

Reptiles of Otago



Otago
Regional
Council



SOUTHERN
LAKES
SANCTUARY

TŪHURA
Otago Museum

Photograph: Samuel Purdie

Jewelled gecko

Naultinus gemmeus

Other names: moko kākāriki



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.

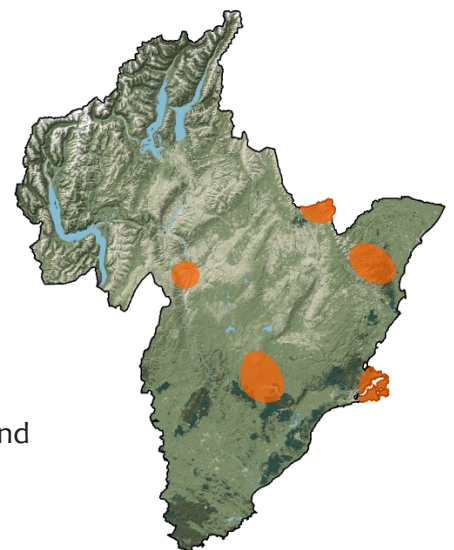
Lower surfaces: grey, pale-brown, whitish, cream, or pale-green in colour, sometimes with dark speckles.

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.



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

Hura te ao gecko

Mokopirirakau galaxias

Other names: southern black-eyed gecko (formerly)



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 Otago 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.



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

Cascade gecko

Mokopirirakau “Cascades”



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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.

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.

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.



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 cryptozoticus*) 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



Cascade gecko (West Otago). Photographed by Carey Knox

Orange-spotted gecko

Mokopirirakau “Roys Peak”

Other names: Roys Peak gecko



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.

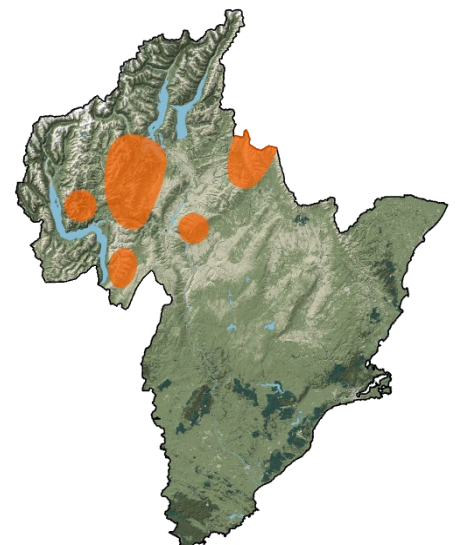
Upper surfaces: base colour is varied, including tones of grey, brown, pinkish brown, olive green, and rusty orange through to bright orange. They are sometimes covered in speckles. The base colour can be partly covered with faint or highly contrasting patterns, occasionally edged in black.

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.

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



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.

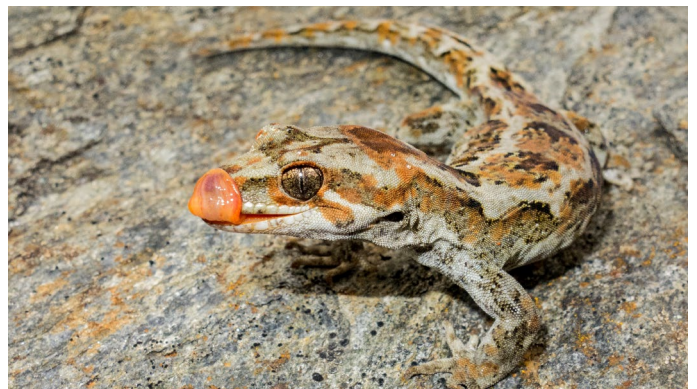
Human-induced climate change might also enable more species of mammalian predators, or higher densities of these predators, to reach the currently cooler alpine zone, where the orange-spotted geckos are found, from the warmer lower slopes.

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* *cryptozoticus*) 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

Tautuku gecko

Mokopirirakau “southern forest”

Other names: southern forest gecko, blue-eyed gecko



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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.

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.

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.



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

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 Mauikatau/Resolution Island in Fiordland, the identity of this gecko is yet to be confirmed with genetic data.



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

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.

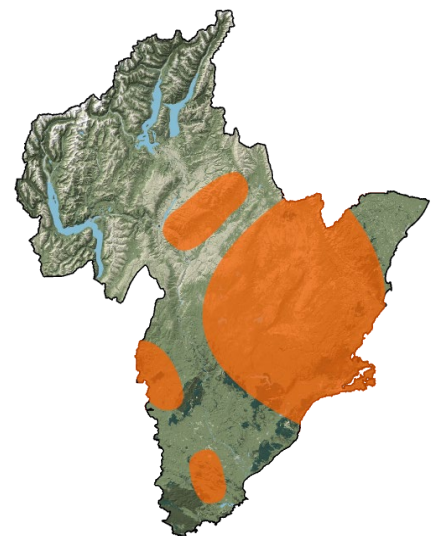
Distribution

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 as s rimu, as the crevices and holes in these large trees offer many hiding places from introduced mammalian predators.

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

Mouth colour: pink

Tongue colour: pink, sometimes with a grey tip.



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

Mountain beech gecko

Woodworthia “south-western”

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



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.



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.

Raggedy Range gecko

Woodworthia “Raggedy Range”



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.

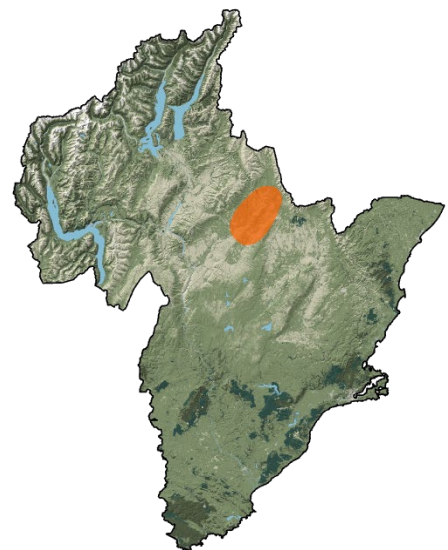
Eye colour: green, blue green, or yellow green.

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.



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

Southern Alps gecko

Woodworthia “Southern Alps”



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 Kāwarau 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.



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 received 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

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.

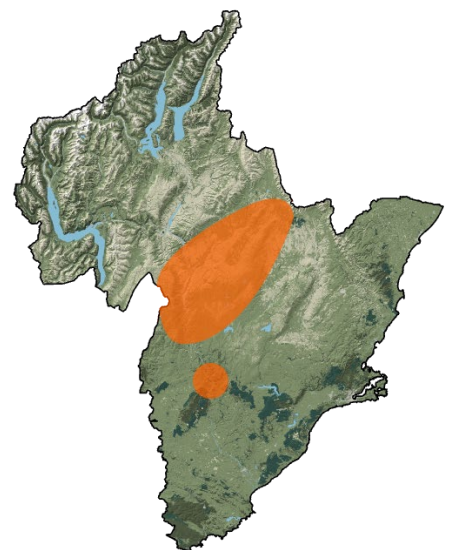
Distribution

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.

Eye colour: variable, but usually yellow.

Mouth colour: pink

Tongue colour: pink, sometimes with a grey tip.



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

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.



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

Short-toed gecko

Woodworthia “southern mini”

Other names: southern mini gecko



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.



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



Short-toed gecko. Photographed by Carey Knox

Tussock skink

Oligosoma chionochoescens

Other names: common skink, grass skink, southern grass skink (formerly)



Otago
Regional
Council



Conservation status

Regional | At Risk: Declining

National | At Risk: Declining

Description

Body length: up to 82 mm snout-vent length (SVL) but usually <70 mm SVL. Intact tail equal to or longer than SVL.

Upper surfaces: pale-brown or caramel in colour, although they can rarely be olive-brown or black in colour, and usually feature brown or gold-brown stripes.

Side surfaces: have a dark-brown band that has smooth, or slightly notched, edges and is bordered by pale-brown or cream stripes.

Lower surfaces: brown, grey, or brownish-yellow in colour, with a pale-grey, white, or brown throat and chin.

Feet: short toes with brown or grey soles
Eye colour: brown or cream

Distribution

Tussock skink populations are widespread from coastal to alpine ecosystems, reaching elevations of approximately 1,700 metres above sea level. The species ranges from the Waitaki Valley southwards to Rakiura/Stewart Island and is widespread throughout most of Otago, including Ōtepoti/Dunedin, Oamaru, Palmerston, Alexandra, and many of the surrounding mountain ranges. In several locations, such as around Wānaka, Hāwea, the Lindis Pass, the Ida Range and near Naseby, they come into close contact with, or overlap with, southern grass skinks.



Ecology & natural history

Tussock skinks are primarily active during the day. They sun-bask to maintain their preferred body temperatures when the weather is suitable and can often be seen scurrying around to seek food and mates. At night, they hide underneath rocks and logs; in dense vegetation, rock crevices, and scree; and on other rocky slopes. Tussock skinks inhabit a variety of rocky and grassy habitats, but tend to prefer relatively damp areas. This species has been recorded in densities as high as 4000 individuals per hectare.

Female tussock skinks may reproduce annually and typically give birth to three to six offspring in summer. They mostly feed on a range of small invertebrates, including insects and spiders, and may opportunistically consume native fruits and nectar from flowers.

Conservation

Populations of the tussock skink can be found in fenced sanctuaries where introduced mammalian predators have been eliminated (except for the house mouse), such as Orokonui Ecosanctuary (near Ōtepoti/Dunedin) and Mokomoko Dryland Sanctuary (near Alexandra). The major threats to the tussock skinks are habitat modification, including by land development and fire, and introduced mammalian predators, such as rats, mice, stoats, ferrets, weasels, hedgehogs, feral cats, and pet cats.

Regional threat listing qualifiers:

The northern limit of its natural distribution is in the Otago region (Natural Range).



Tussock skink, (Ōtepoti). Photographed by Samuel Purdie

Identifying features

This elegant species of grassland skink was recently recognised as a distinct species from the southern grass skink (*Oligosoma aff. polychroma* Clade 5).

Southern grass skink

(*Oligosoma aff. polychroma* Clade 5):

Tussock skinks can be distinguished from southern grass skinks (*Oligosoma aff. polychroma* Clade 5) by their colouration, as tussock skinks are usually warm-brown in colour, whereas southern grass skinks are dark/faded brown. Additionally, tussock skinks usually have a striped upper surface, while southern grass skinks have a speckled or plain upper surface with faint stripes, or none at all. Both species have a lateral band, but the tussock skink's one has smooth edges, whereas the southern grass skink's band is rough-edged. Finally, tussock skinks sometimes have a longer and shallower snout than southern grass skinks.

