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REPTILES AND BATRACHIANS FROM SOUTH AND SOUTH-WEST AUSTRALIA.

By

J. R. KINGHORN, C.M.Z.S., Zoologist.

During the first half of the year 1920, Mr. E. le G. Troughton, Zoologist in charge of Mammals and Osteology, undertook a collecting trip to South Australia. Starting at Adelaide he visited many localities from Kangaroo Island in the south, through Eyre's Peninsula to Farina in the north. Towards the latter part of the following year, in company with Mr. J. H. Wright, Assistant Taxidermist, he journeyed across the southern part of Australia by way of the Trans-Australian Railway, spending a few days here and there on the Nullarbor Plain at such places as 407 Miles (referred to in the map and text as Immarna, a name since given to the locality), Ooldea, and Fisher.

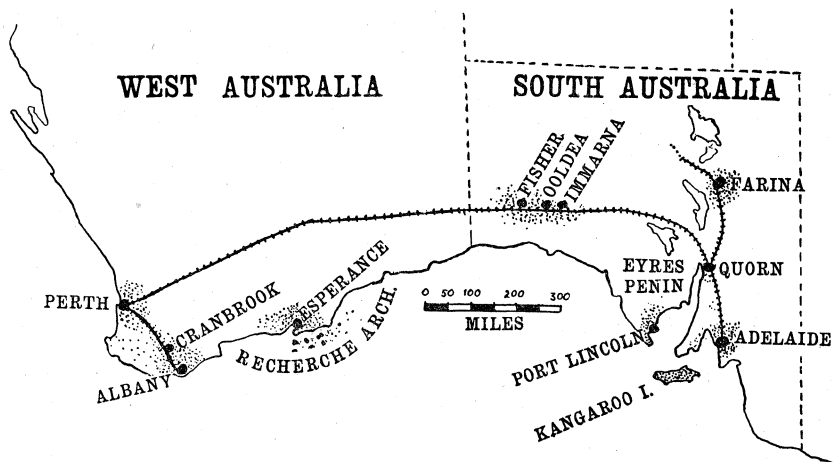


Fig. 1. Map showing collecting areas referred to.

When Mr. Troughton returned to the Museum from Albany, Mr. Wright joined Mr. A. F. Bassett Hull, Honorary Ornithologist, and Mr. H. S. Grant, Taxidermist, who were making preparations for a visit to the Esperance district and Recherche Archipelago, where, at a later date, some very interesting material was collected.

The following list deals with the specimens collected during the three trips.

OPHIDIA.

DEMANSIA PSAMMOPHIS *Schlegel*.

Demansia psammophis Boulenger, Brit. Mus. Cat. Snakes, iii, 1896, p. 322.

One specimen from Fisher, South Australia. Total length, 670 mm.; tail, 140 mm. Scales around centre of body 15; ventrals 195; anal divided; subcaudals, 70 pairs. Collected 23rd October, 1921. Gravid.

One specimen from Immarna, South Australia. Total length, 605 mm.; tail, 113 mm. Scales around body, 15; ventrals, 185; anal divided; subcaudals in 76 pairs.

This species is known as the "Salt Bush Snake" by the residents.

DEMANSIA NUCHALIS *Günther*.

Demansia nuchalis Boulenger, Brit. Mus. Cat. Snakes, iii, 1896, p. 326.

One specimen from Ooldea, South Australia. Total length, 910 mm.; tail, 132 mm. Scales in 17 rows around the centre of the body, ventrals, 199; subcaudals in 55 pairs.

Colour (from life).—Uniform light brown above and creamy white below, with brick-red blotches on the anterior portion of the abdominal surface.

PSEUDECHIS AUSTRALIS *Gray*.

Pseudechis australis Boulenger, Brit. Mus. Cat. Snakes, iii, 1896, p. 330.

One specimen from Immarna, South Australia. Total length, 1030 mm.; tail, 170 mm. Scales in 17 rows around the centre of the body; ventrals, 202; subcaudals, 58, 51 single, the rest in pairs.

Colour (from life).—Sepia brown above, the larger portion of the free edges of the dorsal scales dark sepia brown, the bases almost lemon-yellow. The ventral surface is yellowish white, the free edges of the abdominal scales tinged here and there with brick-red.

One specimen from Fisher, South Australia. Total length, 1130 mm.; tail, 140 mm., tip broken off. Scales in 17 rows around the centre of the body; ventrals, 101; subcaudals, 44 single, the rest paired.

The markings in spirits suggest that they would be the same as the above in life.

DENISONIA CORONATA *Schlegel*.

Denisonia coronata Boulenger, Brit. Mus. Cat. Snakes, iii, 1896, p. 335.

One specimen from Bornham, Western Australia. Total length, 180 mm.; tail, 34 mm. Scale rows, 15; ventrals, 140; anal single; subcaudals, 48.

One from Mississippi Bay, 28 miles east from Esperance, Western Australia. Total length, 270 mm.; tail, 55 mm. Scale rows, 15; ventrals, 138; anal single; subcaudals, 53.

One from Tudor, 27 miles north from Albany, Western Australia. Total length, 320 mm.; tail, 64 mm. Scales in 15 rows; ventrals, 142; anal single; subcaudals, 48.

DENISONIA CORONOIDES *Günther*.

Denisonia coronoides Boulenger, Brit. Mus. Cat. Snakes, iii, 1896, p. 336.

Two specimens from Mondrain Island, Recherche Archipelago, Western Australia. (A), Total length, 480 mm.; tail, 85 mm. Scales in 15 rows; ventrals, 159; anal single, subcaudals, 53. (B), Total length, 510 mm.; tail, 90 mm. Scales in 15 rows; ventrals, 146; anal single; subcaudals, 48.

These insular specimens are similar to the mainland form in colour and markings.

