OCCASIONAL PAPERS

OF THE

California Academy of Sciences

No. 113, 12 pages, 4 figures, 1 table.

NEW FROGS OF THE GENUS *PLATYMANTIS* (RANIDAE) FROM THE PHILIPPINES

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ABSTRACT: Two species of frogs of the genus *Platymantis* are described from Tablas Island in the Philippines and a key to the species recorded from the archipelago is included. Other amphibians occurring on Tablas are listed.

The genus *Platymantis* exhibits a relict distribution with species known from New Guinea, the Philippines, Fiji, and from Bismark, Admiralty, Palau, and Solomon Islands. A concentration of species occurs in both the Philippine and Solomon archipelagos.

Of the nine species previously recorded from the Philippines, three (*P. corrugatus*, *P. dorsalis*, and *P. guentheri*) have a wide distribution in the Philippines outside Palawan and the cluster of small nearby islands. *Platymantis ingeri*

is currently known from Bohol and Mindanao and probably occurs in Leyte; *P. pollilensis*, *P. cornutus*, and *P. subterrestris* occur on the distal (northern) islands; and *P. hazelae* is recorded from Negros and Luzon islands. (Brown and Alcala, 1970 b). The remaining previously known species, *P. insulatus*, was recently found on, and thus far is known only from, South Gigante Island, a small island off the northern coast of Panay (Brown and Alcala, 1970 a).

While a field party led by Mr. Lawton Alcala was carrying out some ecological studies on Tablas and Sibuyan islands, north of Panay and east of Mindoro during the period May to July, 1972, two distinct and previously undescribed species were collected in a forest habitat.

Measurements of preserved specimens were made to the nearest 0.1 mm. using a Helios dial caliper. Snout-vent length was measured from the tip of the snout to the vent with the specimen ventral side down on a flat surface; the tibia was measured as the length of the bone in the lower leg; the head length as the distance from the tip of the snout to the posterior edge of the tympanum; head breadth at the widest point: the angle of the jaws; third finger length from the tip to the base of the second (proximal) subarticular tubercle; and first and fourth finger lengths from the tip to the base of the subarticular tubercle. Other measurements (diameter of eye, tympanum, and digital disks) are not subject to much variation in method.

Platymantis lawtoni Brown and Alcala, new species.

HOLOTYPE. California Academy of Sciences register number 135732, a mature female, collected in forest at about 800 feet elevation, Dubduban, San Agustin, Tablas Island, 26 May 1972, by Lawton Alcala and party.

PARATYPE. California Academy of Sciences register number 135733, an immature female, from Mt. Progreso, San Agustin, Tablas Island, collected May, 1972.

DIAGNOSIS. A moderately large species of *Platymantis*; a mature female measures 39 mm. in snout-vent length; tips of fingers and toes with broadly dilated disks, those of toes somewhat smaller than those of fingers; subarticular tubercles prominent, protruding, and round-pointed; dorsum without prominent folds or tubercles; conspicuous dark and light aereolations in groin and on both anterior and posterior areas of the thighs.

DESCRIPTION. Size moderately large for a Philippine species, a mature female measuring 39 mm. in snout-vent length and an immature female 26 mm.; habitus relatively slender; head slightly broader than long (103 to 116 percent for two examples); snout round-pointed, its length about 36 percent of the head breadth; upper jaw protruding; canthus rostralis rounded; lores concave, slightly oblique; diameter of eye about 80 to 85 percent of length of snout and 137 to

