

CROMWELL GECKO

Hoplodactylus aff. *maculatus* 'Cromwell'
(Hitchmough, unpublished)

Size

49–75 mm SVL (usually 55–70 mm).

Colour

Typically grey or olive-grey, but tending towards brownish in the Wanaka and Carrick Range areas; specimens in the Criffle Range are pale brown. Significant variations occur from time to time, including specimens that are dark brown, straw-brown or olive-green. The markings are usually banded or blotched, but partially to fully striped individuals are not uncommon around the Cromwell Gorge. The under-surface is normally grey, often with darker grey flecks. The eye ranges from greenish to pale golden-brown, grey-brown, or very dark brown (often in a mottled combination). Very rarely, specimens may have one or two bright yellow spots on the upper surfaces. Mouth colour is pink. (See Fig. 9A–D.)

Build

Specimens in highland areas tend to be larger and more robust than those in the lowlands. However, individuals in the southern Pisa Range are relatively large (69 mm SVL) and robust, even at low altitudes. In the Dunstan Mountains and the Cairnmuir Range, populations in the lowland valley floors may be especially small, with adults sometimes only attaining 49–50 mm SVL. The toe-pads range from narrow to moderately broad in expansion, with curved lamellae; the distal phalange is narrow in shape.

Distribution

Found through much of the upper Clutha River catchment. Records include the western faces of the Dunstan Mountains (from Cluden Stream southwards to Clyde); the northern end of the Cairnmuir Range; Bannock Burn; the Carrick Range; Nevis Bluff and

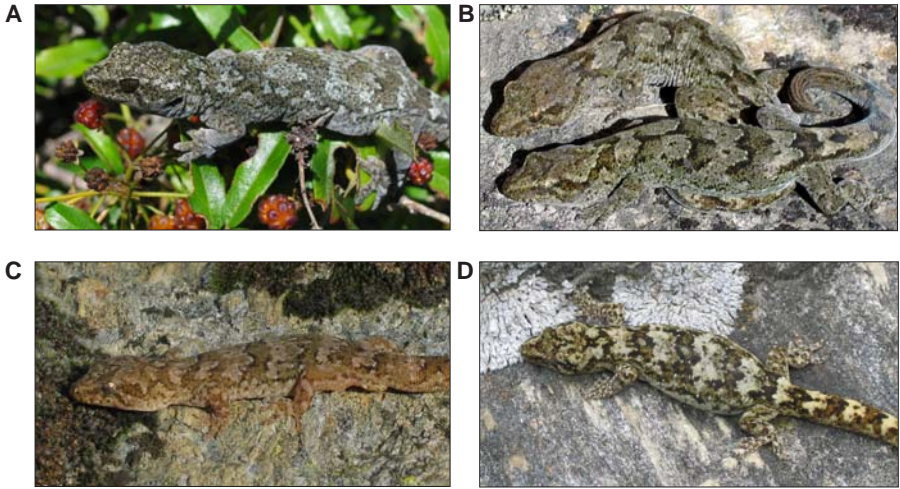


Figure 9A-D. Various colour forms of the Cromwell gecko (*Hoplodactylus* aff. *maculatus* 'Cromwell').

Mount Rosa in the Hector Mountains; the Pisa, Criffle and Crown Ranges; and Mount Iron, Ruby Island and the Diamond Lake area at Wanaka. An historic specimen from Arthurs Point (near Queenstown) appears to belong to this species.

Habitat

Lives among schist rock tors and outcrops from the lowlands up to c. 1100 m a.s.l. in most areas, but up to 1300 m a.s.l. in the Criffle Range. Retreat sites are usually rock crevices and beneath loose slabs of rock, but on Ruby Island many specimens live among vegetation such as flax (*Phormium cookianum* and *P. tenax*) and cabbage trees (*Cordyline australis*).

Behaviour

As for the Central Otago gecko.