DENISONIA GOULDII *Gray*.

Denisonia gouldii Boulenger, Brit. Mus. Cat. Snakes, iii, 1896, p. 342.

One specimen from Ooldea, South Australia. Total length, 240 mm.; tail, 26 mm. Scales in 15 rows; ventrals, 159; subcaudals, 32; anal single. Typical form.

NOTECHIS SCUTATUS *Peters*.

Notechis scutatus, Boulenger, Brit. Mus. Cat. Snakes, iii, 1896, p. 351.

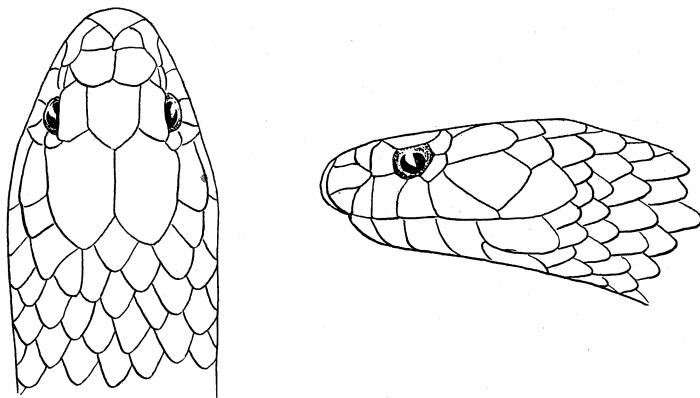
One specimen from Gibbon's Soak, 12 miles north of Esperance, Western Australia. Total length, 780 mm. Scales in 17 rows. One from Tudor, 27 miles from Albany, Western Australia. Total length, 1000 mm. Scales in 19 rows. The colour markings and specific characters of these two specimens are typical.

NOTECHIS SCUTATUS *Peters* VAR. NIGER *Kinghorn*.

Notechis scutatus var. *niger* Kinghorn, Rec. Austr. Mus., xiii, 4, 1921, p. 145, pl. xxvi, figs. 6-8.

One specimen from Deep Creek, 20 miles from Kingscote, Kangaroo Island, South Australia. Total length, 1430 mm.; tail, 162 mm. Scales in 19 rows; ventrals, 184; anal entire; subcaudals, 45.

In colour this variety closely resembles *Notechis ater* Krefft, but its scaling and lateral head shields at once distinguish it; moreover it has six upper labials, the third and fourth entering the eye; and the chin shields are equal in length.



Figs. 2-3. *Notechis scutatus* Peters, var. *niger* Kinghorn.

Fig. 2. Dorsal view. Fig. 3. Lateral view.

Colour.—The general colour is black above and bluish grey on the abdominal surface, while the chin shields and surrounding scales are whitish.

The inhabitants of Kangaroo Island refer to this species as the "Black Snake" evidently confusing it with the Black Snake, *Pseudechis porphyriacus*, of the mainland.

Mr. Troughton shot this specimen whilst it was attempting to drag away a rat which was trapped.

LACERTILIA.

NEPHURUS LÆVIS *De Vis*.

Nephrurus lævis Boulenger, Brit. Mus. Cat. Lizards iii, 1887, p. 475.

One specimen from Immarna, South Australia, and one from Ooldea, South Australia. The former specimen is 63 mm. in length, and 50 mm. from snout to vent. The fore limb when stretched forwards does not reach to the nostril. There are 19 upper labials and between the orbits are five rows of tubercles. The hind limb when stretched forward reaches to the axilla, and is half as long as the distance from snout to vent. The markings differ slightly from the typical form as described by De Vis.

Colour and markings (in spirits).—Creamy white above with six small dark spots on the fore part of the head as follows:—one on each side under the anterior angle of the orbit, one immediately behind each nostril, one above the rostral, and another almost between the orbits. There is a dark three-pronged mark on the occiput, while a light band crosses the head behind the orbits and connects on each side with a thicker and darker one which zigzags longitudinally to the neck. On the neck is a short transverse bar, behind which are two arcs, the posterior one extending well down over the shoulders, the two thereby enclosing a white crescent. There is a longitudinal, irregular bar over each hip, and a small transverse mark on the sacrum.

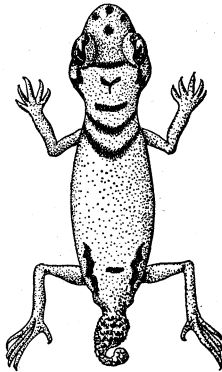


Fig. 4. New variety of colour marking in *Nephurus laevis*, De Vis.

The Ooldea specimen is 85 mm. from snout to vent. The fore limb when stretched forward reaches almost to the tip of the snout, while the hind limb does not reach nearly to the axilla, and it is less than half as long as the distance from the snout to the vent. There are 20 upper labials and between the orbits are five rows of tubercles. The colour markings are similar to those given by Lucas and Frost¹ and approach the *N. platurus* form rather than the typical *N. laevis*.

RHYNCHÆDURA ORNATA *Günther*.

Rhynchædura ornata Boulenger, Brit. Mus. Cat. Lizards, i, 1885, p. 12, pl. ii, fig. i.

One specimen from Ooldea, South Australia.

Length from snout to vent, 45 mm. The specific characters, colour and markings are typical. Tail missing.

¹ Lucas and Frost—Rep. Horn Sci. Exped., ii, (Zoology), 1896, pp. 115-118.

CERAMODACTYLUS DAMÆUS *Lucas and Frost.*

Ceramodactylus damæus Lucas and Frost, Rep. Horn Sci. Exped. pt. ii, (Zoology) 1896, p. 119, pl. ix, fig. 2.

