

Project River Recovery Annual Report

1 July 2010 – 30 June 2011

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Department of Conservation *Te Papa Atawbai*

Project River Recovery is a Department of Conservation project that mitigates habitat degradation in braided rivers and wetlands in the upper Waitaki basin. It is funded through a compensatory agreement with Meridian Energy Limited and Genesis Energy in recognition of the adverse effects of hydro-electric power development on these ecosystems.

Project River Recovery Reports are internal reports that provide a record of research or management work carried out or funded by Project River Recovery.

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ISSN 1178-9719 (Print) ISSN 1178-9727 (Online)

Produced by Department of Conservation, Private Bag, Twizel 7944, New Zealand.

In the interest of forest conservation, we support paperless electronic information sharing. Limited copies of this report are printed. It is also available from the departmental website in pdf form; refer <u>www.doc.govt.nz/braidedrivers</u>, then *Project River Recovery's Work*, then *Publications*.

This report may be cited as:

Woolmore, C.B.; Anderson, S.A.; Garside, R. 2011: Project River Recovery Annual Report, 1 July 2010 – 30 June 2011. Project River Recovery Report 2011/01, Department of Conservation, Twizel. 17 p.

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Summary

- This report summarises Project River Recovery's progress towards its six key objectives as identified in its strategic plan for the period 1 July 2010 30 June 2011.
- Project River Recovery (PRR) continues to give highest priority to preventing weed invasion of the near-pristine 'upper rivers', above the hydro lakes of the upper Waitaki basin. The success of this work depends on working closely with various stakeholders including Land Information New Zealand, Environment Canterbury, and landholders.
- Over 4 600 hours of targeted, ground-based spot spraying of weeds was carried out in seven riverbeds.
- Project River Recovery spent \$485,264 in the 2010/2011 financial year.
- This is the seventh year of trapping results from the Tasman River predator-control project. This is a joint programme between PRR and the Kakī Recovery Group, using a range of predator control techniques.
 - Over the year 583 hedgehogs, 231 stoats, 180 feral cats, 49 ferrets, 28 possums, 6 weasels and 5 rats were caught. No monitoring of wading bird breeding success was completed.
 - Analysis and reporting on outcomes from the previous five years of monitoring results is in progress.
- A programme of intensive predator trapping in a 1 kilometre radius around a blackfronted tern colony in the upper Ohau River commenced this year.
 - During the twelve month period from 1 March 2010 to 28 February 2011, a total of 200 hedgehogs, 156 ferrets, 81 feral cats, 29 stoats, 9 rats and 10 weasels were caught.
 - Of 233 observed nests at the colony, all were either preyed upon or abandoned before incubation was completed. DNA testing of saliva residues on egg shell remains suggested Norway rats, and possums were key causes of egg loss.
- The third year of walk-through riverbed wetland bird counts was completed this season in the Tekapo and Ohau rivers. A report comparing these results with similar surveys completed in the early 1990s is being prepared.
 - This year, 150 wetland birds (9 species) were recorded in the upper Ohau River, 353 wetland birds (16 species) in the lower Ohau River, 182 wetland birds (11 species) in the lower Pukaki River, and 2134 wetland birds (19 species) in the Tekapo River.
- Other wetland management has included fence maintenance, weed control and waterlevel manipulation at Waterwheel and Ruataniwha wetlands.
- PRR staff consulted with stakeholders as required by ongoing operations.
- The braided river multi-species poster, braided river field guide and braided river teacher resource continue to prove popular, and have been distributed for free to many schools and visitors.

1. Introduction

Project River Recovery (PRR) is an ecological management and research programme focused on maintaining habitat and ecological communities in the riverbeds and wetlands of the upper Waitaki basin. PRR is run by the Department of Conservation (DOC) and financed under a compensatory funding agreement with energy providers in the upper Waitaki River. PRR commenced operations in 1991 and its funding is linked to resource consents for hydroelectric power generation in the upper Waitaki, which expire in 2025. Prior to 2011, Meridian Energy Limited and DOC were sole parties to a compensatory funding agreement signed in September 2006, however with the partial sale of generating assets this year to Genesis Power Limited the agreement was amended to include both companies.

PRR is currently operating to a strategic plan for the period 1 July 2005 – 30 June 2012. This annual report summarises progress toward the six key objectives identified in the strategic plan, describes changes in staff, presents financial statements, and lists recent publications and internal reports, for the year from 1 July 2010 to 30 June 2011.

