

Report for WAI Funding: 01 December 2023 – June 2024: Grant Funding Agreement 1263

Title of Project: Braided Rivers biodiversity restoration

Name of Grant Recipient: BRaid Inc. **Date:** 13 July 2024

Name of author of report: Sonny Whitelaw

List of parties involved in the project (providing both in-kind and funding support):

- Environment Canterbury (Frances Schmechel Seminar advisory)
- Department of Conservation (C. Ellery Mayence & Clement Lagrue: Seminar advisory)
- Sonny Whitelaw (231 volunteer hrs. \$8085: ie 50% discount on invoiced hours 01 Dec. 2023 - 30 July 2024)
- Nick Ledgard (60+ volunteer hours 01 Dec. 2023 - 30 July 2024)

Activities Deliverables /Milestone

Provide up-to-date information braided rivers research and management of BRaid website. Refer to site statistics page 2.	Currently up to date including paid annual subscriptions to hosting server, third-party plugins, and software applications.
Writing and distributing a minimum of two e-newsletters	Completed 5 newsletters distributed to 320 registered recipients Dec 2023-June 2024 https://braidedrivers.org/news/
Presenting to community groups, schools, and councils/zone committees on request	Note: these are also in conjunction with the Ashley Rakahuri Rivercare group: Mar 1 and Apr 5: talks to Pegasus Bay school Apr 3 & 11: Loburn school and field visit to river Apr 4: Pegasus Bay school visit to estuary. Apr 18: Talk to Redcliffs Probus club May 3: Interview by CompassFM
Produce the annual Braided River Seminar that is open to the public and sharing the outputs with attendees	Completed July 11: https://braidedrivers.org/seminar-2024/ See website for presentations and attached programme
Creating signs, short videos, and other information material where needed. See following pages.	Completed <ul style="list-style-type: none"> ○ 1 Advertisement for Crate Day ○ 1 Trapping sign for ECan ○ 3 DRAFT panels Rakaia River mouth ○ 1 DRAFT sign Rakaia Gorge

Quick Stats

● Online Users: 1

Time	Visitors	Visits
Today	44	197
Yesterday	79	149
Last week	534	1,258
Last 7 days	560	1,277
Last 30 days	1,967	4,818
Last 60 days	3,820	10,489
Last 90 days	5,874	16,710
Last 12 months	9,821	27,763
This year (Jan-Today)	3,709	9,579
Last year	0	0
Total	9,821	27,763

BRAid website site statistics. Note, the first line 'today' is 01 July 2024.

PLEASE don't drive on us

We rare and very endangered:

- Black-billed gulls / tarāpuka
- Wrybills / Ngutu pare
- Black-fronted terns / tarapirohe
- Banded dotterels / tūturiwhatu

We nest in the stones; our **chicks can't fly away** when **you drive** towards us. Please **observes the signs and keep away**, and please **keep dogs on a lead**.

Newspaper advertisement for Ashley Rakahuri for 'Crate Day' 2023.

Warning Trapping

Traps have been laid in this area for pest control

- **DO NOT touch traps**
- **WATCH CHILDREN at all times**
- **KEEP PETS UNDER CONTROL at all times**



For more information contact:

Unauthorised removal of signs is an offence.

Generic trapping sign for ECan

Rakaia Gorge Biodiversity and Threats

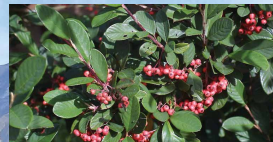
The Rakaia gorge is extremely rich in native biodiversity. It's home to diverse mixed hardwood species (covering an estimated 120 hectares), bluff shrublands (an estimated 100ha), tussock land, grasslands and two large wetlands. At least 16 threatened and at-risk native plant species have been recorded - including Canterbury pink broom and rōhutu/myrtle - both nationally critical, along with others that are regionally uncommon.



Sycamore maple (*Acer pseudoplatanus*) spreads rapidly through its windborne "helicopter" seeds. Grows faster and taller than indigenous species to form an exclusive canopy and is shade tolerant.



Wild cherry (*Prunus avium*) has seeds that are spread birds and also suckers allowing dense stands to develop where it suppresses establishment of indigenous species.



Cotoneaster sp. is a frost hardy bird spread weed that often grows under forest canopy and can form dense multi stemmed clusters.



Wilding pines - *Pinus radiata*, Corsican pine, and Douglas fir - have high spreading vigour. Douglas fir is particularly shade tolerant so can establish and emerge from within a dense canopy.