One specimen from Ooldea, South Australia. Total length, 74 mm.; snout to vent, 40 mm.; head, 12 mm.; width of head, 9 mm.; fore limb, 14 mm.; hind limb, 18 mm.; tip of snout to ear, 10 mm.

The colour markings agree, in general, with those given by Lucas and Frost, but there are more white spots on the sides below the dark lateral band on the specimen before me than there are on the type.

GYMNODACTYLUS MILIUSII *Bory.*

Gymnodactylus miliusii Boulenger, Brit. Mus. Cat. Lizards, i, 1885, p. 48.

Two specimens from Ooldea, South Australia. One from Mount Lyndhurst, 30 miles east of Farina, South Australia; three from Proper Bay, 8 miles from Port Lincoln, Eyre's Peninsula; one from Charley Island, Recherche Archipelago.

The Mount Lyndhurst specimen was caught at night on bare ground under low bushes. All the specimens are typically marked, but the three from Proper Bay have longer and slimmer tails than the others, a fact probably due to them being very young.

HETERONOTA BYNÆI *Gray.*

Heteronota bynæi Gray, Brit. Mus. Cat. Lizards, 1845, p. 174. *Id.*, Boulenger, Brit. Mus. Cat. Lizards, i, 1885, p. 74. *Id.*, Lucas and Frost, Rep. Horn. Sci. Exped. ii, (Zoology), 1896, pp. 120-122, pl. xi, figs. 1-2.

Eublepharis derbiana Gray, Brit. Mus. Cat. Lizards, 1845, p. 274.

Heteronota derbiana Boulenger, Brit. Mus. Cat. Lizards, i, 1885, p. 75.

Two specimens from Mount Lyndhurst, 30 miles east of Farina, and one from Ooldea, South Australia.

The colour markings of this species are liable to a fair degree of variation, as also are some of the lesser structural characters. After examining a series of forty-five specimens in the Australian Museum collection I find that I must agree with Lucas and Frost in that it is impossible to separate *H. derbiana* from *H. bynæi*.

The length of the head in comparison to the body is extremely variable, while the arrangement of the dorsal tubercles is generally regular, the variations being too slight to be of any specific or even varietal importance.

I append a revised definition of the species.

Head oviform, moderately depressed, its length equal to, or a little more than, one third the distance from the tip of the snout to the vent. Snout a little longer than the diameter of the orbit. Eye midway between the tip of the snout and the ear opening. Pupil vertical. Forehead concave. Snout covered with large granules which may be more or less strongly keeled. Hinder part of head covered with small granules, among which, numerous enlarged rounded or pyramidal ones are interspersed. Rostral about twice as broad as high, with a median cleft above. Nostril small, pierced between the first labial and three or four nasals. Seven or eight upper and six lower labials. Mental large, broadly pentagonal, behind which the two large chinshields form a suture. Dorsal surface of body covered with small keeled granular scales, and large, subtriangular, strongly keeled tubercles which may be arranged in twelve to fourteen more or less regular longitudinal rows. Abdominal scales large, cycloid, imbricate. Scales under the throat very small. Limbs covered with scales similar to those on the body. Four to eight preanal pores. Tail cylindrical and tapering, verticillate, bearing large keeled scales and tubercles above, and a medium series of transversely enlarged plates below.

Colour.—Greyish to brownish above, with lighter and darker markings forming more or less regular or oblique cross bands. Top of head mottled with reticulate lines or spots. A broad dark streak through each eye may or may not join behind the head. Lower surfaces creamy white, each scale microscopically spotted with black.

PHYLLODACTYLUS MARMORATUS *Gray*.

Phyllodactylus marmoratus Boulenger, Brit. Mus. Cat. Lizards, i, 1885, p. 88, pl. vii, fig. 6.

Phyllodactylus guentheri Boulenger, loc. cit., p. 90, pl. vii, fig. 3.

Thirteen specimens were collected from the following localities:—One from Mount Lyndhurst, 30 miles east of Farina, South Australia, and four eggs from crevices under rocks in the same locality; six from Fort Lincoln, Eyre's Peninsula, South Australia; two from Proper Bay, Tulka, 8 miles from Port Lincoln; two from Michaelmas Island, King George Sound, Western Australia, and one each from Grunton Island and Rabbit Island, Recherche Archipelago, Western Australia.

The series ranges from 58 to 105 mm. in length, and the mottled colour of the back varies considerably from irregular formless markings to irregular cross bands resembling shadows thrown by sand ripples on a beach. The markings on the tail may be either longitudinal or transverse. In some of the specimens the tail is not very much swollen, while in others it is quite as broad as the body.

As Zietz² placed *Phyllodactylus guentheri* Boulenger in the synonymy of the above, I examined a series of specimens in the Australian Museum collection and finding the variation so great agree that it is impossible to separate the two forms.

DIPLODACTYLUS SPINIGERUS *Gray*.

Diplodactylus spinigerus Boulenger, Brit. Mus. Cat. Lizards, i, 1885, p. 99.

One specimen from Esperance, Western Australia. Total length, 110 mm.; snout to vent, 65 mm.; head, 17 mm.; width of head, 13 mm.; fore limb, 24 mm.; hind limb, 30 mm.

This specimen does not show any variation from the typical form.

PEROPUS VARIEGATUS *Dumeril and Bibron*.

Peropus variegatus Boulenger, Brit. Mus. Cat. Lizards, i, 1885, p. 151.

Fourteen specimens were collected from the following localities:— Nine from Mount Lyndhurst, 30 miles east of Farina, South Australia; most of these were captured under the dried loose bark on old Casuarina stumps; three eggs containing fairly well developed embryos were collected from the same locality. Four specimens were taken at Immarna, South Australia, and one from Proper Bay, Tulka, 8 miles from Port Lincoln, South Australia.

