

# AUSTRALIAN MUSEUM SCIENTIFIC PUBLICATIONS

Waite, Edgar R., 1893. Notes on Australian *Typhlopidae*. *Records of the Australian Museum* 2(5): 57–62, plate xv. [30 September 1893].

doi:10.3853/j.0067-1975.2.1893.1193

ISSN 0067-1975

Published by the Australian Museum, Sydney

nature culture **discover**

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contact along the ventral margin for half the length of the shell, the left valve slightly overlapping the right. Colour a uniform dull white. Epidermis pale straw colour, largely abraded, thin and very wrinkled. Sculpture about thirty concentric growth laminae in the interstices of which are two or three raised hair lines; anteriorly these laminae are puckered up into lines of square-headed thorns by transverse waves radiating from the beaks. Opposite the beaks the thorny ridges diminish for a few series and cease, posteriorly they are represented by faint wrinkles on the growth laminae. Beaks situated at a quarter of the length of the shell from the anterior extremity. Hinge margin narrow, sharply recurved, not appressed to the valve and destitute of such denticles as possessed by *P. dactylus*. Dorsal plate lanceolate, single, entire, striated by divaricating growth lines, with a shallow median furrow. Subumbonal process long, flat and curved. Length 40, height 20, breadth 16 mm.

Attached to some specimens are pale brown, tough, coriaceous siphon sheaths.

*Type*.—In the Australian Museum, Sydney.

The specimens on which my description is based were collected by Mr. Brazier in a small outcrop of shale at Vauclose Bay. That gentleman informs me that he also encountered the species at "The Nobbys," near Newcastle, and at the mouth of the Bellinger River, some examples attaining twice the dimensions of those now recorded.

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## NOTES ON AUSTRALIAN TYPHLOPIDÆ.

By EDGAR R. WAITE, F.L.S.

### 1. TYPHLOPS CURTUS, *Ogilby*.

It is worthy of remark that no one in Australia has hitherto investigated the *Typhlopidae* of the continent: the reason probably lies in the fact that only a very small portion of this immense area can be said to be at all adequately known, and scientific workers have ample material of more attractive and better differentiated forms than characterise the *Typhlopidae*. Although of all snakes this group is admitted to be the most difficult of determination, some fifteen Australian species are known; all these have, however, been described in Europe: by Gray and

Boulenger in London, Peters in Berlin, Schmidt in Hamburg, Schlegel in Leyden, and Jan in Milan: consequently all the type specimens are in Europe, and without direct reference to these the task of determination is no light one; it is, however, a pity that such valuable material as the large collection of local *Typhlopidae* contained in the Australian Museum should remain year after year uninvestigated, and in taking up the examination of these specimens I therefore propose to publish any points of interest with which I may meet, in the hope that it may be a step in the direction of placing our knowledge of the Australian *Typhlopidae* more on a level with better worked families.

The Collection in the Museum, although large, is, as might naturally be expected, somewhat local, being composed mainly of individuals collected in New South Wales, more particularly in the neighbourhood of Sydney. As only a few of the species described have been obtained from this Colony, any specimens from other parts of Australia with which we might be favored would be especially valuable.

In this connection I may mention that the Trustees of the Macleay Museum, Sydney, have very kindly granted me permission to examine the extensive collection of *Typhlopidae* formed by the late Hon. Sir William Macleay; and Mr. C. W. de Vis has generously offered to place in my hands, for investigation, the examples contained in the Queensland Museum of which he is the Curator.

Only one species has, I believe, been described in Australia, and it is therefore disappointing to have to point out its identity with a species previously described.

