

Key to the Geckos of South Australia



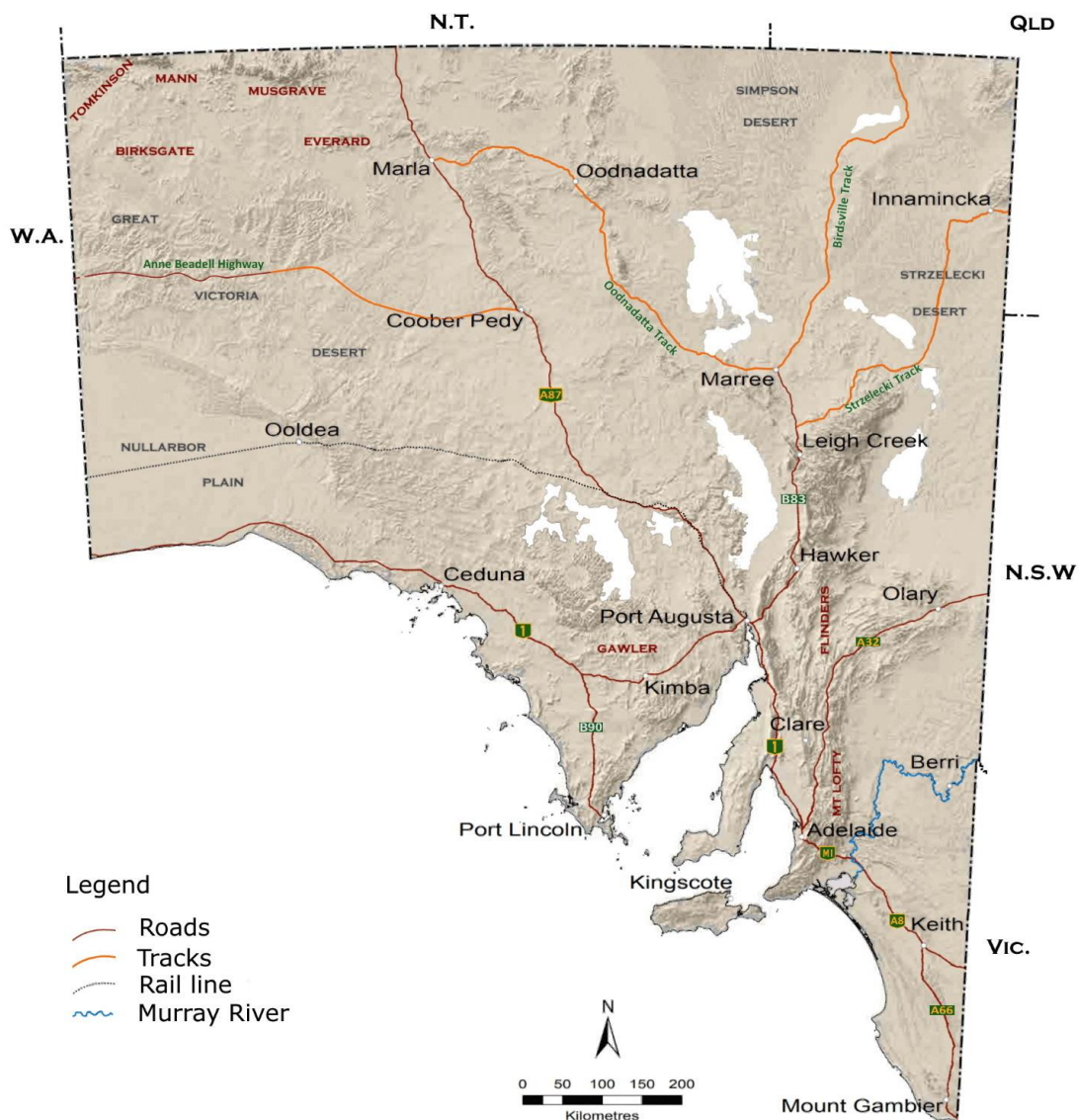
Ranges Stone Gecko, *Diplodactylus furcosus*

