

## On a Collection of Batrachians and Reptiles from Formosa and Adjacent Islands.

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(Communicated by **Prof. I. Ijima.**)

No extensive collection of reptiles has been undertaken in Formosa since Robert Swinhoe's time, nearly 40 years ago. It is therefore with great pleasure that I report upon a small but interesting collection made in 1896 and 1897 by Mr. Tsunatsuke Tada under the auspices of the Science College of the Imperial University, Tokyo, to the authorities of which, especially Prof. I. Ijima, I wish to express my gratitude for the opportunity to do so.

The herpetological fauna of Formosa, so far as it has been revealed, is surprisingly small, not only in the total number of species but also in indigenous forms peculiar to the island. The collections made, however, cover such a small area and comprise only the larger, more conspicuous forms, so that it is probably unsafe to draw any conclusions as to the proportion of really peculiar Formosan species.

The present collections were made in several places in Formosa proper, viz., Kilung, Taipa and Giilan; a few species were also obtained in the island of Botel Tobago, off the south

end of Formosa, and in the Pescadores in the channel between Formosa and China.

Class. **Batrachia.**

Ord. **Ecaudata.**

Fam. *Bufonidae.*

1. *Bufo meranostictus* Schneider.

Five specimens from Taipa (No. 26) and five from Giilan (No. 25) seem to indicate that this addition to the fauna of Formosa is common enough. The specimens seem to be quite typical of the species which is generally distributed from India to the Malay Archipelago, the Philippines and Southern China.

Fam. *Ranidae.*

2. *Rana longicrus*, sp. nov.

Diagnosis.—Of the *R. temporaria* group. Snout long, pointed, distance from tip of snout to eye much greater than horizontal diameter of orbit; nostril nearer the tip of the nose than the eye; tympanum two-thirds the diameter of the eye; tip of first finger not beyond second; inner metatarsal tubercle large, outer one barely indicated; no knob-like protuberance on inner side of thumb; legs extremely elongate, the distance from anus to tip of longest toe twice as great as length of head and body together; tibio-metatarsal joint of extended hind leg reaching beyond the tip of the snout by the width of the head at the centre of eye; knee joint of adpressed limb reaches the axilla.

Type.—Science College Museum, Tokyo, No. 26. Taipa, Formosa; Sep. 1896; T. Tada coll.

*Habitat.*—Island of Formosa.

*Dimensions* (in millimeters).

From snout to vent.....52	From eye to end of snout..... 8
From snout to posterior edge of tympanum.....17	Diameter of tympanum..... 3
From snout to corner of mouth...16.5	From eye to tympanum ..... 2
Width of head.....15	Fore limb ..... 34
Diameter of eye.....45	Elbow to tip of longest finger.. 24
Width of upper eye-lid..... 3	Hind limb .....105
Interorbital width..... 4	Thigh ..... 29
From eye to nostril..... 4.7	Tibia ..... 36
	Metatarsal tubercle..... 1.5

*Remarks.*—The head and body of this species resembles greatly *Rana japonica*, the snout being fully as pointed and elongated, but the most remarkable character of this species is the excessively lengthened hind legs, which are actually more than twice as long as the head and body together. Even the fore legs partake of this elongation though less markedly. The coloration is that characteristic of the group.

3. *Rana limnocharis* Wieg.

Numerous specimens from Taipa (No. 26) and Giilan (No. 25), Formosa, from Botel Tobago Island (No. 27) and from the Pescadores (No. 28) testify to the frequent occurrence of this species. In this large series there are three distinct types of coloration, irrespective of locality, viz., back without median stripe; a very narrow median white stripe; and a very broad stripe of similar color. Otherwise the specimens agree well both in structure and coloration. Comparison with Riukiu specimens shows no difference.

Class. **Reptilia.**  
 Ord. **Squamata.**  
 Subord. **Sauri.**  
 Fam. *Gekkonidae.*

4. *Gekko japonicus* (Dum. and Bibr.).

A single specimen from Taipa (No. 30) does not differ appreciably from Japanese specimens. According to the collector's notes this species is "common everywhere in Formosa."

Fam. *Agamidae.*

5. *Japalura swinhonis* Günther.

The only specimen collected is an adult female (No. 22) from Taipa. It agrees well with the published descriptions. A broad whitish band on each side of the body. The collector notes that this species is rare in northern Formosa, but common in the southern part.

6. *Japalura mitsukurii*, sp. nov.

*Diagnosis.*—No regular series of enlarged scales between supralabials and eye; 8–9 supralabials; keeled scales on anterior half of back directed obliquely towards the dorsal crest; tibia as long as skull; no transverse gular fold; anterior infracaudal scales larger than ventrals; third and fourth fingers equal.

*Type.*—Orig. No. 24.

*Habitat.*—Botel Tobago Island.

