Alpine tarn, Rock and Pillar Range. *Photo: John Barkla*

Strengthening Taiari wetlands as climate changes

A new research report looks at the catchment's upland wetlands (above 600 m in altitude) and what actions are available now to help them stay healthy in the long term, even as conditions change.

About the upland wetlands

There are at least 2,614 distinct upland wetlands in the Taiari River catchment. They're classified as herbfields, sedgelands, mossfields, seepages, cushion bogs, tarns, flushes, red tussock wetlands and more. Some are home to special plants, birds, fish, lizards and bugs – many of which are threatened with extinction.

What climate change is likely to bring to Taiari

We can expect warmer temperatures, fewer frosts, more droughts and more intense rainfall events in the catchment. All these changes are likely to affect the wetlands in some way. Tarns could shrink and be invaded by weeds, peat soils could dry out and break down, fires may happen more often and be more extreme, and the volume of snow that feeds groundwater could reduce.

Wetlands and tussocks in a beautiful relationship

Although they don't look like wetlands, areas of red tussock are the largest type of wetland in the catchment, at 4,383 ha. Tussocks trap water from the air when the weather is foggy or snowy, and add to water that falls directly as rain. Wetlands soak up and store large amounts of water and release it slowly, which evens out

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the highs and lows of floods and droughts. Wetlands also store large amounts of carbon. Further down the catchment, water from upland wetlands joins tributaries and the Taiari River itself. River water is an essential resource for farming, hydroelectricity generation and mahika kai (food gathering) sites.

Possible actions and prioritisation

The report identified a range of possible actions to strengthen the catchment's upland wetlands and used a cost-benefit analysis to rank them by priority.

Priority	Action	Benefits
1	Control wilding pines and other woody weeds to stop them invading wetlands.	Preserves wetlands, prevents water loss, supports biodiversity and reduces fire risk.
2	Control invasive browsers (pigs, deer, goats, geese, rabbits) to reduce damage to wetlands.	Protects wetland plants and animals, and reduces damage from trampling and browsing.
3	Ensure new infrastructure (like dams and wind farms) in upland areas doesn't threaten wetlands.	Protects wetlands from environmental changes caused by infrastructure.
4	Fence, control weeds and actively restore degraded wetlands at 600–800 m.	Improves the biodiversity of wetlands, including where rare and threatened species and ecosystems are present.
5	Monitor wetlands for degradation especially alpine snowbanks and those at 600–800 m.	Provides a record of past condition and changes to guide conservation management.
6	Control predators (stoats, rats, cats) to increase numbers of native animals.	Creates more healthy ecosystems and allows vulnerable native species to thrive.
7	Reduce burning of tussocklands, recognising their ability to trap water.	Keeps water in the soil and maintains groundwater, stops weeds spreading and protects tussock ecosystems.
8	Reduce stock grazing in upland area, moving to less intensive farming methods.	Decreases compaction and increased levels of nutrients in the soil. Enables sensitive plants to recover.
9	Fence, control weeds and actively restore degraded wetlands above 800 m.	Lower priority than 4 because wetlands at higher altitudes generally need less restoration than those at 600–800 m.
10	Translocate threatened alpine species.	Provides a back-up for the most threatened species if their natural habitats disappear.
11	Limit vehicle access to formed roads only.	Minimises damage to upland wetlands from 4WD vehicles and dirt bikes.