Mark Hutchinson & Ian Williams

Version: 2023
<https://www.samuseum.sa.gov.au/reptile-keys>

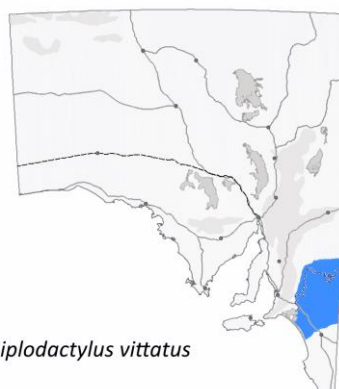
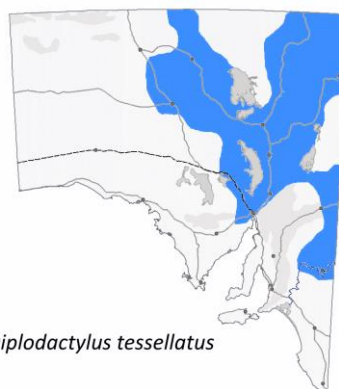
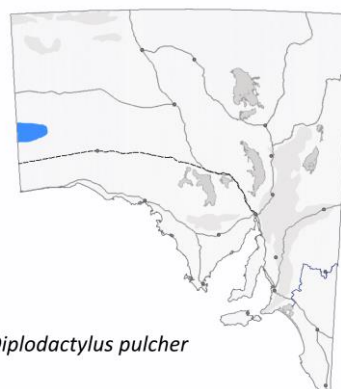
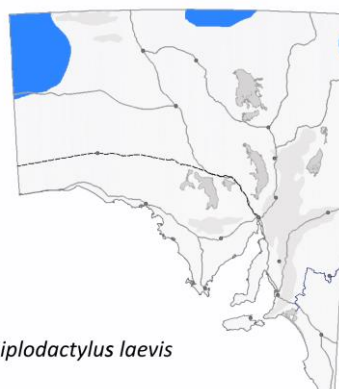
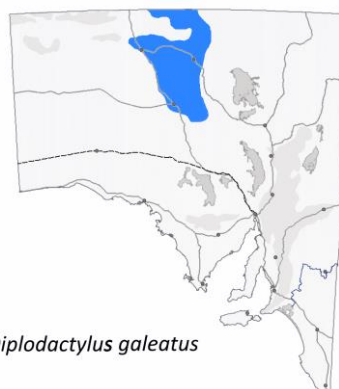
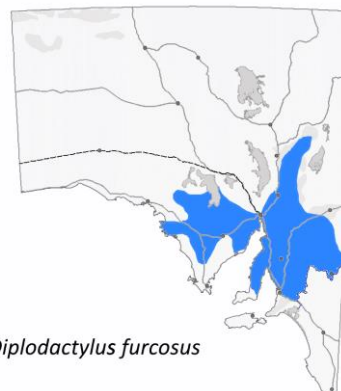
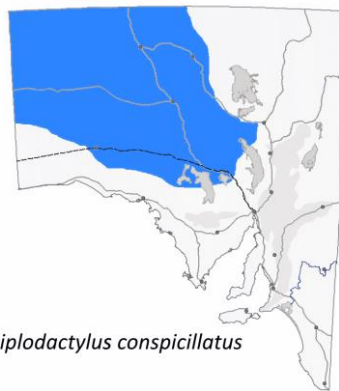
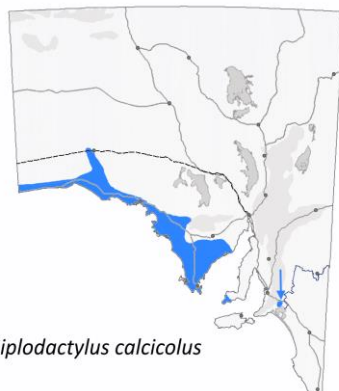
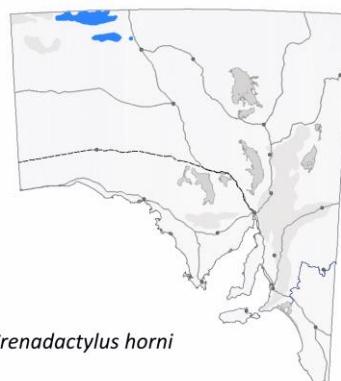
THE GECKOS OF SOUTH AUSTRALIA

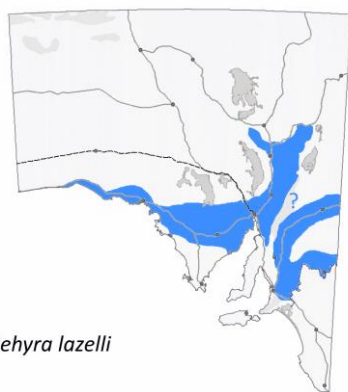
GEOGRAPHIC DISTRIBUTION



Map modified from the Vertebrate Census of South Australia showing place names and geographical features as well as some main roads and major desert tracks, to assist with interpreting the following distribution maps.

Distribution maps show known and likely occurrence, given suitable habitat. In some cases South Australian populations belong to recognised subspecies, indicated in blue text.