McCann's skink (*Oligosoma maccanni*):

While tussock skinks are usually warm-brown in colour with a pale-brown/yellow belly and few speckles on their throat/chin, McCann's skinks are grey-brown in colour and have a pale-grey or white belly with a heavily speckled throat and chin.

Nevis skink (*Oligosoma toka*):

Tussock skinks usually have a brown to dull-yellow belly with a pale-brown throat/chin, whereas Nevis skinks have a mustard-yellow belly and a white throat/chin. Tussock skinks also usually have four large scales in the second row of scales above each eyelid vs. three in Nevis skinks.

Burgan skink (*Oligosoma burganae*):

Tussock skinks can be distinguished from Burgan skinks by their patterns and head scales, as tussock skinks usually have few or no speckles/flecks and four large scales in the second row of scales above each eyelid. In contrast, Burgan skinks have a speckled dorsal surface and three large scales in the second row of scales above each eyelid.

Eyres skinks (*Oligosoma repens*):

Tussock skinks can be distinguished from Eyres skinks by their coloration and head scales, as tussock skinks usually have a brown to dull-yellow belly with four large scales in the second row of scales above each eyelid, whereas the Eyres skink has a lemon-yellow belly and three large scales in the second row of scales above each eyelid.

Southern grass skink

Oligosoma aff. *polychroma* Clade 5

Other names: common skink, grass skink, drylands grass skink



Otago
Regional
Council



Conservation status

Regional | At Risk: Declining

National | At Risk: Declining

Description

Body length: up to 72 mm snout-vent length (SVL), but typically <70 mm SVL. Intact tail slightly longer than SVL.

Upper surfaces: light to very dark brown in colour, with the back near uniform through to flecked, sometimes with a stripe running down it.

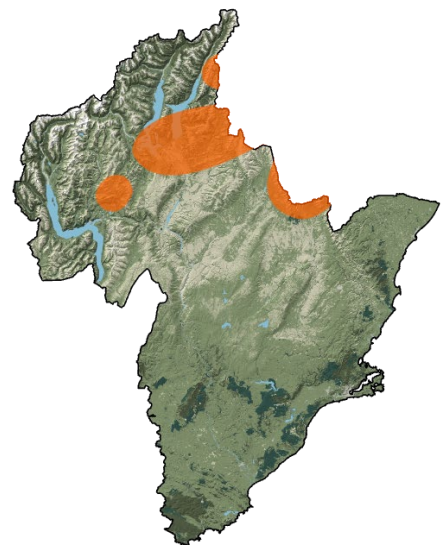
Side surfaces: typically have an indistinct brown band that usually has slightly notched edges.

Lower surfaces: belly colour is pale brown, grey, or dull yellow.

Eye colour: brown or cream

Distribution

Populations of the southern grass skink are found from the coast to alpine areas, reaching elevations of up to approximately 1,700 metres above sea level. The species is widely distributed from far northern and north-western Otago (e.g. the Wānaka area, Lindis Pass, Saint Bathans Range, and Waitaki Valley), through the Mackenzie Country, South Canterbury, and the coastal portion of the Canterbury Plains to Banks Peninsula. In mid-Canterbury, its distributional boundaries with the Canterbury grass skink (*Oligosoma* aff. *polychroma* Clade 4) are poorly understood. The southern grass skink's distribution does come into close contact with, and even overlaps, that of the tussock skink around Wānaka, the Lindis Pass, and in the mountain ranges in Oteake Conservation Park along the North Otago border.



Ecology & natural history

During the day, southern grass skinks sun-bask and actively forage when weather conditions are suitable. At night, they hide in retreats underneath stones and logs; in dense vegetation, rock crevices, and scree; or in other rocky habitats. Southern grass skinks inhabit a variety of rocky and grassy habitats but typically prefer relatively damp areas, such as along streams, rivers, shady gullies, and wetland edges. They are particularly abundant in damp habitats of the Mackenzie Country.

Female southern grass skinks may reproduce annually and typically give birth to three to six offspring in summer. Southern grass skinks mostly feed on small invertebrates, including insects and spiders, and may opportunistically consume native fruits and nectar from flowers.

Conservation

Southern grass skinks have received limited conservation attention. However, they appear to be widespread and abundant in some locations. Their major threats are habitat modification, including by land development and fire, and introduced mammalian predators, such as rats, mice, hedgehogs, weasels, ferrets, stoats, feral cats, and pet cats.

Regional threat listing qualifiers:

Otago is a national stronghold for the southern grass skink, with over 20% of their population found in the region (National Stronghold). The southern limit of their natural distribution is in the Otago region (Natural Range).



Southern grass skink. Photographed by Carey Knox

Identifying features

Southern grass skinks may be mistaken for other species of skink that occupy similar locations in Otago. The following characteristics are useful for identifying species that they may overlap in distribution with.

Tussock skinks (*Oligosoma chionochoescens*):

Whereas southern grass skinks have a speckled or plain upper surface with faint stripes, or none at all, tussock skinks usually have stripes. Both species have banded sides, but the southern grass skink's band has smooth edges, while the tussock skink's one is wavy or notched.

McCann's skink (*Oligosoma maccanii*):

Southern grass skinks can be distinguished from McCann's skinks by their colouration, as the former are usually warm-brown in colour, whereas the latter are grey-brown. Additionally, southern grass skinks have a pale-brown, grey, or dull-yellow belly with few speckles on their throat and chin, while

McCann's skinks have a pale-grey or white belly with a heavily speckled throat and chin.

Nevis skink (*Oligosoma toka*):

Southern grass skinks can be distinguished from Nevis skinks by their belly colouration, as southern grass skinks have a pale-brown, grey, or dull-yellow belly with a pale-brown throat/chin, which cannot be mistaken for the mustard-yellow belly and white throat/chin of the Nevis skink. Southern grass skinks also usually have four large scales in the second row of scales above each eyelid vs. three in Nevis skinks.

Rockhopper skink (*Oligosoma* "rockhopper"):

Rockhopper skinks have straight, or near straight, stripes on their sides, whereas the southern grass skink has wavy or notched side stripes. In addition, rockhopper skinks have smaller ears and lack speckling.

Oteake skink

(*Oligosoma* aff. *inconspicuum* "North Otago"):

It can be difficult to distinguish southern grass skinks from Oteake skinks, but the former have less black speckling on the body, a smaller ear size, and dull-yellow soles, while Oteake skinks have partially black soles.

McCann's skink

Oligosoma maccanni



Conservation status

Regional | Not Threatened

National | Not Threatened

Description

Body length: up to 73 mm snout-vent length (SVL), with intact tail longer than SVL.

McCann's skink is a familiar sight in many towns and rural areas.

This conspicuous species is typically grey through to faded brown in colour with blotches, and/or stripes. In Otago, most individuals are blotched with a pattern of lighter and darker patches along the back in a checkerboard-like formation, whereas in Canterbury (and occasionally along the North Otago border) most individuals have a prominent stripe down the centre of the back and no checkerboard patterning.

Distribution

McCann's skink is a very common skink species in the drier parts of the South Island (Southland, Otago, and Canterbury), ranging from low altitudes up to at least 1,700 metres above sea level.



Ecology & natural history

McCann's skinks are diurnal and abundant in a wide variety of habitats—particularly dry, rocky ones. They are avid sun-baskers.

These skinks are more tolerant of harsh conditions and highly modified habitats than all of our other native lizards. They can live in town/rural gardens and parks, on farms, and along road edges, cycleways, and walkways, which commonly brings them into contact with people.

McCann's skinks will forage amongst long introduced grasses, tussock, and amongst small native shrubs (e.g. *Coprosma propinqua* and *Melicytus alpinus*) or dense vines (e.g. *Muehlenbeckia complexa*). They feed on a range of invertebrates, including insects and spiders, and will opportunistically consume native fruits from certain shrubs (e.g. the porcupine shrub, *M. alpinus*).

Females can reproduce annually, with two to six young born in summer.

Conservation

While this species is classified as “Not Threatened”, like all other lizard species in Otago, populations are impacted by habitat modification (e.g. land development, intensive farming, and fires), in addition to introduced mammalian predators, such as rats, mice, hedgehogs, weasels, stoats, ferrets, feral cats, and pet cats.

Regional threat listing qualifiers:

Otago is a national stronghold for McCann's skink, with over 20% of their population found in the region (National Stronghold). The type locality for McCann's skink is in Otago, meaning the specimen used to first describe the species came from this region (Type Locality).

Identifying features

- Grey-brown colour
- Otago individuals often have checkerboard patterning
- Central back stripe breaks into fragments towards the tail



McCann's skink (Central Otago). Photographed by Carey Knox



McCann's skink (Oteake Conservation Park). Photographed by Carey Knox



McCann's skink (Central Otago). Photographed by Carey Knox



McCann's skink (Oteake Conservation Park). Photographed by Carey Knox

Rockhopper skink

Oligosoma eludens



Otago
Regional
Council



Conservation status

Regional | Threatened: Vulnerable

National | At Risk: Declining

Description

Body length: up to 65 mm snout-vent length (SVL).
Intact tail longer than SVL.

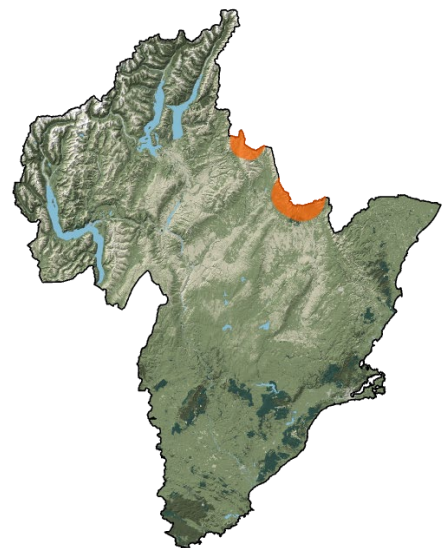
Head: the iris is pale grey to light brown
and the ear opening is small.

Upper surfaces: coloured medium to dark brown above with thin, smooth longitudinal stripes along the back and sides, and lacking any prominent spots, flecks, or mottling. A wide stripe is present along the centre of the back in adults but is often dull or indistinct and is absent from the tail.

Lower surfaces: throat pale grey or pale yellow with sparse dark specks, merging gradually into a uniform cream, dull-grey, or bright-yellow belly. The soles of the feet are dark yellow-brown, but the underside of the toes is often black.