Notes

The Criffle Range population is particularly distinctive, but it has yet to be determined whether it interbreeds with the normal-looking Cromwell gecko from the contiguous Pisa Range.

SOUTHERN ALPS GECKO

Hoplodactylus aff. *maculatus* 'Southern Alps'
(Hitchmough, unpublished)

Size

50-72 mm SVL (usually 53-63 mm).

Colour

Typically grey or olive-grey, but a dark olive colour-form with pinkish-brown markings is common in some areas. Some individuals may vary to brown or olive-green. The markings are usually very drab, even indistinct, and are almost always banded or blotched; a few specimens with stripes have been recorded in the Waitaki River catchment, and some from the Lindis Valley area have bright markings. There is usually a pale stripe connecting the eye to the nostril, but this is sometimes indistinct or broken up. The under-surface is usually uniform. The eye is light olive-grey or olive-brown, and in the Hawea/Wanaka area has a pale blue or green edge. Mouth colour is pink. (See Fig. 10A-F.)

Build

Similar to the Central Otago and Cromwell geckos, but generally more robust, with a shorter, more obviously tapering distal phalange. The toe-pads are of moderate width, with curved lamellae. Some alpine populations grow especially large and robust. Populations living among schist rock sometimes become more slender in build, with a more variable distal phalange, closely resembling the Central Otago and Cromwell geckos.

Distribution

Inhabits inland areas from Marlborough to North Otago. Records in Otago include the St Marys Range; Ida Range; Hawkdun Range; Home Hills; St Bathans Range; the Dunstan Mountains north/east of Cluden Stream; the Chain Hills and Lindis Pass areas; the hill systems between the Lindis and Clutha Rivers; Silver Island in Lake Hawea; all islands in Lake Wanaka except for Ruby Island; and at Beacon Point, near the mouth of Waterfall Creek and near Diamond Lake in the Wanaka area.

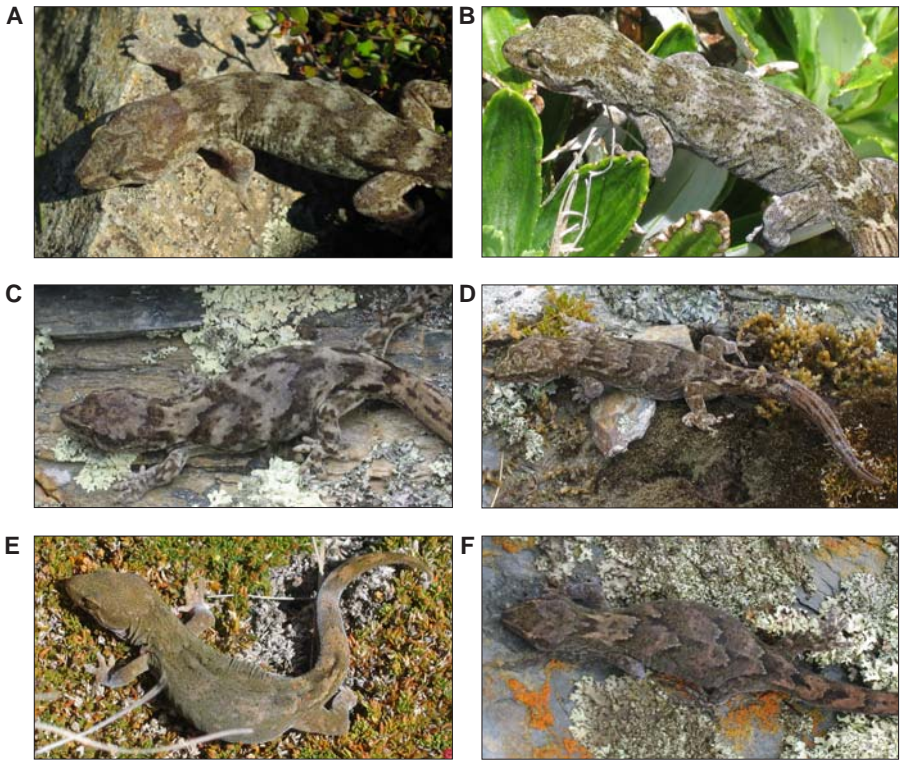


Figure 10A-F. Various colour forms of the Southern Alps gecko (*Hoplodactylus* aff. *maculatus* 'Southern Alps').