More information and full report

See more about our work to restore the Taiari River and read the full report: Management opportunities to increase climate change resilience in the Taiari, upland wetlands, Wildland Consultants, 2025.
https://www.doc.govt.nz/taiari-river-restoration

Left: *Caltha obtusa*, Lammerlaw Range. **Right:** *Astelia linearis* var. *novae-zealandiae*, Lammerlaw Range. *Photos: John Barkla*

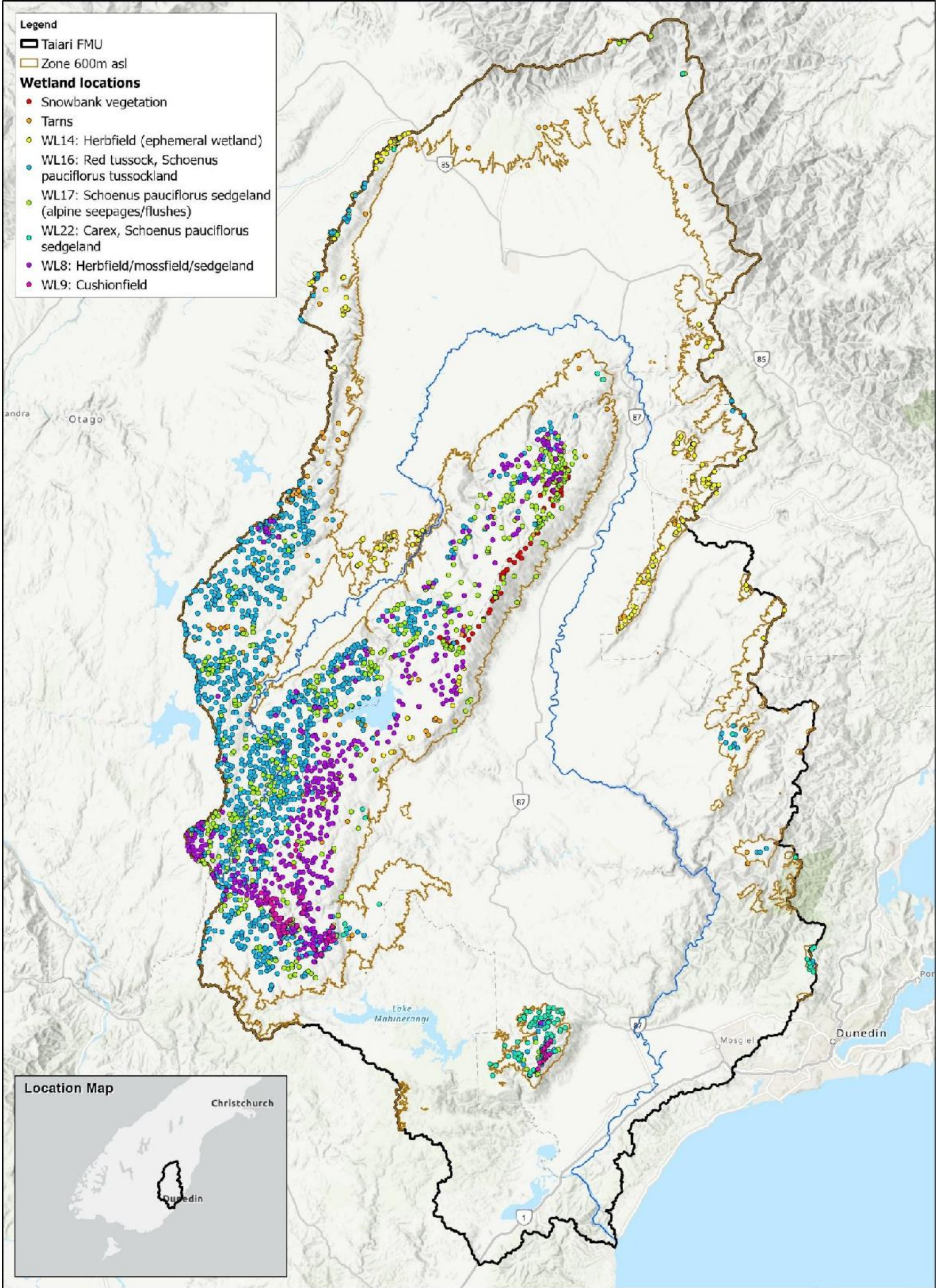

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Figure 1. Location of upland wetlands in the Taiari catchment

0 8,850 17,700 m

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