The series ranges in length from 46 to 95 mm. and the colour markings are very variable. The lines and mottlings on the dorsal surface may be either very strong and definite, or so weak as to be almost indistinguishable from the general ground colour of the back.

DELMA FRASERI *Gray*.

Delma fraseri Boulenger, Brit. Mus. Cat. Lizards, i, 1885, p. 243.

One specimen from Immarna, South Australia. Total length 247 mm.; tail, 174 mm., which is equal to about two and one-half times as long as the head and body. The nostril is pierced between the first upper labial, two nasals and a loreal. Distance from snout to eye 3 mm. and from snout to anterior border of ear opening 9 mm.

Rostral triangular; seven upper and six lower labials; scales in sixteen rows around the middle of the body; ventral scales in 49 pairs.

The tail is much shorter than is usual for this species, being intermediate in length between *D. fraseri* and *D. impar*. The genus *Delma* needs complete revision, but a larger series of specimens than that available would be necessary before any definite conclusions regarding the status of the various species could be reached.

² Zietz—Rec. S. Austr. Mus., iii, 1920, p. 185.

AMPHIBOLURUS RETICULATUS *Gray.*

Amphibolurus reticulatus Boulenger, Brit. Mus. Cat. Lizards, i, 1885, p. 386, pl. xxi, fig. 1.

Two specimens from Mondrain Island, Recherche Archipelago, Western Australia. Total length 193 and 215 mm., head and body 80 mm.

These specimens differ slightly from mainland specimens both in specific characters and colour pattern as given by Boulenger, but the markings agree with those of some of the specimens figured by Werner³.

The tympanum is a little more than half the diameter of the eye. Some of the larger scales of the back tend to become spine-like; the adpressed hind limb reaches almost to the eye, while the tail is very depressed at the base, and is a little more than once and one half times the length of the head and body.

AMPHIBOLURUS ADELAIIDENSIS *Gray.*

Amphibolurus adelaidensis Boulenger, Brit. Mus. Cat. Lizards, i, 1885, p. 387.



Fig. 5. *Amphibolurus adelaidensis*. Under surface of male.

One (male) from Mississippi Bay, 28 miles east of Esperance, Western Australia, and one (female) from Pink Lake, $4\frac{1}{2}$ miles from Esperance.

The structural characters of both agree perfectly with the typical form, likewise the colour markings of the female, but the entire under surface of the male is covered with very conspicuous black markings.

³ Werner—Fauna Südwest Australiens, ii, 1909, p. 271, pl. xiv, figs. 1-7.

AMPHIBOLURUS BARBATUS *Cuvier*.

Amphibolurus barbatus Boulenger, Brit. Mus. Cat. Lizards, i, 1885, p. 391.

Six specimens from Immarna, South Australia.

The series consists of males and females, some of the latter bearing well developed eggs. All agree with the typical description with the exception that the head scales may be very strongly keeled, or the keels may be so obtuse as to be invisible to the naked eye.

One specimen from Proper Bay, Tulka, Eyre's Peninsula, South Australia. Total length, 172 mm.; head and body, 60 mm.

One from Port Lincoln, South Australia. Total length, 117 mm.; head and body, 37 mm.

Both these specimens agree with the typical form in every respect.

AMPHIBOLURUS MACULATUS *Gray*.

Amphibolurus maculatus Boulenger, Brit. Mus. Cat. Lizards, i, 1885, p. 381.

A fine series of ten specimens from Immarna, South Australia, shows that the colour markings are very variable, and those before me might be considered as modifications of markings described from the specimens collected by the Horn Expedition.

In the smaller specimens the light bands stretching from the sides of the nape and extending along the sides of the body and tail are conspicuous, but in two of the larger ones they are broken and inconspicuous, while in another, in which they do not extend beyond the neck, the dorsal surface is spotted with light and dark irregular markings.

In two specimens the fore parts of the legs and feet are black, and in one of these the black area of the under surface (described and figured by Lucas and Frost⁴) forms a long point which stretches down the abdomen and joins the apex of the angle formed by the preanal pores.

The series ranges in length from 105 to 180 mm., while the measurements of the head and body range from 46 to 57 mm.

The angle formed by the preanal pores may be sharp or obtuse.

⁴ Lucas and Frost—*loc. cit.*, p. 125, pl. ix, figs. 4-5.

AMPHIBOLURUS CRISTATUS *Gray*.

Amphibolurus cristatus Boulenger, Brit. Mus. Cat. Lizards, i, 1885, p. 383, pl. xxix, fig. 1.

A series of five specimens ranging in length from 150 to 355 mm. Four are from Immarna and one from Ooldea, South Australia.

The ventral scales are feebly though quite definitely keeled. Irregular, reticulated dark markings cover the dorsal and lateral surface of the head and may or may not extend as far as the sacral region. The most conspicuous marks, except those on the head, are two series of broad dark blotches, one on each side, from the nape almost to the thigh. There are well marked reticulations on the upper surface of the arms and legs while many of the larger scales of the lateral and dorsal surface are whitish.

AMPHIBOLURUS ORNATUS *Gray*.

Amphibolurus ornatus Boulenger, Brit. Mus. Cat. Lizards, i, 1885, p. 385.

Eight specimens from Proper Bay, Tulka, 8 miles from Port Lincoln, South Australia.

General colour (in spirits).—Head brown, body dark grey to olive-brown above, with lighter and darker marblings, reticulations and spots.

In four adult specimens, measuring from 190 to 200 mm. in length, the sides of the neck bear white ocellations, while the tufts of small spines behind the nape are also white. The tail may bear more or less distinct dark cross bars or light and dark ocellations on the dorsal surface. The limbs are marked similarly to the body. The under surface is yellowish white, and there are dark reticulations beneath the chin and throat, while large dark areas cover the chest and under surface of the limbs.

