

## ZOOLOGY

### NOTES ON PSEUDOXENODON INORNATUS (BOIE) AND PSEUDOXENODON JACOBSONII LIDTH

BY

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Two species of the genus *Pseudoxenodon* Blgr. are known from the Indo-Australian Archipelago, viz., *Pseudoxenodon inornatus* (Boie) from Java and *Pseudoxenodon jacobsonii* Lidth from Sumatra. Both species are rare in collections. Of *P. inornatus* a small number of specimens is known, and of *P. jacobsonii* the holotype seems to be the only specimen that reached a museum. Recently the Amsterdam Zoological Museum received from Mr J. C. BAUWENS four snakes from Java, two of which proved to belong to *Pseudoxenodon inornatus* (Boie). As only very little is known about the variability of this species, some notes on these specimens may be published. For comparison I examined the holotype and a juvenile specimen in the Leiden Museum. Moreover, the holotype of *Pseudoxenodon jacobsonii* Lidth has been re-examined, and some notes on this specimen are appended.

#### *Pseudoxenodon inornatus* (Boie)

- Elops* sp., KUHLE & VAN HASSELT, Alg. Konst- en Letter-Bode, no. 7, 100 (1822).  
*Elaps* sp., KUHLE & VAN HASSELT, Isis, pt. 4, 473 (1822); KUHLE, Bull. Sci. nat. Géol. (2e Sect. Bull. Sci. Industr.), 2, 80 (1824).  
*Xenodon inornatus* BOIE, Bull. Sci. nat. Géol. (2e Sect. Bull. Sci. Industr.), 9, 238 (nom. nud.) (1826); BOIE, in SCHLEGEL, Isis, 19, 293 (nom. nud.) (1826); H. BOIE, in F. BOIE, Isis, 20, 541 (1827); WAGLER, Nat. Syst. Amph., 272 (1830); SCHLEGEL, Essai Physion. Serp., vol. 1, 139 (1837) and vol. 2, 89, pl. III figs. 10-12 (1837); SCHLEGEL, Essay Physiogn. Serp. (transl. by TRAILL), pp. 138, 254, pl. I fig. 4 (1843); FITZINGER, Syst. Rept., 28 (1843); SCHLEGEL, Handl. Dierk., vol. 2, 45 (1858); JAN, Elenco Sist. Ofidi, 56 (1863) (Arch. Zool. Anat. Phys., 2, 319 (1863)); JAN & SORDELLI, Icon. Gén. Oph., vol. 2, pt. 19, pl. V fig. 2 (1866).  
*Pseudoxenodon inornatus*, BOULENGER, Fauna Brit. India, Rept., 340 (1890); BOULENGER, Cat. Sn. Brit. Mus., 1, 272 (1893); BOETTGER, Kat. Rept. Samml. Mus. Senckenb. naturf. Ges., 2 (Schlangen), 29 (1898); BARBOUR, Mem. Mus. Comp. Zoöl., 44, no. 1, 193 (1912); DE ROOIJ, Rept. Indo-Austr. Arch., 2, 56, 300, fig. 33; WERNER, Sitz. ber. Ak. Wiss. Wien, math. naturw. Kl., Abt. I, 134, 52 (1925); WERNER, Zool. Jahrb., Syst., 57, 32, 33 (1929); DAMMERMAN, Treubia, 11, 12 (1929); BRONGERSMA, Treubia, 11, 66 (1929); DE HAAS, Treubia, 20, 512, 533 (1950).  
[*Pseudoxenodon*] *inornatus*, POPE, Rept. China, 139 (1935).  
*Ps*[*pseudoxenodon*] *inornatus*, BOURRET, Serp. Indochine, 2, 110 (1936).

The species was described by H. BOIE (in F. BOIE, 1827, p. 541) as *Xenodon inornatus*, and it was stated to come from Java; no exact locality in the island was mentioned. Even ninety years later when DE ROOIJ (1917) published a survey of the Indo-Australian snakes, no exact localities in Java were mentioned. DE HAAS (1950, p. 512) mentions that of a number of species, among which *Pseudoxenodon inornatus*, "exact places where they have been found are now known", but no locality is mentioned in his paper. I did not find any locality mentioned in literature, and it may be that DE HAAS based his statement on a specimen in the Buitenzorg Museum. However this may be, it is at present possible to establish the definite type-locality; the specimens collected by Mr J. C. BAUWENS provide us with a second Javan locality.

In BOIE's manuscript notes for his unpublished *Erpétologie de Java* I found the description of *Xenodon inornatus*, which contains a reference to the manuscript name given to this species by KUHLE & VAN HASSELT. A further search in the manuscript notes left by KUHLE provided me with a brief description of the holotype, and in this the locality is mentioned as Tjihandjavar (at the foot of Mt. Pangerango, W. Java). Thus the type-locality of *Pseudoxenodon inornatus* has been definitely established. This species is one of the new species of *Elaps* mentioned by KUHLE & VAN HASSELT (1822a, p. 100: *Elaps*; 1822b, p. 473) and by KUHLE (1824, p. 80).