143 percent of the interorbital distance, diameter of tympanum 40 to 45 percent of the diameter of the eye, 55 to 65 percent of the interorbital distance; a fold dorsal and posterior to the tympanum; fingers relatively long; breadth proximal to the disk greater than dorsoventral depth due to a bordering flange of skin; fingers without webs; first finger shorter than the second which is shorter than the fourth when adpressed; fingers, except for the first, with broadly dilated disks, the disk of the third finger about 40 to 45 percent of its length, 125 to 150 percent of diameter of second finger disk (fig. 1), and slightly broader than to 1 1/2 times the diameter of the tympanum; subarticular tubercles well developed, broadly tapering or pointed; supernumerary palmar tubercles prominent; hind limbs relatively long, length of tibia half or slightly less than half the snout-vent length; toes moderately broad with rather broadly dilated tips; webbed at base; those of 4th and 5th toes reaching the subarticular tubercle; toes with dilated disks, diameter of disk of third toe greater than diameter of disk of second finger and 75 to 80 percent of diameter of the disk of the third finger (fig. 2); subarticular tubercles prominent, somewhat pointed; inner metatarsal tubercle large, length about twice the breadth; outer metatarsal rounded; dorsum shagreened but without tubercles or ridges; belly and under surface of thighs with coarse, flat granules.

MEASUREMENTS OF HOLOTYPE (in mm.). Snout-vent length 39.0; length of head 13.8; breadth of head 16.0; length of snout 5.8; diameter of eye 4.8; diameter of tympanum 1.9; interorbital breadth 3.5; length of third finger 6.5; breadth of third finger disk 2.9; breadth of second finger disk 1.9; length of hind limb 63.0; length of tibia 18.7; breadth of third toe disk 2.2.

COLOR (in preservative). Dorsum pale to dark greyish brown with a dark interorbital band and with or without other dark blotches; upper edge of lores with a dark band from snout to eye; a few light blotches on upper lips and an oblique dark band from eye to near angle of jaw; groin and anterior and posterior thighs with whitish aereolations on a brownish background (fig. 3), faint on pale specimens; lower legs with irregular, transverse dark bands; ventral surface with dark flecks especially on chin and throat; these flecks occasionally occur in scattered clusters.

ETYMOLOGY. The species is named for Mr. Lawton Alcala.

COMPARISONS. *Platymantis lawtoni* is a member of the Philippine group of species which have broadly dilated disks on both the fingers and toes. In the light aereolations of the groin and posterior surface of the thighs, it resembles *P. subterrestris*, but differs from that species in its much larger size (table 1), more pointed snout, and possession of prominent vomerine teeth. *Platymantis lawtoni* differs from *P. hazelae* in the prominent light aereolations noted above, somewhat larger size (table 1), greater length of the third toe relative to the fifth, (the third reaches about half way between the penultimate and distal tubercles of the fourth, and the fifth toe reaches the penultimate tubercle

of the fourth in *P. lawtoni*, whereas in *P. hazelae* the third and fifth are more nearly equal and both reach a point distal to the penultimate tubercle of the fourth toe), and possibly the somewhat longer tibia relative to head breadth.

Platymantis levigatus Brown and Alcala, new species.

HOLOTYPE. California Academy of Sciences register number 136097, a mature female, collected along stream in secondary forest at about 650 feet elevation, Dubduban, San Agustin, Tablas Island, 29 May 1972, by Lawton Alcala and party.

PARATYPE. California Academy of Sciences number 136098, collected along stream at about 800 feet elevation in the same locality as the holotype, 26 May 1972.

DIAGNOSIS. A moderately large *Platymantis* species, a mature female measures 38.5 mm. in snout-vent length; tips of fingers and toes with small, only slightly dilated, depressed disks, exhibiting a circummarginal groove; the toe disks about as large as the finger disks; skin of dorsum very smooth, not shagreened, lacking any indication of folds or tubercles; supernumerary tubercles on hand low and somewhat indistinct; toes with very shallow webs at the base; first and second fingers when adpressed about as long as the fourth.