In the fifth adult, measuring 170 mm. in length, there are no white ocellations and no white tufts on the head parts. The abdominal surface is yellowish white, but reticulations are present under the throat.

There are three young specimens measuring from 80 to 112 mm. in length; the smallest bears very small, but conspicuous, white dots on the dorsal surface, while the intermediate one bears irregular dark ones. The largest of these specimens is marked much the same as the adults but the ocellations on the back are smaller, though much more conspicuous.

The hind limb of every specimen in the series, when stretched forward, reaches to the eye, but in all other structural characters the series agrees with the typical form.

TYMPANOCRYPTUS LINEATUS *Peters.*

Tympanocryptus lineatus Boulenger, Brit. Mus. Cat. Lizards, i, 1885, p. 392.

Two specimens from Ooldea, and one from Fisher, South Australia.

The ground colour of the skin in these desert forms has a distinct tinge of brick red, but the dorsal markings are typical.

In one specimen the dark wavy lines under the throat extend on to the chest. The specimens measure 142 and 164 mm. respectively.

DIPOROPHORA AUSTRALIS *Steindachner.*

Diporophora australis Boulenger, Brit. Mus. Cat. Lizards, i, 1885, p. 394.

Three specimens from Immarna, South Australia.

This species has always been regarded as a northern one, and therefore the specimens before me may be regarded as new records for this part of Australia.

The only other species of the genus known from this area are, *D. bilineata* and *D. winneckeri*⁵; but *D. australis* differs from the former in having a strong gular fold, and from the latter in having a shorter and stouter body, and by the presence of preanal pores.

The measurements of the Immarna specimens are as follows:—Total length 123 mm., 165, 170; head and body 38 mm., 49, 49; tail 83 mm., 117, 121.

In all the specimens a strong gular fold is present. The hind limb when stretched forward reaches the orbit. The tail is a little more than twice as long as the head and body.

Colour (in spirits).—Brownish above with a few dark mottlings, and two very distinct light coloured lines extending from the nape on to the tail. The under surface is whitish with a few indistinct spots under the lower labials, in front of the gular fold, and round about the ventral areas.

MOLOCH HORRIDUS *Gray.*

Moloch horridus Boulenger, Brit. Mus. Cat. Lizards, i, 1885, p. 411.

One specimen from Immarna, South Australia. Total length 142 mm. Head and body 77 mm.

This specimen agrees perfectly with previously published descriptions, but one of three presented by Mr. A. S. Le Souef from the same locality is remarkable for the fact that the globular knob on the neck is covered with very small granular, spiny scales, the large lateral spines being absent.

⁵ Lucas and Frost—*loc. cit.*, p. 132, pl. xi, fig. 5.

VARANUS VARIUS *Shaw.*

Varanus varius Boulenger, Brit. Mus. Cat. Lizards, ii, 1885, p. 319.

Two specimens were collected; one from Cranbrook, south Western Australia, and one from Birchmore Lagoon, 15 miles from Kingscote, Kangaroo Island, South Australia.

The latter is somewhat darker, and the light cross bands less distinctly marked than is usual with the mainland forms.

VARANUS GOULDII *Gray.*

Varanus gouldii Boulenger, Brit. Mus. Cat. Lizards, ii, 1885, p. 320.

Four specimens were collected; one each from Mount Lyndhurst, 20 miles east of Farina, and Fisher; and two from Immarna, South Australia.

The Fisher specimen is typically marked, but in the other three the reticulations and ocelli on the dorsal and lateral surfaces vary in density; it is only here and there that they are distinguishable from the dark transverse bands so that together they form a rather irregular pattern. The markings on the top, sides of the head, and on the tail, and the spots on the abdominal surface, do not vary from those of the typical form.

VARANUS EREMIUS *Lucas and Frost.*

Varanus eremius Lucas and Frost, Rep. Horn Sci. Exped., ii, (Zoology), 1896, p. 135, pl. vii, fig. 1.

One specimen from Immarna, South Australia. Total length 315 mm.; tip of snout to gular fold 38 mm.; gular fold to vent 73 mm.; tail 195 mm.

Found running on debris under spinifex ("poreupine") grass. The specimen agrees in all respects with the original description.

EGERNIA KINGII *Gray.*

Egernia kingii Boulenger, Brit. Mus. Cat. Lizards, iii, 1887, p. 138.

One from Mississippi Bay, 28 miles east of Esperance, Western Australia; two from Charley Island and one from Woody Island, Recherche Archipelago; one from Lucky Bay, 26 miles east of Esperance, Western Australia.

There is no variation between the mainland and the Recherche specimens, and the total length ranges from 200 to 240 mm.

EGERNIA WHITEI Lacépède.

Egernia whitei Boulenger, Brit. Mus. Cat. Lizards, ii, 1887, p. 135.

Two specimens from Deep Creek, 20 miles from Kingscote, Kangaroo Island, South Australia. One specimen is typically marked with bands and spots, while the other is almost uniformly light brown with only a faint suggestion of darker longitudinal lines.

Two typical specimens from Birchmore Lagoon, 15 miles from Kingscote, Kangaroo Island. Found under loose bark of "yacca" or grass tree.

TILIQUA OCCIPITALIS Peters.

Tiliqua occipitalis Boulenger, Brit. Mus. Cat. Lizards, iii, 1887, p. 147.

Two specimens from Ooldea, South Australia, one of which was dug out of a burrow. The respective measurements are:—total length, 380 mm., 400.; head, 60 mm., 62; tail, 129 mm., 125; fore limb, 55 mm., 53; axilla to groin, each 150 mm.