In all the *Typhlopidae*, so far as I am aware, the body scales are arranged in an *even* transverse series. In the "Records of the Australian Museum," Vol. ii., p. 23, Mr. J. Douglas Ogilby describes a species under the name of *Typhlops curtus*, and remarks that it has *twenty-three* series of scales round the middle of the body. This apparent departure from the usual conditions led me to re-examine the type specimen, when I found the number to be *twenty-four*. The species must therefore be referred to *Typhlops ligatus*, Peters,\* with which it agrees in every particular. Peters obtained his specimen from Port Mackay. Ogilby's type is from Walsh River, Gulf of Carpentaria, and I have found in the Museum Collection other examples from Coomoooolaroo, Dawson River. Therefore, so far as is known, this species is confined to Queensland.

[I have submitted the foregoing note to Mr. Ogilby, who entirely agrees with my remarks, and was not aware of Peters' paper when he wrote his description.]

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\* Monatsb. d. K. Akad. d. W. Berlin, 1879, p. 775, fig. 3.

## 2. TYPHLOPS RÜPPELLI, Jan.

[Plate XV., Figs. 5 and 6.]

It may occasion some little surprise that I seek to raise to specific rank a species which is generally considered as identical with *T. nigrescens*, Gray. This species is common in New South Wales, and has a more or less conspicuous dark patch on each side of the body near the anus.

In commencing an examination of the large collection of Australian *Typhlopidae* in the Museum, I made a careful study of *T. nigrescens*, and came to the conclusion that Peters was correct in regarding it and *T. rüppelli* as one and the same species.\* During further investigation, however, I have discovered examples which are so entirely distinct that I have no longer any doubt as to the specific position of *T. rüppelli*.

When describing this species, Jan remarks† that it is especially characterised by a round black spot on each side of the anus. In no example of *T. nigrescens* which I have examined is the spot darker than the body scales, and only in extreme cases does the color at all approach it. Moreover the coloration is confined to three scales at most, and on account of the shortness of the tail appears very close to the extremity of the body. (Plate xv., fig. 5). In *T. rüppelli* the spot is extremely conspicuous, is absolutely jet black and infinitely darker than any of the body scales. It is of large size, occupying several scales, and owing to the greater relative length of tail is at some distance from the extremity of the body. (Plate xv., fig. 6).

The relative length of the tail is one of the most striking points of difference. In *T. nigrescens* it has about twelve scales and is broader than long (Jan says a quarter longer than broad), while in *T. rüppelli* there are about twenty-five scales, and the length is fully twice the breadth. The former species is of more robust form, has the posterior part of the body much thickened and attains larger dimensions, reaching 570 millim.; while the latter is of more even diameter and smaller, none of our specimens exceeding 340 millim.

The scales on the head do not differ very materially: in *T. rüppelli* the internasals approach more nearly together, and the portion of the rostral between them is rather more acute than in *T. nigrescens*. This is indicated in Jan's figures,‡ but as pointed

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\* Monatsb. d. K. Akad. d. W. Berlin, 1865, p. 262.

† Icon. Gén. des Ophidiens, p. 14.

‡ *Ibid.*, 9 Liv., pl. i., figs. 1 and 2.

out by Peters with regard to *T. preissi* and other species\* they are not absolutely reliable.

It appears highly probable that Peters had never seen an example of *T. rüppelli* when he stated its identity with *T. nigrescens*, but like Prof. McCoy† had considered that Jan described the species from an example of *T. nigrescens*; probably one in which the anal spots were well marked.

### 3. *TYPHLOPS PROXIMUS*, *sp. nov.*

[Plate XV., Figs. 1-4.]

Habit stout, thickened posteriorly. Snout very prominent, with acute margin. Rostral more than half the width of the head, extending almost to the level of the eyes, narrowed in front and below; the portion visible from beneath longer than wide; nasal incompletely divided, the fissure extending from the first labial to the upper surface of the snout; nostrils inferior, close to the margin of the snout; preocular narrower than the ocular; nasal the widest. Eye very distinct, situated in the angle between the preocular and supraocular. Internasal, supraoculars and parietals enlarged. Four upper labials. Diameter of the middle of the body thirty-five times in the total length. Tail, not longer than broad, terminating in a short stout spine. Twenty scales round the body.