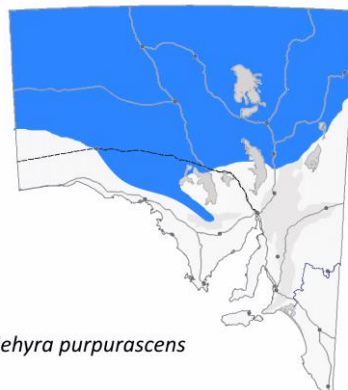
Gehyra lazelli



Gehyra montium



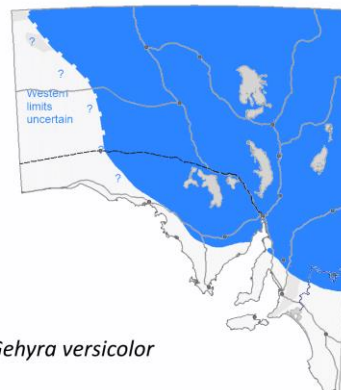
Gehyra pulingka



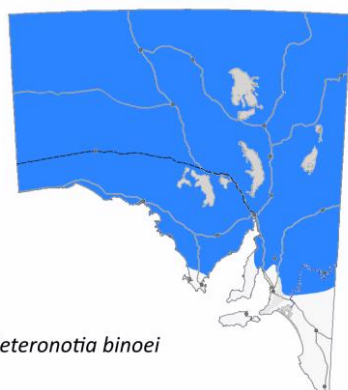
Gehyra purpurascens



Gehyra variegata



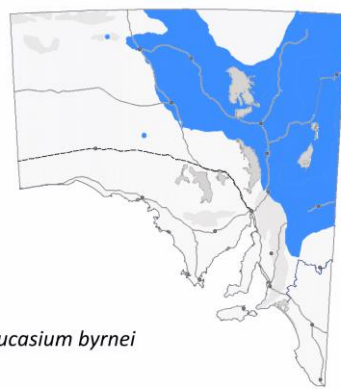
Gehyra versicolor



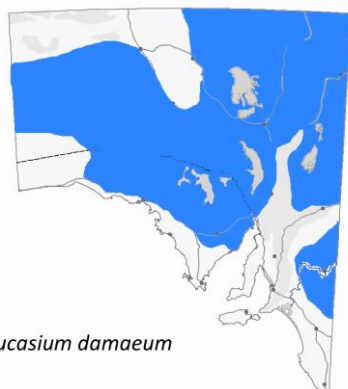
Heteronotia binoei



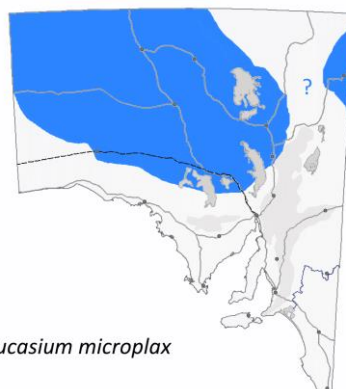
Lucasium bungabinna



Lucasium byrnei



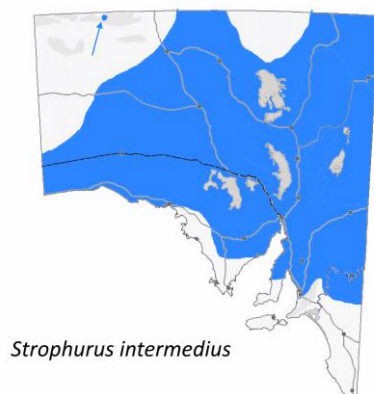
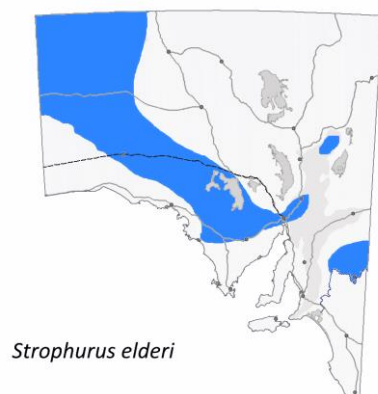
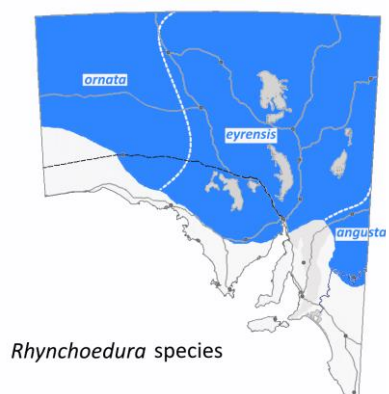
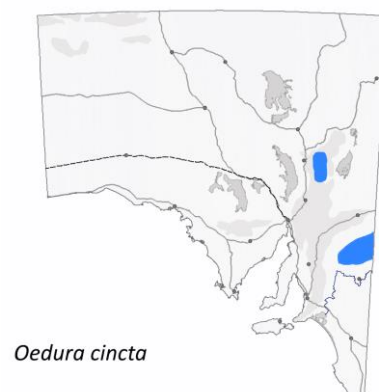
Lucasium damaeum

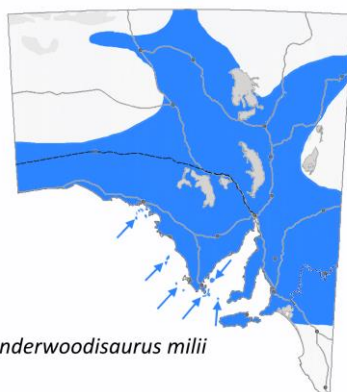


Lucasium microplax



Lucasium steindachneri



*Strophurus williamsi**Underwoodisaurus millii*

KEY TO THE GECKOS OF SOUTH AUSTRALIA

FAMILIES CARPHODACTYLIDAE, DIPLODACTYLIDAE AND GEKKONIDAE

Geckos in South Australia belong to three families, Gekkonidae (Christinus, Gehyra and Heteronotia), Diplodactylidae (Crenadactylus, Diplodactylus, Lucasium, Oedura, Rhynchoedura and Strophurus) and Carphodactylidae (Nephurus and Underwoodisaurus). However, all three differ mainly in internal features and it remains convenient to treat them as a single group when trying to identify them

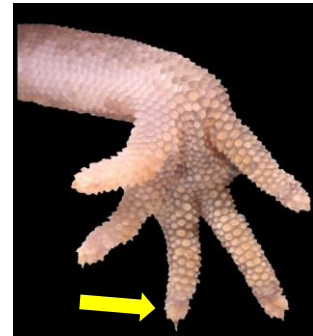
Sex of geckos is readily assessed. Males have a pair of bulges at the base of the tail (post-anal sacs); females lack such sacs. Males of many species also have preanal pores (like those of dragon lizards), and females belonging to the Gekkonidae have a pair of swollen calcium-filled sacs on the neck.

Claws. As well as toe pads, all but a few geckos have claws on the toe tips. The exceptions are Crenadactylus (no claws at all) and Gehyra (no claw on the first - innermost - digit of all four feet). However, the claws can be difficult to see in species with adhesive pads on their toe tips. Look carefully with a hand lens.

1. a. Toes without adhesive pads 2
- b. Toes with small to very large adhesive pads 6

*Underwoodisaurus millii**Rhynchoedura eyrensis**Heteronotia binoei*

1a. No adhesive toe pads

*Gehyra lazelli**Christinus marmoratus**Lucasium microplax*

1b. Adhesive toe pads present (sometimes small – look closely!)

2. a. Tail comprising a broader more flattened section close to the base and a narrower terminal region, in most species (when original) terminated by a distinct knob (regrown tails flat 'doormats', without pattern or differentiated scales); legs relatively long and thin **3**
- b. Tail not differentiated into a basal section and a terminal section; legs relatively short and stout **4**

*Underwoodisaurus milii**Underwoodisaurus* *Nephurus**Nephurus levis*

2a. Broad base and narrow tip, sometimes with knob; regrown tails flattened, featureless

*Heteronotia binoei**Diplodactylus furcosus**Diplodactylus conspicillatus*

2b. Tail not differentiated; tapering, stout or swollen; regrown tails similar but unpatterned

3. a. Original tail with tapering tip (see fig. 2a) rather than a round knob; toes, when viewed laterally, have a downward kink at the mid-point (see fig 1a) ***Underwoodisaurus (U. milii)***
Common Barking Gecko
- b. Original tail ends in a distinct round knob (see fig. 2a); toes in most species are relatively short and stout (like a human hand), straight and un-kinked (somewhat kinked in *N. amylae*). ***Nephrurus*** (p. 22)

