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# A BRIEF REVIEW OF THE FAMILY *PYGOPODIDAE.*

By

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(Figures 1-19.)

## *Family* PYGOPODIDAE, *Boulenger.*

*Scincoidiens* part, Cuvier, Regne Anim., ii, 1817, p. 61.
*Gymnophthalmoidea* part, Fitzinger, Classif. Rept., 1826, p. 11.
*Autachoglossae* part, Wagler, Syst. Amph., 1830, p. 130.
*Gymnophthalmi* part, Weigman, Herp. Mex., 1834, p. 11.
*Scincoidiens* part, Dumeril and Bibron, Erp. Gen., v, 1839, p. 511.
*Pygopidae* Gray, Cat. Liz., 1845, p. 67.
*Aprasiidae* Gray, loc. cit., p. 68.
*Lialisidae* Gray, loc. cit., p. 69.
*Pygopodidae* Boulenger, Ann. Mag. Nat. Hist., (5), xiv, 1884, p. 119.
*Ophidiosepsidae* Jensen, Vidensk. Meddel., iii, 1900, p. 317.
*Pygopodidae* Werner, K. Pr. Akad. Wiss. Berlin, Das Tierreich, Lief. 33, 1912, p. 15.

*Definition of family characters.*—Premaxillary single, narrow, and much produced posteriorly between the nasals; in the genus *Lialis* quite as much as in the *Varanidae*. Nasals distinct; frontal single; pre- and post frontals in contact separating the frontal from the orbit (absent in *Ophioseps*); parietals paired except in *Lialis* and *Ophioseps*. Jugal rudimentary; supraorbital bones absent: postorbital or post-fronto-squamosal arch absent. The pterygoids are widely separated and toothless. The mandible contains only four bones the angular, supra-angular and articular having coalesced. Dentition pleurodont, the teeth small closely set, more or less acute and recurved posteriorly. In *Lialis* they are swollen at the base: *Aprasia* has few teeth, *Ophioseps* has them in the lower jaw only, while in the remaining genera they are numerous and of the usual pleurodont type. Skin of head free from cranial ossification.

Body serpentiform, destitute of functional limbs, the forelimbs being entirely absent, while the hind limbs are visible externally as scaly flaps which, are most highly developed in the genus *Pygopus*. When the skin of the hind limb of *Pygopus* is removed the foot, with five ossified bones, may be plainly seen, especially in the males; the ischium appears as a small spur on each side behind the anal cleft. The sternal apparatus is rather rudimentary. Tail long, fragile. Eye small with elliptico-vertical or subelliptic pupil, and not protected by moveable lids. Ear exposed or concealed beneath the scales. Tongue elongate, fleshy, extensible, papillose and more or less feebly nicked at the tip. Body

covered with roundish imbricate scales, head covered with regular plates except in *Lialis* where the plates are broken up into small scales. Preanal pores either present or absent.

*General review.*—The genera reviewed in detail include *Pygopus*, *Delma*, *Pletholax*, *Ophidiocephalus*, and *Cryptodelma*; the latter name proves untenable, a new name *Paradelma* has been added in its place, as will be shown further on. The genera, *Lialis*,[1] *Aprasia* and *Ophioseps*,[2] were reviewed elsewhere, but they have been incorporated in the specific and generic keys, and the figures reprinted herein so that, the paper may be a more or less complete reference for those zoologists who wish to do further research on the family.

The genus *Delma*, as founded by Gray, was separated from others of the family mainly through the absence of preanal pores and the presence of smooth scales, whereas *Pygopus*, of Merrim, possessed more than eleven preanal pores and the scales of the dorsal surface were keeled, while Fischer's genus *Cryptodelma* possessed, or was supposed to possess, smooth scales on the dorsal surface, but had preanal pores. Fischer founded his genus *Cryptodelma* (*sp. nigriceps*) on a single specimen which, in addition to being withered, possessed abnormal scaling, as a glance at his figure will show (reproduced here).

A second species, described by Gunther as *Delma orientalis* was later correctly placed by Boulenger and others as *Cryptodelma orientalis*, and the keys of all authors prior to my investigations divided the genera concerned as follows :—

A. Preanal pores present.
Scales keeled ... ... ... ... ... ... ... *Pygopus.*
Scales smooth ... ... ... ... ... ... ... *Cryptodelma.*

B. Preanal pores absent.
Scales smooth ... ... ... ... ... ... ... *Delma.*

Upon examining a very large series of specimens and comparing them with the various descriptions, as well as one with the other, I find that a certain *group of characters*, such as a distinct type of scaling on the head, the number of scales round the body, the degree of keeling on the scales, and the presence, absence, or number, of preanal pores are the most important external characters by which the genera can be safely divided.

The very distinct types of head shields gave me the clue by which I found it comparatively easy to sort the specimens before me into large heaps, and an examination then showed that, generally, a different type of head scaling meant a separate genus or species as the case may be. One of the most outstanding types among the commoner species is that possessed by *Pygopus*, with its oblique internasals and frontonasals and very conspicuous, low, band-like rostral shield.

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[1]Kinghorn—Rec. Austr. Museum, xiv, 3, 1924, pp. 184-188.
[2]Kinghorn—*Loc. cit.*, xiv, 2, 1923, pp. 126-132.

On comparing Fischer's description and figures with those of the various species of *Pygopus*, it will be seen that his species bears a marked resemblance to those belonging to the latter genus, especially as it also possesses a large number of preanal pores and over twenty rows of scales round the body, as well as the typical head shields ; furthermore Fischer described the scales of his specimen as being smooth, but in a footnote states " the dorsal scales appear to bear blunt keels, but as the specimen is rather shrivelled, the keels may be due to bad preservation." To my mind this is the key to the situation, but almost as important, and certainly a valuable connecting link, is another species which was described from a single specimen by Boulenger in 1913 as *Pygopus schraderi*,[3] which he separated from *P. lepidopus* on account of the very blunt keels on the scales, and the larger number of scale rows.

On the evidence of Fischer's statement in regard to the blunt keels, supported by the fact that I have a number of specimens of all ages which agree entirely with his description and yet cannot be separated from Boulenger's *Pygopus schraderi*, I feel compelled to admit Fischer's *Cryptodelma nigriceps* into the genus *Pygopus*, and to place *P. schraderi* in the synonymy of that species.

In 1906 Gunther described, from a single specimen, a new species under the name of *Delma bayleyi*, separating it from *C. nigriceps* Fischer by the smaller number of scale rows around the body, it having twenty two as against twenty eight possessed by the latter, but, because of the presence of preanal pores, this species has always been regarded by authors as belonging to the genus *Cryptodelma*, viz :—*C. bayleyi*.

Since the name *Cryptodelma* lapses, concurrent upon the raising of the genotype to the genus *Pygopus*, it has been necessary to consider where *C. bayleyi* Gunther and *C. orientalis* Gunther may be placed. The former species, of which I have examined three perfect specimens from the South Australian Museum, bears a type of scaling, head shields, preanal pores, etc., typical of the genus *Pygopus*, but it has distinctly smooth scales, so I have placed it in the latter genus under the name *Pygopus bayleyi*. In regard to *C. orientalis* Gunther I find no difficulty, as it differs consistently and markedly from *Pygopus*, *Delma*, or any other genus in the family, and as its original generic name ceases to exist I suggest a new name *Paradelma*, and describe it as such, further on in the paper.

The remaining genera belonging to the family are distinct and easily separable, and apart from including them in my key, which will give the main or perhaps the essential characters by which they may be separated, I feel that there is no need at the present juncture to give details concerning their characters.

Key to the genera :—

A. Head covered with large symmetrical plates.
  aa. Preanal pores present.
    1. 10 to 16 preanal pores, frontal much longer than prefrontal *Pygopus.*
    2. 4 preanal pores, frontal much smaller than prefrontal ... *Paradelma.*
  bb. Preanal pores absent.

