Geckos *of* Otago

Otago Regional Council

SOUTHERN LAKES SANCTUARY

TŪHURA Otago Museum

Photograph: Samuel Purdie

Jewelled gecko

Naultinus gemmeus

Other names: moko kākāriki

Otago Regional Council

Conservation status

Regional | At Risk: Declining
National | At Risk: Declining

Description

Body length: up to 87 mm snout-vent length (SVL), but typically <82 mm SVL. Intact tail slightly longer than SVL.

Upper surfaces: lime-green to emerald-green in colour, sometimes with mottled brown patches. Markings vary widely from site to site and even within populations. Individuals typically have diamonds or stripes, which are often coloured white, cream, brown, pinkish brown, yellow, or lime green. These patterns are occasionally edged in black or brown.

In one population on Whenua Hou/Codfish Island, the markings on the upper surface are usually absent, resulting in a plain-green appearance.

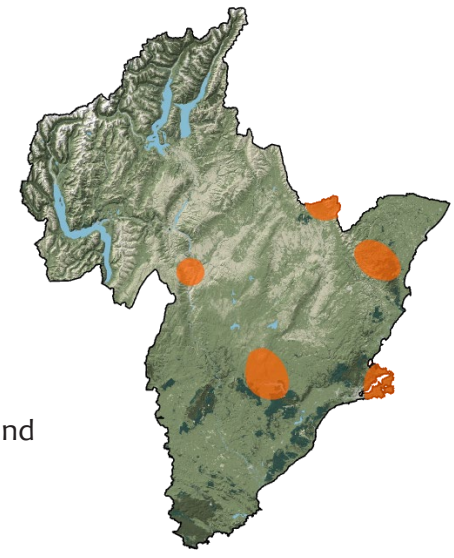
Lower surfaces: grey, pale-brown, whitish, cream, or pale-green in colour, sometimes with dark speckles.

Mouth colour: bright blue, purple, pinkish, or mauve.

Tongue colour: purple, pinkish, or mauve.

Distribution

Although jewelled geckos have a wide distribution in Otago and Canterbury, their populations are often distantly isolated from one another. The species has only recently been reported in Southland for the first time in several decades, except for several sightings on Whenua Hou/Codfish Island. In Otago, jewelled geckos are found from the coast up to at least 1,100 metres above sea level, naturally occurring on the Otago Peninsula and in the Lammermoor Range, Kakanui Mountains, Oteake Conservation Park, and the Hunter Valley. Translocated populations of jewelled geckos are present at Orokonui Ecosanctuary – Te Korowai o Mihiwaka and Mokomoko Dryland Sanctuary, near Alexandra. Sightings of jewelled geckos outside of these areas should be reported to the Department of Conservation – Te Papa Atawhai.



Scott Jarvie, Otago Regional Council: conception, research and editing; Samuel Purdie, Southern Lakes Sanctuary: research, writing and photograph; Carey Knox, Southern Scales: research, writing and photograph; Alice Waterman and Harry Pickernell, Tūhura Otago Museum: editing and design. (2025)

SOUTHERN LAKES SANCTUARY

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Ecology & natural history

Jewelled geckos are mostly diurnal but will feed at night. They live in trees or shrubs and, being avid sun-baskers, are most frequently seen in suitable weather conditions on or near the top of the foliage of divaricating shrubs, vines, or trees, but can rarely be found on rocks. Their primary habitats include shrubland and forest with dense, small-leaved shrubs; vines; and trees, particularly *Coprosma* species, *Muehlenbeckia* species, kānuka (*Kunzea ericoides*), mānuka (*Leptospermum scoparium*), tōtara (*Podocarpus totara*), beech trees (*Fuscospora* and *Lophozonia species*), and matagouri (*Discaria toumatou*). Some jewelled gecko populations are also found in snow tussock (*Chionochloa rigida*) grassland and associated vegetation. The dense structure of vegetation in their habitat may provide some protection from larger introduced mammalian predators, although they are still vulnerable to predation. The vegetation may also provide fruit for consumption (e.g. *Coprosma* berries), as well as access to insect prey.

Jewelled gecko (Oteake Conservation Park). Photographed by Carey Knox

Conservation

These include for population monitoring and species translocations. Jewelled geckos have been the focus of many conservation programmes, some of which have included habitat restoration, population monitoring, and translocations. Once widespread throughout the southern South Island, jewelled geckos have disappeared from much of their former range due to habitat modification (e.g. via agricultural development and fires) and predation by introduced mammalian predators, including mice, stoats, ferrets, and feral cats.

Studies suggest that mice are likely to be predators in habitats where they reach high abundance, such as in rank exotic grasses in coastal habitats. Given that jewelled geckos are mostly found in trees and shrubs or in tussock grasses, they are vulnerable to fire. Human-induced climate change is likely to be a threat to jewelled geckos by increasing the frequency and intensity of fires. Illegal collection for the black-market pet trade is also known to occur and is an ongoing concern, although likely to be minor relative to other threats.

Regional threat listing qualifiers:
Otago is a national stronghold for the jewelled gecko, with over 20% of their population found in the Otago region (National Stronghold).

Identifying features

Jewelled geckos are unlikely to be confused with other gecko species in Otago, as they are the only gecko species in the region with bright-green colouring.

Jewelled gecko (Central Otago). Photographed by Samuel Purdie

Jewelled gecko (Oteake Conservation Park). Photographed by Carey Knox

Scott Jarvie, Otago Regional Council: conception, research and editing; Samuel Purdie, Southern Lakes Sanctuary: research, writing and photograph; Carey Knox, Southern Scales: research, writing and photograph; Alice Waterman and Harry Pickernell, Tūhura Otago Museum: editing and design. (2025)

SOUTHERN LAKES SANCTUARY

TŪHURA Otago Museum

Hura te ao gecko

Mokopirirakau galaxias

Other names: southern black-eyed gecko (formerly)

Otago Regional Council

Conservation status

Regional | Threatened: Endangered
National | Threatened: Endangered

Description

Body length: up to 88 mm snout-vent length (SVL), with intact tail equal to or shorter than SVL.

Upper surfaces: grey, olive-grey, or olive-green in colour, with a striking galaxy pattern composed of small, white spots.

Lower surfaces: pale grey, sometimes with speckles.

Mouth colour: bright orange and pink.

Tongue colour: pink, sometimes with orange or yellow colouration near the base.

Distribution

Hura te ao geckos were first discovered in Otago and have recently been found in Canterbury. Although they may be more widespread, these geckos are only known to occur at a handful of locations: two mountain ranges in Oteake Conservation Park, Otago, and a single mountainous area near Canterbury's southern limits. they appear to be high-elevation and/or rocky habitat specialists and have only been observed in alpine ecosystems over 1,200 metres above sea level, reaching elevations of at least 1,600 metres above sea level.

Scott Jarvie, Otago Regional Council: conception, research and editing; Samuel Purdie, Southern Lakes Sanctuary: research, writing and photograph; Carey Knox, Southern Scales: research, writing and photograph; Alice Waterman and Harry Pickernell, Tūhura Otago Museum: editing and design. (2025)

SOUTHERN LAKES SANCTUARY

TŪHURA Otago Museum

Ecology & natural history

Hura te ao geckos inhabit rocky slopes (e.g. walls, creviced outcrops, boulderfield, and scree) and hide during the day, seeking shelter in deep crevices and occasionally under rocks. This makes them difficult to find, although they may expose parts of their bodies to the sun to maintain their preferred body temperatures.

These geckos are thought to be most active at night, when they may seek food and mates if weather conditions are suitable. They are likely to feed primarily on small invertebrates, including insects and spiders, but possibly also feed opportunistically on *Dracophyllum* flowers and berries from the porcupine shrub (*Melicytus alpinus*).