*Colors*.—Variable in spirits, generally brownish-olive to greyish-brown above, each scale margined with yellow, lower surfaces yellow; sometimes a more or less distinct small brown patch on each side of the anus.

#### *Dimensions.*

Total length	...	...	405.0	millim.
Length of head	...	...	8.5	"
Width of head	...	...	8.5	"
Width of body	...	...	11.5	"
Length of tail	...	...	8.0	"
Width of tail	...	...	11.0	"

*Habitat*.—New South Wales and Victoria. Several specimens.

*Type*.—In the Australian Museum, Sydney. Reg. No. 6411.

There should be no difficulty in distinguishing *T. proximus* from the other Australian species; the character of the nasal fissure being in contact with the first labial and produced on to the upper surface of the snout is common only to three other species,

\* Archiv. für. Naturg. 1862, p. 35 (not 1861, Zool. Record, i.)

† Prod. Zool. Victoria, ii., p. 9.

namely, *T. nigrescens*, Gray, *T. reginæ*, Boulenger,—each of which has twenty-two transverse scales and a rounded snout—and *T. ligatus*, Peters, readily recognisable by the narrow rostral and the twenty-four rows of scales. In *T. proximus*, as already mentioned, the snout is decidedly acute, and the scales are arranged in twenty series. In Plate xv., figs. 3 and 4 are drawn from the type specimen, and figs. 1 and 2 from an average example of *T. nigrescens* introduced for the purposes of comparison; in the latter, four body scales are in contact with each parietal, while in *T. proximus* there are only three, owing to the smaller number in the transverse series. The figures being drawn to the same scale (four times natural size) it will be seen that the head of this species is relatively larger than that of *T. nigrescens*, for the specimens are of practically equal length, being 405 millim. and 395 millim. respectively.

It will be noticed that Jan's figures\* are fairly accurate, and McCoy, although describing *T. nigrescens*, has figured† at any rate the head of the species I here determine.

Since the foregoing was in type, I have written to Professor Sir Frederick McCoy, and mentioned how closely his figure resembles *T. proximus*; and although in the text he states that the body scales are in twenty-two rows, I ventured to ask him to re-count the rows in the specimen figured, and I quote the following from his reply:—"First I must thank you for drawing my attention to a misprint,—in my description of *Typhlops nigrescens* in my Prodomus of the Zoology of Victoria, Dec. xi.,—of twenty-two scales instead of twenty, which I find in my MSS. and in all the specimens..." He further mentions that in his figures (Plate 103, figs. 1a. and 1c.) the rostral is not drawn quite sufficiently prominent; this would increase the similarity between his figures and mine, and as he assures me that all the figures on the Plate were drawn from the same specimen (although, owing to the apparent discrepancy in the number of body scales, I had suggested to him that they were not), it appears evident that Plate 103 illustrates *T. proximus* and not *T. nigrescens*. The anal spot is, however, more conspicuous than in any of my specimens, but is subject to much variation, being absent in some examples.

As Prof. McCoy mentions that all his specimens possess the character of having only twenty rows of scales on the body, it would appear that there are no examples of *T. nigrescens* in the National Museum, Melbourne, and we may therefore provisionally infer that this species does not occur in Victoria, and while it is very

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\* Icon. Gén. des Ophidiens, 9 Liv., pl. i., fig. 1a., et seq.

† Prod. Zool. Victoria, ii., pl. 103.

common in New South Wales, *T. proximus* is, on the other hand, comparatively rare. Owing, however, to the very limited number of observations made upon the Australian *Typhlopidae*, it would at present be extremely unwise to hazard many remarks upon their distribution.

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DESCRIPTION OF A NEW SHARK FROM THE TASMANIAN  
COAST.

BY J. DOUGLAS OGILBY.