[3]Boulenger—Ann. Mag. Nat. Hist., (8), xii, 1913, p. 564.

c. Parietal shields present, large.
1. Body scales smooth.
Ear visible, ventral scales enlarged ... ... ... ...*Delma.*
Ear not visible, ventrals and dorsals subequal *Ophidiocephalus.*
2. Body scales with two keels on each scale ... ... ... *Pletholax.*
d. Parietal shields absent.
1. parietal bone single, frontal bone reaching the orbit ... *Ophioseps.*
2. parietal bones paired, frontal separated from the orbit by pre and postfrontal bones ... ... ... *Aprasia.*
B. Head covered with small scales.
parietal bone single ... ... ... ... ... ... *Lialis.*

## Pygopus *Merrem.*

*Bipes* Lacepede, An. Mus. Paris, iv. 1804, p. 209.
*Sheltopusik* (non Latr.) Oppel, Ordn., 1811, p. 40.
*Hysteropus* Dum. et Bibron, Erp., Gen., v, 1839, p. 826.
*Pygopus* Blgr., Brit. Mus. Cat. Liz., i, 1885, p. 240.*Id.*, Werner, K. Pr. Akad. Wiss, Berlin, Das Tierreich, Leif. 33, 1912, p. 17.

*Generic description.*—Teeth in both jaws. Parietal bones paired. Tongue slightly nicked at the tip, with rows of large papillae inferiorly. Snout rounded, head covered with large symmetrical plates, frontal much larger than the prefrontal. Ear opening exposed. Scales cycloid, hexagonal, imbricate, eleven to thirteen rows on the dorsal surface with each scale bearing a single keel. The two median series on the abdominal surface, and the median subcaudals hexagonal, transversely enlarged. Rudiments of hind limbs externally, large. Ten to sixteen preanal pores.

*Distribution.*—Almost the whole of Australia and Tasmania.

Key to the Species :—

Scales more or less keeled.
Keels sharp ... ... ... ... ... ... ... *lepidopus.*
Keels blunt ... ... ... ... ... ... ... *nigriceps.*
Scales smooth ... ... ... ... ... ... ... ... *bayleyi.*

## Pygopus lepidopus *Gray.*

*Pygopus lepidopodus* Gray, Cat. Liz., 1845, p. 67.
*Pygopus lepidopus* Blgr., Brit. Mus. Cat. Liz., 1885, p. 240. *Id.*, Werner K. Pr. Akad. Wiss. Berlin, Das Tierreich, Lief. 33, 1912, p. 17.

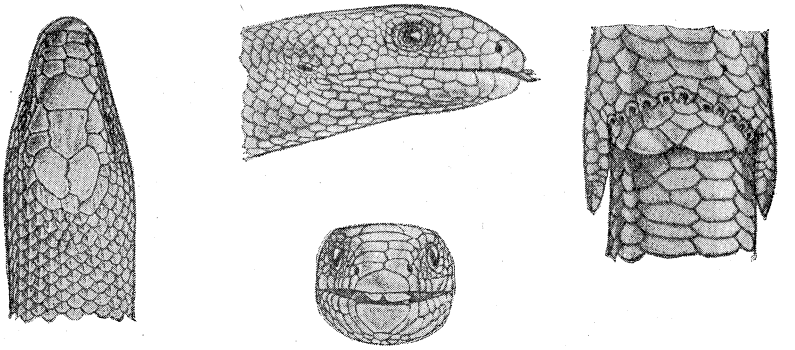


Fig. 1. *Pygopus lepidopus* Gray (after McCoy).

*Definition of the species.*—Snout rounded, as long as the distance between the orbit and the ear, and about equal to the distance between the posterior border of the orbits. Canthus rostralis obtuse; eye small, completely surrounded by a distinct scaly, ring-like lid. Ear opening smaller than the eye.

Rostral low, band like, two and one half to three times as broad as high. Nostril pierced between the first labial, two nasals, and a frontonasal. Anterior nasals much broader than deep, meeting on the centre line of the snout; posterior nasal lying on the upper labial. Two pairs of frontonasals behind the anterior nasal, both pairs broader than deep, the posterior pair being the largest.

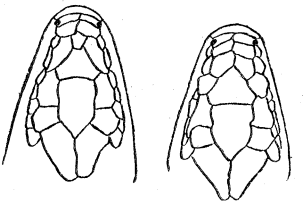


Fig. 2. *Pygopus lepidopus* Gray. Extreme variations in the head shields.

Often there are small azygous shields irregularly placed on the upper parts of the head among the more regular ones. A large polygonal prefrontal about twice as broad as deep, broadly pointed in front and usually convex along its posterior border which joins the frontal; the frontal is irregular in shape and about once and one half as long as broad; it is usually broader in front than behind but the lateral sides may be parallel, converging posteriorly, or slightly constricted in the centre; the posterior angle is wedged in between a pair of large parietals which may or may not be bordered by several enlarged occipital scales. A pair of large supraoculars separated from the eyelid by a row of smaller scales. An enlarged preocular forms a suture with the lateral border of the prefrontal, and is separated from the orbit by a number of small scales which extend forward in the loreal region to the postnasal. Seven or eight upper labials, the fourth or fifth under the eye and separated from the orbit by a single row of scales. Mental large, trapezoid. Four to seven lower labials, the first pair much enlarged. Body scales strongly keeled on the dorsal surface, the keels forming regular lines on the body, but alternate ones on the tail, 20 to 24 rows of scales round the body, the costals larger than the dorsals, ventrals paired, transversely enlarged, in 68 to 85 rows. Two enlarged anal scales separated from the preanal pores by one or two irregular rows of smaller scales. There are from 10 to 16 preanal pores (9 in one exceptional case), the general number ranging from 10 to 12.

Tail when intact one and one half to three times as long as the head and body. Total length of specimens examined from 200 to 650 mm.

*Colour (in spirits).*—The colour varies considerably, but most generally is uniform reddish brown to olive above, the lower surfaces lighter and often marbled with grey. Some specimens are very brightly

marked with longitudinal series of blackish dots or black quadrangular spots edged with white.

*Localities.*—Over eighty specimens were examined from various localities throughout Australia. This species is very common in New South Wales.

PYGOPUS NIGRICEPS *Fischer.*

*Cryptodelma nigriceps* Fischer, Arch. Naturg., xlviii, 1882, p. 290, pl. xvi, figs. 5-9. *Id.*, Blgr., Brit. Mus. Cat. Liz., i, 1885, p. 242. *Id.*, Werner, K. Pr. Akad. Wiss. Berlin, Das Tierreich, Lief, 33, 1912, p. 19.

*Pygopus schraderi* Boulenger, Ann. Mag. Nat. Hist., (8), xii, 1913, p. 564.

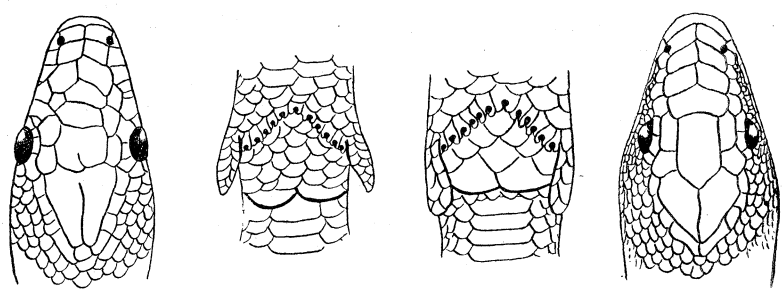



Fig. 3. *Pygopus nigriceps* Fischer. *a* and *b* enlarged from Fischer's original drawing; *c* and *d* from a specimen in the Australian Museum.

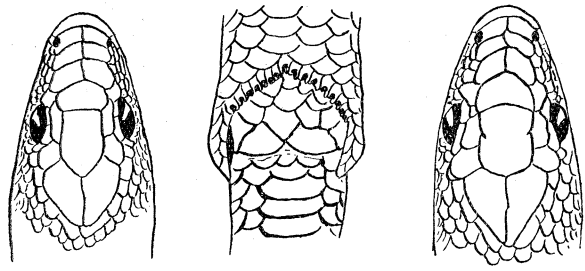
*Definition of specific characters.*—Rostral shield broad, low and band like. Nostril pierced between the first supralabial and two nasals, the anterior pair of which is much broader than deep, and forms a suture on the snout. Two pairs of frontonasals, the anterior pair being the smallest.