Hura te ao geckos appear to be tolerant of extreme weather compared to many other reptiles, sometimes being active in cold, windy, and wet conditions. While little is known about their reproductive biology, females probably reproduce every two (or more) years and give birth to a maximum of two offspring per pregnancy.

Conservation

The hura te ao gecko was first discovered in 2018 and, as of mid-2024, is known from seven locations. Many lizard surveys have been conducted outside its known range to learn more about its distribution.

Introduced mammalian predators (e.g. mice, stoats, ferrets, hedgehogs, and feral cats) are a threat to the hura te ao gecko. Human-induced climate change may also pose a major threat.

Regional threat listing qualifiers:
Otago is a national stronghold for the hura te ao gecko, with over 20% of their population found in the region (National Stronghold). The southern limit of their natural distribution is in Otago (Natural Range). The type locality for the hura te ao gecko is in Otago, meaning the specimen used to first describe the species came from this region (Type Locality).

Identifying features

Hura te ao geckos are unlikely to be mistaken for any other gecko species in Otago because of their inky dark eyes and celestial patterns.

Hura te ao gecko (Oteake Conservation Park). Photographed by Carey Knox

Hura te ao gecko (Oteake Conservation Park). Photographed by Carey Knox

Hura te ao gecko (Oteake Conservation Park). Photographed by Carey Knox

Hura te ao gecko. Photographed by Samuel Purdie

Scott Jarvie, Otago Regional Council: conception, research and editing; Samuel Purdie, Southern Lakes Sanctuary: research, writing and photograph; Carey Knox, Southern Scales: research, writing and photograph; Alice Waterman and Harry Pickernell, Tūhura Otago Museum: editing and design. (2025)

SOUTHERN LAKES SANCTUARY

TŪHURA Otago Museum

Cascade gecko

***Mokopirirakau* "Cascades"**

Otago Regional Council

Conservation status

Regional | Threatened: Endangered
National | At Risk: Declining

Description

Upper surfaces: substantial variation in base colour, including grey, brown, pinkish-brown, olive-green, rusty-orange, or reddish tones. These colours are often partially covered with faint or highly contrasting patterns and sometimes edged in black. Some individuals are covered in speckles.

Broad stripes typically run along the back, with alternating blotches, smudges, triangles, diamonds, or butterfly-like shapes. The overall pattern is occasionally punctuated by reddish spots, streaks, or blotches. Cascade geckos often have a distinctive V-shaped marking on top of their head between their eyes. Markings vary widely from site to site as well as within populations.

Body length: up to 95 mm snout-vent length (SVL). Tail length variable.

Lower surfaces: grey, pinkish, or pale-orange in colour, sometimes with speckles.

Tongue colour: usually bright orange or an orange-yellow tone but can also be pink with a grey tip.

Mouth colour: orange.

Distribution

Cascade geckos are typically found in sub-alpine or alpine habitats up to at least 1,800 metres above sea level, but occasionally live at coastal or low-elevation locations. They are known from mountainous and forested areas of central-western to northern Fiordland, south Westland, and far-western Otago. In Otago, they are only known from a small range in mountains near Glenorchy but may occur elsewhere in the west of the region. Surveys are required to improve our understanding of the distribution and population numbers of Cascade geckos, including in Otago.

Scott Jarvie, Otago Regional Council: conception, research and editing; Samuel Purdie, Southern Lakes Sanctuary: research, writing and photograph; Carey Knox, Southern Scales: research, writing and photograph; Alice Waterman and Harry Pickernell, Tūhura Otago Museum: editing and design. (2025)

SOUTHERN LAKES SANCTUARY

TŪHURA Otago Museum

Ecology & natural history

The Cascade gecko is a secretive species that is primarily active at night. Their habitats include the steep upper slopes of mountains, often with extensive exposed rock (e.g. creviced granite walls, alpine boulderfields, rocky bluffs or cliffs, scree slopes and/or piles of loose rock).

They may live in mature forest, where they have persisted despite introduced mammalian predators, but are difficult to find in these habitats. A layer of snow covers most of the known Cascade gecko habitats for 3–6 months every year.

The reproductive rate of the Cascade gecko is low, with females only giving birth to a maximum of two offspring per pregnancy. At high-elevation sites, Cascade geckos do not give birth annually, and are likely to reproduce once every two or three years.

Conservation

Scientists are researching conservation strategies that may help alpine lizards in New Zealand, but more work is required to understand how their populations respond to threats such as exotic mammalian predators.

Cascade geckos are likely to be preyed upon by introduced mammals such as stoats, possums, mice, and hedgehogs. Given that Cascade geckos take at least four years to reach maturity and have a low reproductive rate, predation by introduced mammals (if frequent enough) may be a significant threat to populations of these geckos.

Additionally, human-induced climate change might enable more species of mammalian predators, or higher densities of these predators, to reach the currently cooler alpine zone, where some populations of Cascade geckos are found, from the warmer lower slopes.

Cascade gecko (West Otago). Photographed by Carey Knox

Identifying features

The Cascade gecko can closely resemble the Tākitimu gecko (*Mokopirirakau cryptozoicus*) and the orange-spotted gecko (*Mokopirirakau* "Roy's Peak"), as there is extensive overlap in morphology, or physical features, between these three species. This makes *Mokopirirakau* species difficult to identify from physical features alone. Genetic data may therefore be needed to differentiate these species in areas where they have not been previously recorded. These data are only collected by professionals with approval from the Department of Conservation – Te Papa Atawhai.

Cascade gecko (West Otago). Photographed by Samuel Purdie

Cascade gecko (West Otago). Photographed by Carey Knox

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Scott Jarvie, Otago Regional Council: conception, research and editing; Samuel Purdie, Southern Lakes Sanctuary: research, writing and photograph; Carey Knox, Southern Scales: research, writing and photograph; Alice Waterman and Harry Pickernell, Tūhura Otago Museum: editing and design. (2025)

SOUTHERN LAKES SANCTUARY

TŪHURA Otago Museum

Orange-spotted gecko

***Mokopirirakau* "Roys Peak"**

Other names: Roys Peak gecko

Otago Regional Council

Conservation status

Regional | At Risk: Declining
National | At Risk: Declining

Description

Body length: up to 95 mm snout-vent length (SVL). Intact tail shorter than SVL.

The orange-spotted gecko is a beautiful and variable gecko species that lives in Otago's alpine ecosystems.

Lower surfaces: grey, pinkish, or pale-orange colours, with or without speckling.

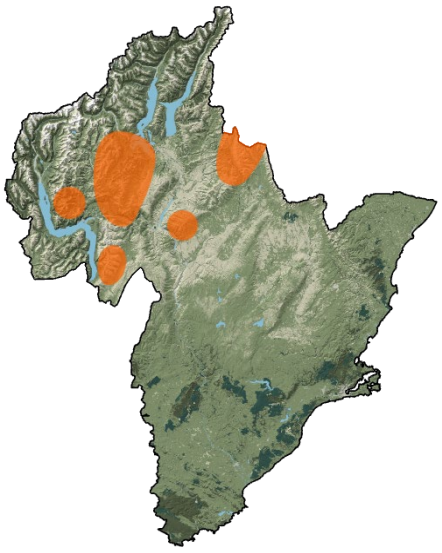
Upper surfaces: base colour is varied, including tones of grey, brown, pinkish brown, olive green, and rusty orange through to bright orange. They are sometimes covered in speckles. The base colour can be partly covered with faint or highly contrasting patterns, occasionally edged in black.