DESCRIPTION. Size moderately large, a mature female measuring 38.5 mm. in snout-vent length and a mature male about 30 mm.; habitus not particularly slender, body not tapering from head; head broader than long (113 to 116 percent for the two examples); snout round-pointed; its length about 30 percent of the head breadth; upper jaw protruding; canthus rostralis rounded; lores slightly oblique and shallowly concave; diameter of eye almost equal to snout length and about 165 percent of the interorbital distance; diameter of tympanum 33 to 40 percent of diameter of eye; about 53 to 65 percent of the interorbital distance; a low fold dorsal and posterior to the tympanum; fingers relatively long, breadth proximal to disk not much greater than dorsoventral depth; first finger, when adpressed, only slightly shorter than the second, disks of fingers only slightly dilated with circummarginal groove, not much broader than the penultimate phalanx; breadth of disk of third finger less than 20 percent of length of third finger measured to the proximal edge of the second subarticular tubercle, much less than the diameter of the tympanum; fingers without webs; subarticular tubercles well developed, rounded; supernumerary palmar tubercles low, not prominent; hind limbs relatively long, length of tibia slightly less than to slightly greater than half the snout-vent length; disks of toes only slightly dilated, with circummarginal groove, diameter of third toe disk about 85 to 90 percent of diameter of third finger disk; toes with very shallow web at base; subarticular

tubercles prominent, rounded; inner metatarsal tubercle elongate but its breadth more than half its length; outer rounded; dorsum smooth, not shagreened and lacking tubercles or ridges; venter smooth except for a few very flat granules posteriorly in the groin region; posterior thighs with similar granules.

MEASUREMENTS OF HOLOTYPE (in mm.). Snout-vent length 38.5; length of head 14.2; breadth of head 16.5; length of snout 4.9; diameter of eye 4.8; interorbital breadth 2.9; length of third finger 6.3; breadth of third finger disk 1.1; breadth of second finger disk 1.0; length of hind limb 61.2; length of tibia 18.9; breadth of third toe disk 1.0.

COLOR (in preservative). Dorsum brownish slate, not uniform but without any distinct pattern or markings, becoming gradually lighter on the lateral surface; jaws with a few faint lighter areas, especially below the eye; limbs with light and dark cross-bands; ventral surface with dark flecks, most concentrated anterior to the forelimbs.

ETYMOLOGY. The name is the Latin term for smooth or polished and refers to the dorsal aspect.

COMPARISONS. On the basis of the combination of characteristics generally used to distinguish this genus from other ranid genera in the Indo-Pacific region (large unpigmented eggs, united outer metatarsals, forked omosternum, and usually reduced webbing between the toes), this frog can only be assigned to this genus. On the basis of the extreme smoothness of the skin, the lack of any indication of tubercles, ridges, or even a shagreened appearance, and the general habitus, however, the known specimens resemble more closely some members of the genus *Rana*. Its relationships with the other two Philippine species characterized by very small, scarcely dilated disks on the fingers and toes is not clearly evident. It may represent a stock closer to proposed ranid ancestors.

Key to Species of *Platymantis* known from the Philippine Islands

1. Tips of fingers, except the first, moderately to broadly dilated, breadth of disk of third finger more than 25 percent of the length of the third finger as measured to the base of the second subarticular tubercle (fig. 4a). 2

   Tips of fingers not or only slightly dilated, breadth of disk of third finger less than 20 percent of the length of the third finger measured as noted above (fig. 4c). 9

2. Fingers and toes proximal to the disk broadened by flanges of skin, (fig. 4a), appearing depressed, subarticular tubercles low and rounded; diameter of eye rarely as great as 90 percent of length of snout as measured from the anterior corner of the orbit . . 5

Fingers and toes proximal to the disk very slender with narrow flanges of skin, not appearing depressed, (fig. 4b); subarticular tubercles rather strongly protruding and round-pointed; diameter of eye between 90 and 110 percent of length of snout as measured from the anterior corner of the eye. 3

3. Ventral pad of finger disks completely surrounded by a continuous circummarginal and transverse groove; tympanum moderate, its diameter less than the interorbital distance; breadth of third finger disk usually greater than 30 percent of the length of the third finger (measured to the base of the proximal subarticular tubercle). 4