Distribution

The rockhopper skink is found in several mountain ranges along the North Otago/Canterbury border. It has only been recorded at high elevations between 1,100 and 1,700 m above sea level.



Ecology & natural history

This species is very active (particularly on sunny mornings or evenings) and agile, often jumping from one rock to the next. This behaviour gave rise to the common name of rockhopper skink. The mountain ranges where they live are primarily composed of greywacke rock, which forms numerous crumbling outcrops, bluffs, and boulderfields on the ridge crests and expansive, active scree slopes on the mountain sides.

Rockhopper skinks are generally found along scree-shrubland edges, or around vegetated islands amongst boulderfield, where low-stature woody shrubs, in particular *Dracophyllum*, grow amongst and over large, chunky, and stable rocks. Deep, rocky habitats are likely to provide overwintering spots and protection from weather extremes.

Conservation

The species appears widespread in at least four mountain ranges, but predation from introduced mammals is a concern. Rockhopper skinks are likely to be preyed upon by feral cats, stoats, possums, mice, and hedgehogs. Concerningly, climate change could enable higher abundances of these predators in the alpine zones of North Otago and the Mackenzie Country, to the detriment of this species.

Regional threat listing qualifiers:

Otago is a national stronghold for the rockhopper skink, with over 20% of their population found in the region (National Stronghold). The southern limit of their natural distribution is in the Otago region (Natural Range). The type locality of the Rockhopper skink is in Otago, meaning the specimen used to first describe the species came from this region (Type Locality).



Melanistic rockhopper skink. Photographed by Carey Knox

Identifying features

The rockhopper skink coexists with the Nevis skink (*Oligosoma toka*) in some locations but can be easily distinguished via differences in colour pattern, and because it has four scales in the second row of scales above the eye (supraocular scales), whereas the Nevis skink has three.

It can be difficult to distinguish rockhopper and tussock skinks (*Oligosoma chionocholes*), but the former has a smaller ear opening, a duller and wider stripe along the centre of the back, and much lighter-coloured stripes along its sides.

Although the southern grass skink (*Oligosoma* aff. *polychroma* Clade 5) also has stripes on its sides, they generally have rough edges, while the rockhopper skink has smooth-edged stripes.



Rockhopper skink (Oteake Conservation Park). Photographed by Carey Knox



Rockhopper skink (Oteake Conservation Park). Photographed by Carey Knox

Cryptic skink

Oligosoma inconspicuum



Conservation status

Regional | At Risk: Declining

National | At Risk: Declining

Description

Body length: up to 86 mm snout-vent length (SVL), but typically <77 mm. Intact tail slightly longer than SVL.

Lower surfaces: the throat is usually pale grey and the belly is grey-brown, bronze, or bright yellow (either uniform or speckled).

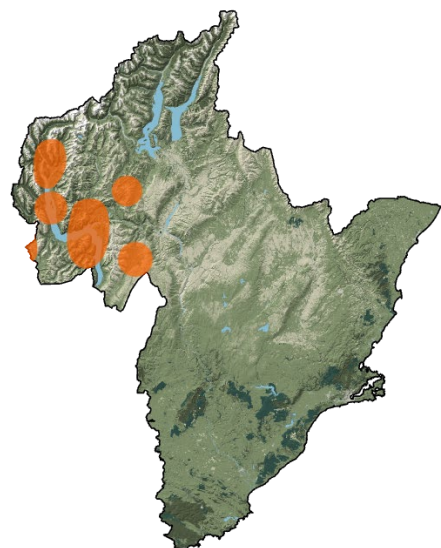
A charming skink that is variable in appearance.

Upper surfaces: can be light brown, chestnut, reddish brown, or dark brown. The back may have a dark stripe down the centre.

Side surfaces: the lateral stripes on the sides of the skink are usually notched or wavy, rather than straight.

Distribution

The cryptic skink is known from West Otago as well as Southland, including islands in Foveaux Strait. It may also occur in parts of Fiordland, but the distributional boundaries between the cryptic skink and the similar Te Wāhipounamu skink (*Oligosoma pluvialis*) are poorly understood.



Ecology & natural history

The cryptic skink is a shy but fast-moving skink that normally basks close to cover. Cryptic skinks live in a wide variety of habitats and will utilise loose rock, wood, and dense native vegetation for cover. Habitats include tussock grassland, boulderfield, scattered rock falls, and native shrublands. Woody native shrubs and vines, such as *Muehlenbeckia complexa*, provide basking habitat, cover, and food sources in the form of berries and insects.

Conservation

This species is not a current focus for conservation management as it has a wide distributional and elevation range, which is likely to make populations quite resilient. However, as with most other lizards in Otago, populations are impacted by habitat modification (e.g. land development, intensive farming, and fires) in addition to introduced mammalian predators, including rats, mice, hedgehogs, weasels, stoats, ferrets, and cats.

Regional threat listing qualifiers:

Otago is a national stronghold for the cryptic skink, with over 20% of their population found in the region (National Stronghold). The northern limit of their natural distribution is in the Otago region (Natural Range). Their type locality is Otago, meaning the specimen used to first describe the species came from this region (Type Locality).

Identifying features

The cryptic skink co-exists with the tussock skink (*Oligosoma chionocholes*) and McCann's skink (*Oligosoma maccanni*) but is the only one of these species to have abundant light-coloured or black flecking. McCann's skink is much more grey-brown in colour, while the tussock skink usually has a proportionately larger ear and smooth-edged stripes on its sides (vs. typically rough-edged stripes on the cryptic skink).



Cryptic skink. Photographed by Samuel Purdie



Cryptic skink (Takitimū Mountains). Photographed by Carey Knox



Cryptic skink (Old Woman Range). Photographed by Carey Knox

Herbfield skink

Oligosoma murihiku

Other names: Murihiku skink, cryptic skink (formerly)



Otago
Regional
Council



Conservation status

Regional | At Risk: Declining

National | At Risk: Declining

Description

Body length: up to 70 mm snout-vent length (SVL), with intact tail equal to or longer than SVL.

Upper surfaces: pale brown to dark brown, usually with black or cream flecks and pale brown/cream stripes. There is often a dark stripe down the middle of the back.

Side surfaces: have a dark-brown band that usually has rough edges, is often outlined with black, and is bordered by pale cream or brown stripes.

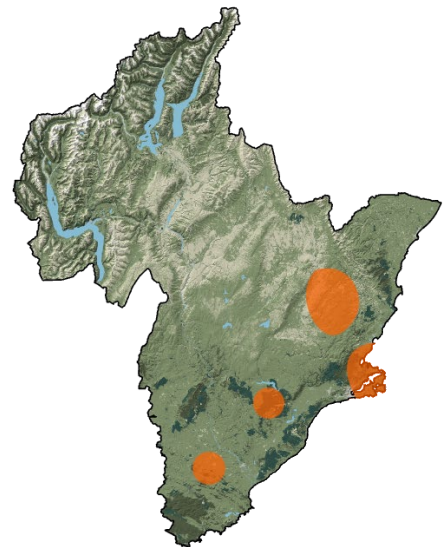
Lower surfaces: bright yellow with cream-white throat and chin (usually with black speckles).

Feet: short toes with black and/or yellow soles.

Eye colour: green or, rarely, brown.

Distribution

Herbfield skinks occur from near Macraes Flat (northeast of Ōtepoti/Dunedin) southwards to Clinton and as far West as Wairio, in Southland. They can be found around Awarua Bay (near Invercargill), on Muaūpoko/Otago Peninsula, and in Orokonui Ecosanctuary – Te Korowai o Mihiwaka (near Ōtepoti/Dunedin). The species is widespread from coastal ecosystems to high-elevation lowland ecosystems, reaching elevations of approximately 670 metres above sea level.



Ecology & natural history

Herbfield skinks are primarily active during the day. They sun-bask (often within dense shrubs) to maintain their preferred body temperatures and can frequently be seen scurrying around (including climbing shrubs) to seek food and mates. They inhabit relatively damp shrublands, wetlands, dunelands (where they occasionally live in exotic ice plants), herbfields, and rocky grasslands. At night, herbfield skinks hide underneath rocks and logs, as well as in dense vegetation, rock crevices, and occasionally trees (e.g. tī kōuka/cabbage trees).

The species mostly feeds on a range of invertebrates (including insects and spiders) and may opportunistically consume native fruits and nectar from flowers.

Females reproduce annually and typically give birth to two or more offspring in summer.

Conservation

Herbfield skinks have received limited conservation attention. However, a protected population is present in Orokonui Ecosanctuary. Their major threats include habitat modification (by land development and fires) and introduced mammalian predators, such as rats, mice, stoats, ferrets, and cats. Climate change might also pose a threat to these skinks.

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



Herbfield skink (Otago Peninsula). Photographed by Carey Knox

Identifying features

Herbfield skinks may be mistaken for several other species of skink that occupy similar locations in Otago. The following characteristics are useful for identification: herbfield skinks can be distinguished from tussock skinks (*Oligosoma chionocholescens*) by their patterns, as herbfield skinks usually have a rough-edged band on their side surfaces and dark flecks on their upper surfaces (vs. a smooth-edged band and few or no flecks in the tussock skink). Herbfield skinks also have a proportionately smaller earhole than tussock skinks.

They can be distinguished from cryptic skinks (*Oligosoma inconspicuum*) by their toes and eye colour, since herbfield skinks usually have 18-20 folds of skin under their longest toes, whereas cryptic skinks have 20-24. Additionally, herbfield skinks usually have green eyes (vs. brown eyes in cryptic skinks).

Herbfield skinks can be distinguished from Burgan skinks (*Oligosoma burganae*) by their head scales, as herbfield skinks have four large scales in the second row of scales above each eyelid (vs. three in Burgan skinks).

Unlike McCann's skinks, which are grey-brown with a pale checkerboard pattern and little to no black speckling, Herbfield skinks are usually a rich, warm-brown colour and typically have black or cream speckles.



Herbfield skink (Otago Peninsula). Photographed by Carey Knox

Oteake skink

Oligosoma aff. inconspicuum “North Otago”



Otago
Regional
Council



Conservation status

Regional | Threatened: Vulnerable

National | Threatened: Vulnerable

Description

Body length: up to 70 mm snout-vent length (SVL) with intact tail longer than SVL.

The Oteake skink is a rare species of lizard that is only known from a single subalpine area in Otago.

Upper surfaces: range from light brown to chestnut to dark brown. The scales along the back are often fully enclosed by a black perimeter. There may be traces of a stripe down the centre of the back or no stripes at all.

Side surfaces: the lateral stripes are usually notched.