Prefrontal broader than deep, pentagonal, the anterior sides forming a strong point forwards, the posterior side being convex and forming a suture with the frontal which is longer than broad, but not longer than its distance from the rostral; it is pentagonal, the lateral sides usually converging slightly backwards, the posterior sides forming a point and being wedged in between the parietals. Two large supraoculars separated from the orbit by three or four scales. Parietals much longer than broad, as long as the frontal, and bordered by several enlarged occipital scales. A large preocular forming a suture with the anterior supraorbital, the prefrontal, the posterior frontonasal, and several small scales which lie between the orbit and the nasal, thereby separating the upper head shields from the upper labials.

The ring of small scales which borders the eye is visible only on the anterior, posterior and inferior sides. Six or seven upper labials, the fourth under the eye. Mental large, trapezoid, followed by six to eight

lower labials, the first pair of which does not form a suture behind the mental. Body scales very bluntly keeled, the keel in some cases being so blunt as to resemble a longitudinal hump, while in the young it is indistinct to the naked eye. Body scales in 22 to 29 rows, the laterals larger than the dorsals, the ventrals paired, broader than long, and arranged in 80 to 97 pairs.

Two large anal scales separated from the preanal pores by a number of smaller scales. Twelve to sixteen preanal pores.



*a* *b* *c*

Fig. 4. *Pygopus nigriceps*, Fischer, variations in head shields and preanal pores; *a* has twelve, and *b* and *c* sixteen preanal pores.

*Colour (in spirits).*—Brownish above, cream below. Head beautifully mottled with dark brown blotches and bands. A broad crescentic band on the nape from ear to ear and two transverse, narrow, irregular ones between the nape band and the eyes. A dark band through the eye, and another on the snout through the nostril to the lower labials. The dorsal surface of the body bears conspicuous dark markings which are bordered with white. The sides are covered with white, dark edged spots, on a greyish ground colour. In some of the young specimens which have been in spirits for a number of years many of the colours are completely lost, while in others the head is so dark as to be almost uniform blackish.

(These young specimens were in the Museum collection for about twenty years under the name *Cryptodelma nigriceps*.)

Holotype from Milparinka, western New South Wales, described from a single specimen 125 mm. in length.

Sixteen specimens were examined ranging in length from 140 mm. to 450 mm., and it was noted that the tail may be as long as or a little longer than the head and body.

*Localities.*—Laverton, Western Australia; Hughenden, Queensland; and the following localities in New South Wales: Milparinka, Yandenbah, Berowra, Wee Waa, Hillston, Mullingudgery, Jerilderie, Sydney, Wentworth, and an unknown place on the Darling River.

PYGOPUS BAYLEYI *Gunther.*

*Delma* (*Cryptodelma*) *bayleyi* Gunther, Ann. Mag. Nat. Hist., (6), xix, 1897, p. 170, figs. 1-3.

*Cryptodelma bayleyi* Werner, K. Pr. Akad. Wiss. Berlin, Das Tierreich, Lief. 33, 1912, p. 20.

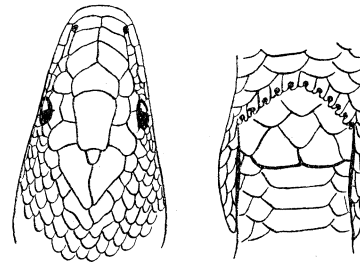


Fig. 5. *Pygopus bayleyi* Gunther. A smooth scaled species.

*Definition of specific characters.*—Rostral shield broad, low, band-like, nostril between three shields, the first labial and two nasals. The anterior nasals larger than the posterior and forming a suture on the median line behind the rostral. Two pairs of frontonasals, broader than long, the posterior pair being the larger. Prefrontal pentagonal, twice to thrice as broad as long, slightly variable in shape, pointed in front and concave behind, the posterior border forming a suture with the frontal which is five-sided, nearly twice as long as broad, the lateral sides parallel, or converging or diverging slightly posteriorly, so that it may be either broader or narrower in front than behind.

The posterior borders form a blunt point which is wedged in between the parietals. Two large supraoculars and a preocular separated from the orbit by several small scales. The ring-like eyelid is not visible on the superior side. A number of small scales between the orbit and the posterior nasal separate the upper head shields from the upper labials, which are seven in number, the fourth being under the eye. Parietals longer than broad, pointed posteriorly, and bordered by several enlarged occipital scales. Mental large, followed by seven lower labials. Body scales smooth, in 22 longitudinal rows; ventrals transversely enlarged, arranged in 89 to 120 pairs. Ten to fourteen preanal pores separated from a pair of enlarged preanal scales by about six smaller scales. Rudimentary hind limbs, in the males, about equal in length to the distance between the snout and the centre of the frontal shield.

*Colour* (*in spirits*).—Yellowish olive, the edges of the scales darker and thus forming a network pattern all over the upper surface. The lower parts are whitish, and there are diagonal, dark areas on the sides. Crown of head, and a broad band across the neck, blackish with a pair of red or yellowish spots on the nape. A black band descends from the eye and another from the nostril to the lower labials.

Holotype from Cue, Western Australia. Described from a single specimen 160 mm., in length, tail 90 mm.

Five specimens were examined measuring from 180 to 290 mm. in length.

*Localities.*—Holotype and three other specimens from South West Australia; two from Tennant's Creek, South Australia and one from Everard Range, South Australia.

### PARADELMA *nom. nov.*

*Cryptodelma* part, Boulenger, Brit. Mus. Cat. Liz., i, 1885, p. 242.

Parietal bones paired. Tongue elongate, fleshy, slightly nicked at the tip, papillae of upper surface minute at the free end, large at the base, and large, round and flat, on the under surface.

Ear exposed, minute. Rudimentary hind limbs visible externally, about as long as the snout. Head with large symmetrical shields, prefrontal much larger than the frontal. Scales smooth, cycloid, imbricate, costals larger than the dorsals. Ventrals paired, in 95 to 109 rows, the subcaudals single, transversely enlarged, hexagonal. Two enlarged preanal scales. Four preanal pores.

*Distribution.*—Probably restricted to Queensland.

### PARADELMA ORIENTALIS *Gunther.*

*Delma orientalis* Gunther, Journal Mus. Godeff., xii, 1876, p. 45.
*Cryptodelma orientalis*, Boulenger, Brit. Mus. Cat. Liz., i, 1885, p. 242, pl. xix. *Id.*, Werner, K. Pr. Akad. Wiss., Berlin, Das Tierreich, Lief. 33, 1912, p. 20.

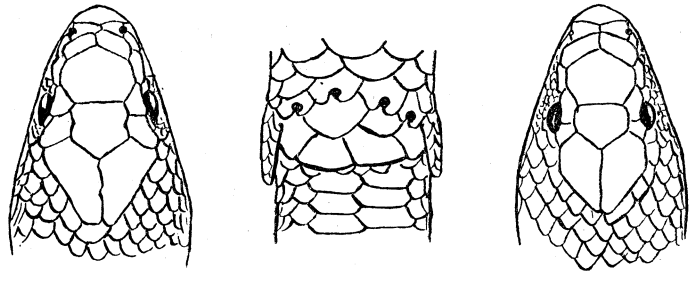



Fig. 6. *Paradelma orientalis*, Gunther (Nom. Novum) *a-b*, from a specimen in the Australian Museum, *c* after Boulenger.