Ventral pad of finger disks not completely surrounded, exhibiting a circummarginal but not transverse groove; tympanum large, its diameter usually greater than the interorbital distance; breadth of third finger disk usually less than 30 percent of length of third finger (measured to the base of the proximal subarticular tubercle) (fig. 4b). . . . . *P. insulatus*

4. Snout-vent length at maturity rarely exceeding 30 mm. for males and 35 mm. for females; length of tibia usually more than 55 percent of snout-vent length; head relatively narrow, breadth less than 75 percent of length of tibia; diameter of tympanum as great as or greater than the breadth of the disk of the third finger. . . . . *P. ingeri*

Snout-vent length at maturity rarely less than 28 mm. for males and 38 mm. for females; length of tibia usually less than 55 percent of snout-vent length; head relatively broad, breadth usually greater than 75 percent of length of tibia; diameter of tympanum usually less than 85 percent of breadth of disk of third finger. . . . . *P. guentheri*

5. A prominent posteriorly directed dermal horn on upper eyelid; breadth of third toe disk usually less than 50 percent of breadth of third finger disk. . . . . *P. cornutus*

A prominent dermal horn lacking; breadth of third toe disk usually greater than 70 percent of breadth of third finger disk. 6

6. Size small (males mature at about 20+ mm.) and snout rather sharply pointed; length of third finger usually less than 90 percent of length of snout and less than 40 percent of length of head; diameter of eye usually less than 80 percent of length of snout. . . . . *P. pollilensis*

Size small to moderate; snout round-pointed to round; length of third finger usually greater than length of snout and greater than 40 percent of length of head;

diameter of eye usually greater than 80 percent of length of snout. 7

7. Light aereolations on the flanks and groin; diameter of eye usually less than 85 percent of length of snout and less than 35 percent of head breadth. 8
Light aereolations on the flanks and groin lacking; diameter of eye usually greater than 85 percent of length of snout and greater than 35 percent of head breadth . . . . . *P. hazelae*

8. Size small (one mature female measuring 26 mm. in snout-vent length); snout rounded; diameter of disk of third toe more than 80 percent of diameter of disk of third finger; length of third finger usually more than 43 percent of the breadth of the head; breadth of third finger disk usually less than 40 percent of the length of third finger measured to the base of the second subarticular tubercle. . . . *P. subterrestris*
Size moderate (one mature female measuring 39 mm. in snout-vent length); snout round-pointed; diameter of disk of third toe usually less than 80 percent of diameter of disk of third finger; length of third finger about 40 percent of the breadth of the head; breadth of third finger disk usually more than 40 percent of the length of the third finger (fig. 1). . . . . *P. lawtoni*

9. Tips of fingers bluntly rounded or round-pointed, without a circummarginal groove; length of third finger measured from proximal edge of second subarticular tubercle less than length of snout measured from anterior edge of orbit. . . . . *P. corrugatus*
Tips of fingers depressed into small disks with a distinct circummarginal groove; length of third finger measured from proximal edge of second subarticular tubercle greater than length of snout measured from anterior edge of orbit. 10

10. Skin of dorsum smooth, not shagreened, without ridges or tubercles; supernumerary palmar tubercles low, somewhat indistinct; first and second fingers when adpressed distinctly shorter than the fourth. . . . . *P. levigatus*
Skin of dorsum with numerous short ridges and tubercles, or shagreened; supernumerary palmar tubercles moderately protruding, prominent; first and second fingers, when adpressed, about as long as the fourth. . . . . *P. dorsalis*

Amphibian Fauna of Tablas Island

In addition to *Platymantis lawtoni* and *Platymantis levigatus*, the following species are known from Tablas Island: *Kaloula conjuncta*, *Ooeidozyga l. laevis*, *Platymantis dorsalis*, *Polypedates leucomystax quadrillineatus*, *Rana c. cancrivora*, *Rana erythraea*.

Acknowledgments

The collections upon which these new species are based were part of those made during field work on the small-island ecological project in our Philippine program. This project has been made possible by a grant from the National Science Foundation, GB-16972. Illustrations are by Mr. Walter Zawojski, Stanford University.

