



# Conservation status of indigenous lizard species in the Wellington region

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## 1. Introduction

The New Zealand Threat Classification System (NZTCS) provides a tool for assigning a threat status to candidate taxa at the national scale. These threat rankings are used to form the basis for prioritising conservation management actions, research and monitoring, and natural resource management decisions (Townsend et al, 2008). The current threat classification system is effective at the national scale, but a need for regional threat lists has been identified as a high priority for regional councils as a tool for managing and protecting biodiversity within the region. While the Department of Conservation is the agency tasked with managing indigenous species, regional and district councils have a statutory obligation to manage the habitats of threatened species under the Resource Management Act, 1991.

A methodology to create regional threat lists was developed by a collaborative group comprising representatives from the Department of Conservation (DOC), regional councils and a local authority. The resulting regional threat listing methodology leverages off the NZTCS, but applies a species population threshold adjusted to the regional land area under consideration (relative to the national land area) for species that are not nationally threatened. The assigned regional threat status cannot be lower than that of the national threat status, but can be higher, (e.g. a Nationally Vulnerable species could be assessed as being Regionally Critical). Other assessments made in the regional threat listing process include identifying populations that are national strongholds and the use of regional qualifiers, such as natural or historic range limits.

## 2. Methods

An expert panel comprised of Rod Hitchmough, Lynn Adams, Richard Romjin and Owen Spearpoint assessed the status of the lizard species in the Wellington region at a meeting held in 2014. The group has recently noted that the status of each species has not changed since that time. The national conservation status was as listed in Hitchmough et al 2013. This report covers lizard species only, not reptiles of the region. For that reason, non-lizarded reptiles; tuatara (*Sphenodon punctatus*), (Nationally Relict) and vagrant reptiles are not listed.

The panel initially identified all lizard species not observed in the region using the national lizard species list to remove these from consideration. The NZTCS criteria were used to assign the regional threat status to Nationally Threatened and At Risk lizard species in the region. If the regional population for a species had more than 20% of the national population, then the region was identified as a National Stronghold and the NZTCS criteria applied. For Nationally Not Threatened species, the regional population threshold was applied. In the Wellington region, the threshold was set at less than 1,000 mature individuals present or a habitat occupancy area of less than 500ha. If the population was not stable or increasing/decreasing by more than 10%, the NZTCS criteria were used to determine the regional threat status. The regional qualifiers used included the natural and historic range limits. The process for determining the regional threat status of a species is shown in Appendix 1.

### 3. Results

Seventeen lizard species were identified as being present in the Wellington region. Four Regionally Critical lizard species were identified (Appendix 2; Table 1). Two of these species are Nationally Threatened; Whitaker's skink (Nationally Endangered) and Kupe or Tamatea skink (Nationally Vulnerable). One species is Nationally Relict (Duvaucel's decko) and was assessed as Regionally Critical because of the small population size of this species in the region. Copper skink are Nationally Not Threatened, but have undergone a major decline in the Wellington region (>70% decline), as evidenced by the well documented population crash at Pukerua Bay (Hoare et al. 2007). Two Regionally Vulnerable species; barking/Wellington green gecko and McGregor's skink are Nationally Declining and Nationally Recovering respectively. The barking/Wellington green gecko is thought to be undergoing a 50-70% population decline, as the species is no longer being recorded from many sites known in the 1970s even where habitat is intact. McGregor's skink met the Regionally Vulnerable category as the habitat occupancy size in the region is less than 10 ha.

Six species were identified as being Regionally At Risk (Appendix 2, Table 2). All three Regionally Declining lizard species have a regional trend estimate of 10-30% decline. This was thought to be partly due to survey difficulties or under-reporting in the cases of ngahere/Southern North Island forest gecko and glossy brown skink. For ornate skink, the decline is thought to be caused by the impacts of mice eruptions. Population increases on the islands within the region have been recorded for the two Regionally Recovering species; northern spotted skink and goldstripe gecko, but goldstripe gecko is now restricted to Mana and Kapiti Islands and northern spotted skink are considered to be undergoing a major population decline on the mainland.