3a. *Underwoodisaurus milii**Underwoodisaurus milii*

3a. Toes long and thin with a downward kink

*Nephrurus levis*

3b. Toes short and straight

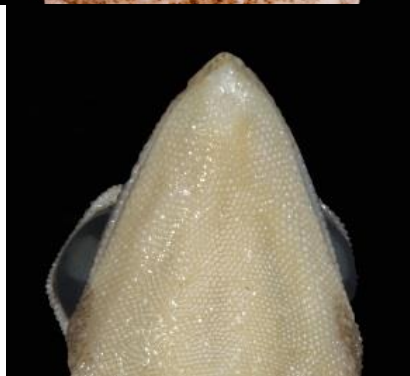
4. a. All scales on the upper surface of the body, tail and limbs are rough and conical; toes, when viewed laterally, have a downward kink at the mid-point ***Heteronotia binoei***
Bynoe's Gecko
- b. All, or most, scales on the upper surface of the body and tail smooth and flat; toes are straight and un-kinked 5



H. binoei

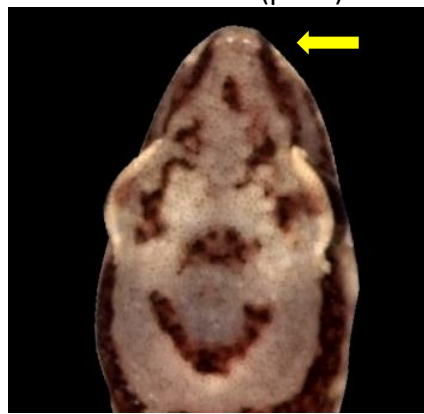
4a. Body covered by rough, pyramidal scales

5. a. Rostral and mental shields (apex of snout and chin) conical, projecting ***Rhynchoedura***
(p. 25)
- b. Rostral and mental shields rounded ***Lucasium*** (part)
(p. 19)



Rhynchoedura eyrensis

5a. Tip of snout and chin sharply pointed



Lucasium damaeum

5b. Tip of snout and chin rounded

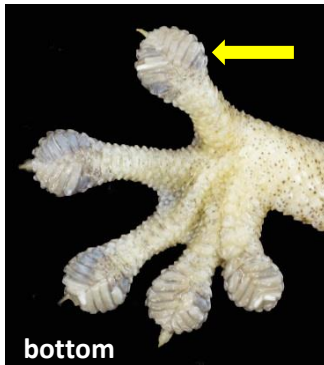
- 6 a. Large (total length to 20 cm) climbing gecko strikingly banded in black, yellow and white. ***Oedura cincta***
Inland Velvet Gecko
- b. Not brightly patterned as above **7**



Oedura cincta

4a. Large black yellow and white climbing gecko

7. a. Toe pad very large, oval set back from the end of the toe; the end of the toe projects from the pad ***Gehyra* (p. 17)**
b. Toe pad made up of a pair of plates situated at the tip of the toe **8**



Gehyra lazelli



- 7a.** Toe pads rounded with toe tip and claw emerging from top of pad



Lucasium bungabinna

- 7b.** Toe pads paired and placed at the tip of the toe

8. a. Dark-striped, greyish geckos; very small (SVL < 40mm); tips of toes without claws, an empty notch separates the adhesive pads on the toe tips; ***Crenadactylus horni***
Central Uplands Clawless Gecko
b. Not patterned with dark and light grey stripes; tips of toes with small claws that retract into a sheath above and between the adhesive pads **9**



Crenadactylus horni

- 8a.** Very small dark-striped grey gecko


Crenadactylus horni

8a. No claws between toe pads


Strophurus intermedius

8b. Small claws retract between toe pads

9. a. Upper surface of body heavily mottled with black and grey; younger animals often with a series of yellow to orange patches along the tail; scales on the upper surface of the toe pads distinctly larger than adjacent scales.

Christinus (p. 12)

- b. Colour and pattern not as above; scales on the upper surface of the toe pads no larger than adjacent scales. . . .

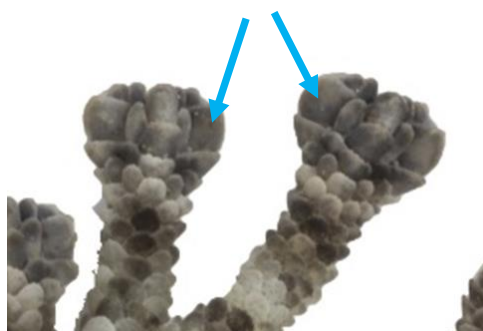
10


Christinus marmoratus

9a. Complex blackish pattern over grey


Christinus marmoratus

9a. Juvenile with orange patches on tail and lower back


Christinus marmoratus

9a. Scales on top of toe pads enlarged

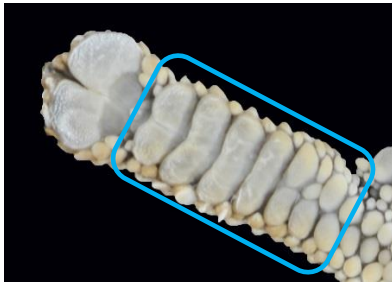

Strophurus assimilis

9b. Scales on top of toe pads same size as adjacent scales

10. a. Colour pattern entirely or predominantly grey; at least five or six wide scales following the toe pads on the underside of the toe

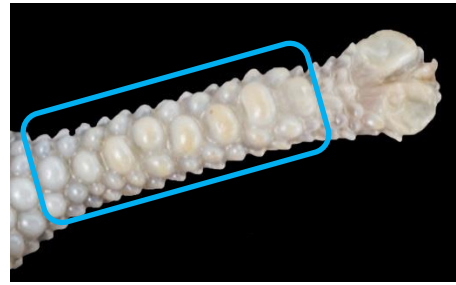
Strophurus (p. 26)

- b. Varied colours and patterns; at best a series of enlarged single or paired granular scales along the underside of the toe 11



