



How to protect our Central Otago roundhead galaxias

With its shallow gravel and cobble-laden creeks, the Central Otago region is home to a number of rare and endangered fish species.

The Central Otago roundhead galaxias (galaxias) are one example and are only found in this area. They have round shaped heads and galaxy-like gold flecks and patterns on their back. They belong to the ancient, scaleless Galaxiidae family, which also includes our more well-known whitebait species.

Classified as nationally endangered, the galaxias shares the same threat status as the rare South Island forest-parrot, the kākā.

We need your help to protect this small but mighty fish.

Why save the Central Otago roundhead galaxias?

These amazing small fish are part of our area's unique identity. The Manuherekia catchment was once a strong hold for the species, but today they only inhabit a few small tributaries.

In the past 25 years, freshwater ecologists have seen a 50% decline in the species population. The remaining populations are often marginal and confined to small reaches of wetlands, springs and creeks where there is security against predatory fish, such as trout and perch, and plenty of food and clean, cool water. They predominately feed on small stream invertebrates, such as mayflies and stoneflies.



Photo Source: Daniel Jack – Department of Conservation.

Where can I find these fish – how will I know they are there?

As a cool water, non-migratory, species, they live their life in freshwater waterways and do not migrate to sea, like their whitebait cousins.

Three quite different locations where we found galaxiids in Thomsons Catchment



Even the most unlikely places can be full of galaxias. A small creek in Thomsons full of watercress was absolutely brimming with hundreds of galaxias where trout and perch have been unable to access. Survey with the late Matt Hickey in January 2021.



In the January 2021 survey, galaxias seemed to be more prevalent where springs were coming up out of the ground creating a cold clear water habitat for them to live in.

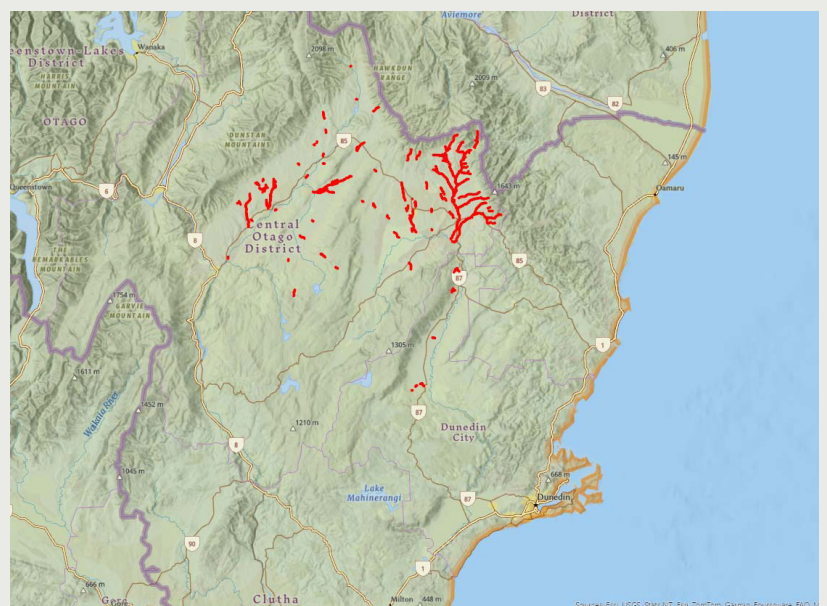


Photo Source: Pete Ravenscroft ORC electric fishing to remove trout June 2023

A cobbly stretch in Thomsons Creek which is popular with galaxias.

The Central Otago roundhead galaxias are generally found in streams throughout the Manuhereikia and Taieri catchments, 350m to 800m above sea level. While they prefer cobbly bottom streams and cool springs, they may also be found in weedy drains that provide safety from predatory fish. There are population fragments found in tributaries in the Taieri catchment down as far as the township of Middlemarch. The Kye Burn is their stronghold, but they are on the decline in this catchment.

Throughout their life cycle they will change habitats. No one truly knows how long they live for, but it is estimated between six to eight years.



From September to November eggs are laid amongst porous cobble/gravel substrates, often where springs are flowing out of the ground into the creek. Upon hatching the larvae are 9mm in length, and the small fish / larvae (<30mm) occupy the slow flowing back eddies. As they reach adulthood, they occupy pools and riffles.

If you are in an area that galaxias are likely to be found, have a look in your local creek. Even better to do it at night with a spotlight.

The adult fish generally measure up to 100 mm in length but can get to 150 mm.



Photo Source: Pete Ravenscroft, electric fishing June 2023



Photo: Galaxiids found in the catchment in January 2021

They are cigar-shaped with no dorsal fin, and colours and markings vary between life stages and populations. Generally, they have dark-coloured markings over pale olive to silver/grey-coloured bodies with a light dusting of gold or silver.

You can watch our videos of us surveying galaxias on the MCG website, or youtube channel - links below:

www.mcg.org.nz/video/

www.youtube.com/@Manuherekiacatchmentgroup

What are the key threats for galaxiid populations?

Over the years there has been a loss of healthy habitats for galaxias, such as creeks being piped or straightened or cleaned out regularly, too much sediment in the creek, lack of streambank vegetation. There has also been an increase in the predation by trout and perch and invasion of aquatic pests, such as didymo.



Photo Source: Brent Dungey

Perch removed from Thomsons Creek May 2024. These perch are being removed above a fish barrier installed in Thomsons Creek.



A thriving patch of watercress providing galaxias cover in a local creek.

What can I do to help protect them?

There's lots of practical ways to help the galaxias to thrive.