The robust skink has been listed as Regionally Extirpated, while the speckled skink is categorised as a Regional Coloniser (following the translocation of animals from Takupourewa/Stephens Island to Mana Island). Pacific gecko was assessed as being Regionally Data Deficient, as there is uncertainty as to whether or not historic records for the latter species are natural or escapes from collections. The minimac/Marlborough mini gecko has been listed as Regionally Naturally Uncommon and the Wellington region is recorded as the northern limit for this species.

There are two Regionally Not Threatened species; Raukawa/common gecko and northern grass/common skink, both of which have large population sizes (>100,000 individuals) and are considered to have stable populations. The Wellington region was identified as a National Stronghold (>20% national population) for six species; barking/Wellington green gecko, McGregor's skink, ngahere/Southern NI forest gecko, glossy brown skink, goldstripe gecko and Raukawa/common gecko.

A decision was made to confine this listing to lizards, rather than reptiles. The indigenous reptile list for the region includes tuatara (that would meet the Regionally Critical criteria) and five regional vagrants; green turtle (*Chelonia mydas*), leatherback turtle (*Dermochelys coriacea*), logger head turtle (*Caretta*

*caretta*), hawksbill turtle (*Eretmochelys imbricata*) and banded/yellow-lipped sea krait (*Laticauda colubrina*).

#### **4. Discussion**

The regional threat list can aid management and help direct survey effort. The lizard strategy for the Greater Wellington region, which includes recommendations for management activities, has already driven actions that benefit conservation efforts for lizard species (Romijn et al 2012). The regional threat list supplies a finer level of detail about the status of each species in the region and adds impetus to conservation efforts. To date Greater Wellington Regional Council has used the list to inform survey and monitoring efforts, e.g. a search was completed for Kupe skink by revisiting the last known recorded sites (Bell 2018a, 2018b) and a long-term lizard monitoring programme was established at Baring Head in 2012 (Herbert and Bell 2019). A summary of management and survey priorities for the regional lizard species is detailed in Appendix 2.

#### **5. Acknowledgements**

Jeremy Rolfe of the Department of Conservation (DOC) has led the development of this systematic approach to assessing the regional conservation status for indigenous species. His work has provided a nationally consistent methodology that can be used by regional councils. Rod Hitchmough's (DOC) assistance in preparing this report is greatly appreciated, as is the expertise of the expert panel. Roger Uys has helped in formulating this report, while Faline Drummond completed research on recent lizard sightings.