Strophurus assimilis

- 10a. Plate-like scales on underside of toes



Diplodactylus furcosus

- 10b. Scales on underside of toes narrow, rounded or pointed

11. a. Predominant colours grey, brown or olive; tail usually somewhat swollen and usually less than 80% of SVL when original ***Diplodactylus*** (p. 13)
- b. Predominant colours orange, sandy yellow or pink; tail relatively slender, 80% or more of SVL. ***Lucasium*** (part) (p. 19)



Diplodactylus furcosus

- 11a. Tail stout, shorter than the body

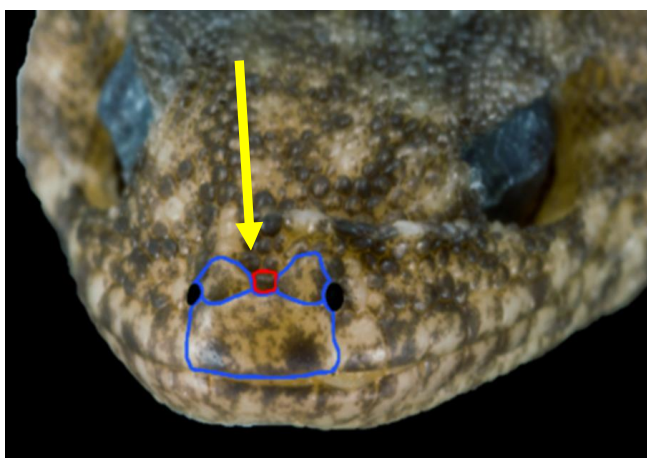


Lucasium bungabinna

- 11b. Tail relatively slender, as long as the body in most species

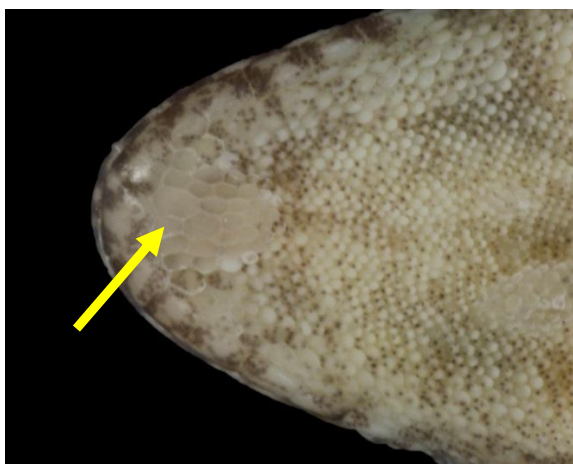
KEY TO THE SOUTH AUSTRALIAN SPECIES OF *CHRISTINUS*

1. a. Nasal scales usually separated by only a single small scale; postmental scales well differentiated from adjacent scales, usually much longer than wide; Nullarbor Plain only ***C. alexanderi***
Nullarbor
Marbled Gecko
- b. Nasal scales usually separated by two or more small scales; postmental scales not strongly differentiated from adjacent throat scales, usually about as long as wide; southern SA (incl. coastal areas of the Nullarbor Plain) ***C. marmoratus***
Common
Marbled Gecko



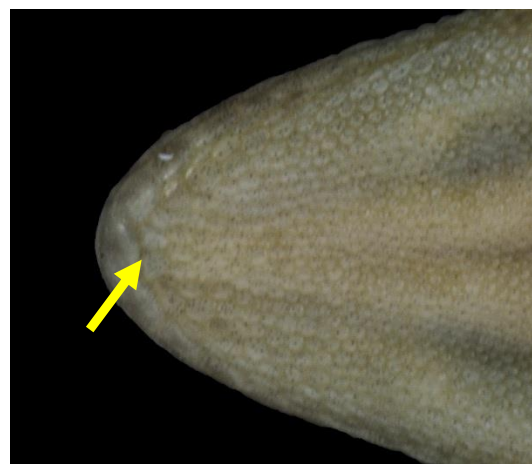
Christinus alexanderi

- 1a. Above the rostral scale (arrow), usually only a single small scale (red) separating larger supranasal scales (blue)



Christinus alexanderi

- 1a. A pair of large scales behind the 'chin'



Christinus marmoratus

- 1b. Variable, often weak or no development, of large scales behind the chin

KEY TO THE SOUTH AUSTRALIAN SPECIES OF *DIPLODACTYLUS*

1. a. Tail very short, flattened with bead-like scales on its dorsal surface 2
- b. Tail circular in cross-section 3



D. conspicillatus



D. furcosus

1a. Tail broad, flattened

1b. Tail cylindrical

2. a. Original tail ends with a small tapering extension; scales on nape and top of head noticeably larger than those on side of the neck; drab colour pattern, brown-grey with darker network ***D. laevis***
Desert Fat-tailed Gecko
- b. Original tail ends with no more than a small bump (see fig 1a); scales on nape and top of head not larger than those on side of the neck; complex colour pattern including whitish spots and blotches on a background of intermixed blackish and brown smudges and lines. ***D. conspicillatus***
Variable Fat-tailed Gecko



D. laevis

2a. Simple colour pattern of dark over light brown, tail* with pointed extension at the tip



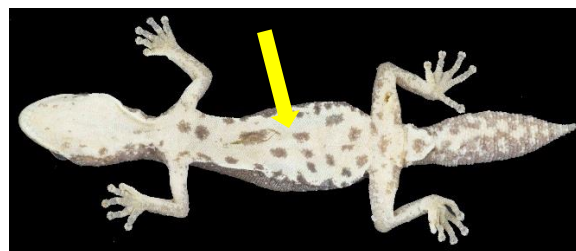
D. conspicillatus

2b. "Busy" colour pattern with numerous pale and dark blotches, tail* tip lacks pointed extension

*Only original tails differ; regenerated tails similar in both species, with rounded ends.

