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A NEW GENUS OF DISCOGLOSSID FROGS FROM THE PHILIPPINE ISLANDS

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The Discoglossidæ have until recently been considered the most primitive Salientia. One of us has shown elsewhere¹ that *Liopelma* and *Ascaphus* are more primitive both osteologically and myologically than the other genera of discoglossids and the name Liopelmidæ has been erected for these most primitive batrachians. The center of dispersal for both liopelmids and discoglossids has been assumed to have been southeastern Asia,² but today there is found in this region only a single species of discoglossid and no liopelmid to lend further support to these hypotheses.

It is, therefore, of great interest that one of us (Taylor) should have discovered on Busuanga in the Philippine Islands a new discoglossid strikingly different from the described members of this group, but more closely allied to the two eastern Asiatic forms than to any of the others. It may be considered the type species of the following new genus.

BARBOURULA,³ new genus

Pupil subtriangular or top-shaped; vomerine teeth in two small transverse groups behind the choanæ; tongue small, circular, entirely adherent; tympanum hidden under the skin but well-formed and free from it; eustachian tubes of moderate size. Fingers two-thirds webbed (to the distal end of the penultimate phalanges); toes completely webbed, the web extending between the metatarsals; no omosternum; sternum with two diverging cartilaginous processes; eight opisthocelous presacral vertebrae; sacral vertebra strongly dilated; coccyx with a single condyle; terminal phalanges simple.

Barbourula busuangensis, new species

DIAGNOSIS.—An aquatic frog having much the appearance of *Oxyglossus* but the snout much more rounded; fingers two-thirds webbed; toes completely so; skin not highly tubercular, but covered with numerous fine warts which are larger on the sides of the body than along the back, a small spine in the center of most of the warts but these spines not conspicuous as in *Bombina*.

¹Noble, in press.

²Noble, 1922, Bull. Amer. Mus. Nat. Hist., XLVI, p. 74.

³Named for the distinguished herpetologist of Cambridge, Massachusetts, Doctor Thomas Barbour.

TYPE.—Immature female; collection of E. H. Taylor, Field No. 539, Busuanga Id., Philippines, September 16, 1923; E. H. Taylor, collector.

DESCRIPTION OF TYPE.—Snout flat, rounded; no canthus rostralis; nostrils entirely visible from above, slightly nearer to the tip of the snout than to the eye; internostril space less than distance between nostril and eye, about two-thirds the interorbital space, slightly greater than the width of the upper eye-lid; no tympanum visible externally, but well-differentiated and lying beneath the skin; no accumulation of glands to form a paratoid swelling; foreleg muscular, its length measured from axilla contained more than two times in the head and body length; fingers short, blunt, second and fourth of about equal length and shorter than the third; no subarticular tubercles, but three pads in the carpal region, the median wider than the other two, the inner about as long as the outer, but more pronounced; fingers two-thirds webbed, the webbing extending approximately to the distal end of the penultimate phalanges; hind limb very muscular; distance between vent and tibiotarsal joint a trifle less than the distance between vent and angle of the jaw; tibia contained two and one-half times in the head and body length, considerably longer than the distance from the base of the inner metatarsal tubercle to the tip of the longest toe; heels overlap slightly when the femurs are placed at right angles to the body; toes short, the third and fourth of practically the same length, the second and fifth of the same length and considerably shorter than the third and fourth; toes webbed to the tip, webs only slightly excised; no subarticular tubercles; inner metatarsal tubercle pronounced, two-thirds as long as the inner toe; no outer tubercle; upper surface covered with fine tubercles, these becoming more pronounced on the sides of the body, the center of each tubercle with a small spine having a white base and a dark tip; no cluster of accessory spines to each wart as in *Bombina*; dorsal surfaces of the appendages covered with similar tubercles, those on the lower leg the most pronounced; under side smooth.

Color in alcohol a uniform brownish above, whitish below, the tubercles on the sides of the body slightly lighter than surrounding regions; a faint indication of dark mottling on the throat.

MEASUREMENTS

Tip of Snout to Vent ¹	46 mm.
Tip of Snout to Angle of Jaw.....	15
Width of Head.....	16.5
Width of Interorbital Space.....	4.
Fore-limb from Axilla.....	22.5
Hind Leg from Vent.....	54.
Foot from Base of Inner Metatarsal Tubercle to Tip of Longest Toe.....	15.5

The single specimen described above was obtained from a small stream in the southern part of Busuanga, the largest island of the Calamianes group. This island group lies between Palawan and the island of Mindoro, but faunally belongs with Palawan and Borneo, and shares with those two islands many genera of mammals, birds, and reptiles which are not found in any of the other Philippine islands which lie

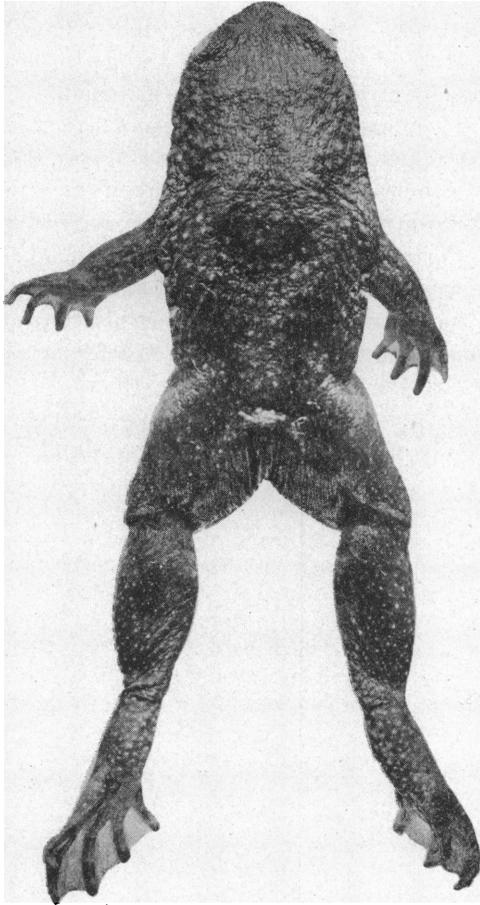


Fig. 1. Dorsal Surface *Barbourula busuangensis*, type specimen, approximately $\frac{5}{4}$ natural size.

to the east. The separation between Palawan and the Calamianes group has obviously been of great duration, relatively speaking, since there appear to have developed distinct forms of both mammals and birds as well as reptiles and amphibians on islands of the Calamianes group.

Busuanga is approximately eighteen miles long and its greatest width scarcely exceeds ten miles. There are no high mountains but the entire island is covered with low rounded mountains of volcanic origin. There is a single outcrop of limestone on the southeastern part, which seems to connect under the shallow strait with the island of Penon de

Coron, which lies to the southeast and is entirely of limestone. Busuanga is almost deforested and the interior is covered with heavy cogon grass. The island is sparsely settled. The streams are small.

The unique specimen was obtained from a stream a few miles from the coast. It was taken with a large number of specimens of *Oxyglossus laevis* in the edge of the water and the fact that a new form had been taken was not discovered until the day's catch was examined after a return to camp. Further efforts to obtain specimens met with only negative results. In 1917 nearly a week was spent on the island collecting along the small streams but the species was not found. Possibly the aquatic habitat of the frog is responsible for the fact that no other specimens were found. It is also possible that the species is nearing extinction.

The accompanying photograph of the type specimen is reproduced through the courtesy of the Bureau of Science, Manila.