2. Staff

Chris Woolmore continues to manage Project River Recovery assisted by Sue Anderson and Rhys Garside. Rhys has taken on the summer weed control work, focusing on the annual yellow tree lupin eradication programme and other high priority, small scale weed-control operations. Larger scale weed-control is mostly undertaken by contractor OK Vegetation Control. Sue continues to focus her efforts on managing our surveys and monitoring of natural heritage in braided rivers. This work includes a trial programme of intensive predator control in the upper Ohau River to protect nesting black-fronted terns, which is serviced by contractor Ecological Contracting Services Limited.

PRR partially funds Twizel Area Office's Community Relations Officer who spends up to 100 hours each year specifically on PRR work. PRR also jointly funds a large-scale predator-control project with the kakī recovery team in the Tasman River. Shaun Aitcheson, Carol Burke and Glen Currall continue to run the network of predator traps on this programme.

3. Progress toward objectives of the strategic plan

PRR's progress towards achieving the objectives of the strategic plan is summarised below:

3.1 Objective 1: Maintain indigenous vegetation and enhance habitat by removing problem weeds

Ongoing riverbed weed-control programme

Project River Recovery continued its ongoing programme of weed control in the main braided rivers, some of their tributaries, and in various natural and managed wetlands of the upper Waitaki basin. The total area of braided-river habitat in the large rivers of the upper Waitaki basin is approximately 32 000 hectares. PRR gives the highest priority to those sites still relatively 'clean' in terms of the number of weed species and the extent of their distribution.

One of the successes of PRR has been maintaining the excellent condition of the rivers above Lakes Tekapo, Pukaki, and Ohau, and the Ahuriri River above Longslip Creek. Invasion by several potentially damaging weeds at these sites has been prevented or reversed in its early stages. For example, the Godley and Macaulay rivers are almost entirely free of gorse and broom as a result of the combined efforts of PRR, DOC, Land Information New Zealand (LINZ), Environment Canterbury (ECan), and landholders. The rivers below the lakes, and the Ahuriri below Longslip Creek, contain many more species of invasive plants, and infestations are larger in size. Not all invasive weeds can be controlled at these sites, and we continue to work towards achieving sustainable and realistic weed-control programmes.

This season, good progress continues to be made in reducing the impact of invasive weeds in the Tasman, Godley, Ohau, Ahuriri and Tekapo rivers, including Mistake River. There have been notable reductions in the number of locations and density of weeds to be controlled in the Tasman, Godley and upper Ahuriri Rivers over recent years. Conversely, recent flood disturbance of seedbanks in Fork Stream and the Ohau River below the Twizel confluence resulted in more control effort than normal this season.

PRR, ECan and LINZ have implemented an integrated weed-control programme in the Tekapo River for the fourth year, with ECan contracting to complete the weed control work. Excellent results were again achieved in this programme.

In areas where control was undertaken, contractors applied herbicides from the ground using a knapsack or vehicle-mounted spray unit. Table 1 summarizes the hours and amounts of herbicide PRR used this year. Target weeds include willow, broom, gorse, wilding pines, yellow tree lupin, buddleia, oxeye daisy, Californian poppy and Russell lupin.

Contractor work practices were monitored by site visits and by regular discussions with contractors. Contractors are committed to, and have maintained, high standards. Effectiveness of weed control was monitored by site inspections, before and after weed control. The level of control achieved was generally excellent.

Yellow tree lupin

Progress continues to be made with the zero-density target for yellow tree lupin in the upper Waitaki basin. All known establishment sites outside town centres were checked for regrowth and controlled where necessary. The number of known sites with yellow tree lupins present has remained at around 70, reflecting the long durability of seeds in the ground. Encouragingly, the average number of lupins being found at these sites continues to decline compared with previous seasons, although there seem to be fluctuations in the number of seeds germinating from year to year. Many sites have remained tree lupin-free since 2005, and ongoing follow-up control at other sites has continued to see good progress being made. The lupin-free sites will remain on the database to be checked each year to ensure any germinating seed is removed. The GPS- and GIS-based weed database developed in 2002 continues to improve relocation of infestation sites and provide a measure of progress in reducing plant numbers over time.

Buddleia

Good progress continues to be made in containing the spread of buddleia in river systems and maintaining zero density of seeding buddleia at known riverbed sites. Numbers of seedlings recorded and controlled in the lower Twizel River site fluctuates annually but few mature plants were seen. Scattered plants were also removed from the lower Ohau River.