*Definition of the species.*—Snout rounded, as long as, or slightly shorter than, the distance between the orbit and the ear, canthus rostralis broadly rounded. Eye with an indistinct, circular scaly lid, ear opening

small, oval, oblique, directed backwards, very much smaller than the eye, about as large as the pupil, which is vertical. Rostral pentagonal, about twice as broad as high ; nostril pierced between the first labial and two nasals the anterior of which is much the larger, forming a suture with its fellow behind the rostral. A pair of frontonasals forming a suture on the centre line of the snout, and bordering the nasals, loreal and prefrontal. Prefrontal seven sided, much larger than the frontal, longer than its distance from the end of the snout, broader than long and broader than the length of the frontal, its anterior and posterior sides concave. Frontal small, nearly as broad as long, its greatest width about equal to the depth of the prefrontal. Two large supraorbitals, the first bordering the orbit, the second separated from the orbit by two small scales. A large loreal also separated from the orbit by two small scales. There are six rather deep upper labials, the fourth under the eye, and they are separated from the head shields by a row of small scales. Parietals large, their greatest length equal to the distance from the frontal to the tip of the snout. Mental trapezoid, broader than long, four or five lower labials, the first two on each side very large, the second being the largest, the first pair not meeting behind the mental.

Body scales smooth, in 18 to 20 longitudinal rows, including the ventrals which are about twice as broad as long, and in 97 to 110 pairs.

Two enlarged anal scales, and a row of four smaller scales between them and the perforated preanals. Four preanal pores. Tail a little longer than the head and body ; the caudal scaling is comparable to that of the body, but the subcaudals are in a single row.

*Colour* (*in spirits*).—Light brown above with a series of longitudinal dark lines ; lighter below. A dark patch surrounds the eye and extends to the temporals, and there is a broad dark nuchal collar. The measurements of the holotype, as given in the British Museum catalogue, are, head 13 mm., width of head 9.5 mm., body 185 mm., tail 175 mm., hind limb 5 mm. The Australian Museum specimen from which this description was partly drawn up measures :—head 13 mm., width of head 8.5 mm., body 135 mm., tail 170 mm., hind limb 4 mm.

*Localities*.—The holotype, which is in the Godeffroy Museum, Hamburg, came from Peak Downs, Queensland ; while of two other specimens in that museum one is from Peak Downs, and the other from Gayndah, Queensland.

The specimen in the Australian Museum (figured) has no data attached to it.

### Delma *Gray*.

*Delma* Gray, Zool. Miscell., 1831, p. 14.

*Nisara* Gray, Liz. Austr., 1867, p. 3.

*Pseudodelma* Fischer, Arch. Naturg., xlviii, 1882, p. 286.

*Delma* Boulenger, Brit. Mus. Cat. Liz., 1, 1885, p. 243. *Id.*, Werner. K. Pr. Akad. Wiss. Berlin, Das Tierreich, Lief. 33, 1912, p. 21. *Id.*, Longman, Mem. Qld. Mus., v, 1916, pp. 50-51.

*Generic description.*—Teeth in both jaws. Parietal bones paired. Tongue slightly nicked at the tip and with rows of large round papillae inferiorly. Snout rounded, head covered with large symmetrical shields. Ear exposed. Scales cycloid, hexagonal, imbricate, smooth, the two median series on the abdominal surface and the median subcaudals hexagonal, transversely enlarged. Rudiments of hind limbs present, small. No preanal bones.

*Distribution.*—Australia generally.

*General.*—Mr. Longman suggested that there was a considerable degree of variation in certain characters by which this genus might be divided up into species, and he mentioned especially the upper labials, pointing out that the second has a tendency to divide and that the third or fourth may be found to be situated under the eye, as the case may be. He also mentioned the number of scales around the body, and the fact that in some specimens of *D. fraseri*, the first upper labial fuses with the lower part of the nasal. He ended by regarding "*reticulata* as a synonym, and *tincta* and *plebeia* as but variations of *D. fraseri*." He leaves *D. lineata* (which has the anterior part of the nasal fused with the first upper labial) as a distinct species, and I agree with him that this is a very good character.

Longman's deductions have been a very valuable aid to me in the compilation of this paper, as also have been his remarks during some correspondence I have had with him. His was the first attempt of the kind, in relation to the synonymy of this complicated group, and I am sure that had he the large series of specimens which were available to me he would have arrived at the conclusions which I am about to express.

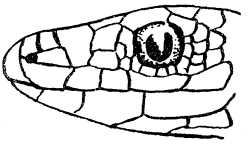


Fig. 7. *Delma fraseri*, Gray, showing the frontonasal reaching the second upper labial; an abnormality which occurs in several of the specimens examined.

An examination of between eighty and one hundred specimens belonging to this genus has convinced me that a certain *combination of characters* can be found, by which the species may be consistently separated. Of course there are abnormal specimens but the combination of characters chosen will not be completely upset, and any specimen can be easily placed in the species to which it rightly belongs.

The typical specimens have the following characters :—

| Frontonasals | Labial under eye | Scale rows | Anals | Species |
|---|---|---|---|---|
| 2 | 4 | 16 | 3 | *fraseri* |
| 2 | 4 | 14–16 | 2 | *fraseri* var. *plebeia* |
| 1 | 3 | 14 | 3 | *tincta* |
| 1 | 4 | 14–16 | 2 | *impar* |

In addition to this formula it might be added that *D. fraseri* and *fraseri* var. *plebeia* have the snout as long as the distance between the eye and the ear, while in *D. tincta* and *impar* the snout is shorter than the distance between the eye and ear. *D. impar* differs further from *D. tincta* in having the nasal and the rostral shields fused.

Key to the genus *Delma* :—

A. One pair of frontonasals, the snout shorter than the distance between the eye and ear.
1. Nasal and rostral fused, 4th labial under eye, 2 anal scales ... *impar.*
2. Nasal and rostral not fused, 4th labial under eye, 3 anal scales ... *tincta.*

B. Two pairs of frontonasals, the snout longer than the distance between the eye and ear.
Three anal scales ... ... ... ... ... *fraseri.*
Two anal scales ... ... ... ... ... *fraseri* var. *plebeia.*

### Delma fraseri *Gray.*

*Delma fraseri* Gray, Zool. Miscell., 1831, p. 14, and in Grey's Travels in Australia, ii, p. 487, pl. iv, fig. 3. *Id.*, Blgr., Brit. Mus. Cat. Liz., iv, 1885, p. 243. *Id.*, Werner, K. Pr. Akad. Wiss. Berlin, Das Tierreich, Lief. 33, 1912, p. 21. *Id.*, Longman, Mem. Qld. Mus., v, 1916, p. 50.

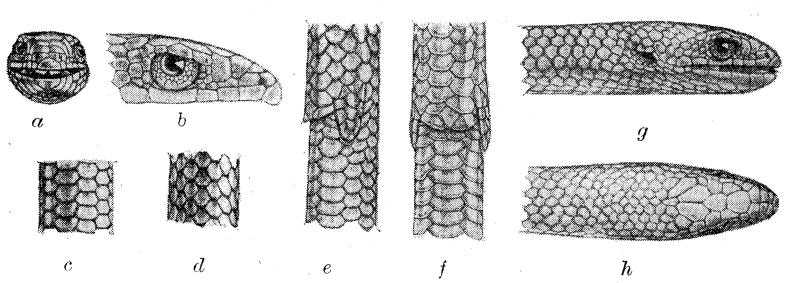



Fig. 8. *Delma fraseri*, Gray.—*a*, Rostral area; *b*, side of face; *c*, ventral scales; *d*, dorsal scales; *e* and *f*, lateral and ventral views of anal area; *g* and *h*, lateral and dorsal view of head and neck.

*Definition of the species.*—Snout obtuse, as long as the distance between the orbit and the ear. Canthus rostralis obtuse, eye with distinct circular scaly lid. Rostral triangular or pentagonal, about once and one half to twice as broad as high. Nostril generally pierced between the first upper labial, two nasals and the anterior frontonasal. Nasals divided,

the anterior pair forming a suture on the snout behind the rostral. Two pairs of frontonasals. Prefrontal seven sided, broader than long, the antero-lateral sides shortest, and in contact with a large loreal. Frontal about as broad as, and generally larger than, the prefrontal, seven sided, longer than broad, its posterior angle wedged in between the parietals which are (except in abnormal specimens) much larger and longer than the frontal.