Broad stripes typically run along the back, with alternating blotches, smudges, triangles, diamonds, or butterfly-like shapes. The overall pattern is sometimes punctuated by orange spots, streaks, or blotches. Rarely, individuals are almost completely orange all over with markings in different shades of orange. Often, there is a distinctive V-shaped marking on top of the head between the eyes. The markings vary widely from site to site as well as within populations.

Mouth and tongue colour:
bright orange or orange-yellow

Distribution

Orange-spotted geckos have only been reliably reported from the alpine zone, with current records from an elevational range of 1,100–1,800 metres above sea level. They are known from mountainous areas of Central Otago and West Otago. However, orange-spotted geckos have also been found in Canterbury, near the Otago-Canterbury border. The orange-spotted gecko was discovered in 1998 and is known from more than 15 sites across six mountain ranges as of mid-2023. Most of these populations appear to be small and isolated from other populations.



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SOUTHERN LAKES SANCTUARY

TŪHURA Otago Museum

Ecology & natural history

A secretive species, the orange-spotted gecko is largely active at night but has been observed basking during the day. It is known to inhabit the steep upper slopes of mountains, dwelling in areas with extensive exposed rock, such as alpine boulderfields, rocky bluffs, scree slopes, and/or loose piles of rock.

Most of the known orange-spotted gecko habitats are covered in a layer of snow for 3–5 months every year. Vegetation is dominated by snow tussocks, with a wide range of mat-forming plants and shrubs growing around rocks, including Dracophyllum shrubs, with which the geckos are well camouflaged. The reproductive rate of the orange-spotted gecko is low—recent research suggests they give birth every third or fourth year, to a maximum of two offspring per pregnancy.

Conservation

Scientists are researching conservation strategies that may help alpine lizards in New Zealand, but more work is required to understand how their populations respond to threats such as exotic mammalian predators.

Given that orange-spotted geckos take at least four years to reach maturity and have a low reproductive rate, predation by introduced mammals (such as stoats, ferrets, weasels, mice, rats, and hedgehogs) may be a significant threat to their populations.

Human-induced climate change might also enable more species of mammalian predators, or higher densities of these predators, to reach the currently cooler alpine zone, where the orange-spotted geckos are found, from the warmer lower slopes.

Regional threat listing qualifiers:
Otago is a national stronghold for the orange-spotted gecko, with over 20% of their population found in the region (National Stronghold). The southern limit of their natural distribution is in Otago (Natural Range).

Identifying features

The orange-spotted gecko can closely resemble the Tākitimu gecko (*Mokopirirakau* cryptozoicus) and the Cascade gecko (*Mokopirirakau* "Cascades"), as there is extensive overlap in morphology, or physical features, between these three species. This makes them difficult to identify from physical features alone. Genetic data may therefore be needed to differentiate these species in areas where *Mokopirirakau* geckos have not previously been identified. These data are only collected by professionals with approval from the Department of Conservation – Te Papa Atawhai.

Orange-spotted gecko (West Otago). Photographed by Carey Knox

Orange-spotted gecko (West Otago). Photographed by Carey Knox

Orange-spotted gecko (Central Otago). Photographed by Samuel Purdie

Scott Jarvie, Otago Regional Council: conception, research and editing; Samuel Purdie, Southern Lakes Sanctuary: research, writing and photograph; Carey Knox, Southern Scales: research, writing and photograph; Alice Waterman and Harry Pickernell, Tūhura Otago Museum: editing and design. (2025)

SOUTHERN LAKES SANCTUARY

TŪHURA Otago Museum

Tautuku gecko

***Mokopirirakau* "southern forest"**

Other names: southern forest gecko, blue-eyed gecko

Otago Regional Council

Conservation status

Regional | At Risk: Declining
National | At Risk: Declining

Description

Body length: up to 94 mm snout-vent length (SVL), with intact tail longer than SVL.

The Tautuku gecko is a dramatically coloured, highly variable species that occasionally possesses striking blue eyes. It is currently only known from the Catlins in the southeastern South Island.

Upper surfaces: base colouration of grey, brown, reddish, or olive, sometimes partly covered by red, bright-yellow, cream-yellow, grey, or maroon blotches, smudges, triangles, diamonds, or butterfly-like shapes. Sometimes bears spots, speckles, and irregular stripes.

Lower surfaces: pale grey or cream yellow, sometimes with blotches and speckles.

Mouth colour: bright orange or orange yellow.

Tongue colour: orange, reddish, or pinkish.

Eye colour: bright-blue eyes in some individuals.

Distribution

The Tautuku gecko is the only *Mokopirirakau* gecko species known to occur in the Catlins forests, in southeast Otago and eastern Southland, where they are found from the northern Catlins to near the southern limit. There is also a possibility that Tautuku geckos occur in western Southland, with museum specimens of Tautuku geckos from the late 1800s or early 1900s labelled 'Riverton', an area in Southland. Recent surveys, however, have to date failed to locate any in western Southland.

Scott Jarvie, Otago Regional Council: conception, research and editing; Samuel Purdie, Southern Lakes Sanctuary: research, writing and photograph; Carey Knox, Southern Scales: research, writing and photograph; Alice Waterman and Harry Pickernell, Tūhura Otago Museum: editing and design. (2025)

SOUTHERN LAKES SANCTUARY

TŪHURA Otago Museum

Ecology & natural history

The habitats Tautuku geckos occupy are podocarp-hardwood forest, particularly rimu (*Dacrydium cupressinum*) and rātā (*Metrosideros umbellata*), as well as mature mānuka (*Leptospermum scoparium*), kānuka (*Kunzea spp.*), or *Coprosma* spp. shrublands bordering native forest.

Tautuku geckos are active during the day and at night. During the day, they hide in tree holes, underneath tree bark, or in dense shrubs or crown ferns, but may expose parts of their bodies to the sun to maintain preferred body temperatures. At night, Tautuku geckos often leave their day-time hideaways to seek food and mates during suitable weather conditions. They feed on small invertebrates, including insects and spiders, and may opportunistically consume native fruits and nectar from flowers. Females typically give birth annually to a maximum of two offspring.

Conservation

For several decades prior to 2015, scientists were uncertain whether Tautuku geckos were widespread in the Catlins, and simply hard to find, or genuinely rare, and in need of conservation management. Subsequent surveys since 2015 revealed many new populations of Tautuku gecko, indicating that they are not necessarily threatened with extinction, but can be difficult to locate in mature forest habitats.

Surveys have continued for the species, supported by the Royal Forest and Bird Protection Society of New Zealand. The major threat to the Tautuku gecko are introduced mammalian predators, including rats, mice, stoats, ferrets, and feral cats.

Regional threat listing qualifiers: Otago is a national stronghold for the Tautuku gecko, with over 20% of their population found in the region (National Stronghold). The northern limit of their natural distribution is in Otago (Natural Range).

Identifying features

The Tautuku gecko may be mistaken for the Tākitimu gecko (*Mokopirirakau cryptozoicus*), which might occupy similar locations in western Southland. There is also a very small chance of overlap in Otago. The two species strongly resemble one another, which makes them difficult to identify from physical features alone. Genetic data may therefore be needed to differentiate Tautuku and Tākitimu geckos in areas where they have not previously been identified. Such data is only collected by professionals with approval from the Department of Conservation – Te Papa Atawhai.

Tautuku geckos can be distinguished from kōrero geckos (*Woodworthia* "Otago/Southland large") by their markings, as Tautuku geckos have triangular markings on the back of their head vs. no markings, or reduced markings, on kōrero geckos. The Tautuku gecko is also generally more colourful and more strongly marked than the kōrero gecko, which is typically grey, brown, or olive-green in colour, lacking any red or yellow colouration.