Habitat

Found from lowland areas up to at least 1550 m a.s.l. in the Chain Hills, but only up to 1000 m a.s.l. in the Crown Range. In eastern areas, restricted to greywacke and volcanic rocks, including screes and talus slopes, but west of the Chain Hills also occurs in schist tors and outcrops. On lake islands, also ranges into shrubs and trees, such as kanuka (*Kunzea ericoides*), mountain beech (*Nothofagus solanderi* var. *cliffortioides*) and radiata pine (*Pinus radiata*). On Little Mount Ida, some individuals have been found among the layers of dead leaves of spear-grass (e.g. *Aciphylla aurea*).

Behaviour

As for the Central Otago gecko.

OTAGO/SOUTHLAND LARGE GECKO

Hoplodactylus aff. *maculatus* 'Otago/Southland large'
(Hitchmough, unpublished)

Size

63-90 mm SVL (usually 73-80 mm, but frequently reaching 85 mm at high altitudes).

Colour

May be grey, olive-grey, brown, or deep pinkish-brown. The markings are generally banded or blotched, sometimes with partial stripes; fully striped individuals are rare in most areas, but are common in the Garvie Mountains and in the Kakanui Range, and have also been seen on the Taieri Ridge. The eye may be grey, brown, green or yellow. Mouth colour is pink. There is considerable structured geographic variation (see 'Notes'). (See Fig. 11A-F.)

Build

Varies considerably in build and in the width of the toe-pads (see 'Notes'). Lamellae curved. Distal phalange may be narrow or tapering. The feet often appear large in size, especially in western areas.

Distribution

Widespread in Otago and Southland east of the Main Divide, but appears to be absent from some of the northern ranges (i.e. Hawkdun, St Bathans, Pisa, Criffle and Crown Ranges, and areas to the north of these).

Habitat

Inhabits rock tors, outcrops and screes, native forest, and occasionally shrubland. Ranges from the coast and lowlands up to 1300 m a.s.l. (only reaches 1100 m a.s.l. in some areas). In forest, has been recorded from beech (*Notbofagus* spp.) (Waikaia Bush, Richardson



Figure 11A-F. Various colour forms of the Otago/Southland large gecko (*Hoplodactylus* aff. *maculatus* 'Otago/Southland large').

Mountains, Paradise and Eglinton Valley) and podocarp/hardwood forest (e.g. rimu *Dacrydium cupressinum*, southern rata *Metrosideros umbellata*, and kamahi *Weinmannia racemosa*) (Slopedown Hill in the Catlins).

Behaviour

As for the Central Otago gecko.

Notes

Since being excluded from *H. maculatus*, populations currently assigned to this species have been subject to frequent informal taxonomic redefinition as research has progressed. At the time of writing, the species is generally referred to as either the 'Otago/Southland large gecko' (formal), or the 'maxi' (informal). In addition, the following names are used in some key literature: *H. sp.* 'Otago large' (same definition); *H. sp.* 'Eastern Otago' (= populations from eastern Otago and Southland, plus the Central Otago gecko); *H. sp.* 'Western Otago' (= populations from the Dunstan Mountains and Old Man Range westwards); *H. sp.* 'Otago' and *H. aff. maculatus* 'Otago' (excludes populations from the Kye Burn, but includes the Central Otago gecko); and *H. sp.* 'Danseys Pass' (= populations from Kye Burn).