The occipital scales may be irregular and broken up, or there may be two or three elongate ones bordering the parietals. Ear opening smaller than the diameter of the eye. Five or six upper labials, the fourth elongate and situated under the eye from which it is separated by a row of small scales. Four or five lower labials, the first pair forming a suture behind the mental which is triangular, broader than long, and larger than the rostral. There are 16 rows of scales round the centre of the body (including the ventrals), the ventrals are enlarged, usually much broader than long, and arranged in 45 to 61 pairs. Three preanal scales, the central one being triangular and the smallest.

*Colour* (*in spirits*).—Uniform dark to light brown above and cream below, or dark grey above and below. Top of head and sides of neck mottled, under side of chin and neck creamy white, bearing irregular dark bands.

Some specimens are light brown above, and cream or white below, the nape and head being blackish brown, with three or four distinct narrow, light cross bars ; the dark areas of the head extending downwards to the level of the lower jaw, and forming more or less blunt points.

*Localities*.—Of the fifty specimens examined about half of them came from localities situated between Derby, North Western Australia, and south of Perth, Western Australia. Four are from South Australia as follows :—407 miles, East-West Line ; Waikerie ; and Central Australia. Eight are from New South Wales, Albury, and Cootamundra in the south and Narromine in the west. Several specimens are from Port Darwin, North Australia. The holotype is from Western Australia.

### DELMA FRASERI *Gray*, var. PLEBEIA *De Vis*.

*Delma plebeia* De Vis, Proc. Linn. Soc. N.S.W. (2), ii, 1888, p. 824.
*Delma fraseri* part, Longman, Mem. Qld. Mus., v, 1916, p. 50.

I have examined two specimens of this variety, one of which was De Vis' type of *D. plebeia*, and cannot find any specific difference between it and *D. fraseri*, even though De Vis stated in his paper that " there are sufficient constant differences from *D. fraseri* to lead us to regard it as more than an eastern variety of that species."

During my examination of the type I found that De Vis had made several minor mistakes in his description.

The snout is as long as the distance between the eye and the ear. There are from 14 to 16 rows of scales round the body, 50 to 55 ventrals, and two enlarged preanal scales.

The only difference I can find between the two forms is that *fraseri* has 16 rows of scales round the body and 3 anal scales, while var. *plebeia* has from 14 to 16 body scales and 2 anal scales, and I cannot consider this sufficient grounds on which to regard them as separate species.

*Distribution*.—As far as is known the variety appears to be restricted to Queensland.

### Delma tincta *De Vis*.

*Delma tincta* De Vis, Proc. Linn. Soc. New South Wales, (2), ii, 1888, pp. 824-825.

*Delma reticulata* Garman, Bull. Mus. Comp. Zool., Harvard, xxxix, 1901, p. 5, pl. 2, figs. 1-1f. *Id.*, Werner, K. Pr. Akad. Wiss. Berlin, Das Tierreich, Lief. 33, 1912, p. 23.

*Delma fraseri* (part) Longman, Mem. Qld. Mus., v, 1916, p. 50-51.

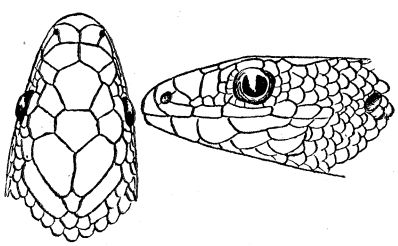


Fig. 9. *Delma tincta* De Vis, figured from the Holotype in the Queensland Museum.

*Definition of the species*.—Snout obtuse, canthus rostralis obtuse, rounded. Nasal divided into an anterior and posterior portion. Rostral triangular, about two thirds as high as broad, nostril pierced between the divided nasal and the first labial, the anterior nasals forming a suture on the snout. Prefrontal larger than the frontal, seven sided and usually longer than broad. Frontal seven sided about as broad as long, square across the anterior border, pointed posteriorly.

One pair of frontonasals, two supraoculars, below which are three supracilliaries. A large loreal separated from the orbit and the upper labials by several small scales. Parietals as large as, or larger than, the prefrontal, and bordered by a band like occipital scale. Five or six upper labials, the third elongate, situated under the eye.

Four lower labials the anterior pair forming a suture behind the mental which is large, triangular and a little broader than long.

Ear opening about half the diameter of the eye, the distance between the eye and the ear greater than that from the eye to the end of the snout. Scales round the body in 14 longitudinal rows, ventrals much larger than the dorsals, about twice as broad as long, arranged in 48 to 55 pairs. Three enlarged preannal scales, the central one smallest, triangular. Rudimentary hind limb shorter than the snout.

No preanal pores. Measurements of the holotype, head 6 mm., body 31 mm., tail 136 mm.

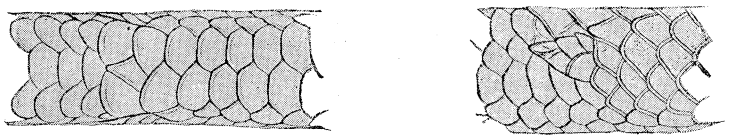


Fig. 10. *Delma tincta* De Vis, anal area (from Garman's figure of *D. reticulata*).

*Colour (in spirits).*—Light brown to grey on the dorsal and creamy white on the ventral surfaces. The upper and lateral parts of the head and nape dark brown, almost black, crossed with transverse, narrow white bands. The first band is immediately in front of, and the second behind, the eyes, the third is from ear to ear and the fourth across the nape. The tip of the rostral is whitish and there are white patches on several of the upper labials. The dark areas extend to below the level of the mouth and ears, forming obtuse points on the sides of the lower jaw. The scales of the dorsal surface have dark edges thereby forming reticulations, but this is not visible in all specimens.

*Localities.*—Six of the ten specimens examined came from Queensland :—Normanton (holotype), Oakley, Darling Downs, Cooktown, Bloomfield River, Mt. Barren Range, and Roma.[4]

One specimen is from the Clarence River, N.S. Wales, and one from " Mt. Barker," but whether this locality refers to the Mt. Barker near Adelaide or Perth I am unable to say. Among the specimens from the W.A. Museum is one labelled " West Australia," and if the locality is correct, it greatly increases the range of this species, which previously was considered to be restricted to Queensland and north eastern New South Wales.

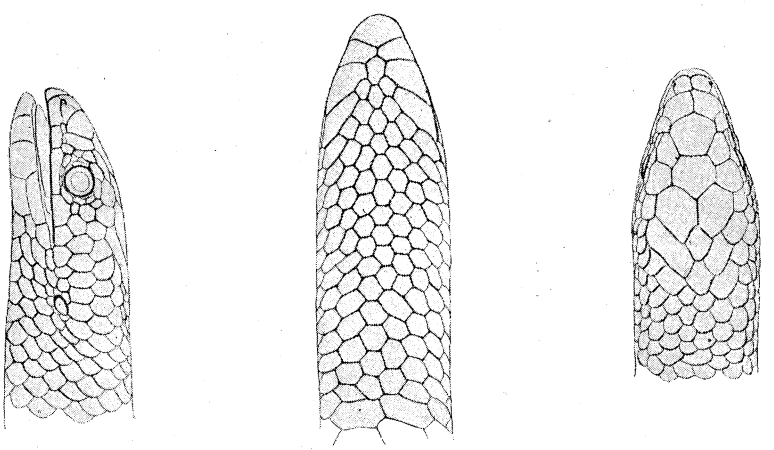


Fig. 11. *Delma tincta* De Vis. (From Garman's figure of *D. reticulata*).

[4]Macleay—Proc. Linn. Soc. N.S. Wales, x, 1885, p. 62.

*Note.*—When Garman described *D. reticulata* as a distinct species he may not have been aware of De Vis' species, as Longman suggests ; but upon examining the holotype and comparing it with the description I find that, as there were some outstanding mistakes, Garman could have been excused for supposing his specimen to be distinct.