Tautuku gecko (Catlins, Otago). Photographed by Samuel Purdie

Tautuku gecko (Catlins). Photographed by Carey Knox

Scott Jarvie, Otago Regional Council: conception, research and editing; Samuel Purdie, Southern Lakes Sanctuary: research, writing and photograph; Carey Knox, Southern Scales: research, writing and photograph; Alice Waterman and Harry Pickernell, Tūhura Otago Museum: editing and design. (2025)

SOUTHERN LAKES SANCTUARY

TŪHURA Otago Museum

Tākitimu gecko

Mokopirirakau cryptozoicus

Other names: Tākitimu gecko

Otago Regional Council

Conservation status

Regional | Threatened: Critical
National | Threatened: Vulnerable

Description

Body length: up to 87 mm snout-vent length (SVL), with intact tail shorter than SVL.

The Tākitimu gecko is a poorly known species of gecko that often has striking red markings.

Upper surfaces: typically slate grey or olive in colour, with red, orange, cream yellow, grey, or maroon markings. Tākitimu geckos sometimes have blotches, spots, speckles, and irregular stripes.

Lower surfaces: pale-grey or cream-yellow in colour, sometimes with blotches and speckles.

Mouth colour: bright orange

Tongue colour: pink or grey, sometimes with a grey tip.

Distribution

The distribution of Tākitimu geckos is poorly understood, but they appear to be relatively widespread and occur in both lowland and alpine ecosystems, reaching elevations of at least 1,450 metres above sea level.

Tākitimu geckos have been recorded in Southland (in the Tākitimu Mountains and Waitutu Forest) and Otago, where just one individual has ever been found. This individual was observed in the Richardson Mountains, north of Lake Whakatipu. Although a Tākitimu gecko may have been found on Mauīkatau/ Resolution Island in Fiordland, the identity of this gecko is yet to be confirmed with genetic data.

Scott Jarvie, Otago Regional Council: conception, research and editing; Samuel Purdie, Southern Lakes Sanctuary: research, writing and photograph; Carey Knox, Southern Scales: research, writing and photograph; Alice Waterman and Harry Pickernell, Tūhura Otago Museum: editing and design. (2025)

SOUTHERN LAKES SANCTUARY

TŪHURA Otago Museum

Ecology & natural history

Tākitimu geckos inhabit creviced rock outcrops, rock walls, scree, rocky herbfield, and mature native forests. During the day, they hide underneath rocks and tree bark, in dense vegetation, crevices, and scree, or on other rocky slopes. They may expose parts of their bodies to the sun to maintain preferred body temperatures. At night, they sometimes leave their day-time hideaways to seek food and mates.

Tākitimu geckos mostly feed on small invertebrates, including insects and spiders, and may opportunistically consume native fruits and nectar from flowers. Little is known about their reproductive biology, but high-elevation females probably reproduce every two or more years and give birth to a maximum of two offspring per pregnancy.

Conservation

Following the discovery of the Tākitimu gecko in the late 1990s, lizard surveys were undertaken to learn more about their distribution. Despite this, little is known about Tākitimu geckos, as they are only known from a small number of locations. Further surveys are required to improve our understanding of their distribution and population numbers, including in Otago.

The major threats to the Tākitimu gecko are introduced mammalian predators, including rats, mice, stoats, ferrets, and feral cats. Human-induced climate change might also pose a threat to these geckos.

Regional threat listing qualifiers:
The northern limit of their natural distribution is in Otago (Natural Range).

Tākitimu gecko. Photographed by Samuel Purdie

Identifying features

Tākitimu geckos may be mistaken for other Mokopirirakau geckos that occupy similar locations in Otago, including orange-spotted geckos (*Mokopirirakau* "Roy's Peak"), Tautuku geckos (*Mokopirirakau* "southern forest"), and Cascade geckos (*Mokopirirakau* "Cascades"), as there is extensive overlap in appearance between these four species. This makes them difficult to identify from physical features alone and genetic data may therefore be needed to differentiate them in areas where Mokopirirakau geckos have not previously been identified. These data are only collected by professionals with approval from the Department of Conservation – Te Papa Atawhai.

Tākitimu geckos can be distinguished from kōrero geckos (*Woodworthia* "Otago/Southland large") and mountain beech geckos (*Woodworthia* "south-western") by the triangular markings on the back of their head, which are absent or reduced in Woodworthia geckos. The Tākitimu gecko also tends to have narrower toe pads than kōrero geckos and mountain beech geckos.

Tākitimu gecko. Photographed by Carey Knox

Tākitimu gecko. Photographed by Samuel Purdie

Scott Jarvie, Otago Regional Council: conception, research and editing; Samuel Purdie, Southern Lakes Sanctuary: research, writing and photograph; Carey Knox, Southern Scales: research, writing and photograph; Alice Waterman and Harry Pickernell, Tūhura Otago Museum: editing and design. (2025)

SOUTHERN LAKES SANCTUARY

TŪHURA Otago Museum

Kōrero gecko

Woodworthia "Otago/Southland large"

Other names: Otago large gecko

Otago Regional Council

Conservation status

Regional | At Risk: Declining
National | At Risk: Declining

Description

Body length: up to 95 mm snout-vent length (SVL), but typically less than 85 mm SVL, with an intact tail approximately equal to SVL.

The kōrero gecko is one of the largest geckos currently found on the South Island mainland. Kōrero geckos reach their largest body sizes in alpine areas.

Upper surfaces: typically grey, brown, or olive-green in colour, with pale bands, blotches, or stripes in varying shades.

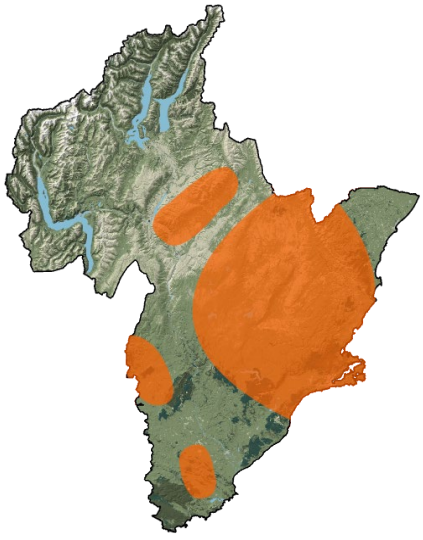
Lower surfaces: pale grey or brown in colour, often with speckles.

Mouth colour: pink

Tongue colour: pink, sometimes with a grey tip.

Distribution

Kōrero geckos occupy rocky habitats from the coast up to about 1,300 metres above sea level. They are known from eastern Otago, parts of Central Otago, and Southland. Kōrero geckos live in a wide variety of habitats across their range but their greatest abundances are in the tors and outcrops of schist rock. In some of these areas, kōrero geckos can often be found in high numbers and reach hundreds of individuals per hectare of habitat. They also occur in shrubland and forest habitat in parts of Southland and Otago but are generally either absent from forests or are only found in low numbers. When present in forests, they may reach higher numbers in areas that have mature podocarp trees, such a s rimu, as the crevices and holes in these large trees offer many hiding places from introduced mammalian predators.



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SOUTHERN LAKES SANCTUARY

TŪHURA Otago Museum

Ecology & natural history

Kōrero geckos are active during the day and at night. During the day, they hide in crevices or under rocks/logs, but may sun-bask at the entrance of their hideaways to maintain their preferred body temperatures. Individuals of this species may form large groups in suitable hideaways. For example, more than fifty kōrero geckos have been recorded under a single rock.

At night, they sometimes leave their hideaways and will forage amongst rocky habitat and small native shrubs, such as mingimingi (*Coprosma propinqua*), porcupine shrub (*Melicytus alpinus*) and pōhuehue (*Muehlenbeckia complexa*), during suitable weather conditions. They mostly feed on small invertebrates, including insects and spiders, and may opportunistically consume native fruits and nectar from flowers.