The Otago/Southland large gecko has a complex, and at times stepped, clinal variation, involving size, colour, build and scalation, and the possibility of further taxonomic division cannot be ruled out. The following discussion outlines the general characteristics of the 'forms' of Otago/Southland large gecko that occur in Otago. This should give an indication of what to expect typical specimens to look like in different areas.

In the Kye Burn (between the Ida Range and the Kakanui Mountains) the 'Danseys Pass' form is robust (70-80 mm SVL) with very broad toe-pads. The colour is greyish/olive or dark pinkish-brown, and the eye is grey and greenish.

Further east in the Kakanui Mountains, specimens are less robust and sometimes very small (63-75 mm SVL) with toe-pads of only moderate width. The colour is

more brown (frequently striped), and the eye is yellow or brown.

Individuals in populations from eastern Otago, between the Shag and Clutha Rivers (excluding the Dunstan Mountains) tend to be flattened in build (68-80 mm SVL, but up to 85 mm at high altitudes) with moderate to narrow toe-pads. The colour is brown or grey-brown, and the eye is brown or yellow-brown to vivid yellow.

Those in the west (i.e. Garvie Mountains, Carrick Range, Hector Mountains and westwards) are of moderate to deep-set build (typically 73-85 mm SVL), with moderately broad toe-pads. The colour is grey to olive-grey or grey-brown, or sometimes deep pinkish-brown, with a grey to greenish eye. Those around Fiordland often have particularly ragged, bark-like markings. A distinctive form at high altitude along the western flanks of the Eyre Mountains has very dull markings and grows to 87-90 mm SVL; other populations in the Eyres grow to c. 75-82 mm SVL.

Individuals in populations in the Old Man, Old Woman and Umbrella Mountains are somewhat intermediate between the eastern and western forms, having a deep-set (or occasionally flattened) build, and variable eye and body colour. Individuals in these populations are relatively large (75-85 mm SVL). Individuals in populations in the Dunstan Mountains are similar in size (74-82 mm SVL) but are more commonly dark olive-grey, and many have a yellow or green-yellow eye. The form that occurs in the Catlins area is robust and deep-set in build (up to 80 mm SVL) with very broad toe-pads. It is dark brown to dark grey-brown, with greenish eyes.

SOUTHERN MINI GECKO

Hoplodactylus sp. 'southern mini'
(Hitchmough, unpublished)

Size

48-65 mm SVL (usually 50-58 mm).

Colour

The specimen in Fig. 6A is typical, and little variation occurs in outward appearance. Colour is pale olive or olive-grey, sometimes varying to olive-brown or olive-green. Colour is uniform, or individuals may have drab stripes or, rarely, brighter white stripes. There is a dark brown streak along the side of the snout and head. The under-surface is uniform or with large blackish spots, and is often bright orange beneath the hind legs, tail-base and intact tail. Individuals occasionally have one or two bright orange-yellow spots on the upper surfaces, particularly on the feet or limbs. The eye is dark brown. Mouth colour is pink.

Build

Toe-pads are moderately broad and the narrow distal phalanges are very short, giving the toes a somewhat 'stumpy' appearance. Lamellae are curved. Belly scales are very large when compared with those of equal-sized specimens from the *H. maculatus* complex.

Distribution

Present in the ranges to the immediate west/south of Lake Wakatipu (i.e. Humboldt Mountains, Mount Mavora, Thompson Mountains and Eyre Mountains), and east/south of the southern arm of the Lake (i.e. the Hector Mountains as far north/east as The Remarkables and Mount Rosa; Slate Range; Mataura Range; and the southern end of the Garvie Mountains, either side of the Dome River).

Habitat

Lives among scree, talus slopes and rock outcrops in subalpine and alpine areas (700–1650 m a.s.l.). Typically found on the ground beneath loose rocks or in scree, often together with the Otago/Southland large or Cromwell geckos; where it occurs in isolation, especially at high altitude, may also inhabit rock crevices well above the ground.