It will be noted that the fore limb is shorter than the head, as mentioned by Lucas and Frost⁶, and not longer as mentioned in the British Museum catalogue. The prefrontals form a suture on the median line thus separating the frontal from the frontonasal. One specimen has four ear lobes and the other three. There are four dark bands across the body and three on the tail. Tip of tail black. In all other respects they agree with the typical form. Two specimens from Esperance, Western Australia, agree with those from Ooldea. The respective measurements are:—Total length, 390 mm., 370; head, 63 mm., 62; tail, 120 mm., 110 (broken); fore limb, 55 mm., 53; axilla to groin 145 mm., 150.

TRACHYSAURUS RUGOSUS Gray.

Trachysaurus rugosus Boulenger, Brit. Mus. Cat. Lizards, iii, 1887, p. 143.

The collection includes four specimens from Fisher, South Australia, two from Cranbrook, Western Australia, and two from Albany, Western Australia.

The structural characters and markings are typical while the measurements range from 215 to 360 mm. in total length. In the specimens from Fisher the scales of the head are more nodular, and those of the back rougher than in those from Western Australia.

The colour of the Western Australian specimens and the smallest (215 mm.) specimen from Fisher is brownish olive, while the three large specimens from Fisher are brick red.

⁶ Lucas and Frost—*loc. cit.*, p. 140.

LYGOSOMA (HINULIA) QUOYI *Dumeril and Bibron.*

Lygosoma (Hinulia) quoyi Boulenger, Brit. Mus. Cat. Lizards, iii, 1887, p. 230.

One typical specimen from Sturt Creek, Blackwood, Adelaide, South Australia. Total length, 260 mm.; tail 160 mm. The specimen was found hiding, submerged to its head in the creek.

LYGOSOMA (HINULIA) LESUEURII *Dumeril and Bibron.*

Lygosoma (Hinulia) lesueurii Boulenger, Brit. Mus. Cat. Lizards, iii, 1887, p. 225.

Two typical specimens; one from Mount Lyndhurst, 30 miles east of Farina, South Australia, total length, 140 mm., tail 85 mm.; and one from Ooldea, South Australia, total length 170 mm., tail 100 mm.

LYGOSOMA (HINULIA) LABILLARDIERI *Gray.*

Lygosoma (Hinulia) labillardieri Boulenger, Brit. Mus. Cat. Lizards, iii, 1887, p. 229.

One from Charley Island, Recherche Archipelago, Western Australia. This specimen has the tip of the tail missing but the structural characters are typical.

A specimen which appears to be this species was taken from the stomach of a snake, *Denisonia coronoides*, collected on Mondrain Island, Recherche Archipelago, Western Australia.

LYGOSOMA (HINULIA) MONOTREPIS *Boulenger.*

Lygosoma (Hinulia) monotrepis Boulenger, Brit. Mus. Cat. Lizards, iii, 1887, p. 237, pl. xiv, fig. 2.

One specimen was collected at Mount Lyndhurst, 30 miles east of Farina, South Australia. Total length 178 mm.; tail 98 mm. 30 scales around the body. One specimen from Ooldea, South Australia. Total length 152 mm.; tail 85 mm.; 30 scales around body.

LYGOSOMA (LIOLEPISMA) TRILINEATUM *Gray.*

Lygosoma (Hinulia) trilineatum Boulenger, Brit. Mus. Cat. Lizards, iii, 1887, p. 279, pl. xxi, fig. 2.

One from Deep Creek, Kangaroo Island, South Australia. This is a very dark variety and the vertebral streak is almost black, while the dark lateral streak is edged with yellowish white. Total length 150 mm.; tail 88 mm.; snout to vent 62 mm.

A specimen from Tudor, Western Australia, measures 48 mm. from snout to vent; the tail is missing.

Colour.—Uniform brown above with an indistinct darker lateral streak edged with lighter.

LYGOSOMA (LIOLEPISMA) GUICHENOTI *Dumeril and Bibron.*

Lygosoma (Liolepisma) guichenoti Boulenger, Brit. Mus. Cat. Lizards, iii, 1887, p. 281.

Five specimens were collected from the following localities within Kangaroo Island, South Australia. Three from Birchmore Lagoon, 15 miles from Kingscote; one from Deep Creek; and one from Timber Creek.

The series ranges from 68 to 115 mm. in length.

LYGOSOMA (HEMIERGIS) PERONII *Fitzinger.*

Lygosoma (Hemiergus) peronii Boulenger, Brit. Mus. Cat. Lizards, iii, 1887, p. 326.

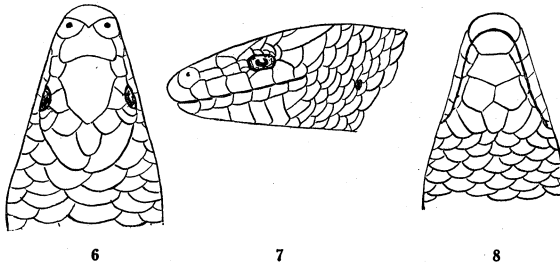
Two from Proper Bay, Tulka, 8 miles from Port Lincoln, South Australia. Total length, 125 and 130 mm.; tail 70 and 78 mm. Found under loose stones. One from Esperance, Western Australia. Total length, 150 mm.; tail, 97 mm.; 20 scales around the body. Pale golden brown above, the dark dorsal and dorso-lateral lines faintly marked. Other marks typical.

One from Woody Island, Recherche Archipelago, Western Australia. Total length, 84 mm.; tail, 30 mm.; (reproduced); snout to vent, 54 mm. This insular specimen shows the same structural characters as the mainland form, but the colour markings are heavier, especially the dorsal and dorso-lateral lines.

One from Birchmore Lagoon, Kangaroo Island, South Australia, has a total length of 113 mm., tail 60 mm.; and there are twenty scales around the body. The dorso-lateral colour line is absent, the specimen being golden brown above and lighter below with typical markings on the under surface of the tail, but the markings on the abdomen are very faint. This specimen is shorter and more thickly set than is usual, but its specific characters do not vary in the least from the typical form.