The weeds



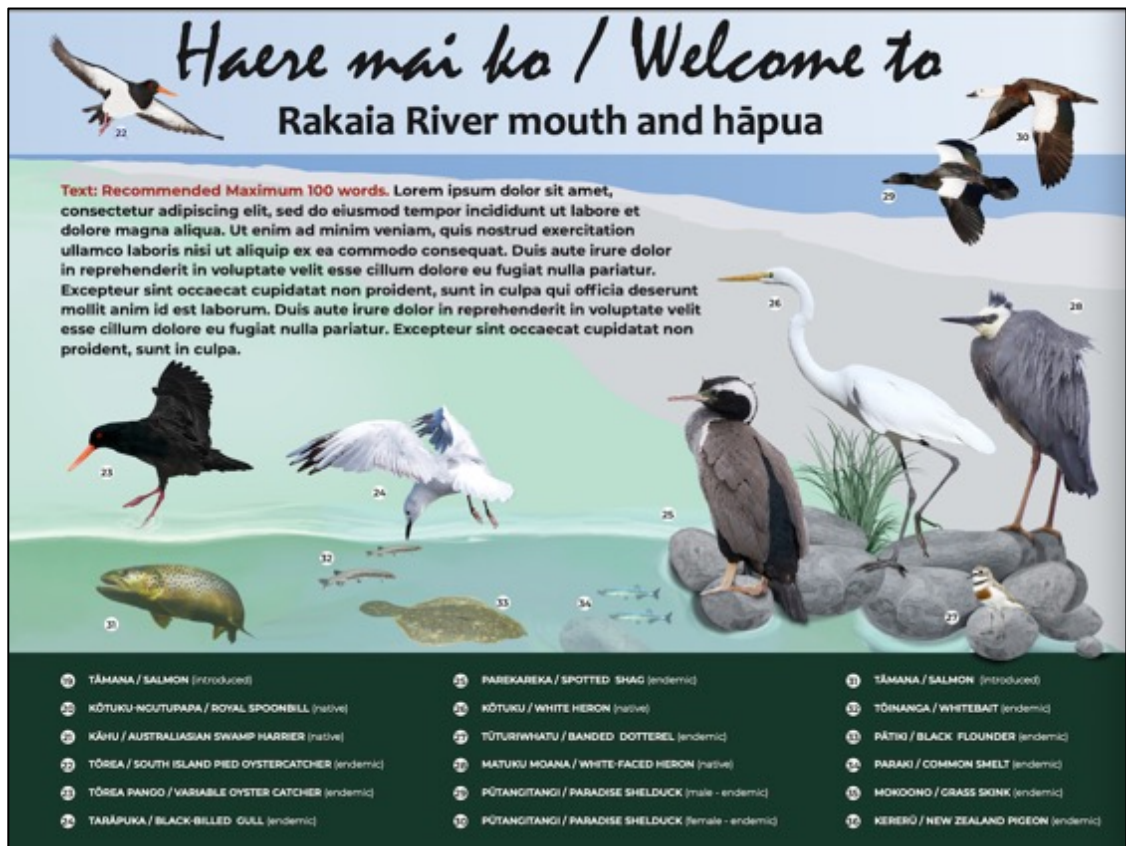
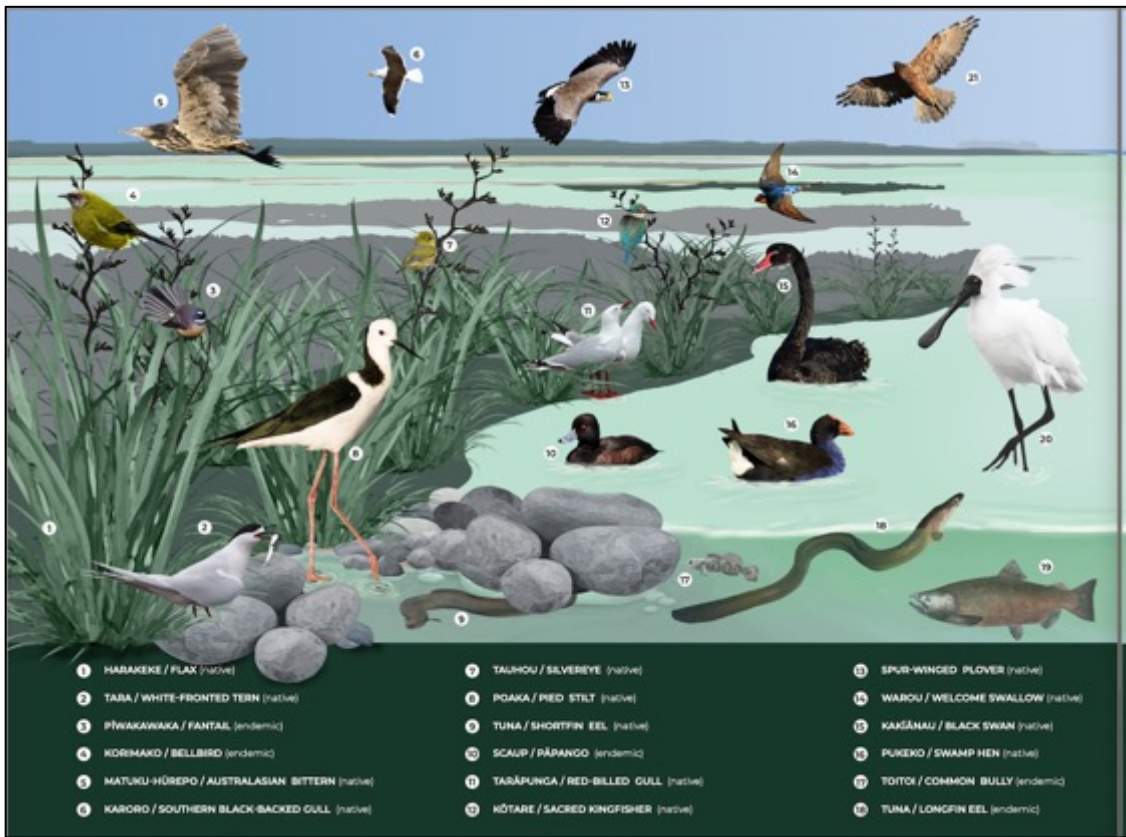
The four listed weeds are considered transformer weeds – weeds that once established, transform and eliminate indigenous forests, shrublands, tussock grasslands and wetlands. Animals, humans and machinery play a role in transporting seeds. You can search and identify plant and animal pests using the pest search on the Environment Canterbury website: <https://www.ecan.govt.nz/pest-search>. Invasive plant or animals sightings can also be reported on the Environment Canterbury website.