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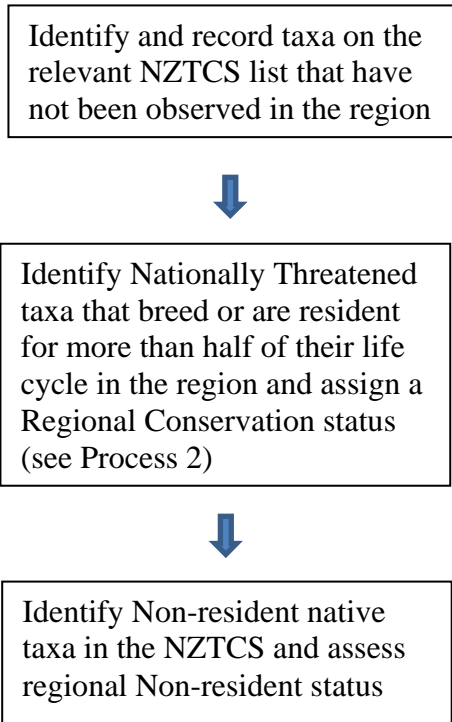
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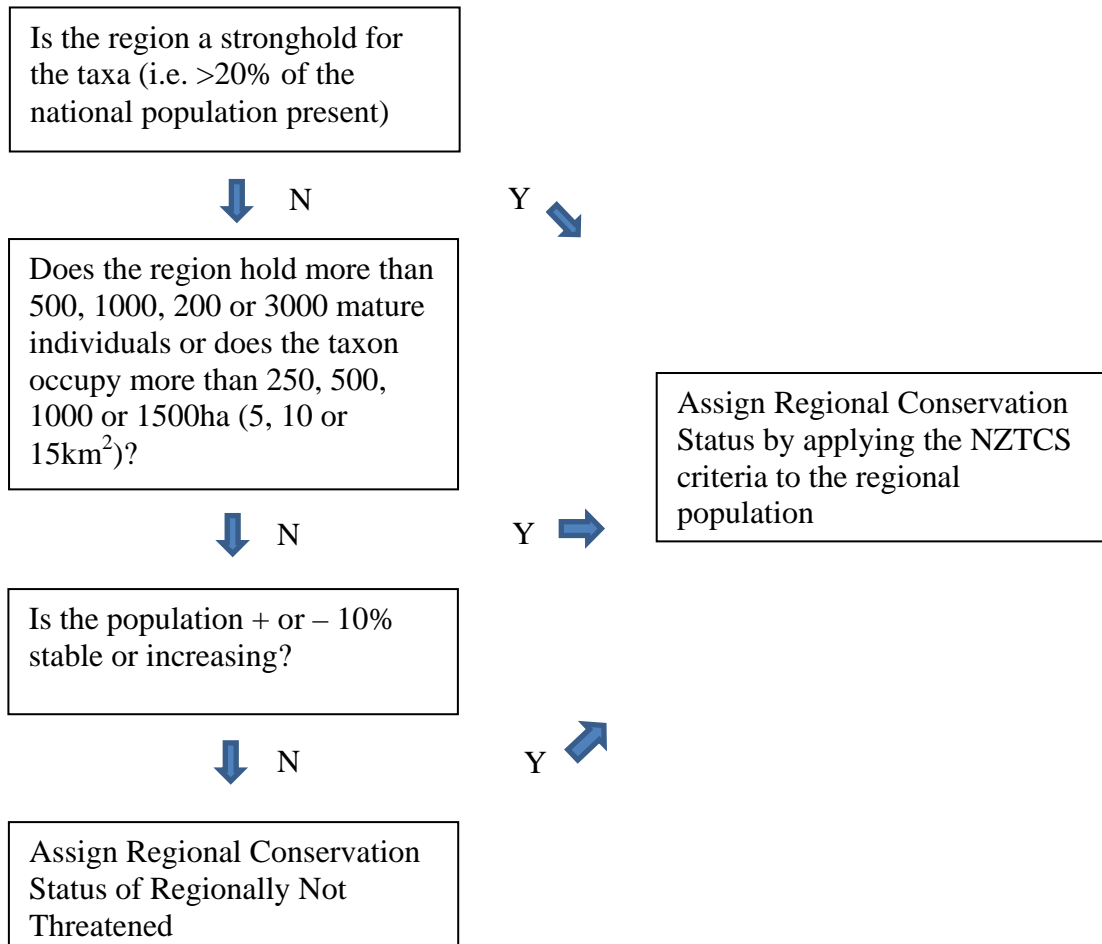