Kōrero geckos predominantly live in rocky areas, such as rocky hill tops, schist rock tors, rock jumbles, scree slopes, boulderfields, loose scattered rock, river edges or terraces, dry stream beds, and creviced bluffs. They may occasionally be found in shrubland, under wood, in forest, clay banks, or in man-made structures.

Kōrero gecko females reproduce annually in coastal or low-altitude habitats, but individuals from sub-alpine and low alpine populations often reproduce every two years. Females typically give birth in summer to a maximum of two offspring.

Kōrero gecko (Dunedin). Photographed by Carey Knox

Conservation

Kōrero geckos have been the subject of many scientific research projects, some of which have vastly improved our understanding of New Zealand gecko biology and ecology. They are present in the 307-hectare fenced Orokonui Ecosanctuary – Te Korowai o Mihiwaka, near Ōtepoti/Dunedin, and at Macraes Flat, where introduced mammalian predators are controlled or eliminated, except for the house mouse. The major threats to the kōrero gecko are habitat modification (by land development, intensive farming, and fire) and introduced mammalian predators, including rats, mice, hedgehogs, weasels, stoats, ferrets, feral cats, and pet cats.

Regional threat listing qualifiers:
Otago is a national stronghold for the kōrero gecko, with over 20% of their population found in the region (National Stronghold).

Identifying features

Kōrero geckos may be mistaken for other species of *Woodworthia* gecko that occupy similar habitats, especially in Central Otago, where the distributions of several species come into contact and even overlap. Although vaguely similar in appearance to the schist gecko (*Woodworthia* "Central Otago"), the Southern Alps gecko (*Woodworthia* "Southern Alps"), and the Kawarau gecko (*Woodworthia* "Cromwell"), where the kōrero gecko meets these species, it is generally much larger, being the only one of these four species that regularly exceeds 75 mm SVL. Moreover, kōrero geckos are generally more brownish in colour than Southern Alps geckos, which are typically greyish in colour.
The distributions of Southern Alps geckos and kōrero geckos only come into close contact near the border of Otago and Canterbury.

Kōrero gecko (Dunedin). Photographed by Carey Knox

Scott Jarvie, Otago Regional Council: conception, research and editing; Samuel Purdie, Southern Lakes Sanctuary: research, writing and photograph; Carey Knox, Southern Scales: research, writing and photograph; Alice Waterman and Harry Pickernell, Tūhura Otago Museum: editing and design. (2025)

SOUTHERN LAKES SANCTUARY

TŪHURA Otago Museum

Mountain beech gecko

Woodworthia "south-western"

Other names: south-western gecko, south-western large gecko

Otago Regional Council

Conservation status

Regional | At Risk: Declining
National | At Risk: Declining

Description

Body length: up to 93 mm snout-vent length (SVL), but typically <85 mm SVL. Intact tail equal to or longer than SVL. The mountain beech gecko is highly variable in colour and size and was recently recognised as a distinct species from the kōrero gecko (*Woodworthia* "Otago/Southland large").

Upper surfaces: grey, brown, pinkish, or olive in colour, with bands, blotches, or stripes, and sometimes speckles or spots.

Lower surfaces: pale-grey in colour, sometimes with speckles.

Mouth colour: pink

Tongue colour: pink, sometimes with a grey tip.

Distribution

Mountain beech gecko populations are widespread from the lowlands to alpine ecosystems, reaching elevations of approximately 1,300 metres above sea level. They occur from slightly north of Lake Whakatipu down to eastern Fiordland, north of Lake Manapouri, near Te Anau. They can be found in and around Queenstown, Glenorchy, and many of the surrounding mountains, as far east as the Old Man Range. Mountain beech geckos also occur on Wāwāhi Waka/Pigeon Island, Mātau/Pig Island, and Tree Island in Lake Whakatipu.

Scott Jarvie, Otago Regional Council: conception, research and editing; Samuel Purdie, Southern Lakes Sanctuary: research, writing and photograph; Carey Knox, Southern Scales: research, writing and photograph; Alice Waterman and Harry Pickernell, Tūhura Otago Museum: editing and design. (2025)

SOUTHERN LAKES SANCTUARY

TŪHURA Otago Museum

Ecology & natural history

Mountain beech geckos inhabit rocky shrubland, rocky grassland, rocky slopes, rock outcrops, boulderfield, scree, rocky lake shores, and forests. In beech forests, scientists researching native bats have found these geckos tens of metres up trees.

Mountain beech geckos are active during the day and at night. During the day, they typically hide underneath rocks and logs, in trees, dense vegetation, rock crevices, scree and boulderfield, and on other rocky slopes, sometimes forming large groups in suitable hideaways. However, they may expose parts of their bodies to the sun at the entrance to maintain their preferred body temperatures.

At night, they sometimes leave their day-time hideaways to seek food and mates during suitable weather conditions. Mountain beech geckos mostly feed on invertebrates, including insects and spiders, and may opportunistically consume native fruits and nectar from flowers.

Females generally reproduce annually to a maximum of two offspring, although high-elevation females may reproduce every two or three years.

Mountain beech gecko (Queenstown). Photographed by Samuel Purdie

Mountain beech gecko (Glenorchy). Photographed by Carey Knox

Conservation

Mountain beech geckos have received limited conservation attention. However, they have benefited from predator exclusion on several predator-free islands in Lake Whakatipu. Their major threats are habitat modification (including by land development and fire) and introduced mammalian predators, such as rats, mice, stoats, ferrets, and cats. Human-induced climate change might also pose a threat to these geckos.

Regional threat listing qualifiers: Otago is a national stronghold for the mountain beech gecko, with over 20% of their population found in the region (National Stronghold). The northern limit of their natural distribution is in Otago (Natural Range).

Identifying features

Mountain beech geckos may be mistaken for other species of *Woodworthia* gecko that occupy similar locations in Otago, with genetic data sometimes required to differentiate species. These data are only collected by professionals with approval from the Department of Conservation – Te Papa Atawhai. Mountain beech geckos resemble kōrero geckos (*Woodworthia* "Otago/Southland large") and Kawarau geckos (*Woodworthia* "Cromwell"), but adult male mountain beech geckos have three rows of pores extending onto their thighs vs. two rows in kōrero geckos and Kawarau geckos. These pores produce waxy, smelly substances used in courtship and rivalry.

Mountain beech geckos can be distinguished from short-toed geckos (*Woodworthia* "southern mini") by their colouration, usually being brown or grey in colour vs. a warm olive-brown colour in short-toed geckos. Adult mountain beech geckos are also larger (usually >60 mm SVL) than short-toed geckos (usually <60 mm SVL) and the stripe on their snout is typically not as prominent, tending to be wide with faint edges in mountain beech geckos vs. narrow with defined edges in short-toed geckos.

Scott Jarvie, Otago Regional Council: conception, research and editing; Samuel Purdie, Southern Lakes Sanctuary: research, writing and photograph; Carey Knox, Southern Scales: research, writing and photograph; Alice Waterman and Harry Pickernell, Tūhura Otago Museum: editing and design. (2025)

SOUTHERN LAKES SANCTUARY

TŪHURA Otago Museum

Raggedy Range gecko

***Woodworthia* "Raggedy Range"**

Otago Regional Council

Conservation status

Regional | Threatened: Vulnerable
National | Threatened: Vulnerable

Description

Body length: up to 68 mm snout-vent length (SVL), with intact tail approximately equal to SVL.

The Raggedy Range gecko is a small, brightly marked gecko that is only known from the northern Raggedy Range in Central Otago.

Upper surfaces: typically grey or brown in colour, with bands, blotches, or stripes and sometimes speckles or spots.