3. a. Dorsal colouring relatively uniform, greyish to orange brown; belly white with dark brown smudges ***D. tessellatus***
Tessellated Gecko

- b. Dorsal colour pattern includes a light, dark-edged vertebral stripe or a series of dark-edged light dorsal blotches; belly uniform white 4



D. tessellatus, dorsal & ventral views

3a. Mottled back and dark-spotted belly



D. galeatus

3b. Back with dark-edged pale blotches



D. furcosus

3b. Back with dark-edged pale vertebral stripe

4. a. Body reddish tan dorsally, with a simple pattern of a pale head cap and three or four symmetrical pale yellow dorsal blotches, each with a dark outline (refer to fig.3b, left) ... ***D. galeatus***
 Helmeted Gecko
- b. Body earth brown to dark grey-brown, variably patterned but often including a continuous vertebral stripe with scalloped or zigzag margins, or with both dorsal and lateral light-coloured spots and blotches (refer to fig.3b, right) 5
5. a. Pale dorsal stripe forms a pale fork ("Y") on the back of the head 6
- b. Pale dorsal stripe ends in a continuous pale cap on top of the back of the head 7



D. furcosus

5a. Back of head with divided pale fork



D. wiru

5a. Back of head with continuous pale cap

- 6 a. Y-marking straight-edged, well-defined; pale dorsal markings with a narrow black outline separating them from the darker background colour; markings clear and without mottling of lighter or darker shades ***D. furcosus***
Ranges Stone Gecko
- b. Y-marking ragged-edged, uneven; dorsal markings not neatly demarcated by dark outlines; pale dorsal markings very variable and often irregular, with pale blotches and darker body colouring mottled by scattered lighter and darker scales ***D. calcicolus***
(part)
South Coast Stone Gecko

*D. furcosus*

6a. Y-marking and Dorsal pattern dark-edged, well-defined

*D. calcicolus*

6a. Y-marking and dorsal pattern irregular

7. a. Dorsal pattern very clear cut with a relatively narrow, usually serrated-edged pale dorsal stripe, and small to large lateral pale spots tending to form one or more series running along the flanks **8**
- b. Pale dorsal markings dorsal markings very variable and often irregular, with pale blotches and darker body colouring mottled by scattered lighter and darker scales ***D. calcicolus***
(part)


D. vittatus

7a. Dorsal pattern dark-edged, well-defined


D. calcicolus

7b. Dorsal pattern continuous but ragged


D. calcicolus

7b. Dorsal pattern broken, irregular

- | | | |
|----------|---|---|
| 8 | <p>a. Great Victoria Desert and associated sandy habitats to the south, east as far as the Gawler Ranges (see distribution map). .</p> <p>b. Murray River corridor and adjacent heathy woodland and mallee (see distribution map)</p> | <p><i>D. wiru</i>
Desert Wood Gecko</p> <p><i>D. vittatus</i>
Eastern Stone Gecko</p> |
|----------|---|---|

KEY TO THE SOUTH AUSTRALIAN SPECIES OF *GEHYRA*

Most species of Gehyra are difficult to identify due to considerable individual variation. In some cases checking using genetic markers may be the only sure way to be certain of identification.

1. a. Dorsal pattern reduced to small scattered black dots and or unconnected short wavy lines; adults generally without obvious whitish dots or lines but juveniles and subadults may have a scattering of indistinct small pale dots; SVL to 65 mm ***G. purpurascens***
Robust Tree Gehyra
- b. Dorsal pattern of adults complex, including both black lines or dashes and white or cream spots or short bars; maximum SVL less than 55 mm (but see 3a, *G. lazelli*, below) **2.**



G. purpurascens

1a. Pattern of small dark lines and spots; no pale markings in adults

2. a. Back with a dorsal pattern of more or less continuous wavy or crescentic dark lines, edged with white; whitish markings tend to arrange as 'highlights' on the trailing edges of the black lines **3**
- b. Pattern not as above; white to pale grey circular spots present, not aligned with black markings **4**



G. versicolor

2a. Pale markings arranged on edges of the dark markings



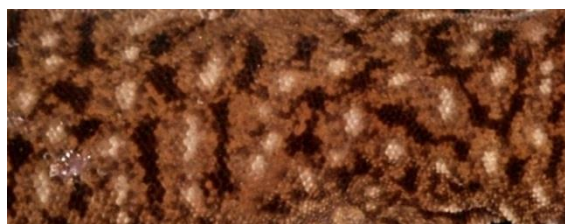
G. lazelli

2b. Pale spots not aligned with dark markings

- | | | | |
|----|----|---|---|
| 3. | a. | In South Australia confined to the northern Nullarbor Plain and southern Great Victoria Desert (see distribution map) . . | <i>G. variegata</i>
Western Tree
Gehyra |
| | b. | Distributed across most of the eastern three-quarters of South Australia, but absent from the southern Eyre Peninsula, southern mallee and the southeast of the state (see distribution map). | <i>G. versicolor</i>
Eastern Tree
Gehyra |
| 4. | a. | General body colour grey brown to grey; SVL to 55 mm; southern SA to Gawler and Flinders Ra; far northern Flinders Ra has populations of much larger individuals, to 70 mm SVL | <i>G. lazelli</i>
Southern Rock
Gehyra |
| | b. | General body colour light pinkish brown to rust brown; SVL less than 45 mm; northwest ranges | 5 |
| 5. | a. | Dark dorsal pattern of nearly continuous dark, blurry lines; white spots obscure, poorly contrasting with background colour | <i>G. montium</i>
Centralian Gehyra |
| | b. | Dark dorsal pattern of discontinuous short wavy bars and squiggles; white spots prominent, sometimes arranged in cross rows. | <i>G. pulingka</i>
Central Ranges
Gehyra |