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1970b. The zoogeography of the herpetofauna of the Philippine Islands, a fringing archipelago. Proceedings of the California Academy of Sciences, vol. 38, no. 6, pp. 105-130.

TABLE 1. *Snout-vent lengths in mm. of adults of* P. hazelae, P. lawtoni, *and* P. subterrestris *(number of specimens in parentheses).*

	Females	Males
P. hazelae	20.7-31.7 (10) Immature at 23	21.6-27.6 (15)
P. lawtoni	39.0 (1) Immature at 26	
P. subterrestris	26.0 (1)	24.0-26.3 (2)

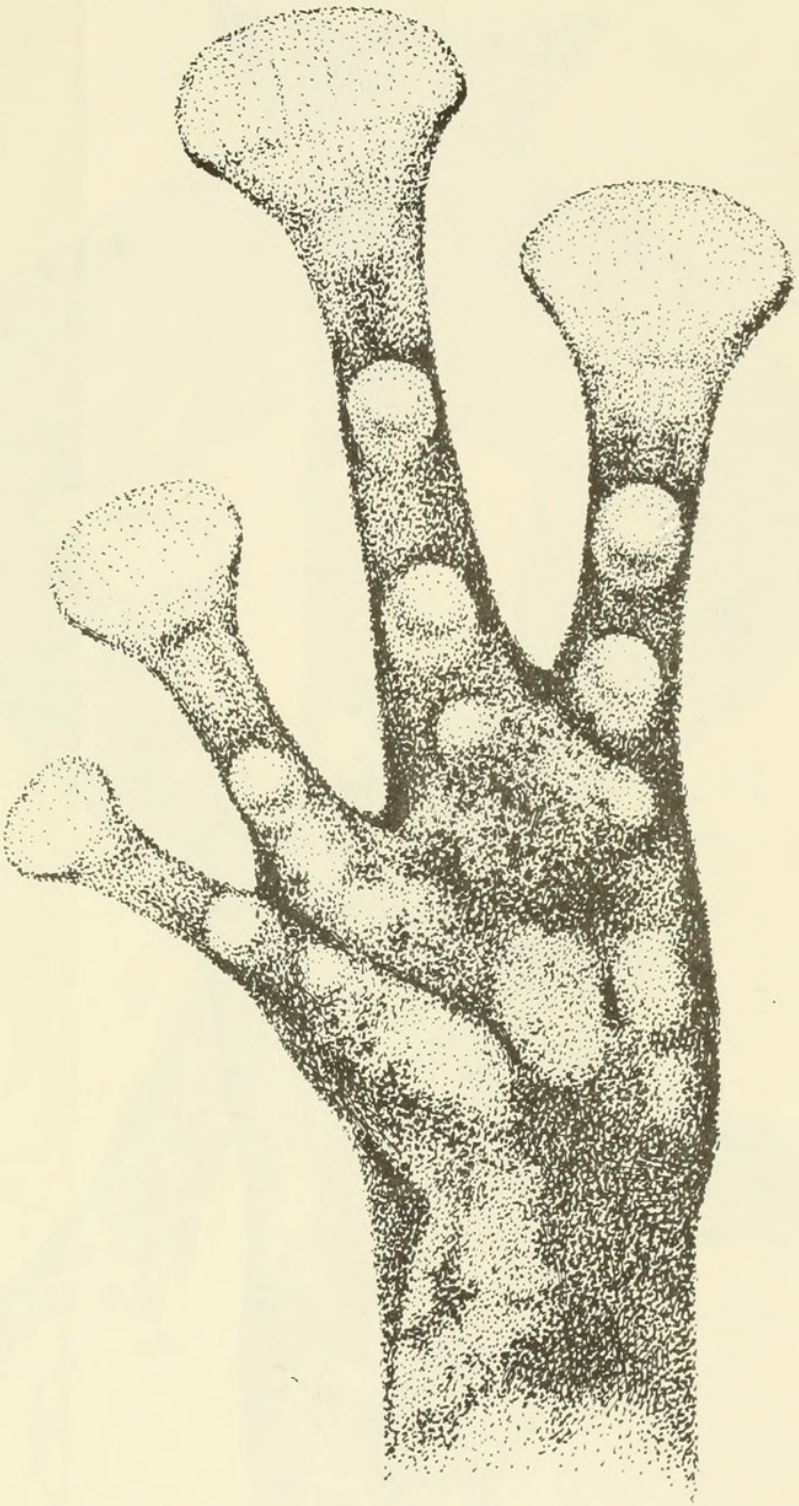

FIGURE 1. *Platymantis lawtoni*, inferior view of hand.

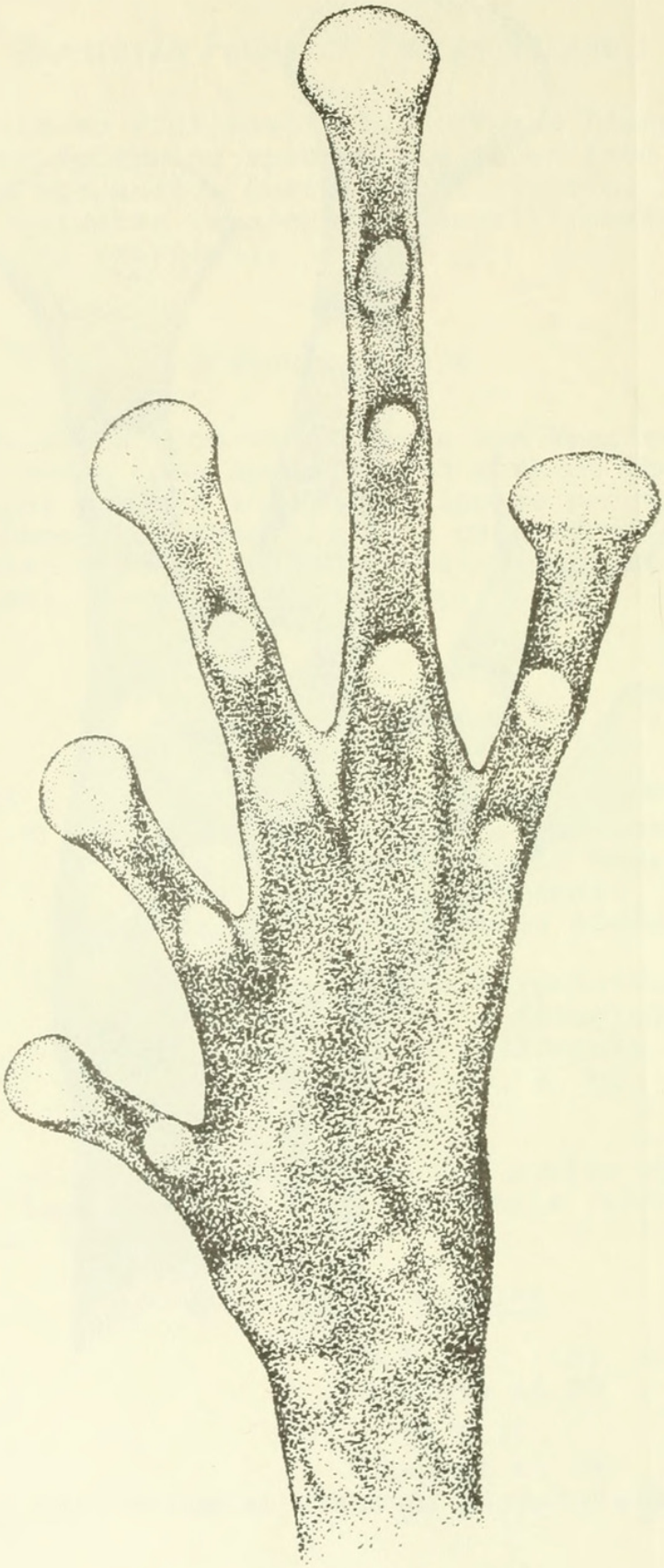

FIGURE 2. *Platymantis lawtoni*, inferior view of foot.