## Appendix 1: Process for determining the regional threat status of a species

### Process 1: Determination of regional threat status



### Process 2: Determination of strongholds and Regionally Not Threatened species



## Appendix 2: Regional threat list for lizard species in the Wellington region

Table 1: Regionally Threatened lizard species

Common Name	Name and Authority	Regional Conservation Status	National Conservation Status	Regional Criteria	National Stronghold	Regional Population	Regional Area	Regional Trend	Regional Confidence Population	Regional Confidence Trend	Regional Qualifiers	Regional Threat Assessment Notes
Whitaker's skink	<i>Oligosoma whitakeri</i> Hardy, 1977	Critical	Endangered	A (1)	No	<250	<1 ha	>70% decline	Quantitative	Quantitative	CD, OL, TL?, NR, HR	Fewer than 10 wild individuals. Pukerua Bay only NZ mainland pop. Captive breeding potential for future restoration.
Kupe or Tamatea skink	<i>Oligosoma aff. infrapunctatum</i> "Southern North Island"	Critical	Vulnerable	A (1)	No	<250			Quantitative	—	DP, PE, NR, HR	Not observed since 1970s near Carterton and north of Masterton.
Duvaucel's gecko	<i>Hoplodactylus duvaucelii</i> Duméril & Bibron, 1836	Critical	Relict	A (1)	No	<250	<1 ha	>10% increase	Quantitative	Quantitative	CD, OL, RN	Reintroduced to Mana Island.
Tuatara	<i>Sphenodon punctatus</i> Gray, 1842	Critical	Relict		No	<250	<1,000 ha	>10% increase	Quantitative	Quantitative	CD, Inc, RR, RN	Reintroduced to Mitiu/Somes Island, Zealandia.
Copper skink	<i>Oligosoma aeneum</i> Girard, 1857	Critical	Not Threatened	C	No		>10,000 ha	>70% decline	Quantitative	Expert opinion	PD, Sp, NR, HR	Low number of recent records suggests significant decline in recent decades. Well documented crash at Pukerua Bay. Sporadic records at coastal and inland sites. Secure though not abundant on Mana, Kapiti, Mitiu/Somes islands. Still widespread though sparsely distributed. Assessment based on Pukerua Bay data and anecdotal evidence.
Barking/ Wellington green gecko	<i>Naultinus punctatus</i> Gray, 1842	Vulnerable	Declining	D (1/1)	Yes	5,000-20,000		50-70% decline	Qualitative	Qualitative	DP, NR, HR, NS	No longer recorded from many sites known in 1970s but sporadic widespread records. Similar but more sparse distribution than forest gecko. Possibly recovering on Kapiti Island.
McGregor's skink	<i>Oligosoma macgregori</i> Robb, 1975	Vulnerable	Recovering	A (3/1)	Yes	20,000-100,000	<10 ha	>10% increase	Quantitative	Quantitative	CD, OL, NR, HR, NS	Recovering on Mana Island.

### Regional and national qualifiers:

CD	Conservation Dependent	TL	Type Locality
OL	One Location	NR	Natural Range
PE	Presumed Extinct	HR	Historic Range
Inc	Increasing	RN	Restored Native
Sp	Sparse	NS	National Stronghold
Dp	Data Poor	IN	Introduced Native
RR	Range Restricted		

Table 2: Regionally At Risk lizard species

Common Name	Name and Authority	Regional Conservation Status	National Conservation Status	Regional Criteria	National Stronghold	Regional Population	Regional Area	Regional Trend	Regional Confidence Population	Regional Confidence Trend	Regional Qualifiers	Regional Threat Assessment Notes
Ngahere/Southern North Island forest gecko	<i>Mokopirirakau</i> "southern North Island"	Declining	Declining	B (1/1)	Yes	20,000-100,000		10-30% decline	Qualitative	Qualitative	CD, DP, PD, NR, HR, NS	Arboreal so difficult to survey. Increasing records in Wellington (e.g., Otari, Karori Sanctuary, East Harbour) associated with intensive pest control.
Ornate skink	<i>Oligosoma ornatum</i> Gray, 1843	Declining	Declining	B (1/1)	No	20,000-100,000		10-30% decline	Qualitative	Expert opinion	CD, DP, PD, NR, HR	Doing well at Zealandia in presence of intensive mouse control. However, likely to suffer where control of other pest animals leads to mouse irruptions. Commonly encountered in gardens in western suburbs of Wellington. Presumed to be at lower end of population size range.
Glossy brown skink	<i>Oligosoma zelandicum</i> Gray, 1843	Declining	Declining	B (1/1)	Yes	20,000-100,000		10-30% decline	Qualitative	Expert opinion	CD, DP, PD, RR, NR, HR, NS	Possibly under-reported; occasional garden, rocky coast records. Present on Mana and Kapiti, recovery underway on Mana after mouse eradication. Eastern boundary along axial ranges. Presumed to be at lower end of population size range.
Spotted skink	<i>Oligosoma lineocellatum</i> Duméril & Duméril, 1851	Recovering	Relict	A	No	>100,000	<100 ha	>10% increase	Quantitative	Quantitative	CD, PD	In serious trouble on mainland---Turakirae, Baring Head, Ponatahi. Recorded from but not seen recently at Plimmerton, Martinborough, Wairarapa coast. Thriving on Matiu/Somes, Makaro/Ward, reintroduced to Mana Island.
Goldstripe gecko	<i>Woodworthia chrysosiretica</i> Robb, 1980	Recovering	Relict	A	Yes	1,000-5,000	1,000-2,000 ha	>10% increase	Expert opinion	Quantitative	CD, DP, Inc, RR, NR, HR, NS	Now restricted to Mana and Kapiti islands.
Minimac gecko	<i>Woodworthia</i> "Marlborough mini"	Naturally Uncommon	Not Threatened	—	No		<1,000 ha	±10% stable	Quantitative	Expert opinion	RR, NR, HR	Abundant within restricted range from Lyall Bay to Makara and on Taputeranga Island. Overlap with <i>W. maculata</i> between Island Bay and Lyall Bay, otherwise allopatric. Northern limit. Trend data lacking but seemingly stable.