Eight specimens of both sexes bear out the characters which separate this species from its nearest ally *J. swinhonis* from Formosa proper. In the latter and in *J. polygonata*, from the Riu-Kius, there is a well-defined series of enlarged scales, somewhat shaped like the labials, running from the nasal backwards

between the supralabials and the eye. The scales occupying this space in the present species are smaller, more irregular and not developed into a well-defined regular series. A similar difference exist in the enlargement of the scales which in *J. swinhonis* cover the lower edge of the mandible, these scales being scarcely differentiated from those above or below, except one or two anteriorly joining the symphyseal. The dorsal lepidosis in the new species is less regular than in the other two species mentioned. In these there is a fairly well indicated, though not continuous series of enlarged keeled scales on the sides of the back parallel to the median dorsal series. In *J. mitsukurii* these lateral series are very obscure and on the anterior part of the back the scales so far from being parallel to the crest point obliquely towards it. The hind limbs are decidedly longer, the tip of the longest toe reaching forwards to the rostral in the male and to the anterior angle of the eye in the female. The tail is also longer, being twice and a half to nearly three times the length of head and body. The nuchal crest is highly developed in both sexes; in the males the anterior spines of the dorsal crest are nearly as large as those of the nuchal crest, and the dorsal crest extends distinctly some distance down the tail; in the female it is a distinctly spinous ridge though less developed than in the male, while the nuchal crest consists of spines higher than long.

The color is apparently a bluish drab with blackish vermiculations on the head and dark brownish cross-blotches on the back; these are better defined in the females, which lack the well-defined light-colored dorso-lateral band which in the males extends from the neck to halfway between the axilla and the groin; the back of some of the males is more or less tinged

with yellowish; the color underneath is whitish, the males having the throat pale bluish with whitish irregular spots; tail with alternating light and dusky rings.

The collector states that this species is "abundant" in Botel Tobago.

I take great pleasure in dedicating this species to my friend Professor K. Mitsukuri of the Imperial University of Tokyo.

Fam. *Scincidae*.

7. *Eumeces elegans* Boulenger.

Three specimens from Taipa (No. 20) and one from the Pescadores Islands (No. 19) agree in every particular with the specimen in our collection from China (U. S. National Museum, No. 22301). The specimens are nearly of the same size, yet those from Formosa are black yellow-striped, while the one from the Pescadores is uniform greenish gray with indication of reddish on the head.

Noted as "common" by the collector.

8. *Eumeces chinensis* (Gray).

I refer a specimen from Taipa (No. 21) to this species with some slight doubt, as the arrangement of the scutes behind the nasal is somewhat abnormal, inasmuch as the first supralabial ascends behind the nasal and joins the supranasal, thus excluding the nasal from contact with the anterior loreal. Whether this is simply an abnormality, or whether it indicates the presence of a postnasal in other Formosan specimens remains to be seen. This specimen has two pairs of nuchals, and 24 scale rows round the middle of the body.

Subord. **Serpentes.**

Fam. *Coronellidae*.

9. *Elaphe carinata* (Günther).

Two young specimens (No. 10) and one large adult (No. 5), the latter from Taipa, form an interesting addition to the fauna of Formosa. The scale formula of one of the young specimens is as follows:—scale rows 23; ventrals 217; anal  $\frac{1}{1}$ ; caudals  $\frac{98}{93}$ ; oculars 2-2; temporals 2-3; supralabials 8.

10. *Simotes formosanus* Günther.

How little significance the anal shield has in this genus, from which Cope separated *Holarchus* because of the undivided anal, is shown by the two specimens (No. 17) in the present collection, both from Taipa, one having the anal entire while in the other it is divided. The scale formula is as follows: scale rows 19; ventrals 163; anal 1; caudals  $\frac{53}{53}$ ; supralabials 8; oculars 2-2; temporals 1-2.

“Rather rare” according to the collector.

Fam. *Natridæ*.11. *Natrix stolatus* (Linn.).

Four specimens of this widely distributed species from Taipa (No. 14). The following is the scale formula of one (♀): scale rows 19; ventrals 146; anal  $\frac{1}{1}$ ; caudals  $\frac{74}{74}$ ; supralabials 8, 9; temporals 1-2.

The collector notes that it is common on the plains around Taipa.

12. *Natrix piscator* (Schneider).

The known range of this species embraces the whole of southeastern Asia from India to the Malay Peninsula and Archipelago, as well as southern China, so that its occurrence in Formosa causes no surprise. The present collection contains 5

specimens from Taipa, three of which (Nos. 13 and 9) show the characteristic color markings of this species, while two specimens (No. 16) are so pale that the marks have become nearly obliterated. The scale formula of No. 13 is as follows: scale rows 19; ventrals 140; anal  $\frac{1}{1}$ ; caudals  $\frac{74}{74}$ ; supralabials 9; oculars 1-3; temporals 2-2. That of No. 9a: scale rows 19; ventrals 142; anal  $\frac{1}{1}$ ; caudals  $\frac{77}{77}$ ; supralabials 9; oculars 1-4; temporals 2-2.

This species is frequently seen near water according to the collector's notes.

Fam. *Homalopsidae*.

13. *Enhydris plumbea* (Boie).