LYGOSOMA (RHODONA) PLANIVENTRALIS *Lucas and Frost.*

Lygosoma (Rhodona) planiventralis Lucas and Frost, Proc. Roy. Soc., Victoria (n.s.), xv, 1902, p. 78.



Figs. 6-8. *Lygosoma (Rhodona) planiventralis*, Lucas and Frost.

Fig. 6. Dorsal view. Fig. 7. Lateral view. Fig. 8. Ventral view.

One specimen from Ooldea, South Australia. Total length, 135 mm.; body, 74 mm.; tail, 61 mm.; fore limb, 14 mm.; length of head, 9 mm.; width of head, 5.5 mm. 20 longitudinal rows of scales around the body. The frontonasal forms only a short suture with the rostral.

Colour.—Greyish brown above with two dark dorsal lines formed by regular series of dots. One broad well defined dorso-lateral line on each side. Tail thickly spotted above with more or less continuous lines of brown dots. Dorsal surface of limbs dark spotted.

LYGOSOMA (RHODONA) BIPES *Fischer.*

Lygosoma (Rhodona) bipes Boulenger, Brit. Mus. Cat. Lizards, iii, 1887, p. 337.

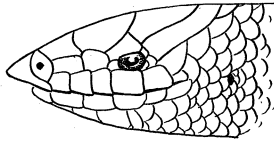


Fig. 9. *Lygosoma (Rhodona) bipes* Fischer. Lateral view.

One specimen from Ooldea, South Australia. One very small preocular scale; two post oculars; two supraoculars, the anterior one being large and triangular. The nasals do not form a suture behind the rostral. There are two loreals between the nasal and the preocular. Five upper labials, the fourth entering the orbit. There are twenty rows of smooth scales round the body.

Colour (in spirits).—Creamy above and below. Head irregularly spotted with brown. A broad brown band starting from the rostral extends along each side of the body on to the tail. Two longitudinal lines of brown spots extend along the dorsal line on to the tail, towards the end of which they, as well as the lateral lines, break up into a suffused mass.

In the Australian Museum reference collection there are two more specimens of this species which should be mentioned here for purposes of comparison. One, from Commonwealth Hill, Central Australia, was presented by Dr. H. Basedow in 1918. It has twenty scales around the body, and the fourth upper labial under the eye. The nasals are not in contact behind the rostral, there are two supraoculars. Tail missing. Length from tip of snout to vent 37 mm.

The second specimen is from Western Australia (no definite locality). This specimen agrees more fully with Fischer's description, but there are two loreals behind the nasal, and a very minute preocular. There are nineteen rows of scales around the body. It is worthy of note that the Central and South Australian specimens before me form

connecting links between Werner's⁷ South Western Australian forms, one of which he calls *var. concolor*, and Fischer's⁸ holotype which is from Western Australia. Werner also records a specimen from Barrow Range, Central Australia.

LYGOSOMA (RHODONA) PUNCTATOVITTATUM *Günther*.

Lygosoma (Rhodona) punctatovittatum Boulenger, Brit. Mus. Cat. Lizards, iii, 1887, p. 335.

One from Mount Lyndhurst, 30 miles east of Farina, South Australia. Total length, 132 mm.; snout to vent, 70 mm.; tail, 62 mm.

This specimen differs from the typical form by having the fore limb distinctly didactyl. All other structural characters and colour markings agree with previously published descriptions. Examination of a series of specimens in the Australian Museum collection showed that the degree of development in the fore limb was open to variation, and, while no specimens possessed a true didactyl foot, the second toe could be distinguished in some with the aid of a strong lens.

ABLEPHAROUS BOUTONII *Desjard*.

Ablepharous boutonii var. *peronii* Werner, Boulenger, Brit. Mus. Cat. Lizards, iii, 1887, p. 347.

One specimen from Port Lincoln, Eyre's Peninsula, South Australia. Total length, 78 mm.; snout to vent, 34 mm. 26 rows of scales around the body. Median pair of dorsal scales dilated transversely. The hind limb when stretched forward does not reach the axilla. There is a light lateral stripe which is well defined and edged with dark brown. The general colour is olive on the dorsal surface and steel blue on the ventral surface.

VAR. METALLICUS *Boulenger*.

Ablepharous boutonii var. *metallicus* Boulenger, Brit. Mus. Cat. Lizards, iii, 1887, p. 347.

Eight specimens from Mount Lyndhurst, South Australia. The series ranges in length from 37 to 100 mm. and there may be 24 or 26 rows of scales around the body. The median pair of dorsal scales may be more or less strongly dilated transversely. The hind limb does not reach the axilla.

Colour.—Light olive brown or greenish above, strongly metallic, with dark brown spots which may be scattered, or in irregular longitudinal lines. There is a faintly marked irregular band extending from each eye on to the tail.

⁷ Werner—*loc. cit.*, 1910, pp. 484-485.

⁸ Fischer—Archiv. für Naturg., xlviii, 1, 1882, p. 292, pl. xvi, figs. 10-15.

ABLEPHAROUS LINEO-OCCELLATUS *Dumeril and Bibron.*

Ablepharous lineo-ocellatus Boulenger, Brit. Mus. Cat. Lizards, iii, 1887, p. 348.

One typical specimen from Bornham, Western Australia.

VAR. ADELAISENSIS *Peters.*

Ablepharous lineo-ocellatus var. *adelaidensis* Boulenger, Brit. Mus. Cat. Lizards, iii, 1887, p. 348.

One from Cranbrook, Western Australia. Supranasals present. 20 rows of scales around the body. The dark lateral lines are present, but there are no ocelli on the back.

