of a young puppy.

Description.—A very large *Platymantis*, snout-vent length 58.5–64.4 mm for 4 mature males and 82.5–99.1 for 6 mature females; head about as

Table 1. Range of snout-vent length (mm) for species of *Platymantis* in the Bismarck Archipelago. Number of specimens in parentheses.

Species	Snout-vent length (mm)	
	Male	Female
<i>P. akarithymus</i>	18.5-24.2 (5)	—
<i>P. Boulengeri</i>	—	66.0-79.7 (6)
<i>P. gilliardi</i>	33.2-34.2 (2)	40.9-48.7 (2)
<i>P. macroceles</i>	—	30.2 (1)
<i>P. mimicus</i>	27.0-40.4 (4)	45.1 (1)
<i>P. nexipus</i>	—	47.1 (1)
<i>P. papuensis schmidtii</i>	29.8-39.9 (13)	39.8-60.1 (13)
<i>P. rhipiphalcus</i>	28.4 (1)	—
<i>P. magnus</i>	58.5-64.4 (4)	82.5-99.1 (6)

broad as long in males but broader than long (104-118%) in females; snout rounded to round-pointed, its length 39-58% of head breadth and 42-44% of head length; upper jaw slightly protruding; canthus rostralis rounded to sharp-rounded; lores only moderately oblique, concave; diameter of eye 26-34% of head breadth and 69-79% of snout length; diameter of tympanum 56-73% of diameter of eye; a fold dorsal and posterior to tympanum; lateral surfaces and posterior surfaces tuberculate and the lateral surfaces with several scattered short folds; dorsal surfaces nearly smooth on largest females but with scattered short folds within dark bars on other specimens (Fig. 1); fingers slender, without webs; tips of fingers bluntly rounded (Fig. 1), not or scarcely dilated, 1st and 2nd without a circum-marginal groove, 3rd and 4th in some instances with a shallow groove between dorsal and ventral surfaces; 1st finger longer than the 2nd and about equal to the 4th when adpressed; fingers with large, round-pointed subarticular tubercles; three very large metacarpal tubercles; hind limbs relatively long, length of tibia 49-56% of snout-vent length and 110-143% of head breadth; toes with small basal webs; tips of toes not or slightly dilated, depressed, with circummarginal groove between dorsal and ventral surfaces; subarticular tubercles strongly protruding, round-pointed; outer and inner metatarsal tubercles prominent, the outer round, the inner about twice as long as broad; venter nearly smooth; posterior thighs with small, low granules.

Measurements of holotype (mm).—Snout-vent length, 93.3; head length, 34.9; head breadth, 37.3; snout length, 15.4; eye diameter, 11.8; tympanum diameter, 7.4; interorbital distance, 8.0±; internasal distance, 7.7; 3rd finger length, 14.5; hind limb length, 135± (stiff); tibia length, 46.3.

Color in preservative.—Dorsum light gray to slate-gray or grayish brown, marked by darker patches or bars especially at the position of the short folds;

Table 2. Range of snout–vent length (mm) and ratios for *P. magnus* and three related large species of *Platymantis*; number of specimens in parentheses.

	<i>Platymantis magnus</i>	<i>Platymantis solomonis</i>	<i>Platymantis vitianus</i>	<i>Platymantis boulengeri</i>
Snout–vent length at maturity: (Male)	58.5–64.4 (4)	45.0–49.0 (6)	46.1–59.4 (4)	—
(Female)	82.5–99.1 (6)	60.0–87.0 (13)	64.5–96.4 (17)	66.0–79.7 (8)
<u>Eye diameter</u> <u>Snout length</u>	0.69–0.79 (8)	0.83–1.01 (17)	0.67–0.84 (17)	0.70–1.00 (6)
<u>Eye diameter</u> <u>Head breadth</u>	0.26–0.34 (16)	0.33–0.42 (17)	0.30–0.36 (17)	0.23–0.27 (6)
<u>Tibia length</u> <u>Snout–vent length</u>	0.50–0.56 (16)	0.45–0.50 (17)	0.47–0.50 (18)	0.43–0.45 (6)
<u>Third finger length</u> <u>Head breadth</u>	0.38–0.42 (8)	0.30–0.37 (17)	0.35–0.45 (17)	0.25–0.29 (6)
<u>Tympanum diameter</u> <u>Eye diameter</u>	0.56–0.74 (16)	0.42–0.58 (17)	0.50–0.60 (17)	0.63–0.75 (6)
<u>Head breadth</u> <u>Tibia length</u>	0.67–0.85 (16)	0.79–0.88 (17)	0.84–0.90 (18)	0.95–1.11 (7)
<u>Head breadth</u> <u>Snout–vent length</u>	0.35–0.43 (16)	0.37–0.42 (17)	0.40–0.44 (18)	0.43–0.49 (8)

lateral surfaces darker or more heavily mottled; hind limbs marked by light and dark transverse bands, the darker bands wider; lips marked by wide, dark, transverse bars, the most prominent one beneath the anterior part of the eye; venter dirty white to grayish or light brown, more blotched anteriorly than on the belly.