The project

A project to control weed trees to stop them from outcompeting the native species began in 2019, after gorge landowners, Selwyn District Council and Environment Canterbury assessed the gorge's ecological values and the weeds that threaten them. The project is a collaboration between landowners, Manawa Energy's Rakaia Fund and multiple agencies.



DRAFT Rakaia Gorge sign



DRAFT Rakaia River mouth panels 1-2

Warning Trapping



To help protect these vulnerable and endangered species traps have been laid in this area for pest control.

- **DO NOT touch traps**
- **WATCH CHILDREN at all times**
- **KEEP PETS UNDER CONTROL at all times**

- Under the Wildlife Act it is illegal to disturb or kill wildlife, including native birds. The penalty is a fine of up to \$100,000 and/or 2 years jail.
- Under the Dog Control Act there are penalties for any dogs that are a disturbance or threat to protected wildlife.
- Unauthorised removal of signs is an offence.



DRAFT Rakaia River mouth panel 3

PROGRAMME



Braided Rivers Seminar

Lincoln University 10 July 2024

Time	Speakers	Topic
8.45am	Nick Ledgard	Introduction, housekeeping
9.00am	Gabrielle Huria	A year in the life of the Rakahuri
9.25am	Wendy Fox	Local movements of colony-based karoro/Southern black-backed gull
9.50am	Biz Bell & Samantha Ray	Understanding the impacts of kāhu (<i>Circus approximans</i>), an aerial predator, on tarapirohe/black fronted terns (<i>Chlidonias albobriatus</i>) and other braided river bird species
10.15am	Jaz Morris	Know your enemy: catchment-scale riverbed weed surveys to identify risks and prioritise actions
10.40am	Morning tea	
11.10am	Rachel Hufton & Anthony Coote	Makarora Braided River: spatial and temporal biodiversity distributions and interaction
11.35am	Emma Williams	Shorebirds – Connecting places and people to maximise New Zealand’s national conservation efforts
Midday	Helen Greenep	Developing a braided river monitoring programme to measure extent and condition
12.25pm	Warwick Allen	Impacts of Cyclone Gabrielle on Hawke’s Bay braided river habitat and wading birds
1.00pm	Lunch	
2.00pm	Nick Ledgard	Monthly bird surveys on Ashley-Rakahuri River: 2013-2023
2.25pm	Holly Harris	Embracing river variability: Conservation at a landscape scale
2.50pm	Tara Murray	Land-based invertebrate monitoring on Canterbury braided rivers
3.15pm	Grant Davey	Stories from a braided river
3.40pm	Afternoon tea	
4.10–5.10pm	Forum; open discussion. The lecture theatre will be open until 5.30pm if discussions continue.	