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CENTRINA BRUNIENSIS, *sp. nov.*

*Centrina bruniensis*, Morton (*in lit.*)

Body oblong, with the back and sides rounded, and the belly flattened. Head small and strongly depressed, its breadth equal to the distance between the tip of the snout and the spiracle: snout short and obtuse, the distance between its tip and the nearest point of the mouth less than that between the same and the anterior margin of the eye. Nostrils equidistant from the eye and the extremity of the snout. Eye large, with a strong bony supraorbital ridge, situated midway between the tip of the snout and the anterior gill-opening. Spiracles large, opening behind the upper half of the eye, with a moderate intervening space. Mouth small and transverse, with the lateral groove very broad and deep. Upper jaw with a patch of small, conical, curved teeth anteriorly, consisting of about four irregular rows; a single series of much larger, erect, compressed, minutely serrated, scalpriform teeth in the lower jaw. Gill-openings small, the posterior one pierced immediately in front of the base of the pectoral fin. The first dorsal commences above the middle gill-opening, and rises by a continuous and equal gradation to the spine, its outer margin being straight; behind the spine the rise is much more abrupt, and the contour is slightly convex with the tip rounded; the posterior margin is deeply concave; the height of the fin beneath its extremity is equal to the distance between the anterior gill-opening and the tip of the snout, that of the spine equal to the head in front of the spiracle; the spine is situated in the anterior portion of the last fourth of the base of the fin, is perfectly

EXPLANATION OF PLATE XV.

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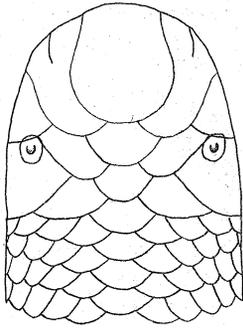
Figs. 1 and 2. Head of *Typhlops nigrescens*.

„ 3 and 4. Head of *Typhlops proximus*.

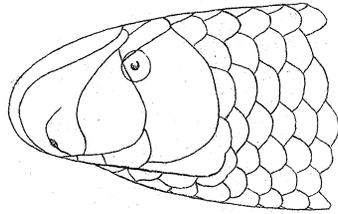
Fig. 5. Tail of *Typhlops nigrescens*.

„ 6. Tail of *Typhlops rüppelli*.

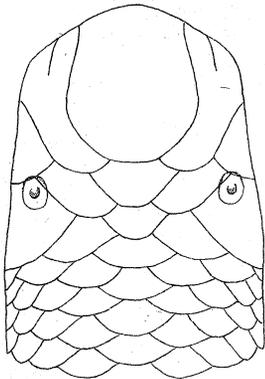
[The figures, which are four times natural size, have been reproduced from drawings by Mr. Edgar B. Waite, of the Australian Museum, by photo-lithography.]



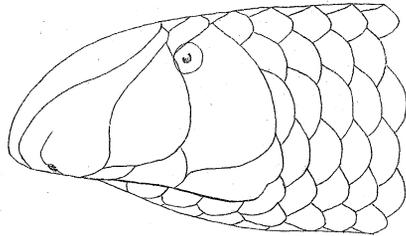
1.



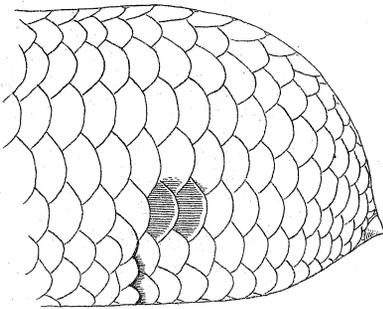
2.



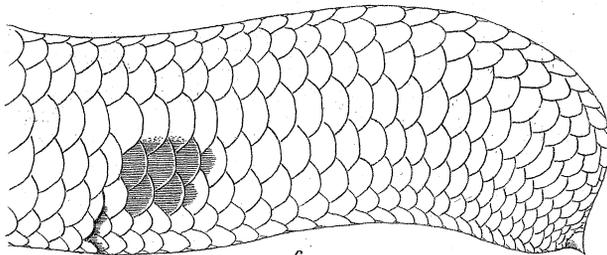
3.



4.



5.



6.