- ▶ Restore and protect vegetation on stream banks and open drains. Even long grass reduces sediment runoff, and riparian planting helps create shade for the galaxias. See our galaxias planting factsheet for planting ideas.
- ▶ Fence off waterways to keep out livestock, preventing the animals from stirring up sediment with their hooves or causing pugging and erosion on the streambanks.
- ▶ Avoid excavating natural springs or straightening/piping small creeks as these can be key habitats for the galaxias.
- ▶ Where possible avoid cleaning out the creeks with a digger as you'll remove the galaxias as well. They'll be thriving under the watercress growing in the creek. If you do need to clean out your creek, get some advice and help first (see the end of this factsheet).
- ▶ Minimise sediment loss into creeks as this smothers the cobbles and removes the habitat for the galaxias and the bugs that they eat.
- ▶ If you are replacing a culvert, make sure the fish can easily swim through. If there was a drop previously, keep the same drop – as this may have stopped trout or perch getting upstream.
- ▶ If you know galaxias live in your creek, keep an eye on flows and leave some flow in the creek if you are extracting for irrigation. Fish can't survive without water.



Fenced galaxias tributary. May 2024. Thomsons creek with some plantings of carex secta, kowhai and flax started in November 2023 and doing well in the moist riparian margin.

What should I do to control weeds and watercress if there are galaxias in my creek?

Grass and watercress growth can be an issue for farmers – but not for galaxias. We know that these plants can clog the smaller, slower-flowing creeks in our catchment, and traditionally, farmers have dug out these weeds or sprayed them. Widespread spraying on or near waterways with chemicals to kill the watercress can interfere with the galaxias' immune systems and make them more vulnerable to disease.

The watercress provides galaxias cover, where they thrive.



Photo Source: Watercress in a small creek in Thomsons catchment (Nic McGrouther)

Our recommendation is to only remove the watercress if it's an issue for farm management, causing the creek to back up or flood onto the paddocks. There are some ways to control in-stream weed growth that can help the galaxiids:

- ▶ The best option is to plant tall vegetation on the northern side of the riparian margin to shade the creek and reduce watercress growth, avoiding the need to use spray or dig the weed out. It doesn't always have to be tall vegetation - even carex secta (a wetland tussock forming sedge) can be tall enough in small creeks to have a shading effect.
- ▶ Use a root rake to pull out weed (rather than a bucket) as to will reduce the risk of removing the fish from the creek.
- ▶ Do sections of weed removal at a time, leaving some areas untouched so that not all galaxias will be affected at once and so that some fish can recover into refuge areas.
- ▶ Avoid digging out sediment from the bed or banks of the creek when you are root raking the watercress as this will release sediment (and requires a consent).
- ▶ Treat any nuisance vegetation with spray while it's young. This means less spray is required to get the job done and there is less decomposing vegetation following spraying.

TIP: Farmer Elliot Morgan has galaxias on his property. "I've made a note in my diary for spring to remind myself to spray the watercress and weeds in irrigation races and creeks while the weeds are still small."

TIP: In May 2023, Omakau Irrigation Company carried out a trial to clean weed out their races with a root rake rather than a digger bucket. Initial feedback is that they saw fish dropping back into the race, and the work was much quicker. Keep an eye on the Thomsons Catchment Project Facebook page for updates on whether this helped reduce weed growth in spring.

www.facebook.com/ThomsonsCatchmentProject



Photo Source: Roger Williams

What should I plant along waterway banks?

Native species, including *Carex secta* grasses, toetoe, *Olearia* and cabbage trees, are great for riparian planting and can provide shade for the waterway and its inhabitants, as well as being a habitat for native insects, many of which are food for galaxias during their larval stage.

See the Thomsons Catchment project factsheet on planting along galaxias creeks for Thomsons catchment and other dry catchments in Central Otago.

Landowners in the Thomsons catchment are helping galaxiid!

We've installed a purpose-built fish barrier in Thomsons Creek, which is designed to keep the upstream movement of predatory fish species out of 2.5km of Thomsons Creek below Mawhinney Road. Trout are being removed from above the barrier by the ORC. Ongoing monitoring will help us determine the success of this barrier as part of our role as an exemplar project.

Local farmers have also taken small practical projects to protect their galaxias. For example, two perched culverts have been installed to protect galaxias by preventing trout access.

Farmers, supported by the Ministry for the Environment's Jobs for Nature grant, are fencing waterways that have galaxias.

We are also planting native riparian plant species along a couple of the galaxias sites.

Thank you to Otago Regional Council and Otago Fish and Game, who have helped remove the trout and perch above the fish barriers and keep us informed on how effective the barrier is.

The Otago Regional Council is very supportive of small fish barrier projects, and we highly recommend contacting them for help and advice.



Photo Source: Fish barrier installed in Thomsons Creek



Perched culvert to protect upstream galaxias population in this small tributary



Fencing creeks to prevent streambed stock damage and promote long grass along the banks.



Fenced creek at George Naylor's block supports a population of galaxias.



Photo: The Gillespie family with the late Matt Hickey, and Mitch Fairhurst, spotting galaxiids in Thomsons Creek during a survey in March 2021.



Photo: Nic McGrouther March 24 – Pete's hand. Galaxias anomalus – Central Otago roundhead galaxias, adult and juvenile, Thomsons Creek.



Where can I get advice and help?

YOU CAN GET GUIDANCE AND ADDITIONAL INFORMATION FROM

Department of Conservation: **Chris Kavazos**

Otago Regional Council: **Pete Ravenscroft**

Thomsons Project Manager: **Nicola McGrouther**

To find out more about the Thomsons Catchment Project, follow us on Facebook at www.facebook.com/ThomsonsCatchmentProject

Or visit www.mcg.org.nz/thomsons-project for copies of our fish barrier, perched culvert and galaxias planting factsheets.