

THE FROGS ALLIED TO *RANA DORIAE*.
ADDENDUM.

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WITH A TEXT FIGURE.

Rana plicatella Stoliczka.

Rana plicatella, Bouleng., Rec. Ind. Mus., 1920. xx, p. 53.

Since the publication of the above article (*ante* pp. 215-225), I have been fortunate in obtaining three adult male examples of *Rana plicatella*. They were caught on Bukit Fraser, Pahang, in the Malay Peninsula at about 1200 metres altitude.

These specimens are larger than any previously known, and shew probably the cranial development in its most extreme degree.



Head of *R. plicatella*, natural size.

Although easily distinguished by its glandular dorsal folds and less fully webbed toes from the other forms allied to it, this frog very clearly belongs to the same group, and must be included in it. The cranial enlargements are of precisely the same nature, the only variation being in the shape of the occipital prominence. This covers about the same area as that of *R. m. macrognathus*, but instead of being only a slight swelling beneath the skin, projects abruptly upwards at its posterior extremity for from 1.5 to 2 mm.

The colouration of the specimens is olive or olive-brownish above with black markings, a black chevron being just distinct; two examples had bright orange shades, in life, upon the arms and legs, and there are black cross bars upon the limbs of all. Below pale sulphur-yellow, the throat and hind limbs speckled with black. Two of the specimens have a broad orange-yellow vertebral line.

This frog appears to be confined to the Malay Peninsula. The type specimen came from Penang or Province Wellesley and is now lost. Flower's specimen came from Penang, and there is one in the British Museum from Singapore. I have another from Gombak, Selangor, a female with ripe ova (No. 1592).

Tadpoles (taken in June), and juveniles just leaving the water, which I identify as those of *Rana plicatella* were also obtained. The larva differs from that of *R. m. macrognathus* and *R. kohchangæ* in the longer and narrower tail, and in that the upper crest does not reach to the root of the tail. I take this opportunity to add some details of description which were omitted previously.

Length of head and body one and a half to one and two-thirds times its breadth. Nostrils a little wider apart than the distance between the eyes, equidistant between them and the tip of the snout. Spiraculum visible both from above and below. Mouth with a single short row of papillae on the sides, with one or two rows of more elongate ones below, not interrupted in the mid-line.

Tail five times as long as deep, the crests somewhat narrow, the upper a little higher than the lower and not reaching to the root of the tail.

Measurements of a specimen with hind legs well developed:—

Total length 34 mm; head and body 11.5; depth of tail 4.5.

The study of this small group of frogs, from an evolutionary point of view is of great interest, for in this case there can hardly be any doubt that they are all derived from the same ancestor. The one doubt refers to *R. doriae*, which, being the least specialized I have assumed to be the progenitor, but which now, in its lack of cranial enlargement and want of tooth-like projection in the lower jaw, is farther separated from the various members of the group than they are from each other.

Considering the comparatively small area of country over which these frogs are spread, the number of forms which have been evolved is indeed remarkable, and all the more so when we consider that the conditions under which they all live are almost identical.

Measurements of *R. plicatella* in mm.

Author's No.	6510	6511	6512	1592
Sex.	♂	♂	♂	♀
Snout to vent ..	43	43	43	29
Length of head ..	17	16	17	10
Width of head ..	20	20	19.5	11
Snout	7	7	7	4
Eye	4.5	4.5	4.5	3
Interorbital width ..	5.5	5	5.5	2.5
Tympanum	5	4	4.5	3
Fore limb	24	25	24	17
Hind limb	70	75	77	51
Tibia	24	25	26	17
Foot	22	23	24	15