Two specimens from Taipa (No. 11). The male has: scale rows 19; ventrals 126; anal  $\frac{1}{1}$ ; tail defective; supralabials 8. The female: scale rows 19; ventrals 130; anal  $\frac{1}{1}$ ; caudals  $\frac{31}{31}$ ; supralabials 8.

The collector claims that it is rather rare.

Fam. *Elapidae*.

14. *Bungarus multicinctus* Blyth.

No. 3, a young specimen from Taihoku (Taipa) and No. 15, a much larger one only marked as from Taipa. The scales and scutes of the latter are as follows: scale rows 15; ventrals 210; anal 1; caudals 46 (undivided); supralabials 7; oculars 1-2; temporals 1-2.

Common around Taipa and found both in northern and southern Formosa according to the collector.

Fam. *Hydriidae*.



15. *Emydocephalus*\* *ijimæ*, sp. nov.

*Diagnosis*.—Scales smooth, in 15 to 17 rows round the neck, 17 round the middle of the body; median dorsal scale row twice as broad as those adjacent; nasals large, broadly in contact on top of snout; no loreal; one preocular; one supraocular; two postoculars; 2+2 or 2+3 temporals; four prefrontals, outer two small; 138 to 142 ventrals; anal divided; 23 to 28 undivided subcaudals. Dark brown with yellow cross bands.

*Type*.—A young specimen collected by Mr. Tashiro in the Riu-Kiu Sea, in 1888.

*Habitat*.—Seas around Formosa and the Riu-Kiu Archipelago.

I take great satisfaction in dedicating this fine addition to the Japanese Fauna to my friend Dr. I. Ijima. It belongs to a rare and most interesting genus hitherto represented by only two specimens from Australia.

A medium-sized specimen (No. 1) is in the present collection from Botel Tobago Island, May 1897. It measures: Total length, 613 *mm.*; snout to vent, 520 *mm.*; vent to end of tail, 93 *mm.*

The specimen was caught on the rocks at ebb-tide.

16. *Hydrus platurus* (Linn.).

Like all the other specimens from Japanese waters which I have examined, the one in the present collection (No. 8), from Kilung, belongs to the regular bicolored type.

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\* *Emydocephalus*, Krefft, is a very distinct genus widely differing from *Aipysurus*, of which it has been made a synonym by Boulenger. It is characterized by having the maxillary bone much shorter than the transpalatine; no teeth on maxillary behind fang; supralabials and infralabials, except the first and last one on each side, fused into a large continuous plate.

The collector states that he also observed this species on the Pescadores Islands. It is sometimes found thrown up on the beach.

17. *Microcephalophis melanocephalus* (Gray).

A large specimen from the Pescadores (No. 4) is referred to this species rather than to *M. pacificus* (Boulenger) though agreeing exactly with the latter in scale formula, viz., 27 scales round neck, 37 round body; 301 ventrals; 1 large temporal; 1 preocular and 2 postoculars; 3 supralabials entering eye. The scale formula of *M. melanocephalus* as defined by Boulenger and modified by undoubted specimens examined by me is very similar, however, viz., 25-27 scales round the neck, 35 round the body; 312-329 ventrals; 1 large temporal; 1 preocular; 1 or 2 postoculars; 2 or 3 supralabials entering eye, consequently differing so slightly that the additional 2 scale rows round the body and the somewhat fewer ventrals can have but little weight. Moreover, in the specimen before us the rostral is broader than high and not "as deep as broad," the character assigned to *M. pacificus*, while the proportions of the tail agree better with those of *M. melanocephalus*, judging from Boulenger's figure of *M. pacificus* (Cat. Snakes, Br. Mus., iii, pl. xii, fig. 2), in which it appears to be longer and lower. The chief difference from the other specimens of *M. melanocephalus* are those of color and carination, since in the Pescadores specimen the head is not black, but reddish brown, while on the body the black cross-bars extend only halfway down the sides, the scales being, moreover, furnished with strong, often serrated keels. Both of these characters, however, are most likely due to the greater size of this specimen.

Fam. *Crotalidæ*.18. *Trimeresurus mucrosquamatus* (Cantor?).

Three specimens from Taipa, two adult (No. 6) and one young (No. 18), agree with Boulenger's description of other Formosan specimens.

19. *Trimeresurus gramineus* (Shaw).

Of this widely distributed species there are four specimens (No. 2) from Taihoku (Taipa). I have compared them with specimens in the U. S. National Museum from Lower Siam, and can see no essential difference.

The collector remarks that this species is often found in the woods climbing on the trees, being difficult to see on account of its green color. It is common, especially in northern Formosa. The native name means "Green Bamboo Thread."

Ord. **Testudinata.**Fam. *Emydidæ*.20. *Ocadia sinensis* Gray.

A young specimen from Taipa (No. 29), September, 1896, shows all the characters assigned to this species except that the edges of both jaws are smooth, not finely denticulated. The suture between the humerals appears to be abnormally long at the expense of that of the pectorals which is not as long as that of the pectorals and gulars together. Crown of the head uniform olive brown, rest of head with the characteristic narrow longitudinal yellowish lines.

The collector says that it is common in Tamsui River.