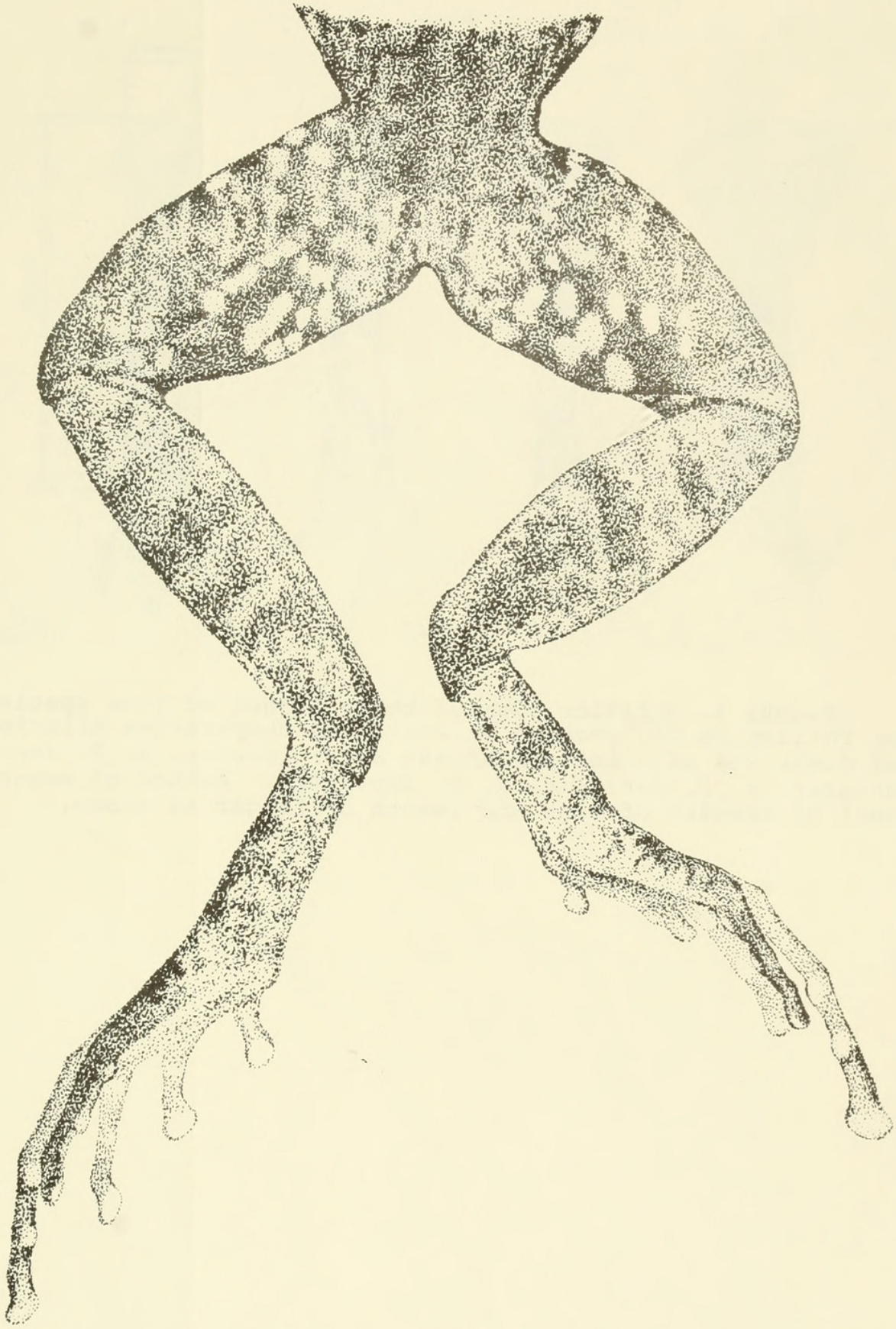

FIGURE 3. *Platymantis lawtoni*, color pattern of hind-limbs.