Distribution

Oteake skinks are known from the Little Kyeburn catchment between Mt Kyeburn and Mt Buster in North Otago between 950 and 1,100 metres above sea level, where they occupy an area of around 25 hectares. Although this species was previously thought to be endemic to the Otago region, one skink has been recorded on Mount Solution in Westland that clusters in with Oteake skinks genetically. Therefore, it is possible that Oteake skinks are more widespread than previously thought.

Lower surfaces: large black spots are present along the edge of throat. The throat is grey, often with prominent black flecking. The belly is grey or light yellow, and uniform or speckled.

Feet: the soles of the feet are predominantly black.



Ecology & natural history

The Oteake skink is a fast-moving, shy skink that normally basks close to cover and can be difficult to approach. It lives amongst bluffs, boulderfields, and scattered rock falls with a thick covering of woody vegetation (especially snow tōtara and Coprosma). Boulderfield is likely to provide overwintering habitat and protection from weather extremes, while woody shrubs supply basking habitat, cover, and food sources in the form of berries and insects. Oteake skinks are also known to occupy tussock grassland with abundant *Dracophyllum* shrubs.

There is potential for the species to be found around damp, generally south-facing boulderfields or scree slopes with a dense covering of snow tōtara and other woody shrubs or vines in the subalpine or low alpine zone. However, these habitats are sparse in North Otago; thus, this species is likely to be rare and restricted in distribution. It may be present in the poorly surveyed Kakanui Mountains.

Conservation

The Oteake skink is part of a group of related but taxonomically unresolved skinks, informally referred to as the ‘cryptic skink species complex’. A population with some genetic affinity to the Oteake skink has recently been found at Mount Solution in South Westland and requires further study. As with all threatened skinks in New Zealand, predation from introduced mammals is a concern for this species. Given the taxon is only known from one location, it is inherently vulnerable to anything that may happen in that catchment. For example, fire would be devastating for the Oteake skink, as the species appears quite reliant on woody shrubs.

Regional threat listing qualifiers:

Otago is a national stronghold for the Oteake skink, with over 20% of their population found in the region (National Stronghold).

Identifying features

The Oteake skink co-exists with the tussock skink (*Oligosoma chionochloescens*) and McCann’s skink (*Oligosoma maccanni*), but the Oteake skink is the only one of these species to have abundant black flecking, and the tussock skink has an obvious stripe along the middle of its back.



Oteake skink (Oteake Conservation Park). Photographed by Carey Knox



Oteake skink (Oteake Conservation Park). Photographed by Carey Knox



Oteake skink (Oteake Conservation Park). Photographed by Carey Knox

Te Wāhipounamu skink

Oligosoma pluvialis

Other names: Big Bay skink, mahogany skink, Humboldt skink, pallid skink, cryptic skink (formerly)



Otago
Regional
Council



Conservation status

Regional | Threatened: Vulnerable

National | Not assessed

Description

Body length: up to 74 mm snout-vent length (SVL), with intact tail equal to or longer than SVL

This sleek species of skink is highly variable and comprises several distinct forms that are yet to be fully understood.

Upper surfaces: pale brown to dark mahogany (occasionally black), often with dark flecks or spots and pale-brown stripes (and sometimes with a dark stripe down the middle of its back). Some populations of Te Wāhipounamu skinks have prominent ridges running down their tail, which may be an adaptation to high-rainfall environments.

Side surfaces: have a dark-brown band that usually has rough edges and is bordered by pale cream or brown stripes.

Lower surfaces: cream-grey, copper, yellow-brown, or bright yellow with white, grey, or black throat and chin (often with speckles).

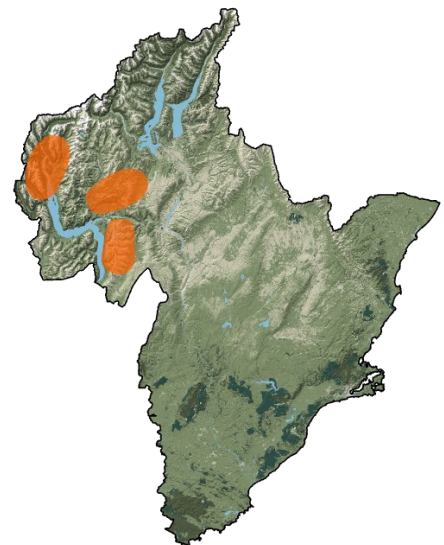
Feet: relatively short toes with pale-brown to black soles.

Eye colour: pale green or brown

Distribution

Te Wāhipounamu skinks occur from northern Southland (the Mataura Range, Mid Dome, and East Dome) to the mountains north and east of Lake Whakatipu in Otago (the Hector Mountains and Crown Range), and westwards to the West Coast, where they inhabit the Cascade Plateau. In the Otago region, Te Wāhipounamu skinks are only known from Mount Cardrona, Tapuae-o-Uenuku/Hector Mountains, and Coronet Peak.

They are primarily restricted to mountainous areas over 500 m above sea level and alpine ecosystems, reaching elevations of approximately 1,800 m above sea level. However, Te Wāhipounamu skinks have also been found living near sea level on the West Coast at Big Bay, Barn Bay, and on the Barn Islands.



Ecology & natural history

Te Wāhipounamu skinks are primarily active during the day. They sun-bask to maintain their preferred body temperature and can be seen scurrying around to seek food and mates. They inhabit boulder beaches, rocky shrubland and herbfield, vegetation ledges on cliffs, scree, and other rocky slopes. Rocks, logs, dense vegetation, crevices and scree provide shelter at night.

Te Wāhipounamu skinks mostly feed on a range of invertebrates, including insects and spiders, and may opportunistically consume native fruits and nectar from flowers. They are excellent climbers that have been found hundreds of metres up Fiordland cliffs and have also been observed basking and foraging in the tops of flowering mānuka shrubs.

Female Te Wāhipounamu skinks may reproduce annually and give birth to one or more offspring in summer.

Conservation

There are several distinct forms of Te Wāhipounamu skink, which may be discrete species. Some mahogany-form Te Wāhipounamu skinks were recently translocated to Secretary Island, Fiordland, to establish a safeguard population and to test whether the island might be a suitable location for endangered Sinbad skinks (*Oligosoma pikitanga*). Te Wāhipounamu skinks are only known from a few mountain ranges in Otago, and surveys are required to understand their regional distribution better. Their major threats include climate change and introduced mammalian predators, such as rats, mice, stoats, ferrets, and cats.

Regional threat listing qualifiers:

Otago is a national stronghold for Te Wāhipounamu skinks, with over 20% of their population found in the region (National Stronghold).

Identifying features

Te Wāhipounamu skinks may be mistaken for several other species of skink that occupy similar locations in Otago. The following characteristics are useful for identification:

Te Wāhipounamu skinks can be distinguished from cryptic skinks (*Oligosoma inconspicuum*) by their patterns and colouration, as Te Wāhipounamu skinks are typically dull brown in the Otago region (vs. rich, glossy brown or brown-red in cryptic skinks) and usually have more extensive black spots and flecks than cryptic skinks.

Te Wāhipounamu skinks are also usually found at higher elevations than cryptic skinks, but these two species do overlap in some locations. Te Wāhipounamu skinks can be distinguished from Eyres skinks (*Oligosoma repens*) and Nevis skinks (*Oligosoma toka*) by their head scales because Te Wāhipounamu skinks have four large scales in the second row of scales above each eyelid (whereas Eyres and Nevis skinks usually have three).

Te Wāhipounamu skinks can be distinguished from McCann's skinks (*Oligosoma maccanni*) by their colouration and markings, as Te Wāhipounamu skinks usually have a yellow, brown, or cream belly in the Otago region (vs. white or pale grey in McCann's skinks) and prominent black markings (vs. few or no black markings in McCann's skinks).

Te Wāhipounamu skinks can be distinguished from tussock skinks (*Oligosoma chionocholescens*) by their markings, as Te Wāhipounamu skinks usually have rough-edged stripes and flecks (vs. smooth stripes and few or no flecks on the tussock skink).



Te Wāhipounamu skink, pallid form (Queenstown, Otago). Photographed by Carey Knox

Burgan skink

Oligosoma burganae



Otago
Regional
Council



Conservation status

Regional | Threatened: Vulnerable

National | Threatened: Endangered

Description

Body length: up to 70 mm snout-vent length (SVL), with intact tail equal to or longer than SVL.

Upper surfaces: pale-brown to dark-brown in colour, usually with black, cream, or yellow flecks and cream-yellow or pale-brown stripes. Burgan skinks can also have a dark stripe down the middle of their back.

Side surfaces: have a dark-brown band that usually has rough edges and is bordered by pale-cream or brown stripes.

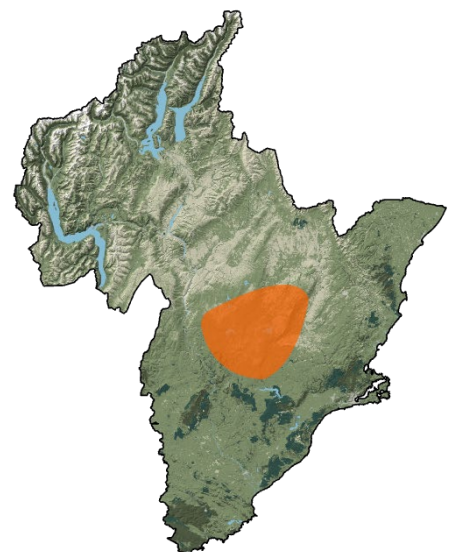
Distribution

Burgan skinks are known from mountainous areas near Middlemarch in inland Otago. They can be found in the Rock and Pillar Range, Lammermoor Range, and near Lake Onslow. Populations of Burgan skinks appear to be restricted to mountainous areas over 800 metres above sea level, reaching elevations of approximately 1,400 metres above sea level.

Lower surfaces: grey or dull-yellow in colour, with grey throat and chin, usually with black speckles.

Eye colour: dark brown

Feet: short toes with dark-brown or black soles.



Ecology & natural history

Burgan skinks inhabit herbfields, woody/shrubby tussocklands (particularly those with *Dracophyllum* shrubs and dense, small-leaved mingimingi/*Coprosma* shrubs) and cushion plant herbfields, especially those with mountain daisies.

They are primarily active during the day, sun-basking during suitable weather (often within or between dense shrubs to maintain preferred body temperatures). They can often be seen scurrying around or climbing shrubs to seek food and mates. At night, they hide in dense vegetation or below the surface, possibly in burrows, which may be excavated by themselves and/or insects.

Burgan skinks mostly feed on small invertebrates, including insects and spiders, and may opportunistically consume native fruits and nectar from flowers. Like the Eyres skink (*Oligosoma repens*) and Nevis skink (*Oligosoma toka*), this species has been known to curl its tail above its body as a possible defence mechanism.