### Delma impar *Fischer.*

*Delma impar* Fischer, Arch. Naturg. Berlin, xlviii, 1882, p. 287, pl. xvi, figs. 1-4. *Id.*, Blgr. Brit. Mus. Cat. Liz., i, 1885, p. 244. *Id.*, McCoy, Prod. Zool. Vic., ii, 1888, p. 235, pl. clxii, fig. 2. *Id.*, Werner, K. Pr. Akad. Wiss. Berlin, Das Tierreich, Lief. 33, 1912, p. 23.

*Delma lineata* Rosen, Ann. Mag. Nat. Hist., (7), xvi, 1905, p. 131, pl. viii, fig. 1, and text figures.

*Delma fraseri* (part) Longman, Mem. Qld. Mus., v, 1916, p. 51.

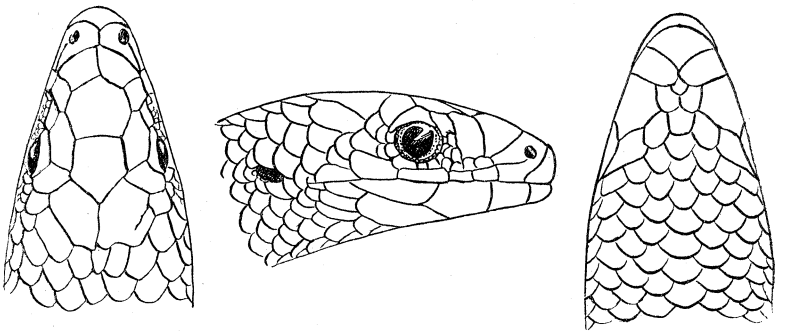


Fig. 12. *Delma impar* Fischer. From a specimen in the Australian Museum.

*Definition of the species.*—Snout truncate, a little shorter than the distance between the orbit and the ear opening. Tail twice or sometimes two and one quarter times as long as the head and body. Rudimentary hind limbs small, shorter than the snout. Rostral triangular, broader than deep. Nostril pierced in the lower portion of a semi divided nasal which forms a suture with its fellow on the snout, the anterior part being fused with the first upper labial. Only one pair of frontonasals. The prefrontal is seven sided and broader than long. The frontal is longer than broad, usually smaller than, but may be as large as, the prefrontal; it varies slightly in shape, and the posterior borders form a sharp point which is wedged in between the parietals. Two supraorbitals, and a large loreal ; a row of small scales separating the loreal from the orbit ; Parietals almost as large as the frontal and prefrontal combined. Seven upper labials, the fourth narrowest, elongate and situated below the eye, from which it is separated by a row of small scales. Mental large, triangular, broader than long. Five or six lower labials, the first pair forming a suture behind the mental, or separated by a small scale. Body scales

in 14 to 16 rows, the ventrals larger and broader than the dorsals. Two enlarged anal scales. No preanal pores.

*Colour (in spirits).*—Brownish above and creamy white below. Two light coloured, dark edged lines running from the nape to the anterior part of the tail, the rest of the upper and lateral parts of the tail bearing oblique light and dark lines.

This description is compiled from six specimens, and the original descriptions of *D. impar* and *D. lineata.*

*Localities.*—The holotype is from Melbourne, Victoria, and Rosen's type from Victoria, no definite locality. The specimens examined came from Port Lincoln, South Australia ; Maryborough, Victoria ; and Cooma, New South Wales.

*Comparative and general.*—In describing *D. lineata,* Rosen separated it from *D. impar* on the following points :—Sixteen rows of scales round the body ; first lower labial not in contact with its fellow ; frontal larger than the prefrontal, anterior part of nasal fused with upper labial.

On examination of the specimens available I find that the scale rows vary from 14 to 16, the first lower labial may be in contact with its fellow or separated from it by a small scale, the frontal may be anything from a little smaller to a little larger than the prefrontal, but the anterior part of the nasal is fused with the first upper labial. The above characters appear to have no fixed relationship with each other and they vary slightly in individual specimens so no combination can be found that would satisfactorily separate them. Both were described from single specimens and therefore leave the possibility of abnormalities being mistaken for specific characters. For example, one specimen with six lower labials has the first pair in contact behind the mental, while in another they are separated by a very small azygous scale, both of these have 16 rows of scales round the body. One with five and another with six lower labials each have the first pair in contact, but one has 14 and the other 16 rows of scales round the body. The fusing of the first upper labial with the anterior part of the nasal is a splendid and constant character in all my specimens ; one possessed also by Rosen's *D. lineata.* As Fischer's specimens agree in all other respects, I have taken the liberty of assuming that he overlooked this, and that the two belong to the same species.

## OPHIDIOCEPHALUS *Lucas and Frost.*

*Ophidiocephalus* Lucas and Frost, Proc. Roy. Soc. Vic., n.s., ix, 1897, p. 54. *Id.*, Werner, K. Pr. Akad. Wiss. Berlin, Das Tierreich, Lief. 33, 1912, p. 24.

Parietal bones paired. Tongue nicked at the tip and bearing six longitudinal papillose ridges inferiorly. Rudiments of hind limbs externally. Head with large symmetrical plates. Eye minute ; ear not

visible externally. Scales smooth, cycloid, hexagonal, imbricate subequal; abdominal scales not enlarged. No preanal pores.

*Distribution.*—Appears to be confined to Central Australia.

### OPHIDIOCEPHALUS TAENIATUS *Lucas and Frost*

*Ophidiocephalus taeniatus* Lucas and Frost, Proc. Roy. Soc. Vic., n.s., ix, 1897, p. 54. *Id.*, Werner, K. Pr. Akad. Wiss. Berlin, Das Tierreich, Lief. 33, 1912, p. 24.

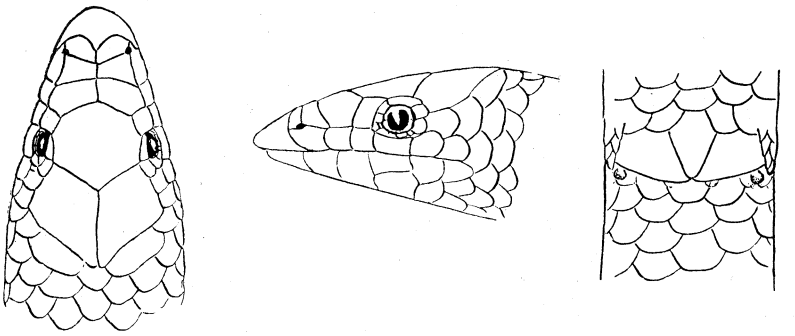


Fig. 13. *Ophidiocephalus taeniatus*, Lucas & Frost, figured for the first time from the Holotype in the National Museum, Melbourne.

*Definition of the species.*—Snout prominent, depressed, as long as the greatest width of the parietals. Canthus rostralis rounded, indistinct. Eye very small, covered by a transparent scale (as in the *Ophidia*) pupil circular, there is no eyelid, but the scales round the orbital space are small, those on the posterior border being the largest. Ear hidden. Rostral large, much broader than long, extending well back on the upper surface of the snout. Nostril minute pierced between the nasal, frontonasal and the first upper labial. Nasals small narrow, band-like, forming a suture on the snout. Frontonasals forming a short suture on the snout, but a longer one with the first upper labial. A pair of large prefrontals, larger than the nasal and frontonasal combined, and forming a suture with the second upper labial. Frontal large, octagonal, as long as broad, not as long as its distance from the snout, longer than the suture formed by the parietals. A large preocular forming a suture with the frontal, prefrontal and third upper labial. There is no true supraocular, the frontal being separated from the eye by one of the ring of small scales which border the orbital area. Parietals large, bordered by two enlarged occipitals which are separated on the median line by a small scale. Six upper labials, the fourth under the eye. Mental large, trapezoid; five lower labials, the first pair small, narrow, not meeting behind the mental, second pair the largest.

Sixteen longitudinal rows of scales round the body, subequal. Three enlarged anal scales, the central one smallest, triangular. Rudimentary

hind limbs very small, about as long as the distance between the eye and the nostril. Tail about once and one half as long as head and body. Head 8mm., width of head 4.5 mm., body 94 mm., tail 160 mm., hind limb 2.5 mm.