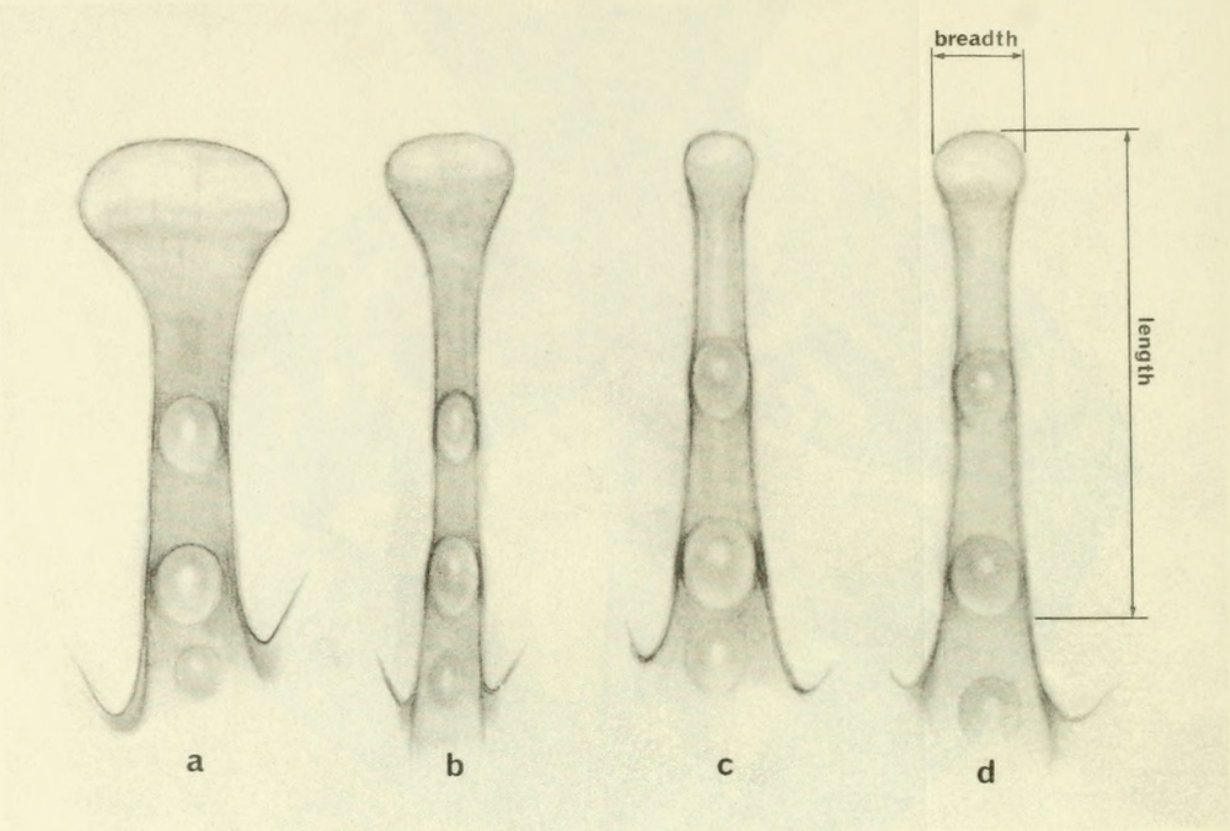

FIGURE 4. Inferior view of third finger of four species of Philippine *Platymantis* illustrating comparative dilation of disks and adjacent phalanges: a. *P. hazelae*, b. *P. insulatus*, c. *P. dorsalis*, d. *P. levigatus*. Method of measurement of breadth of disk and length of finger is shown.