Female Burgan skinks typically reproduce annually, giving birth to three to six offspring in summer.

Conservation

Burgan skinks were initially only known from a very small number of locations. Several new populations have recently been discovered, however, with the species being more widespread than previously thought. The major threats to the Burgan skink are habitat modification (including by land development, fires, and wilding conifer trees) and introduced mammalian predators, such as rats, mice, stoats, ferrets, and cats.

This species appears particularly vulnerable to habitat modification, being reliant on woody shrubs within tussock grasslands to survive. Consequently, fires are a significant threat to Burgan skink populations, both as a direct cause of death and via the destruction of woody shrubs in tussock grasslands. Human-induced climate change might also pose a threat to these skinks, particularly by increasing the intensity and frequency of fires.

Regional threat listing qualifiers:

The Burgan skink is an endemic species to Otago, meaning it is only found in this region (Regional Endemic). The type locality for the Burgan skink is in Otago, meaning the specimens used to first describe the species came from this region (Type Locality).

Identifying features

Burgan skinks may be mistaken for two other species of skink that occupy similar locations in Otago. The following characteristics are useful for distinguishing them.

Burgan skinks can be distinguished from tussock skinks (*Oligosoma chionocholes*) and McCann's skinks (*Oligosoma maccanni*) by their patterns and head scales, as Burgan skinks are usually more heavily flecked than these species and they have three large scales in the second row of scales above each eyelid vs. usually four scales in tussock skinks and McCann's skinks.



Burgan skink (Rock and Pillar Range). Photographed by Carey Knox



Burgan skink (Rock and Pillar Range). Photographed by Carey Knox

Nevis skink

Oligosoma toka



Conservation status

Regional | At Risk: Declining

National | At Risk: Declining

Description

Body length: up to 71 mm snout-vent length (SVL), with intact tail longer than SVL.

The Nevis skink is a relatively small, rock-dwelling species from mountainous parts of West Otago.

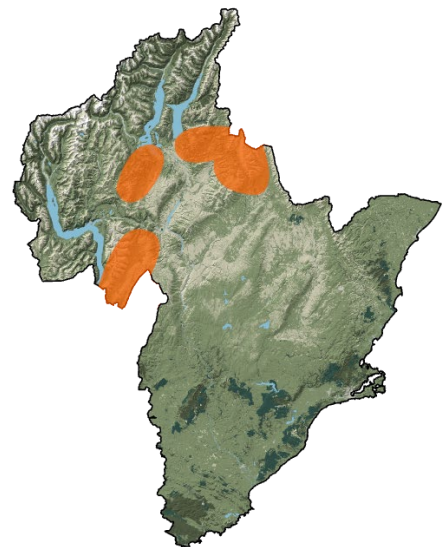
Upper surfaces: black to varying shades of rich-brown in colour, often with light or dark flecks either side of a central stripe along the back.

Side surfaces: thick, pale-cream or yellowish stripes with smooth edges.

Lower surfaces: the belly is typically a mustard-yellow colour.

Distribution

Nevis skinks are found over a wide elevational range, from 500 metres up to 1,920 metres above sea level—the highest elevation that skinks have been recorded at in Otago. Although mainly located in West Otago, the Nevis skink's distribution does extend into southern Mackenzie Country, Canterbury. In the early 2000s, this species was thought to exist exclusively in the Nevis Valley, including the adjacent Hector Mountains and Old Woman Range. However, in recent years it has been discovered in the Crown Range, Saint Bathans Range, Wether Range, Dunstan Range, and Lindis Pass area.



Ecology & natural history

Nevis skinks are diurnal sun-baskers, making them quite easy to observe in mild, sunny weather. They can be found in a wide variety of habitats in tussock grassland, often with rock cover, and will forage amongst dense tussocks, rock piles, and native shrubs such as *Coprosma* and *Dracophyllum* for small invertebrate prey and berries.

Their populations can reach high numbers in suitable environments, and they are known to inhabit river terraces, old gold tailings, matagouri shrublands, fields of spear grass (*Aciphylla* spp.), scree and rock piles, and low-growing *Dracophyllum* shrubland habitat, with or without rocky boulderfield.

Conservation

The Nevis skink was once thought to be a very rare species, restricted to the Nevis Valley, but dedicated lizard surveys, and opportunistic sightings by the public, have vastly improved our understanding of their distribution. This skink species is now known from many new locations and does not appear to be immediately threatened with extinction. Its main threats are habitat modification (including by land development, intensive farming, and fires) and introduced mammalian predators, such as rats, mice, hedgehogs, weasels, stoats, ferrets, and cats.

Regional threat listing qualifiers:

Otago is a national stronghold for Nevis skinks, with over 20% of their population found in the region (National Stronghold). The southern limit of their natural distribution is in the Otago region (Natural Range). The type locality of the Nevis skink is in Otago, meaning the specimen used to first describe the species came from this region (Type Locality).



Nevis skink (Nevis Valley). Photographed by Carey Knox

Identifying features

Distinguished from all other skinks that it overlaps in distribution with based on consistently having three large scales in the second row of scales above each eyelid vs. four large scales in all other species, except for some tussock skinks (*Oligosoma chionocholescens*) and southern grass skinks (*O. aff. polychroma*; Clade 5). McCann's skink often co-exists with the Nevis skink, but is more grey-brown in colour, as opposed to a rich or warmer brown colour in Nevis skink. Moreover, McCann's skinks in Otago typically have checkerboard-like patterning unlike the Nevis skink. The Nevis skink has a bright, mustard-yellow belly colour as opposed to a cream or dull-yellow belly in both the tussock skink and southern grass skink and also has a smaller ear size than both of those species.



Nevis skink (Nevis Valley). Photographed by Carey Knox



Nevis skink (Nevis Valley). Photographed by Carey Knox

Eyres skink

Oligosoma repens



Conservation status

Regional | At Risk: Declining

National | At Risk: Declining

Description

Body length: up to 62 mm snout-vent length (SVL), with intact tail longer than SVL

A vibrant species of skink that is found in mountainous areas in southwestern Otago and Southland.

Upper surfaces: brown or yellow-brown in colour, often with yellow-cream stripes and a dark stripe down the middle of the back.

Side surfaces: have a dark-brown coloured band, usually with smooth edges and bordered by pale, cream-yellow stripes.

Distribution

Eyres skinks occur in the mountains northwest of Lake Whakatipu (e.g. the Humboldt Mountains), southwest of Lake Whakatipu, (e.g. the Eyre Mountains) and in southeastern Fiordland, Southland. The Eyres skink can also be sighted in the alpine zone on one of Aotearoa New Zealand's Great Walks, the Routeburn Track.

They are primarily restricted to mountainous areas greater than 600 metres above sea level, reaching elevations of up to approximately 1,600 metres above sea level. However, Eyres skinks have also been found at mid-elevations of approximately 400 metres above sea level, in Southland's Takitimu Mountains.

Lower surfaces: lemon-yellow or yellow-brown colour, with a grey throat and chin.

Feet: short toes with dark-brown or black soles.

Eye colour: pale brown



Ecology & natural history

Eyres skinks inhabit rocky shrubland, grassland, and herbfield, scree, and other rocky slopes. They are primarily active during the day and sun-bask during suitable weather to maintain their preferred body temperatures, often scurrying around to seek food and mates. At night, they hide underneath rocks and logs, in dense vegetation, rock crevices and scree, and on other rocky slopes. Female Eyres skinks may reproduce annually and are thought to give birth to three or more offspring in summer, like some other closely related skink species. Eyres skinks mostly feed on small invertebrates, including insects and spiders, and may opportunistically consume native fruits and nectar from flowers. Like the Burgan skink (*Oligosoma burganae*) and Nevis skink (*Oligosoma toka*), this species is known to curl its tail above its body as a possible defence mechanism.

Conservation

Scientists are researching conservation strategies that may help alpine lizards in New Zealand, like the Eyres skink, but more work is required to understand how their populations respond to threats such as exotic mammalian predators. Their major threats are habitat modification, including 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 skinks.

Regional threat listing qualifiers:

The northern limit of their natural distribution is in the Otago region (Natural Range). Their type locality is near the Southland–Otago border, meaning the specimen used to first describe the species is from an Otago population (Type Locality).



Eyres skink (West Otago). Photographed by Carey Knox

Identifying features

Eyres skinks may be mistaken for several other species of skink that occupy similar locations in Otago. The following characteristics are useful for distinguishing them:

Eyres skinks can be distinguished from McCann's skinks (*Oligosoma maccanni*) by their colouration and head scales, as Eyres skinks have a warm-brown upper surface vs. grey-brown in McCann's skinks. They also have a lemon-yellow or grey-brown belly and three large scales in the second row of scales above each eyelid, whereas McCann's skinks have a pale-grey or white belly and usually have four of these scales.

Eyres skinks can be distinguished from tussock skinks (*Oligosoma chionocholes*) by their colouration and head scales, as Eyres skinks usually have a lemon-yellow belly vs. yellow-brown or grey in tussock skinks, and three large scales in the second row of scales above each eyelid vs. usually four in tussock skinks.

Eyres skinks can be distinguished from cryptic skinks (*Oligosoma inconspicuum*) by their patterns and head scales, as Eyres skinks usually have smooth stripes on their upper/side surfaces vs. rough-edged stripes in cryptic skinks, and three large scales in the second row of scales above each eyelid vs. usually four in cryptic skinks.



Eyres skink (West Otago). Photographed by Carey Knox

Grand skink

Oligosoma grande



Conservation status

Regional | Threatened: Endangered

National | Threatened: Endangered

Description

Body length: up to 115 mm snout-vent length (SVL), with intact tail substantially longer than SVL.

This large, impressive, and highly athletic skink is found only in Otago. It is one of the region's most iconic reptile species, growing to a total length of about 230 mm.

Upper surfaces: deep-black colour, with vibrant gold, yellow, yellow-green, or cream flecks and streaks, sometimes forming stripes.

Side surfaces: resemble the upper surfaces.