AMPHIBIA.

HYLA AUREA *Lesson.*

Hyla aurea Boulenger, Brit. Mus. Cat. Batr., 1882, p. 410.

One from Tudor, 27 miles from Albany, Western Australia. This specimen bears large longitudinal blotches on the upper surface, while the whole of the under surface is uniform yellowish.

Seven specimens from Albany bear the light dorsal and dorso-lateral lines typical of the species.

VAR. CYCLORHYNCHUS *Boulenger.*

Hyla aurea var. *cyclorhynchus* Boulenger, Brit. Mus. Cat. Batr., 1882, p. 410.

Colour.—Light above with large, dark, irregular marblings covering the body and legs. The under surface of the body is covered with black reticulations, while the arms, legs, the axilla, and the groin are strongly marbled with black, the enclosed areas forming round white spots.

One from Mondrain Island, Recherche Archipelago, and one from Lucky Bay, near Esperance, Western Australia. In each of these the dorsal surface is marked as above, but the belly is yellowish, the chest and chin only being faintly reticulated, while the hinder side of the thigh is black with small white spots.

HYLA ADELAISENSIS *Gray.*

Hyla adelaidensis Boulenger, Brit. Mus. Cat. Batr., 1887, p. 408.

Two typical specimens from Mississippi Bay, 28 miles E. of Esperance.

HYLA EWINGII *Dumeril and Bibron.*

Hyla ewingii var. *calliscelis* Boulenger, Brit. Mus. Cat. Batr., 1887, p. 406.

Two from Birchmore Lagoon, 15 miles from Kingscote, Kangaroo Island, four from Timber Creek and six from Deep Creek, each 20 miles from Kingscote, Kangaroo Island, South Australia.

HELEIOPORUS ALBOPUNCTATUS *Gray.*

Heleioporus albopunctatus Boulenger, Brit. Mus. Cat. Batr., 1887, p. 271.

One specimen 19 mm. in length from Cranbrook, Western Australia.

CRINIA GEORGIANA *Bibron.*

Crinia georgiana var. *affinis* Boulenger, Brit. Mus. Cat. Batr., 1882, p. 265.

One typically marked specimen 27 mm. in length, from Mississippi Bay, 28 miles east of Esperance, Western Australia.

VAR STOLATA *Cope.*

Crinia georgiana var. *stolata* Cope, Boulenger, Brit. Mus. Cat. Batr., 1882, p. 264.

Four specimens from below the forts at Albany, one from Lucky Bay, one from Mississippi Bay, one from Tudor, Western Australia.

This series comprises some beautifully marked specimens, the smallest being 11 mm. and the largest 29 mm. in length. The younger specimens are rather darker on the abdominal surface than are the adults, which may be either immaculate or with a few small dark spots.

CRINIA SIGNIFERA *Girard.*

Crinia signifera Boulenger, Brit. Mus. Cat. Batr., 1882, p. 265.

Fourteen specimens from Birchmore Lagoon, Kangaroo Island, six from Timber Creek, and two from Deep Creek, Kangaroo Island, seven from Port Lincoln, Eyre's Peninsula, one from Mount Lyndhurst, 20 miles east of Farina, South Australia.

Some of the specimens from Kangaroo Island are beautifully marbled and lined; the markings being much stronger on these than on those from the mainland.

Eighteen specimens are from the following localities in Western Australia:—Three from Albany; two very small but beautifully marbled specimens (one typically marked) from Tudor; twelve young, the largest of which is about 7 mm. from Bonham.

PSEUDOPHRYNE BIBRONII *Gray.*

Pseudophryne bibronii Boulenger, Brit. Mus. Cat. Batr., 1882, p. 277.

Two specimens from Deep Creek, Kingscote, Kangaroo Island, South Australia.

LIMNODYNASTES DORSALIS *Gray.*

Limnodynastes dorsalis Boulenger, Brit. Mus. Cat. Batr., 1882, p. 261.

One small specimen 15 mm. in length from Birchmore Lagoon, Kangaroo Island.

VAR. TYPICA *Fry.*

Limnodynastes dorsalis var. *typica* Fry, Rec. Austr. Mus., x, 1913, p. 24, pl. 11, fig. 2.

One from Cranbrook, Western Australia.

VAR. DUMERILI *Fry.*

Limnodynastes dorsalis var. *dumerili* Fry, Rec. Austr. Mus., x, 1913, p. 26, figs. 1 and 1a, pl. iii, figs. 2 and 2a.

One from Birchmore Lagoon, 15 miles from Kingscote, Kangaroo Island.

LIMNODYNASTES TASMANIENSIS *Günther.*

Limnodynastes tasmaniensis Boulenger, Brit. Mus. Cat. Batr., 1882, p. 260.

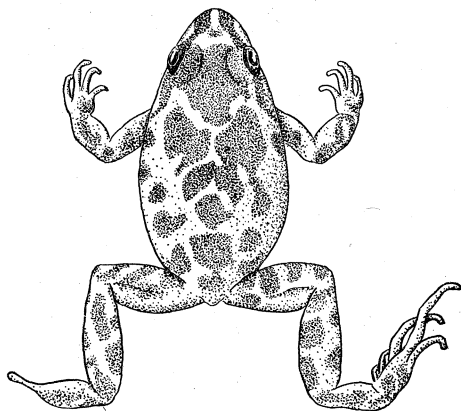


Fig. 10. *Limnodynastes tasmaniensis* Günther. Colour pattern of Kangaroo Island specimen.

One specimen from Deep Creek, 20 miles from Kingscote, Kangaroo Island. This specimen has a deformed left leg, there being only one toe present. The colouration differs from the typical in that there is no dorsal stripe.

The tarso-metatarsal articulation reaches to the anterior border of the eye.