Behaviour

Similar to the Central Otago gecko, but more secretive and not known to form aggregations (i.e. only 1–2 specimens per retreat site). Sheds tail more readily than members of the *H. maculatus* group, and in many populations it is uncommon to find an adult with an intact tail.

Notes

Although outwardly similar to the members of the *H. maculatus* complex, and bearing a name derived from the phrase ‘mini-mac’ (i.e. ‘small *maculatus*’), the southern mini in fact belongs to a sister-group that includes the goldstripe gecko (*H. chrysostrictus*) of the south-eastern North Island. The southern mini and goldstripe geckos share several features that set them apart from the *H. maculatus* complex, including an especially shallow, broad rostral scale, and a paler, more translucent olive colour and striped pattern.

Southern mini geckos are frequently found together with members of the *H. maculatus* complex, and may sometimes share the same retreat site. However, the two species will separate into different niches just as often. In some cases, the southern mini will occur on the ground and the *H. maculatus* complex in creviced rock tors.

TAKITIMU GECKO

Hoplodactylus cryptozoicus (Jewell & Leschan, 2004)

Size

c. 80-87 mm SVL.

Colour

Pale grey to dark grey; occasionally brown or even orange. A series of narrow herringbone patches down either side of the back, usually connected longitudinally with thin stripes, or sometimes connected across the back. Sometimes with bright, asymmetrical, two-tone orange or orange-brown spots or patches. The under-surface is lightly mottled or speckled. The eye is brown. Mouth lining is bright orange. Tongue pink, often with a dark grey patch, and sometimes with orange shadings on the tip or sides. (Fig. 12A-D.)

Build

Robust in build. The tail is shorter than the SVL, sometimes markedly so. The toe-pads are very narrow, and the 7-12 lamellae are straight.

Distribution

Appears to be widespread in the mountains of western Southland and Otago. Recorded from the Takitimu Mountains, and from 25 Mile Spur in the Rees Valley, Richardson Mountains.

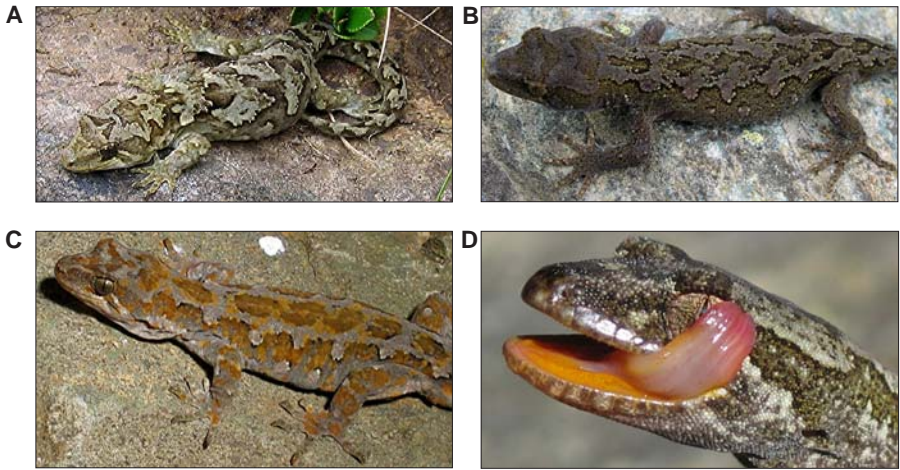


Figure 12. Takitimu gecko (*Hoplodactylus cryptozoicus*). A–C: Various colour forms; D: Colour of mouth lining and tongue.

Habitat

Known from highland beech forest, and from alpine scree, bluffs and outcrops of large rocks (600–1450 m a.s.l.).

Behaviour

Has only been studied in alpine scree, where the species is highly secretive, only rarely emerging onto the surface of the scree. Appears to be at least partially nocturnal, but will also sun bask. Relatively solitary.

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