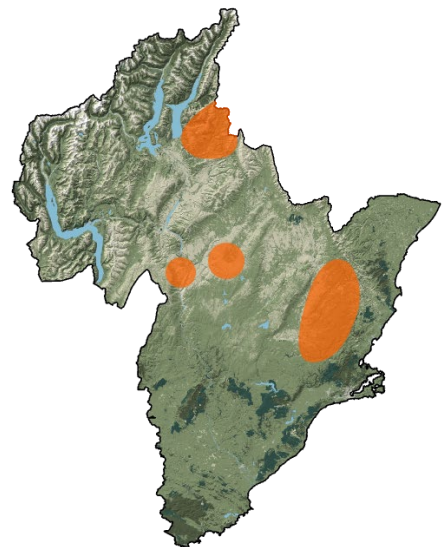
Distribution

Grand skink populations are currently patchy in distribution but occur from near Middelmarsh and Macraes Flat in the east to near Lindis Pass and Lake Hāwea in the west (they may once have ranged as far west as Queenstown), inhabiting hill country and mountainous areas between 200 and 1000 metres above sea level. The eastern and western populations have been separated for several million years and are slightly different in appearance.

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

Feet: very long toes with black soles.

Eye colour: cream or brown



Ecology & natural history

Grand skinks inhabit schist rock outcrops in rocky shrubland or tussockland and are primarily active during the day. They sun-bask during suitable weather to maintain their preferred body temperatures and can often be seen moving across rock outcrops to seek food and mates. At night, they hide in rock crevices, dense vegetation, or underneath rocks.

Female grand skinks may reproduce annually and typically give birth to two to four offspring in summer. Grand skinks mostly feed on small invertebrates, including insects and spiders, and are known to seize prey such as flies, bees and cicadas out of the air. They also consume native fruits, particularly from the pātōtara/dwarf mingimingi and the porcupine shrub (*Melicytus alpinus*), as well as nectar from flowers.

Conservation

Many grand skink populations are threatened with extinction, especially those in the west of the region, with the species having had extensive captive- and wild-management. The major threats to grand skinks 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 may also be an emerging threat to the species.

Grand skinks are especially vulnerable to introduced mammalian predators, mainly persisting in areas with complex habitat that enables skinks to escape these predators, or in areas under predator control or where these predators have been eliminated.

Translocations of western grand skinks have reintroduced the species to Mokomoko Dryland Sanctuary, near Alexandra, to re-establish a population in this area. Other fenced sanctuaries have been built to protect remnant populations of eastern grand skinks near Macraes. There has also been extensive landscape-scale predator control near Macraes to protect grand and Otago skinks. Although some populations of grand skinks can be found outside of these protected areas, they have declined throughout most of their indigenous range, with few healthy populations remaining.

Regional threat listing qualifiers:

The grand skink is endemic to Otago, meaning it is only found in this region (Regional Endemic). The type locality of the grand skink is in Otago, meaning the specimens used to first describe the species came from this region (Type Locality).

Identifying features

Grand skinks are only likely to be mistaken for one other species of skink, the Otago skink (*Oligosoma ottagense*), which occupies similar locations in Otago. Grand skinks can be distinguished from Otago skinks by their body size and patterns, as adult grand skinks are smaller than Otago skinks (typically ≤ 105 mm SVL vs. typically ≥ 105 mm SVL, respectively), and grand skinks have flecks and streaks on their upper and side surfaces vs. much larger blotches or bands in Otago skinks. Interestingly, grand skinks are nestled in the cryptic skink clade/group and are more closely related to cryptic skinks (*Oligosoma inconspicuum*) than they are to Otago skinks.



Grand skink (West Otago). Photographed by Carey Knox



Grand skink (East Otago). Photographed by Carey Knox

Otago skink

Oligosoma otagense

Other names: Giant Otago skink



Otago
Regional
Council



Conservation status

Regional | Threatened: Endangered

National | Threatened: Endangered

Description

Body length: up to 142 mm snout-vent length (SVL), but usually <130 mm SVL. Intact tail longer than SVL.

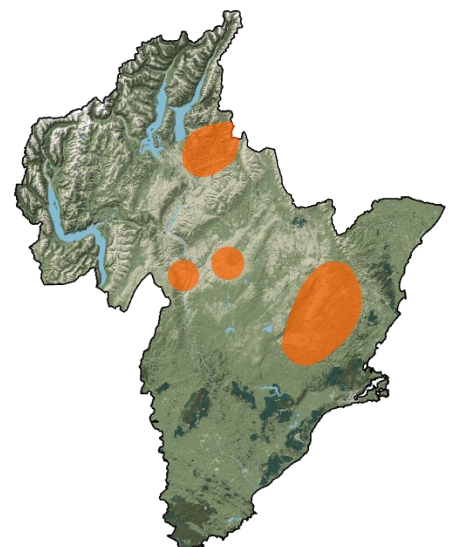
A rare, striking species, the Otago skink is one of New Zealand's largest reptiles and the largest skink in the South Island, occasionally reaching up to 30 cm in total length.

The upper surfaces and sides range from vivid to dull black with whitish, cream, pale-grey, dull-greenish, light-yellow, or light-gold markings. These markings can be bold, contrasting against the black background, or more streaky, flecked, or striated, mixing in with the black background. The lateral surfaces are typically light grey or cream and quite uniform but may contain some darker blotches or speckles.

Distribution

There are likely to be only a few thousand mature Otago skinks remaining in the wild. Their elevation range is currently about 300–1,000 metres above sea level, and they are distributed between two main areas: one in the east (around Macraes Flat, Nenthorn, Middelmarsh, Pukerangi, and Sutton) and the other in northwest Otago (between Lindis Pass and Lake Hāwea).

The eastern population is larger than the west, where <1,000 individuals are likely to remain.



Ecology & natural history

Otago skinks are diurnal, highly active in mild to warm conditions, and rock-dwelling, although they will venture into tussocks and shrubland surrounding rocky habitats. They are associated with deeply fractured schist rock outcrops, typically in or close to gullies, while the similarly endangered grand skink (which shares much the same geographical range) is more commonly found on ridge tops. However, some overlap in habitat use occurs.

Conservation

Otago skinks were once found over much of Otago, from Lake Hāwea in the west to near Waikouaiti in the east; however, today they are thought to inhabit only a small fraction of their former range. Localised extinctions of Otago skinks have been recorded across much of their current range since the 1970s. Their decline has been mainly attributed to predation by introduced mammalian predators, but land use changes and farming practices are also likely to have played a significant role.

Otago skinks are likely to be preyed upon by feral cats, stoats, ferrets, weasels, possums, mice, and hedgehogs. To combat decline and safeguard the species, the Department of Conservation – Te Papa Atawhai is managing it with multi-species mammalian predator control over a 4,000-hectare area at Macraes Flat, as well as securing a population within a 16-hectare mammal-proof fenced area. For the western population of Otago skinks, a population has been reintroduced to the Mokomoko Dryland Sanctuary, a 14-hectare area in hill country near Alexandra, protected by a mammal-proof fence. There is also a small, enclosed population of eastern Otago skinks at Orokonui Ecosanctuary – Te Korowai o Mihiwaka, near Ōtepoti/Dunedin, which provides, which provides an excellent viewing experience for the public.

Regional threat listing qualifiers:

The Otago skink is endemic to the Otago region, meaning it is only found there (Regional Endemic). Otago is a national stronghold for Otago skinks, with over 20% of their population found in the region (National Stronghold). Their type locality is Otago, meaning the specimen used to first describe the species came from this region (Type Locality).

Identifying features

While it resembles the grand skink (*Oligosoma grande*), the Otago skink is larger and more robust. Additionally, Otago skinks typically have much larger markings on the sides and back vs. much more numerous smaller flecks or striations in the grand skink.

The Otago skink also resembles the scree skink (*Oligosoma waimatense*) but is darker in overall appearance, having substantially blacker colouration. It also has larger markings than the scree skink. It is, however, unlikely that these two species co-occur anywhere in Otago, as their ranges are not known to overlap (scree skinks are restricted to scree slopes along the North Otago border).

The Otago skink is unlikely to be confused with any other skink species based on their unique combination of size, colouration, and markings.



Otago skink (West Otago). Photographed by Carey Knox



Otago skink (East Otago). Photographed by Carey Knox

Scree skink

Oligosoma waimatense

Other names: Otago scree skink



Otago
Regional
Council



Conservation status

Regional | Threatened: Vulnerable

National | Threatened: Vulnerable

Description

Body length: up to 116 mm snout-vent length (SVL), with intact tail longer than SVL

This highly active, large-bodied species of skink is found in Otago and Canterbury.

Upper surfaces: grey, black, or cream-yellow in colour, but occasionally pale-green colouration, with cream, black, or brown flecks, streaks, or bands, which sometimes form stripes.

Side surfaces: resemble upper surfaces.

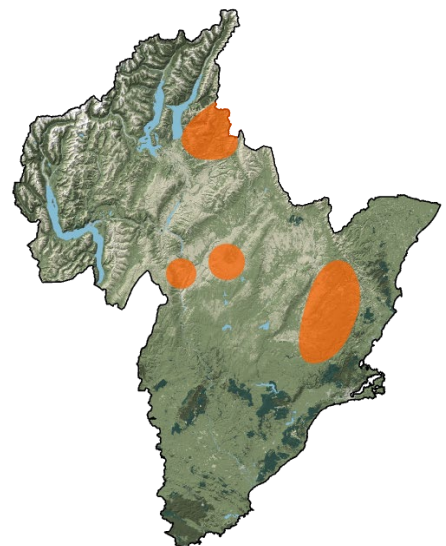
Lower surfaces: cream or pale-grey in colour, sometimes with an orange belly.

Feet: long toes with brown, grey, or black soles

Eye colour: black

Distribution

Scree skinks occur from southern to mid-Canterbury (Lake Coleridge and Lake Heron), down to North Otago (Saint Bathans Range and Ida Range). Their populations are primarily restricted to mountainous ecosystems, from >500 metres above sea level, to alpine ecosystems, reaching elevations of approximately 1,700 metres above sea level. However, they can occur at lower elevations (from >300 metres above sea level in some areas) and would have once been more common in lowland ecosystems than they are now.



Ecology & natural history

Scree skinks inhabit creviced rock outcrops, rocky river terraces/lake shores, old stream beds, boulderfields, and scree, seeking shelter at night under rocks, in dense vegetation and rock crevices, among scree and boulderfield, and on other rocky slopes. Primarily active during the day, they sun-bask during suitable weather to maintain their preferred body temperatures.

Scree skinks can often be seen running across rocky slopes to seek food and mates. They mostly feed on invertebrates, including insects and spiders, and may opportunistically consume native fruits, nectar from flowers, and other small lizards.

Female scree skinks may reproduce every one or two years and may produce two to six offspring in summer. Genetic studies have indicated that scree skinks in the Otago region once hybridised with Otago skinks (*Oligosoma ottagense*).

Conservation

In Otago, the scree skink has received limited conservation attention. Their major threats are habitat modification (including by land development, floods, and fires) and introduced mammalian predators, such as rats, mice, stoats, ferrets, and cats. Human-induced climate change may also pose a threat to this species.