A second specimen in the Leiden Museum was collected in Java by S. MÜLLER; no reference to it can be found in MÜLLER's manuscript notes, and therefore, the exact locality cannot be ascertained.

The two specimens which Mr J. C. BAUWENS sent to the Amsterdam Museum both came from the Sumadra Estate near Garut, West Java.

The four specimens examined by me may be described as follows.

♂, Holotype, Tjihandjavar, W. Java, leg. KUHLE & VAN HASSELT, 1821, Mus. Leiden, reg. no. 233.

Maxillary teeth 16 + 2; the anterior 16 gradually increasing in length from anteriorly to posteriorly, followed by two strongly enlarged teeth. There is no marked interval between the last of the small teeth and the first strongly enlarged tooth; in fact the distance between these teeth is not larger than between two of the small teeth. Scales in 19 rows on the neck and at mid-body, in 15 rows in front of the vent. In the anterior half of the body the scales are placed in distinctly oblique series, on the posterior half of the body the scales are placed in longitudinal series. In the anterior half of the body the three mid-dorsal rows are keeled, while in the posterior part of the body all scales, except those of the outer row, are keeled. Ventrals 120, anal divided, subcaudals 36/36 + 1. Three preoculars. On the right the upper and middle preocular are large and about equal in size; the lower preocular is very small, it is wedged in between the middle preocular and the 4th upper labial. On the left the upper and lower preocular are large and of about equal size; they are separated by the much

smaller middle preocular, which is square. Three postoculars. Upper labials 8, the 4th and 5th border the orbit. Two anterior temporals followed by four scales; three of these latter are in contact with the upper anterior temporal, and only one is in contact with the lower anterior temporal. Lower labials 9, four of which are in contact with the lower anterior chinshields; the lower labials of the first pair form a suture behind the symphysial.

Frontal only slightly longer than broad (not quite 1.2 times), about 0.8 times the length of the parietals, about 1.6 times its distance from the rostral, and 1.1 times its distance from the tip of the snout. The prefrontals are larger than the internasals; the length of the prefrontal suture is about 1.4 times that of the internasal suture. Loreal slightly more than 1.1 times as high as long. Rostral 1.8 times as broad as high. The chinshields are short and broad; the posterior about 1.4 times as long as the anterior.

The total length of the type is given by SCHLEGEL (1837, p. 89) as 470 mm, tail 70 mm. In the preserved specimen I make the total length to be 464 mm, the tail 74 mm.

The coloration has faded, but a  $\wedge$ -shaped marking on the neck is still visible. There are faint indications of rhomboidal markings on the back. A whitish line is seen along the sides of the posterior part of the body and along the sides of the tail, close to the ventrals. KÜHL's notes give the following description of the coloration: "Color omnis lateris superioris rufus ad spinam obscurior, cum figuris rhomboidalibus concotenatis pallide fuscis uniserialibus. Squamarum interstitiis hic inde flavidis. Latere inferiori rufescent: albido, capite colloque infra antem luteis. Ad corporis posterioris latere lineola dilluta albida inter abdomen et dorsum, ad caudam antem circumscripta albescent: flava."

1 juv., Java, leg. S. MÜLLER, Mus. Leiden, reg. no. 234.

Maxillary teeth 17 + 2, a very small interspace. Scales 19, 19, 15; ventrals 119, anal 1/1, subcaudals 37/37 + 1. Right 4 preoculars; the second from above small and square; the lower preocular very small. Left 3 preoculars, the upper two large and equal in size, the lower very small. Three postoculars. Two anterior temporals, followed by four scales; two of these scales in contact with the posterior border of the upper anterior temporal, the two others in contact with the posterior border of the lower anterior temporal. Upper labials 8, the 4th and 5th bordering the orbit. Lower labials 10 on the left side (5 bordering the anterior chinshield), 9 on the right (4 bordering the anterior chinshield).

Frontal slightly broader than long, its length contained 0.97 times in its width, 0.6 times the length of the parietals, 1.2 times its distance from the rostral, and 0.9 times its distance from the tip of the snout. The prefrontals are larger than the internasals; the prefrontal suture is 1.3 times the internasal suture. Loreal not quite 1.1 times as high as long.

Rostral 1.6 times broader than high. Posterior chinshields 1.2 times as long as the anterior.

Traces of the umbilicus at the 12th to 14th ventral in front of the anal. Total length 210 mm, tail 29 mm.