Lower surfaces: pale grey or brown in colour, often with speckles.

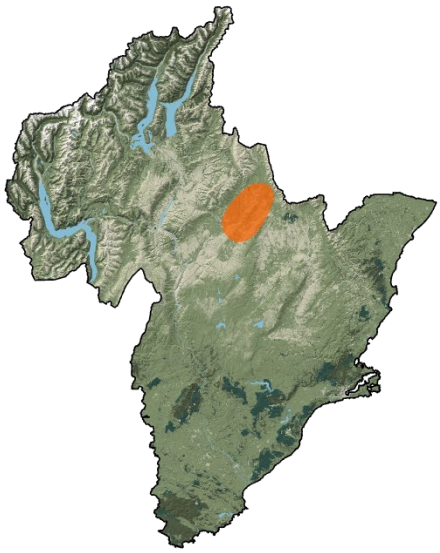
Eye colour: green, blue green, or yellow green.

Mouth colour: pink.

Tongue colour: pink, sometimes with a grey tip.

Distribution

The Raggedy Range gecko is found from the Ida Burn to the northern tip of the Raggedy Range, from elevations of about 500 to 990 metres above sea level. A Woodworthia gecko population by the West Eweburn Dam to the east remains unresolved and may belong to this species; however, individuals in this population are considerably larger, growing up to 80 mm SVL compared to up to 68 mm SVL for the confirmed Raggedy Range gecko. Thus, genetic samples are needed to confirm which species this population belongs to.



Scott Jarvie, Otago Regional Council: conception, research and editing; Samuel Purdie, Southern Lakes Sanctuary: research, writing and photograph; Carey Knox, Southern Scales: research, writing and photograph; Alice Waterman and Harry Pickernell, Tūhura Otago Museum: editing and design. (2025)

SOUTHERN LAKES SANCTUARY

TŪHURA Otago Museum

Ecology & natural history

While the ecology of the Raggedy Range gecko is poorly known, it is likely to be similar to the closely related kōrero gecko (*Woodworthia* "Otago/Southland large") or schist gecko (*Woodworthia* "Central Otago").

Raggedy Range geckos are active during the day and at night. During the day, they hide under rocks or in rock crevices, sometimes forming large groups in suitable hideaways. To maintain their preferred body temperatures, the geckos will bask at the entrance of their hideaways, exposing parts of their bodies to the sun.

At night, Raggedy Range geckos will sometimes leave their hideaways to forage and seek mates among rocks and small native shrubs during suitable weather conditions. They mostly feed on small invertebrates, including insects and spiders, and may opportunistically consume native fruits from shrubs such as mingimingi (*Coprosma propinqua*).

Although little is known about the frequency of their reproduction, females give birth to a maximum of two offspring.

Conservation

Raggedy Range geckos have received limited conservation attention. Their major threats are habitat modification (including by land development, intensive farming, and fire) and introduced mammalian predators, such as rats, mice, hedgehogs, weasels, stoats, ferrets, and cats.

Regional threat listing qualifiers: The Raggedy Range gecko is endemic to Otago, meaning it is only found in this region (Regional Endemic).

Raggedy Range gecko (Raggedy Range). Photographed by Carey Knox

Identifying features

Raggedy Range geckos live near schist geckos (*Woodworthia* "Central Otago") in the central Raggedy Range, around the Ida Burn. In the northern expanse of their distribution, Raggedy Range geckos possibly occur near Southern Alps geckos (*Woodworthia* "Southern Alps").

The specific differences between Raggedy Range geckos and other gecko species, such as the Southern Alps gecko and schist gecko, are poorly understood

Raggedy Range gecko (Raggedy Range). Photographed by Carey Knox

Raggedy Range gecko (Raggedy Range). Photographed by Carey Knox

Raggedy Range gecko (Raggedy Range). Photographed by Samuel Purdie

Scott Jarvie, Otago Regional Council: conception, research and editing; Samuel Purdie, Southern Lakes Sanctuary: research, writing and photograph; Carey Knox, Southern Scales: research, writing and photograph; Alice Waterman and Harry Pickernell, Tūhura Otago Museum: editing and design. (2025)

SOUTHERN LAKES SANCTUARY

TŪHURA Otago Museum

Southern Alps gecko

***Woodworthia* "Southern Alps"**

Otago Regional Council

Conservation status

Regional | At Risk: Declining
National | At Risk: Declining

Description

Body length: up to 72 mm snout-vent length (SVL). Intact tail length variable.

Upper surfaces: grey, brown, olive, or pinkish in colour, often with bands or blotches, sometimes with speckles or spots.

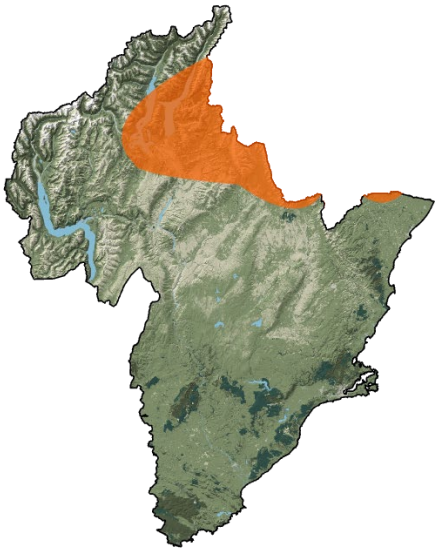
Lower surfaces: pale grey or brown in colour, sometimes with speckles.

Mouth colour: pink

Tongue colour: pink, sometimes with a grey tip.

Distribution

Southern Alps geckos are found across a wide elevational range, occurring from approximately 200 metres above sea level to 1,900 metres above sea level; however, they mostly inhabit sub-alpine areas.



Southern Alps geckos occur from Wānaka, in Otago, to the Rakaia River, in Canterbury. In Otago, they can be found in and around Wānaka, where their populations come into close contact with Kawarau gecko populations (*Woodworthia* "Cromwell"); Lake Hāwea; and throughout many of the surrounding mountains, including the eastern Tiritiri-o-te-moana/Southern Alps, as far east as Naseby and the Ida Range. The Southern Alps gecko also occurs on Mou Tapu, Mou Waho, and Te Peka Karara/Stevensons Island in Lake Wānaka.

Scott Jarvie, Otago Regional Council: conception, research and editing; Samuel Purdie, Southern Lakes Sanctuary: research, writing and photograph; Carey Knox, Southern Scales: research, writing and photograph; Alice Waterman and Harry Pickernell, Tūhura Otago Museum: editing and design. (2025)

SOUTHERN LAKES SANCTUARY

TŪHURA Otago Museum

Ecology & natural history

Southern Alps geckos inhabit rocky shrubland, rocky slopes, rock outcrops, boulderfield, scree, rocky river terraces, and occasionally trees. During the day, they often hide underneath rocks, in dense vegetation, or in rock crevices, sometimes forming large groups in suitable hideaways. To maintain their preferred body temperatures, they will bask at the entrance of their hideaways, exposing parts of their bodies to the sun.

At night, Southern Alps geckos venture out to seek food and mates during suitable weather conditions. They mostly feed on invertebrates, including insects and spiders, and may opportunistically consume native fruits and nectar from flowers.

Females at high-elevation sites probably reproduce every two or three years and give birth in summer to a maximum of two offspring.

Conservation

Southern Alps geckos have receieved limited conservation. However, they have benefited from predator exclusion on several islands in Lake Wānaka. Their major threats are habitat modification, including land development and fires, and introduced mammalian predators, such as rats, mice, stoats, ferrets, and cats. Human-induced climate change might also pose a threat to these geckos.

Regional threat listing qualifiers:
The southern limit of the natural distribution for the Southern Alps gecko is in the Otago region (Natural Range).