Regional threat listing qualifiers:

Otago is a national stronghold for the scree skink, with over 20% of their population found in the region (National Stronghold). The southern limit of their natural distribution is in the Otago region (Natural Range).



Scree skink (Oteake Conservation Park). Photographed by Carey Knox

Identifying features

Scree skinks are only likely to be mistaken for one other species of skink that occupies similar locations in Otago. The following characteristics are useful for distinguishing them:

Scree skinks can be distinguished from alpine rock skinks (*Oligosoma* aff. *waimatense* “alpine rock”) by their head shape and colour, as scree skinks have proportionately blunter snouts than alpine rock skinks and they usually have grey or cream markings vs. green or gold markings in alpine rock skinks, with less extensive black colouration than alpine rock skinks. In the scree skink (*Oligosoma waimatense*), markings form obvious bands, whereas alpine rock skink markings uniformly cover the entirety of the back and sides of the skink. Scree skinks also have a higher number of scales encircling the middle of their body (50–68) than alpine rock skinks (usually 44) and more folds of skin under their longest toe: 30–34 in the scree skink vs. 24–25 in the alpine rock skink. Scree skinks are also larger and more robust than alpine rock skinks.



Scree skink (Oteake Conservation Park). Photographed by Carey Knox



Scree skink (Oteake Conservation Park). Photographed by Carey Knox

Alpine rock skink

Oligosoma aff. *waimatense* “alpine rock”



Otago
Regional
Council



Conservation status

Regional | Threatened: Vulnerable

National | Threatened: Vulnerable

Description

Body length: up to 90 mm snout-vent length (SVL).
Intact tail significantly longer than SVL.

Upper surfaces: base colouration is black, adorned with numerous small yellow or gold spots or short parallel lines. In occasional individuals, these markings are light green or blueish. On the tail, the markings come together to form numerous fine longitudinal stripes.

Lower surfaces: an even covering of grey, light-yellow, cream, or pale-blue scales, thinly bordered in black.

Eye colour: black

Soles of the feet: black

Distribution

The alpine rock skink was only discovered in 2018, but several additional populations have been found during subsequent field surveys. Initially identified in the Hawkdun Range of Oteake Conservation Park in North Otago, it was soon also found in the adjoining Ida Range. More recently, in 2023, alpine rock skinks were discovered in the Two Thumb Range near Tekapo.



Ecology & natural history

The strongly rock-dwelling alpine rock skink occupies scree and boulderfield between elevations of 1,100 and 1,700 metres above sea level. It is primarily associated with rock and is often found many tens of metres away from any obvious vegetation.

Alpine rock skinks are avid sun-baskers and appear to be highly active and agile—they are seemingly capable of crossing large tracts of scree and boulderfield in a single day.

They are likely to prey on a range of invertebrates that occupy their habitats, including grasshoppers, flies, spiders, and moths. On a few occasions, groups of alpine rock skinks have been observed congregating around large clusters of flies, which they may prey upon. Recent research suggests that drones could be an effective surveying tool for alpine rock skinks.

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. The species appears to have an extremely patchy distribution across seemingly appropriate habitat, which may suggest that they are in decline and have been extirpated from some areas. Alpine rock skinks are likely to be preyed upon by feral cats, stoats, possums, mice, and hedgehogs. Concerningly, climate change could enable higher abundances of these predators in the alpine zone. Recent research suggests that drones could be an effective surveying tool for alpine rock skinks.



Alpine rock skink (Hawkdun Range). Photographed by Samuel Purdie

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

Identifying features

Alpine rock skinks are only likely to be mistaken for the scree skink (*Oligosoma waimatense*), which occupies similar locations in Otago. Alpine rock skinks can be distinguished from scree skinks by their narrower head shape, smaller overall size, slenderer profile, and darker appearance. Although both species have light-coloured markings, the alpine rock skink's do not form any obvious bands and almost uniformly cover the entirety of its back and sides. On the lower sides of the alpine rock skink, the spots or short, parallel lines begin to come together, and the amount of visible black progressively lessens towards the belly.



Alpine rock skink (Hawkdun Range). Photographed by Carey Knox



Alpine rock skink (Hawkdun Range). Photographed by Carey Knox

Otago green skink

Oligosoma aff. chloronoton “eastern Otago”

Other names: green skink (formerly), green-backed skink



Otago
Regional
Council



Conservation status

Regional | At Risk: Declining

National | At Risk: Declining

Description

Body length: up to 110 mm snout-vent length (SVL), with intact tail longer than SVL.

A large, strikingly patterned skink from eastern Otago.

Upper surfaces: Otago green skinks are typically green or brown on the back with prominent black or black-ringed scales.

Side surfaces: Darker brown or black on the sides and covered in numerous lighter-coloured spots or flecks.

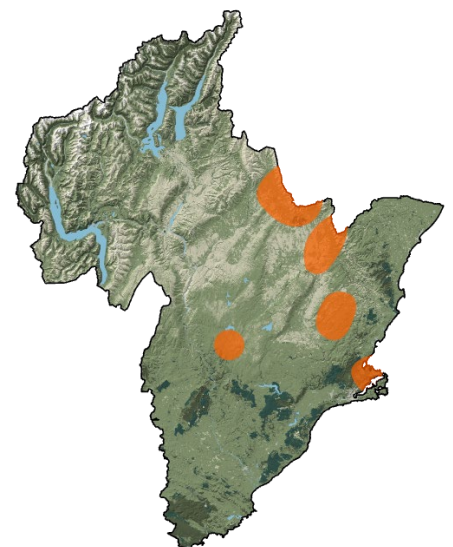
Lower surfaces: Light grey in colour. The belly is uniform, but the throat usually has a few dark flecks.

Eye colour: Dark brown (but may appear to be black).

Distribution

The Otago green skink has a very patchy distribution from coastal Otago through Central Otago and southwestwards across to the Old Man Range-Garvie Mountains system, Matakura Range, and Mid Dome. In North Otago and South Canterbury, it is found in the Kakanui Mountains, Saint Marys Range, Ida Range, Hawkdun Range, and Home Hills.

Otago green skinks appear to have declined substantially in the lowlands (e.g. they can no longer be found on Otago Peninsula), but higher-altitude populations (above 900 metres above sea level) appear to be reasonably abundant. The species is known to range up to at least 1,720 metres above sea level.



Ecology & natural history

Otago green skinks are diurnal and avid sun-baskers but can be hard to spot and retreat quickly into cover when approached. They are usually found in damp habitats, typically with woody or rocky cover in the form of logs, rock piles, or loose slabs (e.g. stream, river, or lake edges, gullies, shrublands, and tussocklands). At high altitudes, such as in the Hawkdun and Ida ranges, they occupy heavily vegetated scree edges and islands amongst scree and boulderfield, particularly between 1,100–1,700 metres above sea level.

Otago green skinks will forage amongst dense tussocks and native shrubs such as *Coprosma* and *Dracophyllum* for large invertebrate prey and berries. Females can reproduce annually, with two to four young born in summer.

Conservation

While Otago green skinks are not presently classified as a threatened species, they have declined substantially in lowland habitats and could become a threatened species if their populations are not well managed over the next few decades. As with most other lizards in Otago, populations are impacted by habitat modification (e.g. land development, intensive farming, and fires) in addition to introduced mammalian predators, such as rats, mice, hedgehogs, weasels, stoats, ferrets, and cats. Otago green skinks require densely vegetated ground cover, suitable retreats, and dampness. Thus, they do not appear to survive well on farmland or outside of conservation areas. A translocated population has established at the Orokonui Ecosanctuary – Te Korowai o Mihiwaka (near Ōtepoti/Dunedin) which has a mammal-exclusion fence.



Otago green skink (Orokonui Ecosanctuary). Photographed by Carey Knox

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

Identifying features

Otago green skinks are unlikely to be confused with other skinks in Otago, aside from the similar Southland green skink (*Oligosoma chloronoton*) and Lakes skink (*Oligosoma aff. chloronoton* “West Otago”). The following characteristics are useful for distinguishing between these three species; however, expert assistance may be required in some cases.

Otago green skinks can be distinguished from Lakes skinks based on their head shape (Lakes skinks typically have a longer snout) and colouration (Otago green skinks are often bright green, whereas Lakes skinks are usually brown, brownish-green, or coppery brown). The Southland green skink (*Oligosoma chloronoton*) is more robust and generally has a shorter snout.



Otago green skink (East Otago). Photographed by Carey Knox



Otago green skink (North Otago). Photographed by Carey Knox

Lakes skink

Oligosoma aff. chloronoton “West Otago”

Other names: green skink (formerly)



Otago
Regional
Council



Conservation status

Regional | Threatened: Vulnerable

National | Threatened: Vulnerable

Description

Body length: up to 110 mm snout-vent length (SVL), with intact tail longer than SVL

The Lakes skink is a large, graceful species of skink.

Upper surfaces: pale to mid-brown, brown-green, or olive-green (occasionally dark brown or black) with light and dark flecks. Cream or pale-brown stripes are sometimes present.

Side surfaces: usually have an indistinct dark-brown or brown-black band that is sometimes bordered by a pale-brown or cream stripe.

Lower surfaces: pale grey (sometimes with a partially pink or orange belly).

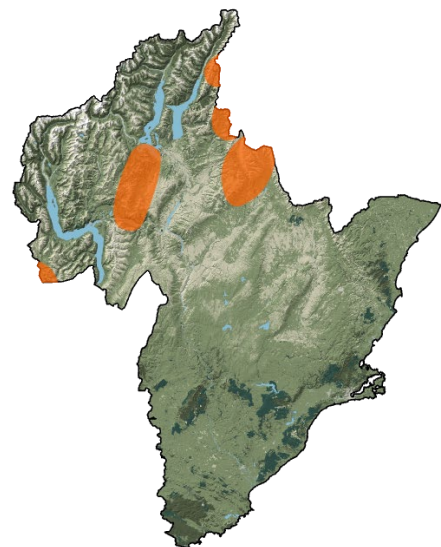
Distribution

Lakes skinks occur from southern Canterbury (south of Lake Pukaki and the Pukaki River, near Twizel) to the Tākitimu Mountains in Southland. They often live in remote, alpine ecosystems, but can be found near Twizel, Wānaka, Cardrona, and Gibbston.

Their populations are primarily restricted to mountainous ecosystems (>500 metres above sea level) and alpine ecosystems, reaching elevations of approximately 1,600 metres above sea level. However, Lakes skinks do occur as low as 300 metres above sea level in some areas.

Feet: moderately long toes with black soles.

