

The impacts of coastal erosion and storms on the West Coast's critically endangered lizards

Lynn Adams, Department of Conservation Technical Advisor

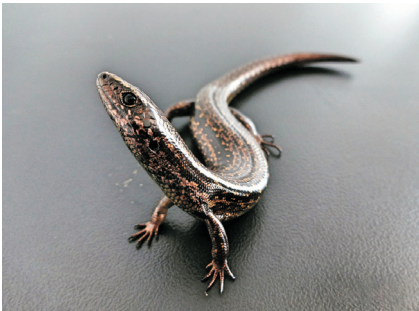
The combined effects of habitat loss, predation and coastal erosion are seriously hampering conservation efforts for two of the West Coast's endemic lizards. This article describes the issues and the plans to protect these two unique species.

Kapitia skink

Population: (2018) <200 individuals

National status: Endemic

Conservation status: Nationally Critical



Kapitia skink (Photo: DOC).

The Kapitia skink (previously Chesterfield skink; *Oligosoma salmo*) was first discovered in 1993 in a small coastal area north of Hokitika. It was already in a critical state. Management was delayed by uncertainty over the species' taxonomic status, but by 2008 new genetic research resolved that it is a separate and distinctive new species.

Habitat loss is a significant threat. Aerial photos show a progressive loss of coastal native habitat post-war and while the skink currently survives in rough pasture, continued farm pasture improvements have further depleted their adopted habitat. They are now restricted to a narrow 5-10 m strip of coastal habitat between farm paddocks and sand dunes.

Compounding the loss of habitat, the Kapitia skink is also extremely vulnerable to the full suite of mammalian predators. We expect mice to be a significant predator, but rats, mustelids and cats will also be impacting on this species.

As if that wasn't enough, their tiny habitat is squeezed right up against the edge of the active dunes and is therefore also

affected by storms, sea level rise and king tides.

Research to understand this species began in 2015. Prior to this, only 15 animals had ever been seen, with only a single skink seen in the previous decade. The Department of Conservation (DOC) is carrying out research to identify the causes of decline, understand the ecological needs of the species, and develop recovery methods. The research confirmed our initial fears, that this species is confined to a <1 ha narrow coastal strip squeezed between developed farmland and the beach and the estimated population numbered less than 200 individuals.

Did you know?

Kapitia skinks have strong prehensile tails to grip objects and help them climb. It's possible they once lived in trees.

In January 2018 ex-Cyclone Fehi coincided with king tides. There was widespread damaging flooding across the West Coast and the storm removed a third of the area buffering the Kapitia skink habitat, and over-washed the entire habitat. One month later ex-cyclone Gita threatened to do additional damage, although this was not realised because the storm tracked further north.

The outlook for the Kapitia skink was dire so DOC rescued 50 skinks to establish a captive population at Auckland Zoo. These skinks have subsequently adapted to zoo conditions



Kapitia skink – this is #120, she survived the damaging Cyclone Fehi storms and evaded collection for the Auckland Zoo insurance population, and gave birth to her first live young in summer 2018 (Photo: DOC).



This tiny narrow strip of rank pasture grass provides some of the best remaining habitat after the storms of Cyclone Fehi (Photo: DOC).

and are breeding, creating an effective insurance population should things continue to deteriorate on the West Coast.

Two years on, the research has refocused on understanding the impacts of the storm and developing methods to protect the remaining population. Coastal erosion is still impacting this species. The northward drift of a nearby river mouth is removing more habitat and further threatening their habitat. Another storm, especially during a king tide, is likely to continue to erode this section of beach. The only viable method to protect this species is to relocate them to a new area altogether. To this end, a new reserve has been purchased and over the coming year a predator-proof fence will be built to secure this species. Until then, the population remains tiny and tenuous.

Cobble skink

Population: (2020) 56 individuals

National status: Endemic

Conservation status: Nationally Critical (extinct in the wild)



Cobble skink (Photo: R Gibson, Auckland Zoo).

Cobble skink (*Oligosoma* aff. *infrapunctatum* 'cobble') was first discovered in 2007, and is only known from a tiny cobble beach north of Westport. The species looks very similar to the closely related speckled skink, but, despite appearances, cobble skinks are very different from other species. They prefer the deep cobble habitat found immediately above the high tide mark. It's an area rich in food and heavily influenced by the marine environment. Cobble skinks have a reduced body size to help them wriggle through the spaces between cobbles, and they have large eyes.

When first discovered, cobble skinks were already restricted to a tiny area, but were apparently abundant there. It's likely the deep cobble structure of their habitat protected them from introduced predators, which were impacting on skink populations outside of this specialist habitat.

Eight years after discovery, the skink population had declined significantly due to loss of habitat from coastal erosion and coastal protection works to protect human

Did you know?

This small skink is very agile and can quickly disappear into the small spaces between cobbles.

infrastructure. Cobble skinks were assessed in late 2015 as Nationally Critical, because they occupied less than 1 ha of habitat and had undergone a severe decline.

Very little is known about this species. It's expected that mice are a significant predator, but rats, mustelids and cats will also be preying upon skinks. Climate change, storm events and rising sea levels are likely to have significant impacts as this species lives on the fringe of the land. The cyclic loss of cobble habitat, likely natural, has also limited this species' ability to move and recolonise their preferred cobble habitat, and more frequent and intense storm events continue to erode the habitat that remains. Coastal development and coastal erosion protection work destroy habitat, as do vehicles and fire.

Imminent storms and ongoing erosion of their tiny habitat led DOC to carry out an emergency salvage operation in the winter of 2016. As many as possible of the remaining skinks were collected and flown to Auckland Zoo.

Thirty-six skinks were rescued only days ahead of a storm that removed the last of their remaining habitat. As far as we know, the entire remaining population of this species is now living at Auckland Zoo and the species is extinct in the wild. The species



Cobble skink in their preferred cobble habitat. (Photo: R Gibson, Auckland Zoo).

is proving more challenging to manage in captivity than its southern cousin the Kapitia skink, showing significant intraspecific aggression, but the population at the zoo is steadily increasing.

DOC and Auckland Zoo are working together to return these precious West Coast endemics to their natural home. We aim to find a suitable coastal habitat safe from predators and coastal erosion, but which contains an abundance of their preferred cobble habitat.

The future for this species is still very uncertain. But once numbers grow sufficiently within the captive facility, skinks will be released to wild cobble habitat to establish new populations along the beaches of the West Coast.