*G. montium*

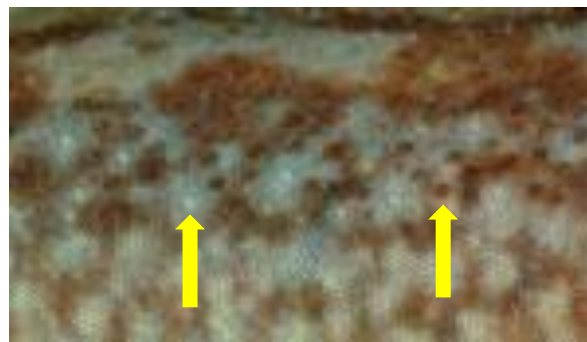
5a. Dark lines mostly continuous; white spots weakly contrasting

*G. pulingka*

5b. Dark lines mostly broken; white spots strongly contrasting

KEY TO THE SOUTH AUSTRALIAN SPECIES OF *LUCASIUM*

1. a. Dorsal pattern of three butterfly-shaped pink to brown blotches on a paler background; dorsal scales rough with a scattering of enlarged, tubercular scales; ***L. byrnei***
Gibber Gecko
- b. Dorsal pattern includes a pale vertebral stripe or series of pale blotches; dorsal scales smooth **2**

*L. byrnei***1a.** Widely spaced darker paired blotches on back*L. byrnei***1a.** Scattered enlarged scales on the back*L. damaeum***1b.** Pale stripe or series of blotches down the middle of the back*L. microplax***1b.** All back scales small, uniform

2. a. Dorsal pattern of rectangular brown 'islands' contained in a pale vertebral stripe, outlined narrowly by black. ***L. steindachneri***
Map Gecko
- b. Dorsal body pattern with either a uniform pale vertebral stripe or a closely spaced series of pale blotches aligned along the middle of the back **3**

*L. steindachneri***2a.** Pale vertebral stripe encloses darker 'islands'


L. bungabinna
2b. Pale vertebral stripe without dark patches

- 3**
- a.** Pale vertebral stripe either continuous or divided into a series of vertebral pale blotches; narrowly separated from the light colour on the back of the head, forming a U-shape, rather than a Y. . . . ***L. damaeum***
Beaded Gecko
 - b.** Pale vertebral stripe always present and continues onto the back of the head where it forks into a Y shape; paired adhesive toe pads present (may be very small – see fig 4) **4**


L. damaeum
3a. "U-shaped" nape marking

L. damaeum
3a. Toe pads absent

L. microplax
3a. "Y-shaped" nape marking

- 4.**
- a.** Colour two-toned –pale beige on medium to sandy brown (fig 2b); pair of easily observed (obviously larger than adjacent toe scales) adhesive toe pads present on underside of tips of toes . . ***L. bungabinna***
Southern
Sandplain Gecko
 - b.** Colour three-toned – pale beige on sandy brown with yellow lateral spots; adhesive toe pads barely larger than an adjacent toe scales ***L. microplax***
Central Sandplain
Gecko



L. bungabinna

2a. A pair of enlarged pads on each toe



L. microplax

2b. Toes pads tiny

KEY TO THE SOUTH AUSTRALIAN SPECIES OF *NEPHRURUS*

*NB: Original tails have a mix of large and small scales on the upper surface; regrown tails have uniformly small scales. The knob is not regrown, but regrown tails of *N. levis* are still relatively wide while those of the other three species are very thin and narrow.*

1. a. Back covered by clusters of sharp-pointed, spiny scales; limbs and back of head also with single and clustered spiny scales; tail very small (shorter than thigh) ***N. amya***
Centralian Knob-tail Gecko
- b. Body with warty, less spiny, enlarged scales; tail moderate in size (longer than thigh). **2**



1a. *Nephurus amya*

2. a. Base of tail very much broader and strongly differentiated from the terminal portion ***N. levis***
Common Knob-tail Gecko
- b. Base of tail wider not sharply differentiated and tapers gradually. **3**



Nephurus levis

- 2a.** Base of tail broad and strongly differentiated from terminal portion

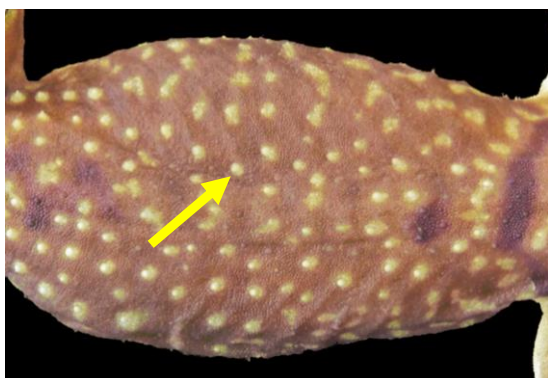


Nephurus laevis

- 2b.** Base of tail less expanded, tapers more gradually into the terminal portion

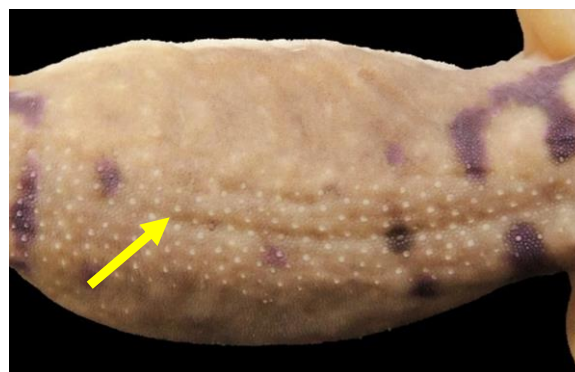
3. a. Warty scales on back contrastingly coloured pale yellow . . ***N. stellatus***
Starred Knob-tail Gecko

- b. Warty scales on back similar in colour to the adjacent scales 4



N. stellatus

3a. Back with contrasting pale enlarged scales



N. laevissimus

3b. Back with enlarged scales similar in colour to adjacent scales

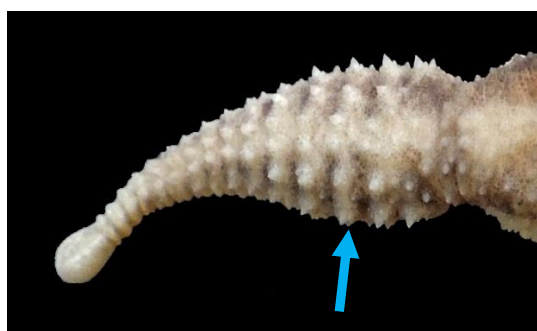
4. a. Usually some whitish, often Y-shaped cross bands on the anterior body and/or an off-white dorsal stripe that continues along the middle of the tail; spiny scales on tail arranged in transverse whorls all the way to the base of the tail.
- b. Back pattern rather plain with dark bands or blotches on the neck and hips; spiny scales on tail arranged in transverse whorls only on the terminal part of the tail; base of the tail with evenly distributed whitish spiny scales not forming obvious whorls.