Eye colour: dark brown (but may appear to be black).



Ecology & natural history

Lakes skinks are primarily active during the day. They sun-bask (often within dense shrubs or tussocks) to maintain preferred body temperatures and can sometimes be seen scurrying around to seek food and mates. Most of their diet consists of a range of invertebrates (including insects and spiders), but they may also opportunistically consume native fruits and nectar from flowers.

Lakes skinks inhabit rocky shrublands, grasslands, herbfields, river terraces, and lake shores, tussockland, old stream beds, and scree, appearing to prefer damp areas with complex, rocky habitat and lush native shrubs, tussocks, and grasses. At night, Lakes skinks hide underneath rocks and logs, in dense vegetation, rock crevices, and scree, and on other rocky slopes.

Female Lakes skinks may reproduce every one or two years and may produce one to four offspring in summer.

Conservation

Lakes skinks have received limited conservation attention. However, several populations are periodically monitored and scientists are researching new conservation strategies that may help alpine lizards, like the Lakes skink, in New Zealand. Their major threats include habitat modification (by land development, floods, and fires) and introduced mammalian predators, such as rats, mice, stoats, ferrets, and cats. Climate change may also pose a threat to these skinks. They appear to be especially vulnerable to mammalian predators, as they have mostly persisted in high-elevation ecosystems with complex habitat (which enhances their ability to escape predators). Lakes skinks also appear to be sensitive to habitat modification, as they are usually found in damp, shrubby areas that have endured historic fires.

Regional threat listing qualifiers:

Otago is a national stronghold for the Lakes skink, with over 20% of their population found in the region (National Stronghold).

Identifying features

Lakes skinks may be mistaken for two other species of skink that occupy similar locations in Otago, and genetic data are sometimes required to differentiate species. The following characteristics are useful for identification: Lakes skinks can be distinguished from Otago green skinks (*Oligosoma aff. chloronoton* “eastern Otago”) and Southland green skinks (*Oligosoma chloronoton*) by their head shape and colouration, as Lakes skinks typically have a proportionately longer snout than these two skink species and their upper surfaces tend to be brown (vs. usually green in Otago green skinks and Southland green skinks).



Lakes skink (Wānaka). Photographed by Carey Knox



Lakes skink (Wānaka). Photographed by Carey Knox



Lakes skink (Oteake Conservation Park). Photographed by Carey Knox

Southland green skink

Oligosoma chloronoton

Other names: green skink, green-backed skink



Conservation status

Regional | Threatened: Critical

National | Threatened: Critical

Description

Body length: up to 113 mm snout-vent length (SVL), with intact tail longer than SVL

The Southland green skink is a large, robust species.

Upper surfaces: vibrant green, brown, or copper, usually with extensive light and dark flecks (sometimes with pale-brown, copper, or gold stripes).

Side surfaces: usually have an indistinct dark-brown or black band that is sometimes bordered by a pale-brown or copper stripe.

Distribution

Southland green skinks occur from southern Otago (near Clinton/the Catlins) to the Tākitimu Mountains in the west (possibly as far as Te Anau) and southwards to Tiwai Peninsula, Southland. They also occur on several islands in Foveaux Strait (e.g. Tihaka/Pig Island, Rarotoka Island, and Ruapuke Island). Populations are extremely patchy but relatively widespread from coastal ecosystems to mountainous areas, reaching elevations of approximately 800 metres above sea level.

Lower surfaces: pale brown, cream, grey or copper (sometimes with a partially red belly).

Eye colour: dark brown (but may appear to be black).

Feet: moderately long toes with copper, brown, or black soles.



Ecology & natural history

Southland green skinks are primarily active during the day. They sun-bask (often within dense shrubs) to maintain preferred body temperatures and can sometimes be seen scurrying around to seek food and mates. Although they mostly feed on a range of invertebrates (such as insects and spiders), these skinks may opportunistically consume native fruits, nectar from flowers, and other small lizards.

Southland green skinks inhabit rocky grasslands, shrublands, and herbfields, as well as wetlands and dunelands. They appear to prefer damp areas with complex, rocky habitat and lush native shrubs, grasses, tussocks, flax, and ferns. At night, they hide underneath rocks and logs, in dense vegetation, and in rock crevices.

Females reproduce annually and may produce one to four offspring in summer.

Conservation

Southland green skinks have become locally extinct throughout most of their former range and are now only known from a handful of locations. Recent lizard surveys indicate that Southland green skinks appear to be common in at least two locations, but may be discovered elsewhere. In Otago, they are only known to occur near the region's southern limits in general location.

Their major threats include habitat modification (by land development and fires) and introduced mammalian predators, such as rats, mice, stoats, ferrets, and cats. Climate change may also pose a threat to these skinks. They appear to be especially vulnerable to mammalian predators, as they have mostly persisted in ecosystems with complex habitat, which enhances their ability to escape predators. Southland green skinks also appear to be very sensitive to habitat modification, as they are usually found in damp, shrubby areas that have endured historic fires and have complex ground cover.

Regional threat listing qualifiers:

The northern limit of their natural distribution is in the Otago region (Natural Range).

Identifying features

Southland green skinks may be mistaken for several other species of skink that occupy similar locations in Otago. The following characteristics are useful for identification:

Southland green skinks can be distinguished from Otago green skinks (*Oligosoma* aff. *chloronoton* “eastern Otago”) and Lakes skinks (*Oligosoma* aff. *chloronoton* “West Otago”) by their head shape and colour, as Southland green skinks have a proportionately shorter snout than these two species and often have vibrant copper scales (which are absent in Lakes skinks and Otago green skinks). Southland green skinks are also typically a brighter green than Lakes skinks and Otago green skinks (with more black scales on the back and sides).



Southland green skink (Hokonui Hills). Photographed by Carey Knox



Southland green skink (Tākitimu Mountains). Photographed by Carey Knox



Southland green skink (Tākitimu Mountains). Photographed by Carey Knox

Tuatara

Sphenodon punctatus



Conservation status

Regional | Conservation Translocation

National | At Risk: Relict

Key Otago qualifiers: Restored Native

Description

Body length: adults reach 200–300 mm snout-vent length (SVL). Intact tail approximately equal to or slightly longer than SVL. Adult males reach a larger size than adult females.

The tuatara is Aotearoa New Zealand’s largest and most emblematic reptile. Although tuatara closely resemble lizards, they are the last surviving rhynchocephalians, a group of animals once globally distributed and ecologically diverse during the Mesozoic Era (250–65 million years ago), which is often referred to as the time of the dinosaurs. Molecular and fossil evidence shows that Rhynchocephalia are the closest living relatives of Squamata (lizards and snakes), with the two groups diverging about 250 million years ago. Today the tuatara is a taonga or taoka (treasure) to Māori and an iconic species for all New Zealanders.

Upper surface: slate-grey, olive-green, or orange-yellow colouration, often with pale blotches, speckles, and lumps. Along the midline of the neck, back and tail, triangular folds of skin form a crest of spines, which the tuatara is named for (in te reo Māori, “tua” means “back” and “tara” means “spiny”). These spines are usually white and are more strongly developed in males, leading to speculation that they are used in mating and rivalry displays.

Lower surface: often pale grey, typically with speckles.

Tail: While the tuatara’s tail appears robust, it can be dropped to distract predators or rivals if attacked so the tuatara can escape to live another day (and often to grow another tail), like all other native land-based reptiles in Aotearoa New Zealand.

Feet: narrow digits, each toe with a large claw on the end.

Eyes: relatively large. The pupil is vertical with a gold-flecked iris that expands at night, giving the eyes a black appearance.

Distribution

About 750 years ago, tuatara were widely distributed across much of Aotearoa New Zealand, including Otago. However, the arrival of humans and other foreign mammals transformed the landscape, resulting in the disappearance of mainland populations of tuatara. By several hundred years ago, breeding populations survived on just a few islands off the coast of the northeastern North Island and in the Cook Strait.

Since the mid-1990s, conservation translocations have mostly focused on re-establishing populations of tuatara in parts of the Cook Strait and further north. These translocations were primarily within the ecological region of source populations and the latitudinal range of remnant populations. In 2012, a translocation of tuatara to Orokonui Ecosanctuary – Te Korowai o Mikiwaka, near Ōtepoti/Dunedin, was the first to a large, secure site on the South Island. This site is considerably further south than remnant populations, with a cooler climate.



Ecology & natural history

Unlike most reptiles globally (but not some lizards from Aotearoa New Zealand, including certain alpine geckos in Otago), tuatara can remain active at body temperatures as low as 6°C, with their preferred range being about 21–23°C. They spend the majority of the day in burrows or basking in the sun and are mainly active at nighttime, which is when they typically hunt. Using their large eyes to detect movement, tuatara hunt darkling beetles, wētā, spiders, snails, lizards, and sometimes smaller tuatara, among other prey. In the past, tuatara were themselves food for other native creatures, such as the now extinct whekau or laughing owl.

Remnant tuatara populations on islands benefit from the presence of large numbers of breeding seabirds, which provide food directly in the form of hatchlings and eggs. Seabirds provide food indirectly as well: their waste (e.g. excrement, carrion) contributes marine resources to island food webs, enhancing the number and size of invertebrate prey for tuatara. Additionally, while tuatara can make their own burrows, they often use those made by seabirds. The birds seem to get nothing in return.

Tuatara can potentially live for more than 130 years according to a recent study. Sexual maturity occurs after about 10–14 years (but later at locations with cooler climates and fewer resources). Females nest only once ~2–9 years (with a regular high frequency of about two years in some populations in warmer locations) and they lay approximately eight eggs (the range is 1–17), which can take 10–16 months to hatch. The sex of hatchlings is temperature dependent: the pivotal temperature is 21.6–22°C, with a difference of just 1.1°C between production of all-female and all-male hatchlings. This form of temperature-dependent sex determination (which see females produced below, and males above, 22°C) is unique within reptiles.

Conservation

Tuatara have a relict distribution and there is growing concern that some of their island habitats will become less suitable with human-induced climate change and as sea levels rise. With tuatara having temperature-dependent sex determination, there is also a concern that sex ratios will become male biased as local temperatures warm. Conservation work such as the translocation of tuatara is seeking to broaden and eventually restore the latitudinal range within which tuatara once lived, including sites with cooler climates like Orokonui Ecosanctuary. All monitoring of tuatara at Orokonui Ecosanctuary involves consultation with Ngāti Koata, kaitiaki of tuatara from Takapourewa / Stephens Island, and mana whenua Kāti Huirapa Rūnaki Puketeraki, and future translocations to re-establish populations should consider locations that will continue to be suitable under climate change.