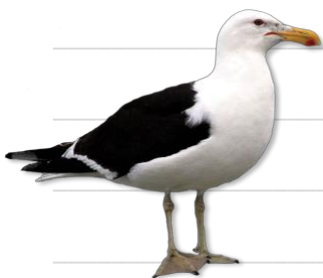
9.25am: Local movements of colony-based karoro/Southern black-backed gull

Karoro/Southern black-backed gull (SBBG) (*Larus dominicanus*) are a large, opportunistic native gull. Karoro/SBBG have successfully exploited anthropogenic activities and are considered 'super abundant' in Canterbury. Despite their size and abundance, little is known about their movements within the landscape, foraging preferences, and flying range. A pilot study was conducted in November 2022 with 10 transmitters deployed on karoro from colonies of the lower Hakatere/Ashburton River. The majority of foraging was within the surrounding farmland with variation between individuals and sexes. A small proportion of their time was spent off the coast. We have since increased to 40 birds with transmitters 2023-24 breeding season, with a total of 20 transmitters deployed on the lower Hakatere/Ashburton River and 20 transmitters deployed on the Waimakariri River. We will comment on preliminary findings of this larger data set.

About the speaker:

Wendy Fox is a PhD student (Lincoln University) whose research is centred around karoro/SBBG in Canterbury, analysing breeding success and their local movements. **Email:** wendyaefox@gmail.com

Notes



9.50am: Understanding the impacts of kāhu (*Circus approximans*), an aerial predator, on tarapirohe/black fronted terns (*Chlidonias albostratus*) and other braided river bird species.



Tarapirohe/black-fronted tern (*Chlidonias albostratus*), a nationally endangered New Zealand shorebird, have an estimated population between 1,000 and 5,000 mature individuals and a predicted 50% rate of decline over the next three decades. This ongoing decline is the result of interacting threats, including predation by introduced mammals, habitat loss and climate change. Additional threat from avian predators, specifically karoro/southern black-backed gulls (*Larus dominicanus*) and kāhu/Australasian swamp harriers (*Circus approximans*) has also been recorded during annual monitoring programmes. Understanding the level of threat by avian predators and whether this is a learned behaviour by individual birds or at population level is vital to enable suitable management options to be implemented.

About the speakers:

Biz Bell Managing Director (Wildlife Management International WMIL) A seabird and island restoration specialist working a range of ecological and conservation projects throughout New Zealand and around the world. As Managing Director of WMIL, Biz directs a team of passionate ecologists completing a variety of seabird and shorebird conservation projects for government and non-government agencies across New Zealand. Biz has undertaken long-term seabird and shorebird research projects over the past 30 years. She has banded tarapirohe adults and chicks as well as directing the kāhu banding project to determine impacts this species may have on tarapirohe. Biz is an invasive species eradication and control expert, having eradicated pest species from over a dozen islands around the world, and undertaken and directed long-term predator control operations in New Zealand. Biz provides technical advice to a number of Predator Free NZ projects across the country, and see the involvement of communities as vital for the long-term legacy of these, and other, conservation projects.

Email: biz@wmil.co.nz

Samantha Ray Operations Manager & Senior Ecologist (Wildlife Management International WMIL). As part of her role as Operations Manager, Samantha oversees all of the WMIL projects operating in New Zealand directing personnel in the field and office and managing all aspects of the projects. Sam is a seabird specialist, working on long-term seabird and shorebird research projects including toanui/flesh-footed shearwaters, tākoketai/black petrels and tarapirohe/black-fronted terns. Sam has managed the kāhu banding project to determine the impacts that this species may have on tarapirohe as part of the annual monitoring programmes that WMIL completes for DOC and ECan. Sam has also undertaken a range of predator monitoring and control programmes along braided rivers in northern Canterbury, as well as other locations across New Zealand.

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11.10am: Makarora Braided River: spatial and temporal biodiversity distributions and interactions

Since its inception in late 2017, Aspiring Biodiversity Trust (ABT) has observed and recorded changes in the distribution and geometry of channels and gravel bars over a 20-kilometre length of the Makarora braided river. Correlations are made between changes in Makarora braided river channel and bar distribution/morphology, and weather events. Over the same time period, ABT has observed and recorded continuities and variations in the distribution of protected/endangered avifauna species territories and breeding/nesting sites, as they relate to the dynamics of the changing braided river system.