*Colour (in spirits).*—Dorsal surfaces creamy white, lateral and under parts brownish, each scale edged with creamy white.

*Locality.*—Holotype from Charlotte Waters, Central Australia; the specimen is unique.

Redescribed and figured from the holotype.

### PLETHOLAX *Cope.*

*Pletholax* Cope, Proc. Acad. Nat. Sci. Phila., 1864, p. 229. *Id.*, Blgr., Brit. Mus. Cat. Liz., i, 1885, p. 245. *Id.*, Werner, K. Pr. Akad. Wiss. Berlin, Das Tierreich, Lief. 33, 1912, p. 19.

Parietal bones paired. Head very long, narrow, depressed, covered with large symmetrical shields. Eye large, ear minute, very much smaller than the pupil of the eye. Dorsal scales rounded, larger than the ventrals, all the scales bearing two distinct keels. Rudiments of hind limbs minute. No preanal pores, anal scales much enlarged.

*Distribution.*—Confined to South Western Australia.

### PLETHOLAX GRACILIS *Cope.*

*Pletholax gracilis* Cope, Proc. Acad. Nat. Sci. Phila., 1864, p. 229.
*Pygopus gracilis* Gunther, Zool. " Erebus " and " Terror," ii, 1875, p. 10.
*Pletholax gracilis* Blgr., Brit. Mus. Cat. Liz., i, 1885, p. 245. *Id.*, Werner, K. Pr. Akad. Wiss. Berlin, Das Tierreich, Lief. 33, 1912, p. 19.

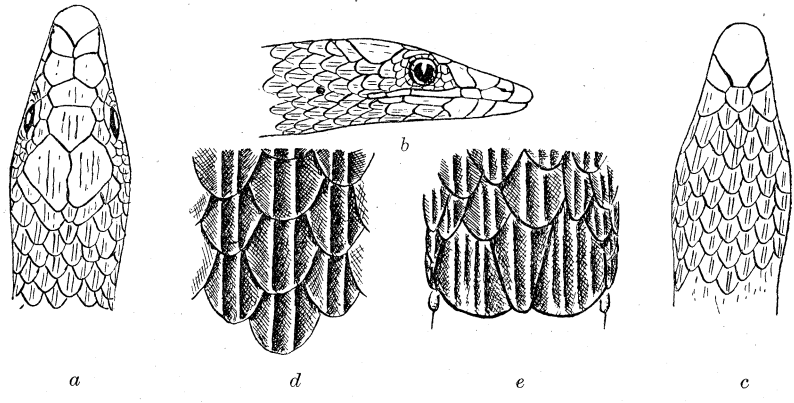



**Fig. 14.** *Pletholax gracilis* Cope. *a*, dorsal, *b*, lateral, *c*, ventral view of head; *d*, dorsal scales showing paired keels; *e*, anal area. Figured for the first time from a specimen in the Western Australian Museum.

Snout rounded, prominent, depressed, as long as the distance between the orbit and the ear, longer than the distance between the posterior border of the orbits. Canthus rostralis obtuse, rather flattened. Eye large, completely surrounded by a circular, scaly ring-like lid.

Ear opening minute, hardly visible to the naked eye, much smaller than the pupil of the eye. Rostral large, about as long as broad, extending well back on to the snout. Nasals triangular, their shortest edges forming a suture behind the rostral. Nostral minute, pierced between the nasal and the large first labial. A pair of frontonasals and a large loreal or preocular, which is separated from the orbit by several small scales, forming a suture with the second upper labial. Prefrontal seven sided, much broader than long. Frontal seven sided, a little longer than broad, its anterior edge forming a broad suture with the prefrontal, and its posterior sides forming a point, and wedged in between the parietals. Parietals very broad, and as long as the distance between the anterior border of the prefrontal and the tip of the snout. A pair of small supraoculars separated from the orbit by two or three scales. The frontal, parietals and supraoculars bear more or less strong ridges of keels. Five upper labials, the third long, narrow, and situated below the orbit. Mental much larger than the rostral, longer than broad. Four lower labials, the first two pairs transversely enlarged, separated on the median line by a scale, the third long, narrow, situated immediately below the eye.

Scales round the centre of the body in 16 rows ; the dorsals, which are rounded, are larger than the ventrals, the latter being more sharply pointed posteriorly. All the scales of the body and tail, dorsal and ventral, bear two keels, with a deep groove between. Ventrals, counting from immediately behind the mental in 70 rows. Rudimentary hind limbs very small, slightly longer than the distance across the orbit.

Three preanal scales, the central one long and narrow, the outer two much the larger and rounded. Head and body 60 mm. Tail 155 mm., width of head 3.7 mm., width of body about 2.5 mm.

*Localities.*—Holotype from South West Australia. Redescribed and figured from a specimen found near Perth, Western Australia in November or December, 1924.

This specimen appears to be the second one known to science, and is certainly the only specimen at present in Australia (Western Australian Museum), the holotype being in the Academy of Natural Sciences, Philadelphia.

### Lialis *Gray.*

*Lialis* J. E. Gray, Proc. Zool. Soc. Lond., 1835, p. 134. *Id.*, Kinghorn, Rec. Austr. Mus., xiv, 3, 1924, p. 184.

Parietal bone single ; teeth in both jaws, numerous, fairly sharply pointed and recurved posteriorly. Ear exposed. Head covered with small irregular scales. Rudimentary hind limb small. Preanal pores present.

*Distribution.*—Aru Island, New Guinea and Australia.

Key to the species :—

Tip of snout truncate, rostral quite twice as broad as high. Four preanal pores ... ... ... ... ... ... ... *burtonis.*

Tip of snout sharp pointed, rostral slightly broader than high. Six to eight preanal pores ... ... ... ... ... ... *jicari.*

## LIALIS BURTONIS *Gray.*

*Lialis burtonis* Gray, Proc. Zool. Soc. Lond., 1835, p. 134. *Id.*, Kinghorn Rec. Austr. Mus., xiv, 1924, p. 184, figs. 1-7 (1-4 reproduced below).

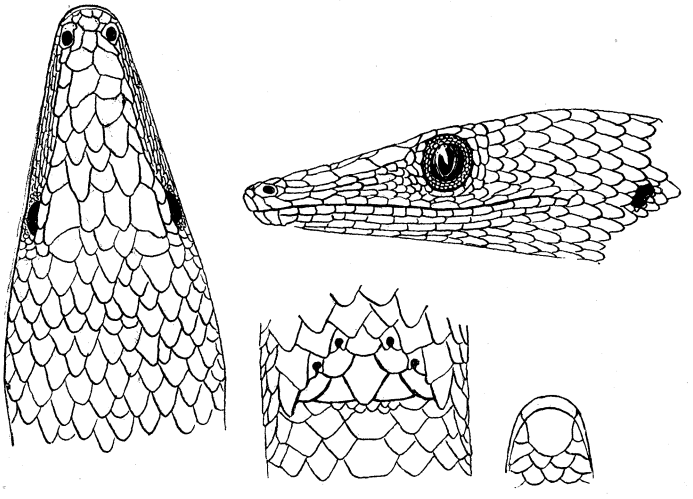


Fig. 15. *Lialis burtonis* Gray.

Head long, narrow, depressed. Canthus rostralis angular. Tip of snout truncate, rostral band-like, twice as broad as high. 19-23 rows of scales round the body, 70 to 100 pairs of ventrals, 5 anals, 4 preanal pores.

Full comparative characters given in the paper quoted above.

*Distribution.*—From British New Guinea, through many of the islands of Torres Strait to practically the whole of Australia.

LIALIS JICARI *Boulenger.*

*Lialis jicari* Blgr., Ann. Mag. Nat. Hist., (7), xii, 1903, p. 430. *Id.*, Kinghorn, Rec. Austr. Mus., xiv, 3, 1924, pp. 187-188, figs. 8-11 (reproduced below).