PRR does not actively remove buddleia from the Twizel and Tekapo townships where they are common ornamental plants. We do explain the problems they can cause in river systems and encourage residents to replace buddleia with other less invasive plants.

SITE	TOTAL HOURS	SPRAY UNIT HOURS	GLYPHOSATE (LITRES)	PENETRANT (LITRES)	DYE (LITRES)	TRICLOPYR (LITRES)	TORDON (LITRES)
Tekapo	281	111		56.4	0.0	110.8	0.0
Ahuriri Lower	235		21.1	6.3	15.8	0.0	0.0
Ahuriri Upper	35			0.2	0.7	1.3	0.0
Forks	1046.5			14.5	72.3	87.6	0.0
Tasman	826.5			11.1	34.5	41.8	0.0
Ohau Lower	2016		191.6	50.0	143.8		0.0
Ohau tern Island	10			0.1	0.2	0.4	0.0
Godley TR	34.5			0.2	0.7	1.3	0.0
Godley TL	8			0.1	0.1	0.2	0.0
Ruataniwha wetland	21			0.4	1.3	3.3	0.0
YTL/ buddleia	107		0.1	0.2	0.5	1.0	0.0
Total	4620.5	111.0	212.8	139.5	2699	247.7	

3.2 Objective 2: Explore opportunities to enhance wetland conservation

The constructed Ruataniwha wetlands and Waterwheel wetlands continue to provide habitat for a range of native fauna and flora. PRR continues to manage these wetlands by manipulating water levels, controlling weeds, and maintaining fences. No further wetland construction is planned; future wetland conservation efforts will concentrate on protecting existing wetlands.

3.3 Objective 3: Continue to build knowledge of natural heritage in braided-river ecosystems

3.3.1 Riverbed bird surveys

Walk-through counts of riverbed birds have been used for many years in New Zealand to record numbers of birds present in different river systems. A regular cycle of repeated surveys can be useful for long term monitoring of population trends in threatened, as well as more common species,.

PRR completed surveys of all the Upper Waitaki rivers over three consecutive years in the early 1990s. Our intention is to repeat these surveys over three consecutive years for each river system on a rotational basis to make a direct comparison with the 1990s counts. The third year of counts was completed this season in the Tekapo and Ohau rivers. The lower two sections of the Pukaki River were also surveyed this year because they form part of the Tekapo-Ohau system, and the Tasman River was surveyed to obtain more data for the Tasman River predator-control project (see below).

Wetland birds were counted along the upper Ohau River between Lake Ohau and Lake Ruataniwha; the lower Ohau River between Lake Ruataniwha and Lake Benmore; the lower half of the Pukaki River; the Tekapo River between the Tekapo control gates and Lake Benmore; and the true right of the Tasman River between the Mount Cook airport and Lake Pukaki in November 2010.

A total of 150 wetland birds (9 species) was recorded in the upper Ohau River, 353 wetland birds (16 species) in the lower Ohau River, 182 wetland birds (11 species) in the lower Pukaki River, 2 134 wetland birds (19 species) in the Tekapo River and 1 200 wetland birds (15 species) in the Tasman River.

Comparisons of the 2008–2010 bird counts with counts from the same river sections in 1991–1994 are currently being formally analysed. Initial indications for this year are that numbers of banded dotterels and wrybills were low in both the Ohau and Tekapo Rivers. The number of black-fronted terns in the lower Ohau River was low, although the number of colonies was within the range previously recorded. The number of black-billed gulls in the Tekapo River was higher than previously recorded, with one colony present. The number of southern black-backed gulls in the Tekapo River was also low, as was the number of colonies, but the number of black-backed gulls in the lower Pukaki was higher than previously recorded (Anderson and Woolmore 2012b/in prep).

3.4 Objective 4: Test the effectiveness of large-scale predator control

Tasman River

PRR and the Kakī Recovery Project continue to implement a large-scale, extensive predatorcontrol project in the Tasman valley. The project goal is to reduce predation of river birds to a level where depleted populations are recovering and large populations are in a stable state. The project takes a catchment-based approach, using a wide variety of control methods that are applied continuously throughout the year. Success of the project will be assessed on achieving target increases in fledging success and population growth for a range of river birds over a fiveyear time frame.