Southern Alps gecko (Oteake Conservation Park). Photographed by Carey Knox

Identifying features

Southern Alps geckos may be mistaken for other species of *Woodworthia* gecko that occupy similar locations in Otago, and genetic data is sometimes required to differentiate species. These data are only collected by professionals with approval from the Department of Conservation – Te Papa Atawhai. Southern Alps geckos can sometimes be distinguished from kōrero geckos (*Woodworthia* "Otago/Southland large") by their size, as adult kōrero geckos are usually larger (>70 mm SVL) than Southern Alps geckos (usually <70 mm SVL) where they overlap.

Southern Alps geckos can often be distinguished from Kawarau geckos (*Woodworthia* "Cromwell") by their eyes, which are usually pale green in colour vs. pale brown in Kawarau geckos.

Southern Alps gecko (Oteake Conservation Park). Photographed by Carey Knox

Southern Alps gecko (Oteake Conservation Park). Photographed by Carey Knox

Scott Jarvie, Otago Regional Council: conception, research and editing; Samuel Purdie, Southern Lakes Sanctuary: research, writing and photograph; Carey Knox, Southern Scales: research, writing and photograph; Alice Waterman and Harry Pickernell, Tūhura Otago Museum: editing and design. (2025)

SOUTHERN LAKES SANCTUARY

TŪHURA Otago Museum

Schist gecko

Woodworthia "Central Otago"

Other names: Central Otago gecko

Otago Regional Council

Conservation status

Regional | At Risk: Declining
National | At Risk: Declining

Description

Body length: up to 71 mm snout-vent length (SVL), with intact tail approximately equal to SVL. With its patchy grey or brown colouring, the schist gecko blends masterfully into the schist tors that punctuate the Central Otago landscape.

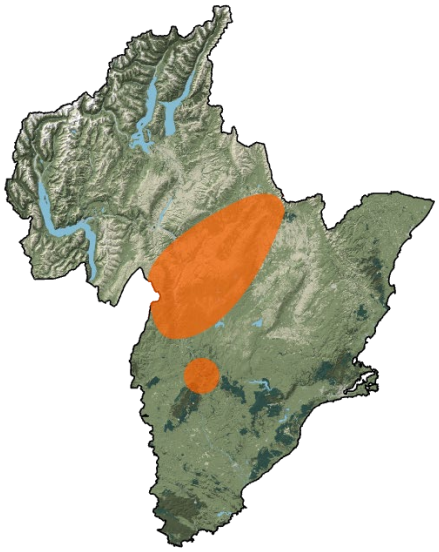
Upper surfaces: grey or brown in colour with bands, blotches, or stripes, and sometimes speckles or spots.

Lower surfaces: pale grey or brown, often with speckles.

Eye colour: variable, but usually yellow.

Mouth colour: pink

Tongue colour: pink, sometimes with a grey tip.



Distribution

Schist geckos are endemic to Otago and occupy schist rock habitats up to at least 1,100 metres above sea level. They live in tors and outcrops of schist rock and, within their distributional range, can be found almost anywhere these rocks occur. Their known locations include the Raggedy Range, south of the Idaburn; Rough Ridge; Old Man Range; Cairnmuir Range; around Beaumont; Alexandra; Clyde; and the Clutha Valley.

Scott Jarvie, Otago Regional Council: conception, research and editing; Samuel Purdie, Southern Lakes Sanctuary: research, writing and photograph; Carey Knox, Southern Scales: research, writing and photograph; Alice Waterman and Harry Pickernell, Tūhura Otago Museum: editing and design. (2025)

SOUTHERN LAKES SANCTUARY

TŪHURA Otago Museum

Ecology & natural history

Schist geckos are commonly encountered across much of their known range. They are most active at night, foraging and seeking mates in suitable weather conditions among rocky habitat, small native shrubs (e.g. *Coprosma propinqua* and *Melicytus alpinus*), or dense vines (e.g. *Muehlenbeckia complexa*). They mostly feed on small invertebrates, including insects and spiders, and may opportunistically consume native fruits and nectar from flowers.

During the day, schist geckos shelter in rocky or woody crevices, or under rocks, sometimes forming large groups in suitable hideaways. To maintain their preferred body temperatures, they may sun-bask at the entrance.

Female schist geckos generally reproduce annually to a maximum of two offspring, although in sub-alpine areas they may reproduce every two years.

Conservation

Schist geckos have received limited conservation attention. However, they are present in the 14-hectare fenced Mokomoko Dryland Sanctuary, near Alexandra, where introduced mammalian predators have been almost completely eliminated.

The major threats to the schist gecko are habitat modification (including by land development, intensive farming, and fire) and introduced mammalian predators, such as rats, mice, hedgehogs, weasels, stoats, ferrets, feral cats, and pet cats.

Regional threat listing qualifiers: The schist gecko is an endemic species to Otago, meaning it is only found in this region (Regional Endemic).

Schist gecko (Central Otago). Photographed by Carey Knox

Identifying features

Schist geckos may be mistaken for other species of *Woodworthia* gecko that occupy similar locations in Otago, with genetic data sometimes required to differentiate species. These data are only collected by professionals with approval from the Department of Conservation – Te Papa Atawhai.

Although location can be a useful indicator for distinguishing schist geckos from other *Woodworthia* geckos, schist geckos can live near, and may overlap with, Kawarau geckos (*W.* "Cromwell") in western parts of their range, such as near Clyde. Schist geckos may also overlap with the Raggedy Range geckos (*W.* "Raggedy Range") in the central-northern Raggedy Range and with kōrero geckos (*W.* "Otago/Southland large") near Lake Onslow.

Several physical characteristics can assist in identifying schist geckos. They are often distinguished from Kawarau geckos by the stripe, or lack thereof, between their nostrils and eyes; this is narrow or absent in schist geckos vs. being typically broad in Kawarau geckos.

The schist gecko typically has larger eyes than the Raggedy Range gecko, and the toe pads are often broadest in the middle in schist geckos vs. being broadest towards the tip in Raggedy Range geckos. Schist geckos also usually have yellow-coloured eyes vs. greenish eyes in the Raggedy Range gecko. Where the distribution of schist gecko overlaps, or comes into close contact, with that of the kōrero gecko, the schist gecko is typically smaller than the kōrero gecko (< 70 mm SVL vs. > 70 mm SVL, respectively).

Schist gecko (Central Otago). Photographed by Carey Knox

Scott Jarvie, Otago Regional Council: conception, research and editing; Samuel Purdie, Southern Lakes Sanctuary: research, writing and photograph; Carey Knox, Southern Scales: research, writing and photograph; Alice Waterman and Harry Pickernell, Tūhura Otago Museum: editing and design. (2025)

SOUTHERN LAKES SANCTUARY

TŪHURA Otago Museum

Kawarau gecko

***Woodworthia* "Cromwell"**

Other names: Cromwell gecko

Otago Regional Council

Conservation status

Regional | At Risk: Declining
National | At Risk: Declining

Description

Body length: up to 78 mm snout-vent length (SVL), with intact tail approximately equal to SVL. The Kawarau gecko is highly variable in colour and size. Kawarau geckos in low-elevation areas are typically smaller (<65 mm SVL) than individuals found at high elevations (up to 78 mm SVL).

Upper surfaces: grey or brown in colour, with bands, blotches, or stripes, and sometimes speckles or spots.

Lower surfaces: pale grey or brown in colour, sometimes with speckles.

Mouth colour: pink

Tongue colour: pink, sometimes with a grey tip.