The coloration has faded to some extent, still the colour pattern is discernable. The specimen has a  $\wedge$ -shaped black marking on the neck with its tip on the occiput. The anterior part of the back shows dark oblique bars which in some places appear to be alternating. The posterior part of the back shows rhomboidal blackish markings with a pale centre. A whitish line along the sides of the posterior part of the body and along the tail, close to the ventrals.

♂, Sumadra Estate near Garut, W. Java, 2700 ft., August 1949, leg. Mr J. C. BAUWENS, Zool. Mus. Amsterdam.

Maxillary teeth 19 + 2, no interval. Scales 19, 19, 15; ventrals 123, anal 1/1, subcaudals 38/38 + 1. Right 2 preoculars; left 3 preoculars, the lower very small. Three postoculars. Right 8 upper labials, left 7; on both sides the 4th and 5th bordering the orbit. Temporals 2 + 3. Right 9 lower labials (4 in contact with the anterior chinshield), left 10 lower labials (5 in contact with the anterior chinshield); lower labials of the first pair forming a suture behind the symphysial.

Frontal slightly longer than broad (not quite 1.2 times), about  $\frac{3}{4}$  the length of the parietals, 1.4 times its distance from the rostral, about 0.9 times its distance from the tip of the snout. Prefrontals larger than internasals; the prefrontal suture is about 2.7 times the internasal suture. The loreal is nearly 1.1 times as high as long. Rostral 1.6 times as broad as high. Posterior chinshields 1.3—1.4 times as long as the anterior chinshields.

Total length 741 mm, tail 110 mm; the specimen largely exceeds the greatest length (470 mm) mentioned for this species by DE ROOIJ (1917, p. 57).

The colour of the preserved specimen is a uniform dark lead grey, without any distinct markings. It is possible that the very dark colour is partly due to the fluid in which the specimen has been preserved. The sides of the tail show a very narrow undulating white line, which is partly broken up into a series of short white lines. The ventral surface is greyish, except for the throat, which is cream white. The upper part of the upper labials is grey, the lower half is cream coloured, with dark borders to the sutures. Greyish borders are present on the sutures between the lower labials and all around the chinshields.

One hemipenis was evaginated; the other was dissected from the specimen for closer study. The hemipenis is forked, the bifurcation takes place at about  $\frac{2}{3}$  of its length. The lobes are unequal in length. Length of dissected hemipenis 38 mm. The basal 14 mm are covered by very small spines; towards the bifurcation the spines become gradually larger. The

proximal part of each lobe is also covered with spines. At 7 mm from the top (measured on longest lobe) the hemipenis is covered by oblique folds with spiny scallops; very low longitudinal folds connect the strong oblique folds. The last 3 mm are covered by calyces. The sulcus spermaticus is bifurcate almost from the base.

The anterior border of the heart is situated at the level of the 21st ventral, at 115 mm from the tip of the snout. There is only a single lung, which has an anterior diverticulum which reaches to 22 mm in front of the opening of the trachea into the lung, and to  $11\frac{1}{2}$  mm in front of the heart. This anterior diverticulum has a distinct alveolar pattern. The alveolar pattern of the lung extends posteriorly to 65.3 mm from the orifice of the trachea.

♀, Sunadra Estate near Garut, W. Java, 3000 ft., August 1949, leg. Mr J. C. BAUWENS, Zool. Mus. Amsterdam.

Maxillary teeth 19 + 2, no interval. Scales 19, 19, 15; ventrals 122, anal 1/1, subcaudals 37/37 + 1. Three preoculars; the upper two have fused for the greater part, and at a first superficial examination it might be said that one very large preocular with below it a very small one are present. Three postoculars. Upper labials 8, the 4th and 5th bordering the orbit. Two anterior temporals followed by four scales. Nine lower labials, of which the anterior four border the anterior chinshields. The lower labials of the first pair form a suture behind the symphysial.

Frontal only very slightly longer than broad (about 1.02 times), about 0.7 times as long as the parietals, 1.3 times as long as its distance from the rostral, very slightly shorter than its distance from the tip of the snout (0.98 times). Prefrontals larger than internasals; the prefrontal suture 1.7 times the internasal suture. Loreal nearly 1.2 times as high as long. Rostral 1.6 times as broad as high. The posterior chinshields nearly 1.3 times as long as the anterior.

Total length 444 mm, tail 69 mm.

General colour pale brownish. Neck with a faint  $\wedge$ -shaped marking, followed by an area in which the scales have white borders. Vertebral region darker than sides with here and there rhomboidal markings, each of which has a pale centre. Sides with dark oblique lines.

The specimen was captured in the grass of a tea-plantation.

In all four specimens the scales on the anterior part of the body are placed in oblique series, while they form longitudinal series on the posterior half of the body. In the anterior part of the body only the three scale rows on the vertebral region are keeled, while in the posterior half of the body all scales, except those of the outer row, are keeled.