N. deleani

Pernatty Knob-tail Gecko

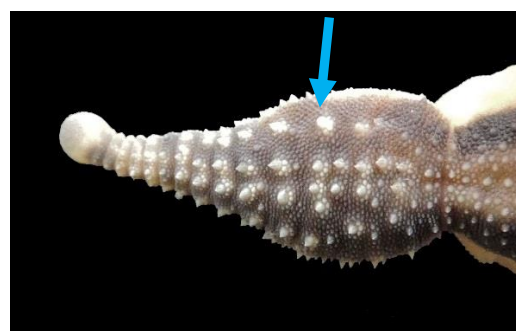
N. laevissimus

Pale Knob-tail Gecko



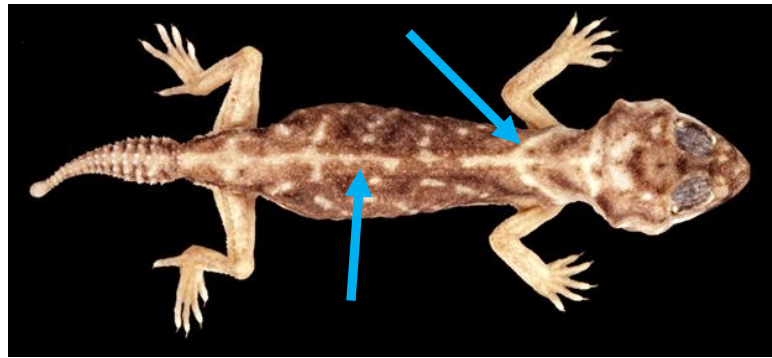
N. deleani

4a. Enlarged scales almost contact at their bases



N. laevissimus

4b. Enlarged scales are separated from one another by smaller scales



N. deleani

4a. Pale Y-shaped shoulder band and pale vertebral stripe



N. laevissimus

4b. No pale vertebral stripe; dark bands on neck and hips

KEY TO THE SOUTH AUSTRALIAN SPECIES OF *RHYNCHOEDURA*

The species of *Rhynchoedura* are genetically distinct but morphologically very similar, such that many specimens cannot be reliably identified by their external appearance. The three mostly occupy distinct regions and so the rough key below relies on geography, but specimens from the overlap zones along the Barrier Highway in the east and the corridor from the northern Eyre Peninsula along the Stuart Highway to the NT border could belong to either of the species that might occur in these regions.

****Use distribution map to assess most likely species****

- | | | |
|----|--|---|
| A. | Great Victoria Desert and adjacent mountain range country of the APY Lands, east to about the Stuart Highway and south to about the transcontinental railway line; light spots usually large, numerous, and often in transverse rows; dark markings usually strongly contrasting with background colour | <i>R. ornatus</i>
Western
Beaked Gecko |
| B. | Most of arid South Australia, west to about the Stuart Highway, and southeast to approximately the line of the Barrier Highway; light spots usually small and confined to a single row along the flanks; an irregular, often broad, unmarked pale vertebral zone usually present; coarse light and dark markings often poorly contrasting .. | <i>R. eyrensis</i>
Eyrean Beaked
Gecko |
| C. | South Olary Plains between the Barrier Highway and the Murray River; mid-dorsal pattern often lacks strongly contrasting markings, with a fine-grained mix of light and dark flecks, often a narrow pale vertebral zone, and few but relatively prominent lateral pale spots. | <i>R. angusta</i>
Border Beaked
Gecko |



R. ornatus



R. eyrensis



R. angusta



Strophurus ciliaris

2a. Tongue and mouth lining yellow



Strophurus intermedius

2b. Tongue and mouth lining blue to purple

- 3.**
- a.** Body and tail lack rows of distinctly enlarged and coloured (brown, cream or orange) spines or tubercles; narrow rings of bright orange skin exposed when the tail is curled downwards ***S. strophurus*** Western Spiny-tailed Gecko
 - b.** Body and tail with rows of distinctly enlarged and coloured (light brown cream or orange) tubercles or spines; tail without narrow bands of bright orange skin **4**



Strophurus strophurus

3a. Narrow bands of bright orange skin revealed when tail curls down

- 4.**
- a.** Body and tail with inconspicuous brown tubercles arranged roughly in cross-rows on the tail; belly with one or two longitudinal grey irregular stripes. ***S. intermedius*** Southern Spiny-tailed Gecko
 - b.** Body and tail with conspicuous small to large pale spines; belly off-white to pale grey with a few scattered dark speckles, no stripes **5**



Strophurus intermedius

- 4a.** Tail tubercles blunt, the largest bordered on either side by smaller tubercles



Strophurus williamsi

- 4b.** Tail tubercles form pointed spines

- 5.**
- a.** Tail with two rows of large, light brown spines; snout-vent length to 70 mm or more; west of Port Augusta
 - b.** Tail with four rows of small bone-coloured spines; snout-vent length less than 60 mm; east of the Flinders Ranges

S. assimilis
Thorn-tailed
Gecko

S. williamsi
Eastern Spiny-
tailed Gecko



Strophurus assimilis

- 4a.** Tail spines large, triangular, in two main rows



Strophurus williamsi

- 5b.** Tail spines small, slender, in four main rows