Ecological note.—The present series was collected from garden and cocoa plantation areas in the lowlands as well as caves in the same region. The caves appear to be used primarily as a hiding place during daylight hours. Although calling males were observed on the ground under leaves or on low stumps or rocks, no egg-deposition sites have been discovered. Other habitats occupied by this species have yet to be determined.

Etymology.—The term *magnus* refers to the large size of the species.
Range.—At present, this species is known only from northern New Ireland.

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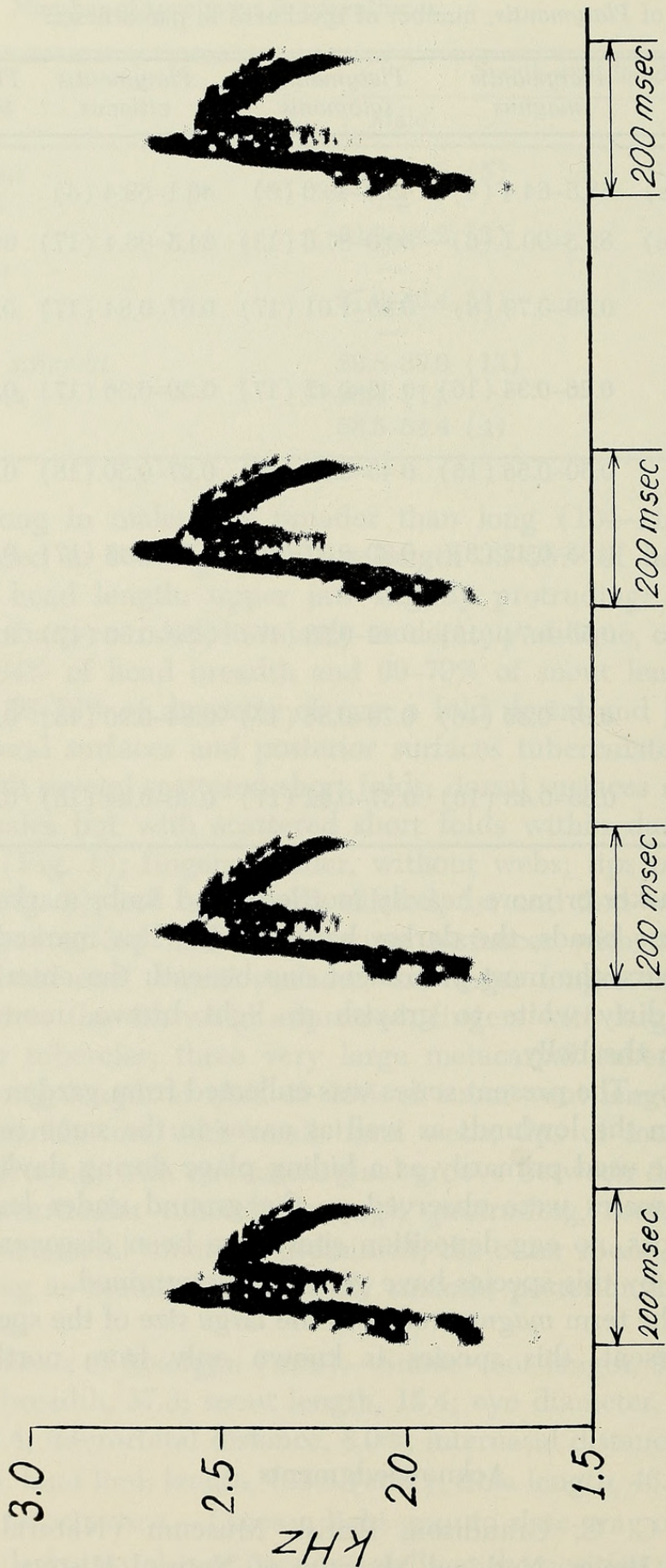


Fig. 2. Audiospectrogram of call of *Platymantis magnus*, recorded at Madina, New Ireland. Air temperature was 26.5°C. The typical call consists of a single note at intervals followed by a short series of similar notes (up to 6) then a pause for a few minutes. Each note is in fact a double note, the first lasting about 90 msec and the second about 100 msec.

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