About the speakers:

Rachel Hufton, Project Manager and Co-founding trustee of Aspiring Biodiversity Trust (ABT): Rachel is a professional ecologist and ornithologist, originally from UK, New Zealand has been home for the last nine years. Her current focus is the Makarora Catchment Threatened Species Project – From Ridge To River. A partnership project centred on four focal habitats and the threatened species they support; braided river for wrybill, black-fronted tern, banded dotterel, black-billed gull, beech/ podocarp forest for kaka and long-tailed bat, upper river catchments for whio and the alpine environment for rock wren and kea. She has over 22 years' experience within the environmental management sector and has worked as an environmental consultant focused on protected species, a local government ecologist safeguarding biodiversity on a county level and as an ornithologist on international conservation projects **Email:** rlhufton@gmail.com

Anthony Coote Chair, Aspiring Biodiversity Trust (ABT): Anthony is a professional geo-scientist and contributes to indigenous biodiversity protection and restoration programmes within the Makarora catchment. Anthony is actively involved in the management of logistics and safety in relation to braided river to alpine species surveying/monitoring and predator control field programmes. Anthony has adapted his earth/strategic-metals- resource science vocation skills to the planning and execution of ABT's multiple habitat and species protection and monitoring projects. As a geo-scientist he provides specialist technical input into the delineation of metals in the Earth's crust, many of these metals increasingly strategic and indispensable to expanding sustainable energy generation and consumption. **Email:** anthony@aps.co.nz

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11.35am: Shorebirds – Connecting places and people to maximise New Zealand’s national conservation efforts

In New Zealand, conservation management efforts for threatened species largely concentrate on the protection of individual sites and reserves, with a focus on plantings and predator control. Yet, 57% of threatened bird species spend at least part of their life cycle outside of New Zealand’s protected area network, at sites with varying levels of protection. Little is known about: a) how to maximise the efficiency of local conservation management projects so that they also contribute to national conservation efforts, b) how different sites are linked throughout the annual cycle, or c) how best to protect additional threats such as those to stopover sites and flyways. BirdsNZ, the Department of Conservation and Manaaki Whenua – Landcare Research, together with other partners, have established a research partnership to address these knowledge gaps for shorebirds. To date we have been tagging and tracking tōrea/South Island pied oystercatcher, tarapirohe/black-fronted tern and pohowera/banded dotterel. This presentation provides a summary of what has been learned to date via all of these projects.

About the speaker:

Emma Williams, Science Advisor (Department of Conservation) leads the Department's Mobile Terrestrial Threatened Species Workstream. Emma work on highly mobile threatened species, includes several braided riverbed bird species, such as banded dotterels, black-fronted terns, South Island pied oystercatchers and wrybills. Her projects are often holistic and collaborative in nature because of the landscape scale movements of the species she works on. She has also done 12 + years work on wetland birds, including the Australasian bittern, spotless cakes and marsh crakes. **Email:** emwilliams@doc.govt.nz

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2.50pm: Land-based invertebrate monitoring on Canterbury braided rivers

Invertebrates make up a significant proportion of all biodiversity in braided river habitats. They are innately important, with extremely high levels of endemism, but also have a range of ecological functions including being an important food source for fish as well as native birds that feed both on land and in the water. Standardised methods for measuring and monitoring invertebrate diversity are almost entirely limited to the aquatic parts of these ecosystems and therefore restricted to a discrete subset of the community. To expand our understanding to encompass other habitats within a braidplain, we sampled invertebrates using land-based techniques (pitfall and malaise traps) on two Canterbury Rivers, the lowland Ashley Rakahuri and the upland Cass River near Lake Tekapo. Sampling was undertaken repeatedly over 4 summers to understand the spatial and temporal variation in catches that can be expected using these methods. Over 700 species were identified from the Ashley and 533 from the Cass, but because sampling effort was double on the Ashley diversity is predicted to be slightly higher on the Cass overall. In this presentation we explore the characteristics of these invertebrate communities and look at the pros and cons of different levels of sampling using these land-based methods.

About the speaker:

Tara Murray (Department of Conservation) is based in Dunedin as a Science Advisor | Kaitiaki Pūtaiao in DOC's Terrestrial Science Unit. Her work with terrestrial insects over 20+ years has included biosecurity, biodiversity, ecology and behaviour, climate change, monitoring, and insect conservation. Tara graduated with an honours degree from Otago University, studying native grassland weevils, followed by an MSc in Massachusetts, a PhD with Forest Research in Rotorua, and a postdoc at the Hawkesbury Institute for the Environment in Western Sydney. Tara was a senior lecturer at Canterbury University for 9 years, during which time she started working on the Robust grasshopper, before joining DOC in 2019. She is also vice president of the New Zealand Entomological Society.
Email: tmurray@doc.govt.nz

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