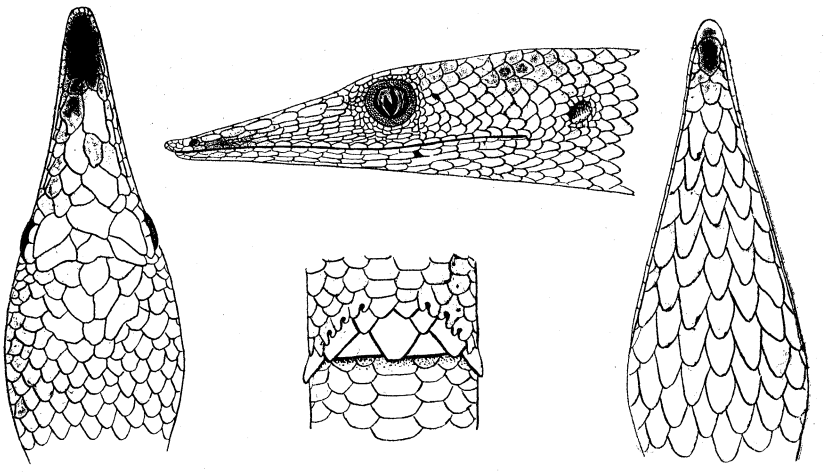


Fig. 16. *Lialis jicari* Boulenger.

This species differs consistently from *L. burtonis* in having a much more sharply pointed and cylindrical snout, and a greater number of preanal pores. The mental is long and narrow. There are 26 rows of scales round the body, the ventrals are in 90 to 114 pairs, anals 5 to 6, preanal pores 6 to 8.

*Distribution.*—*L. jicari* appears to be restricted to New Guinea and perhaps some of the neighbouring islands.

OPHIOSEPS *Bocage.*

*Ophioseps* Bocage, Journ. Acad. Lisboa,. iv, 1873, p. 231. *Id.*, Kinghorn, Rec. Aust. Mus. xiv, 2, 1923, pp. 126-128, fig. 2.

Differs from *Aprasia* in having the parietal bone single instead of paired.

*Distribution.*—Restricted to West Australia.

### OPHIOSEPS NASUTUS *Bocage.*

*Ophioseps nasutus* Bocage, Journ. Acad. Lisboa, iv, 1873, p. 232. *Id.*, Kinghorn, Rec. Austr. Mus., xiv, 2, pp. 128-129, figs. 4-6 (reproduced below).

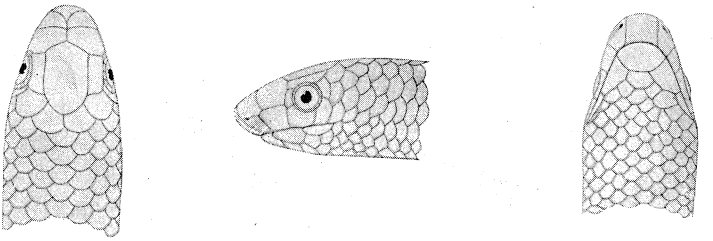


Fig. 17. *Ophioseps nasutus* Bocage. (after Jenson.)

This species was described from a single specimen collected at Lion Mill, Donnybank, Western Australia, and apparently no other specimen has since been found. The external characters and general appearance would tend to place it in the genus *Aprasia*, but the cranial characters, according to Bocage, separate it immediately. Reference to Jensen's figures,[5] will show that the head appears to be slightly shorter and the snout, from a lateral aspect, more pointed than in *Aprasia pulchella*, but in all other external characters the two might be identical. Jensen's figures of the skull are undoubtedly diagrammatic, so much so that it is possible some mistake has occurred, especially in relation to the absence of pre and postfrontal bones. If there is only one specimen in existence, the holotype, have the external characters of the head been sacrificed so that a complete drawing of the skull could be made ? If not, where is the second specimen ?

*Locality.*—Lion Mill, Donnybrook, Western Australia (holotype).

### APRASIA *Gray.*

*Aprasia* Gray, Ann. Mag. Nat. Hist., ii, 1839, p. 331. *Id.*, Kinghorn, Rec. Austr. Mus., xiv, 2, 1923, p. 129.

Parietal bones distinct, paired. Frontals paired, the pre- and postfrontal forming a suture above the orbital space. Premaxillary teeth present or absent (two microscopic ones on each side of the lower jaw). No preanal pores.

*Distribution.*—Restricted to South and West Australia.

Key to the species :—

Postocular scale present.
Premaxillary teeth present ... ... ... ... ... *pulchella.*

Postocular scale absent.
Premaxillary teeth absent ... ... ... ... ... *repens.*

[5]Jensen—Vidensk. Meddel,. iii, 1900, p. 317, figs. A-C.

### APRASIA PULCHELLA *Gray*.

*Aprasia pulchella* Gray, Annr. Mag. Nat. Hist., ii, 1839, p. 331. *Id.*, Kinghorn, Rec. Austr. Mus., xiv. 2, 1923, pp. 130-132, figs. 7-9 (reproduced below).

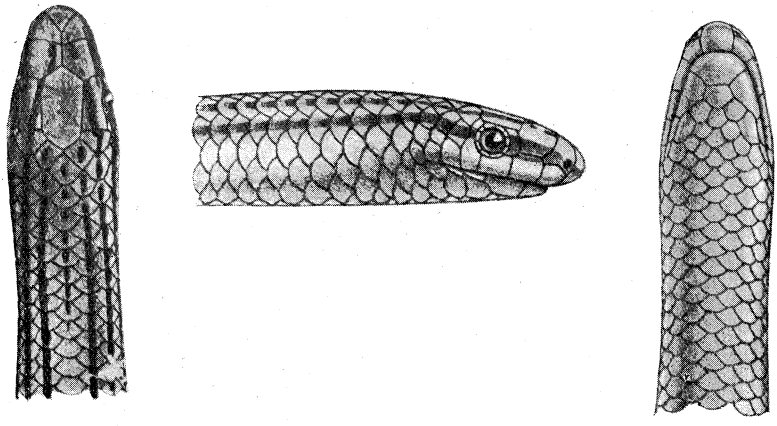


Fig. 18. *Aprasia pulchella* Gray. (after McCoy.)

The main characters by which this species can be readily separated from *A. repens* are given in the key, but in addition, the fourth upper labial is separated from the supraocular by the postocular scale; and the length of the snout from the anterior edge of the eye, is less than three times the diameter of the eye. The nostril is isolated or connected by a suture with the second upper labial.

*Localities.*—Fourteen specimens examined from West Arthur via Wagin, Western Australia; and Western Australia no definite locality.

Holotype in the British Museum, Natural History.

### APRASIA REPENS *Fry*.

*Ophioseps repens* Fry, Rec. West. Austr. Mus., i, 1912, pp. 178-182, text figs. *Id.*, Kinghorn, Rec. Austr. Mus., xiv, 2, 1923, pp. 132-134, figs. 10-12 (reproduced below).

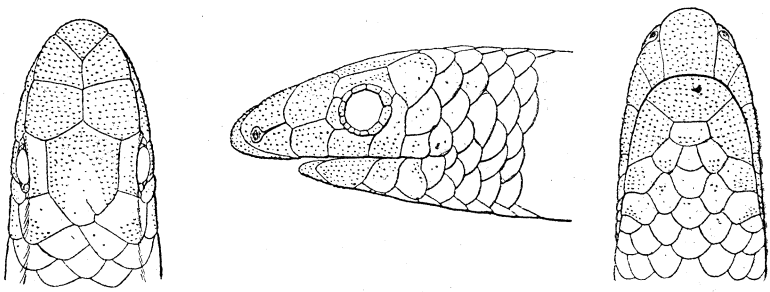


Fig. 19. *Lialis repens*, Fry. (after Fry.)

In addition to the characters given in the key, the fourth upper labial is in contact with the supraocular behind the eye, the post ocular being absent. The length of the snout from the eye is equal to three or more times the diameter of the eye. The nostril suture invariably connects with the prefrontal, and is never isolated. as in *A. pulchella.*

*Localities.*—Ten specimens were examined from the following localities :—Bumbleyung, Fremantle, Cottesloe, and Midland Junction, all in Western Australia.

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