Distribution

Kawarau gecko populations are widespread from the lowlands to alpine ecosystems, reaching elevations of approximately 1,300 metres above sea level. They occur from the southern end of Lake Wānaka to the Clyde township and from the Lindis Valley to the Gibbston Valley, east of Queenstown. They can be found in and around Wānaka, Cardrona, Cromwell, and throughout many of the surrounding mountain ranges. Kawarau geckos also occur on Mātakitaki/Ruby Island in Lake Wānaka.

Scott Jarvie, Otago Regional Council: conception, research and editing; Samuel Purdie, Southern Lakes Sanctuary: research, writing and photograph; Carey Knox, Southern Scales: research, writing and photograph; Alice Waterman and Harry Pickernell, Tūhura Otago Museum: editing and design. (2025)

SOUTHERN LAKES SANCTUARY

TŪHURA Otago Museum

Ecology & Natural History

Kawarau geckos inhabit rocky shrubland, rocky slopes, rock outcrops, and occasionally trees, such as tī kōuka/cabbage trees.

During the day, they hide underneath rocks, in dense vegetation, or in rock crevices, sometimes forming large groups in suitable hideaways. To maintain preferred body temperatures, they may expose parts of their bodies to the sun at the entrance of their hideaways.

At night, Kawarau geckos sometimes leave their daytime hideaways during suitable weather conditions to seek food and mates. They mostly feed on small invertebrates, including insects and spiders, and may opportunistically consume native fruits and nectar from flowers.

Females generally reproduce annually and give birth to a maximum of two offspring, although high-elevation females may reproduce every two or three years.

Conservation

Kawarau geckos have received limited conservation attention. However, they have benefited from predator exclusion on Ruby Island in Lake Wānaka. Their major threats are habitat modification (including by land development and fires) and introduced mammalian predators, such as rats, mice, stoats, ferrets, and cats.

Regional threat listing qualifiers:
The Kawarau gecko is endemic to Otago, meaning it is only found in this region (Regional Endemic).

Identifying features

Kawarau geckos may be mistaken for other species of Woodworthia gecko that occupy similar locations in Otago, with genetic data sometimes required to differentiate species. These data are only collected by professionals with approval from the Department of Conservation – Te Papa Atawhai.

Kawarau geckos can often be distinguished from schist geckos (*Woodworthia* "Central Otago") by the stripe, or lack thereof, between their nostrils and eyes; this is usually broad in the Kawarau gecko vs. being typically narrow or absent in schist geckos.

Kawarau geckos can sometimes be distinguished from Southern Alps geckos (*Woodworthia* "Southern Alps") by their eyes, which are a pale-brown colour in Kawarau geckos vs. a pale-green colour in Southern Alps geckos. The toe pads of Kawarau geckos are also broadest towards the middle vs. being broadest towards the tip in Southern Alps geckos.

Kawarau gecko (Cardrona). Photographed by Carey Knox

Kawarau gecko (Clyde area). Photographed by Carey Knox

Kawarau gecko (Crown Range). Photographed by Carey Knox

Scott Jarvie, Otago Regional Council: conception, research and editing; Samuel Purdie, Southern Lakes Sanctuary: research, writing and photograph; Carey Knox, Southern Scales: research, writing and photograph; Alice Waterman and Harry Pickernell, Tūhura Otago Museum: editing and design. (2025)

SOUTHERN LAKES SANCTUARY

TŪHURA Otago Museum

Short-toed gecko

Woodworthia "southern mini"

Other names: southern mini gecko

Otago Regional Council

Conservation status

Regional | At Risk: Declining
National | At Risk: Declining

Description

Body length: up to 65 mm snout-vent length (SVL), with intact tail shorter than SVL.

The short-toed gecko is a petite gecko species that is closely related to the North Island's goldstripe gecko (*Woodworthia chrysosiretica*).

Upper surfaces: pale-brown, olive, olive-grey, or olive-brown in colour, often with pale blotches and dark speckles.

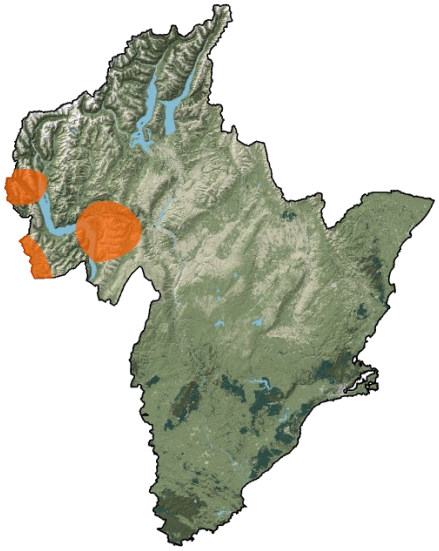
Lower surfaces: pale olive-grey in colour, sometimes with speckles.

Mouth colour: pink

Tongue colour: pink, sometimes with a grey tip.

Distribution

Short-toed geckos are widespread from highland areas exceeding 600 metres above sea level to alpine ecosystems, reaching elevations of approximately 1,700 metres above sea level. They occur from Kawarau/The Remarkables, north-west of Lake Whakatipu, to the Nevis River, east of Queenstown, then southwards to West Dome, the Garvie Mountains, Mid Dome, and the Mataura Range, in Southland. Short-toed geckos typically live in remote, alpine ecosystems, such as the Eyre Mountains, but can be found in mountainous areas near Queenstown, such as Kawarau/The Remarkables.



Scott Jarvie, Otago Regional Council: conception, research and editing; Samuel Purdie, Southern Lakes Sanctuary: research, writing and photograph; Carey Knox, Southern Scales: research, writing and photograph; Alice Waterman and Harry Pickernell, Tūhura Otago Museum: editing and design. (2025)

SOUTHERN LAKES SANCTUARY

TŪHURA Otago Museum

Ecology & natural history

Short-toed geckos inhabit rock outcrops, scree, rocky shrubland and grassland (including some areas grazed by cattle), and other rocky slopes. Unlike other *Woodworthia* geckos, they are thought to be relatively solitary and are not known to form large groups.

Short-toed geckos are thought to be most active at night , but may also be active under cover during the day, when they hide underneath rocks, in dense vegetation, rock crevices, and scree, and on other rocky slopes. At night, they sometimes leave their day-time hideaways to seek food and mates during suitable weather conditions. They mostly feed on invertebrates, including insects and spiders, and may opportunistically consume native fruits and nectar from flowers.

Females reproduce every one or two years and give birth in summer or autumn to a maximum of two offspring.

Conservation

Short-toed geckos have received limited conservation attention. Their major threats are habitat modification (including by land development and fire) and introduced mammalian predators, such as rats, mice, stoats, ferrets, and cats. Human-induced climate change might also pose a threat to these geckos.

Regional threat listing qualifiers:
Otago is a national stronghold for the short-toed gecko, with over 20% of their population found in the region (National Stronghold). The northern limit of their natural distribution is in Otago (Natural Range).

Short-toed gecko. Photographed by Carey Knox

Identifying features

Short-toed geckos may be mistaken for other species of *Woodworthia* gecko that occupy similar locations in Otago. They can be distinguished from mountain beech geckos (*W.* "south-western"), Kawarau geckos (*W.* "Cromwell"), and kōrero geckos (*W.* "Otago/Southland large") by their colouration.

While short-toed geckos are typically a warm olive-brown colour, mountain beech geckos, kōrero geckos, and Kawarau geckos are usually a darker grey, brown, or olive colour. Adult short-toed geckos are also smaller (usually <60 mm SVL) than all of these gecko species, which tend to be >60 mm SVL. Moreover, the short-toed gecko often has a prominent stripe on its snout that is typically narrow with defined edges, whereas mountain beech geckos, kōrero geckos, and Kawarau geckos have a wide stripe with faint edges.

Short-toed gecko. Photographed by Carey Knox

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SOUTHERN LAKES SANCTUARY

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