BOULENGER (1893, p. 270), DE ROOIJ (1917, p. 56), BOURRET (1936, p. 110) and SMITH (1943, p. 311) mention that in the genus *Pseudoxenodon* the strongly enlarged maxillary teeth are separated from the smaller

anterior teeth by an interspace. In three of the four specimens of *Pseudoxenodon inornatus* examined by me this is not the case. In these the distance between the last small tooth and the first enlarged tooth is not larger than that between two of the small teeth. POPE (1935, pp. 141, 145, 148, 155, 156) in describing the Chinese species of *Pseudoxenodon* mentioned the interval as varying from small to very small, not appreciable, and very small or absent. Therefore, the presence of a space between the small and enlarged teeth is of little use as a character for this genus.

### *Pseudoxenodon jacobsonii* Lidth

*Pseudoxenodon jacobsonii* VAN LIDTH DE JEUDE, Zool. Med. Mus. Leiden, 6, 239, 240 (1922).

*Pseudoxenodon jacobsoni*, WERNER, Sitz. ber. Ak. Wiss. Wien, mathem. naturw. Kl., Abt. I, 134, 52 (1925); WERNER, Zool. Jahrb., Syst., 57, 32, 33 (1929).

[*Pseudoxenodon*] *jacobsoni*, POPE, Rept. China, 139 (1935).

*Ps[eudoxenodon]* *jacobsoni*, BOURRET, Serp. Indo-chine, 2, 110 (1936).

The species was described from a single specimen by VAN LIDTH DE JEUDE (1922, p. 240). Re-examination of the type makes it possible to add some information to that supplied by the original description, e.g., VAN LIDTH DE JEUDE did not mention the number of maxillary teeth nor the length of the specimen; the description of the coloration gives the impression that the back is uniformly greyish, but this is not the case. The holotype may be redescribed as follows.

♀, Holotype, Serapai, Korintji, Sumatra, July 1915, leg. E. JACOBSON, Mus. Leiden, reg. no. 4093.

Maxillary teeth 16 + 2, the anterior 16 gradually increasing in size, and separated by an extremely small interspace from the two strongly enlarged posterior teeth. The interspace is only very slightly larger than that between two of the anterior teeth. The number of maxillary teeth in this specimen and that in the holotype of *Ps. inornatus* is the lowest recorded for this genus.

Scales 19, 19, 15; those on the anterior half of the body in strongly oblique series, on the posterior part of the body in longitudinal series. In the anterior part of the body the scales of the vertebral three rows are keeled, while in the posterior part of the body all scales, except those of the outer row are keeled. Ventrals 145, anal 1/1, subcaudals 36/36 + 1. One preocular, three postoculars. Upper labials 7, the 3rd and 4th bordering the orbit. Temporals 2 + 2; the upper anterior is small, the lower large; in the posterior pair the inverse is the case. On the right 10 lower labials of which the anterior five are in contact with the anterior chinshield; on the left 9 lower labials, the anterior four of which are in contact with the anterior chinshield. The lower labials of the first pair are in contact behind the symphysial.

The frontal is broader than long; its length is 0.9 times its width, 0.6

times the length of the parietals, 0.9 times its distance from the rostral, and 0.7 times its distance from the tip of the snout. The prefrontals are larger than the internasals; the prefrontal suture is 1.75 times the internasal suture; the prefrontals are shorter than the frontal.

Left 2 superposed loreals; right a single loreal, which is nearly 1.4 times as high as long. Rostral twice as broad as long. Chinshields short and broad; the posterior 1.3 times as long as the anterior.

Total length 1082 mm, tail 122 mm.

Upper surface greyish, a very distinct  $\wedge$ -shaped black marking on the neck, its apex on the occiput. Back with blackish rhomboidal markings with a paler centre. The anterior sides of the rhombs may be continued on the sides as more or less distinct oblique bands. The sides of the tail with a whitish line on the adjoining borders of the outer row of scales and the ventrals. Throat yellowish; ventral surface of the body anteriorly yellowish with irregular, more or less diffuse dark grey markings; these markings become larger posteriorly, and the posterior part of the ventral surface as well as the lower surface of the tail are uniformly dark grey.

The colour pattern of the back in this fully adult female is essentially the same as that found in the smaller specimens of *Pseudoxenodon inornatus* examined by me. The remark by WERNER (1925, p. 52) that the two species from the Sunda Islands are uniformly coloured on the back in adult specimens, is incorrect.

The stomach of this specimen contained the hind limbs of a frog; the rectum contained remains of insects, inter alia of Coleoptera. I am not sure whether these insect remains imply that this snake feeds on beetles, or rather that these remains represent the stomach contents of the frogs eaten by the snake.

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