## Regional and national qualifiers:

CD	Conservation Dependent	TL	Type Locality
OL	One Location	NR	Natural Range
PE	Presumed Extinct	HR	Historic Range
Inc	Increasing	RN	Restored Native
Sp	Sparse	NS	National Stronghold
Dp	Data Poor	IN	Introduced Native
RR	Range Restricted		

**Table 3: Regionally Data Deficient, Coloniser and Extirpated lizard species**

Common Name	Name and Authority	Regional Conservation Status	National Conservation Status	Regional Criteria	National Stronghold	Regional Population	Regional Area	RegionalTrend	Regional Confidence Population	Regional Confidence Trend	Regional Qualifiers	Regional Threat Assessment Notes
Pacific gecko	<i>Dactylocnemis pacificus</i> Gray, 1842	Data deficient	Relict	—	No	N/A	N/A	—	—	—		Uncertainty as to whether historic records are natural or escapes from collections. Region would be southernmost range limit if natural presence
Speckled skink	<i>Oligosoma infrapunctatum</i> Boulenger, 1887	Coloniser	Declining	A (1)	No	<250	<1 ha	±10% stable	Quantitative	Qualitative	CD, DP, OL, IN	Introduced to Mana Island from Stephens Island c. 2005, subsequently discovered to differ from North Island species.
Robust skink	<i>Oligosoma alani</i> Robb, 1970	Extirpated	Recovering					—	Quantitative	—		Midden records from Mana, cave subfossils near Aorangi Range.

**Table 4: Regionally Not Threatened lizard species**

Common Name	Name and Authority	Regional Conservation Status	National Conservation Status	Regional Criteria	National Stronghold	Regional Population	Regional Area	RegionalTrend	Regional Confidence Population	Regional Confidence Trend	Regional Qualifiers	Regional Threat Assessment Notes
Common skink	<i>Oligosoma polychroma</i> Patterson & Daugherty, 1990	Not Threatened	Not Threatened	—	No	>100,000	>10,000 ha	±10% stable	Quantitative	Quantitative		Widespread and common. Some habitat loss to coastal development but not significant enough to meet Declining threshold.
Common gecko	<i>Woodworthia maculata</i> Gray, 1845	Not Threatened	Not Threatened	—	Yes	>100,000	>10,000 ha	±10% stable	Quantitative	Expert opinion	NS	Abundant and widespread, slowly declining in most of range though possibly responding to pest control in suburban areas. Secure and increasing on islands with slow decline on mainland--overall still stable, may change when islands reach carrying capacity.

**Regional and national qualifiers:**

CD	Conservation Dependent	TL	Type Locality
OL	One Location	NR	Natural Range
PE	Presumed Extinct	HR	Historic Range
Inc	Increasing	RN	Restored Native
Sp	Sparse	NS	National Stronghold
Dp	Data Poor	IN	Introduced Native
RR	Range Restricted		

### Appendix 3: Priority management and survey actions for lizards in the Wellington region

Common Name	Name and Authority	Management Priority	Management Actions	Survey Priority	Survey Actions
Whitaker's skink	<i>Oligosoma whitakeri</i> Hardy, 1977	N/A	DOC programme	N/A	DOC programme
Kupe or Tamatea skink	<i>Oligosoma aff. infrapunctatum</i> "Southern North Island"	N/A	Population not re-located in region as yet	A	Survey completed 2017/2018, but no individuals found. Advice is to leave ACOs out for longer, as experience elsewhere has shown this species may take some time to colonise ACOs
Duvaucel's gecko	<i>Hoplodactylus duvaucelii</i> Duméril & Bibron, 1836	N/A	DOC programme	N/A	DOC programme
Copper skink	<i>Oligosoma aeneum</i> Girard, 1857	A	Find appropriate managed sites	A	Remonitor at known sites. Recent survey completed at Pukerua Bay found evidence of population recovery but losses likely to be occurring across the landscape
Barking/ Wellington green gecko	<i>Naultinus punctatus</i> Gray, 1842	A	Find appropriate managed sites	A	Encourage Citizen Science reporting
McGregor's skink	<i>Oligosoma macgregori</i> Robb, 1975	N/A	DOC programme	N/A	DOC programme
Ngahere/ Southern North Island forest gecko	<i>Mokopirirakau</i> "southern North Island"	A	Continue management at appropriate sites	A	Establish outcome monitoring programme at management sites
Ornate skink	<i>Oligosoma ornatum</i> Gray, 1843	A	Continue management at appropriate sites	A	Establish outcome monitoring programme at management sites
Glossy brown skink	<i>Oligosoma zelandicum</i> Gray, 1843	A	Find appropriate managed sites	A	Complete coastal surveys
Spotted skink	<i>Oligosoma lineocellatum</i> Duméril & Duméril, 1851	A	Find appropriate managed sites	A	Continue surveys at Baring Head Revisit of Wairarapa site Complete coastal surveys
Goldstripe gecko	<i>Woodworthia chrysoiretica</i> Robb, 1980	N/A	DOC programme	N/A	DOC programme
Minimac gecko	<i>Woodworthia</i> "Marlborough mini"	A	Find appropriate managed sites	A	Survey habitats as last surveyed 20 years ago
Pacific gecko	<i>Dactylocnemis pacificus</i> Gray, 1842	C	Ensure any new specimens found have genetic samples taken to allow assessment of whether they're likely to be from a remnant native population	C	Encourage Citizen Science reporting
Speckled skink	<i>Oligosoma infrapunctatum</i> Boulenger, 1887	N/A	DOC programme	N/A	DOC programme
Robust skink	<i>Oligosoma alani</i> Robb, 1970	C	Translocation options may arise	N/A	Regionally extirpated
Common skink	<i>Oligosoma polychroma</i> Patterson & Daugherty, 1990	A	Establish salvage process	C	Continue Citizen Science reporting
Common gecko	<i>Woodworthia maculata</i> Gray, 1845	A	Establish salvage process	C	Continue Citizen Science reporting

Management and survey priorities are ranked from A to C, with A being the highest  
 N/A: Not applicable – species actions haven't been prioritised where a current programme is underway

### Appendix 4: Presence of lizard species in territorial authority districts in the Wellington region

Common Name	Name	Kapiti Coast District	Porirua City	Wellington City	Hutt City	Upper Hutt City	South Wairarapa District	Carterton District	Masterton District	Tararua District
Whitaker's skink	<i>Oligosoma whitakeri</i>		★							
Kupe or Tamatea skink	<i>Oligosoma aff. infrapunctatum</i> "Southern North Island"							☆	☆	
Copper skink	<i>Oligosoma aeneum</i>	★	★	★	★	★	★	★	☆	☆
Barking/ Wellington green gecko	<i>Naultinus punctatus</i>	★	★	★	★	★	★	★	★	★
Ngahere/ Southern North Island forest gecko	<i>Mokopirirakau</i> "southern North Island"	★	★	★	★	★	★	★	☆	☆
Ornate skink	<i>Oligosoma ornatum</i>	★	☆	★	★	★	☆	☆	☆	☆
Glossy brown skink	<i>Oligosoma zelandicum</i> Gray	★	★	★						
Spotted skink	<i>Oligosoma lineocellatum</i>				★		★			
Minimac gecko	<i>Woodworthia</i> "Marlborough mini"			★						
Common skink	<i>Oligosoma polychroma</i>	★	★	★	★	★	★	★	★	★
Common gecko	<i>Woodworthia maculata</i>	★	★	★	★	★	★	★	★	★



Recorded in district in last 20 years

Not recorded in the last 20 years, but likely to be present