This was the seventh season of operation. A total of 253 Fenn, 342 DOC250, 52 DOC150, 263 Conibear traps, and 425 Victor leg-hold traps are in place. Over the year these traps caught 583 hedgehogs, 231 stoats, 49 ferrets, 180 cats, 28 possums, 6 weasels and 5 rats (Cleland et al. 2011).

No further monitoring of wading bird hatching and fledging success is programmed in the Tasman and Cass rivers until data collected in the previous five years has been analysed. A report is expected to be completed in 2012.

Ohau River

Low levels of breeding success in black-fronted tern colonies have been of concern for some time. Building on observational work in previous seasons, and based on the detailed proposal prepared last year, PRR commenced an intensive multi-year predator control programme in March 2010, centred around the black-fronted tern colony in the upper Ohau River (see Anderson (in prep). Additional observations of black-fronted terns at the Ruataniwha wetlands were continued using the same methods as previous seasons. Observations at the lower Tekapo island colony were discontinued this year because the island no longer exists.

Briefly, the upper Ohau predator control programme consists of a grid arrangement of predator kill traps in a 1 kilometre radius around the colony nesting site. A variety of trap and bait types were selected to target the range of predators present and provide choices of preferred baits. A total of 169 DOC150 and 165 DOC250 traps were placed at 100 metre spacings with a further 60 modified Steve Allen Conibear (double sets), 27 Timms and 27 Belisle Super-X traps placed at 200 m spacings. During the twelve month period from 1 March 2010 to 28 February 2011, a total of 81 feral cats, 156 ferrets, 200 hedgehogs, 29 stoats, 9 rats and 10 weasels were caught.

Rabbits continue to be monitored with spotlight counts and controlled to low numbers using night shooting and patch poisoning within the 1 kilometre management area. Rabbits are a key prey item for high level predators, so by removing rabbits from the area close to nesting birds, it is anticipated that predators will spend more time hunting in areas with higher prey numbers away from the colony.

Norway rat numbers continue to be monitored using WaxTags® placed systematically along the river margins. Norway rats are known to frequent wetland areas and may benefit from removal of higher order predators during the trapping programme. A low rate of rat chews was detected during two of the three monitoring periods this year.

Feral cat movements are also being monitored using collar-mounted GPS receivers on cats within or near the management area. This work will provide more information on feral cat territory use and behaviour around nesting terns and our predator trapping grid. Since commencing this work, 18 cats have had GPS collars fitted, some with multiple fittings, for a total of 42 tracking periods. Each GPS collar attempts to record a location every 15 minutes and batteries generally last 7–10 days before they must be replaced.

NESTING SUCCESS

More than 220 adults were present in the Ohau island colony at its peak. At least 10 different subadults were seen. Nest success was nil—all 233 observed nests were either preyed upon or abandoned before incubation was completed. DNA testing of saliva residues on egg shell remains detected evidence of Norway rats, possums, and one instance of a swamp harrier. It is not known whether all of these species preyed upon eggs, or whether some only scavenged egg remains (Anderson & Woolmore 2012a/in prep). Following these results, next year's predator control programme will be modified to incorporate Norway rats and possums as target species.

Very few adult terns were observed at the Ruataniwha wetlands site, and no breeding attempts were observed.

3.5 Objective 5: Facilitate research by external agencies to improve our understanding of the ecology of braided-river systems

We have two initiatives to report on this year. Final year students from the University of Canterbury Department of Civil and Natural Resources Engineering have completed two projects exploring relationships between hydrology and vegetation change in the Ahuriri River. The first project focused on understanding the hydrology of the Ahuriri catchment, while the second examined relationships between past flood events and vegetation change. This work will provide a useful foundation and improve understanding of the relationships between river hydrology, braided river geomorphology, and vegetation encroachment in the Ahuriri River.

In our second initiative, PRR has entered into a collaborative arrangement with Landcare Research to investigate home ranges and spatial movements of feral cats living near the Upper Ohau River black-fronted tern colony. PRR is collecting the spatial data from feral cats by fitting and retrieving GPS collars and Landcare Research will undertake spatial analysis of the data once the collection phase is complete.

3.6 Objective 6: Continue to increase public awareness of braided rivers and wetlands

PRR's braided river teacher/student education resource has been adopted by many South Canterbury and North Otago schools as part of their Year 6 NCEA curriculum. PRR staff continue to deliver a PowerPoint presentation to schools in support of the braided river teacher resource. This year PRR undertook a comprehensive review of the braided river teacher resource, aligning the information we provide with the current secondary school curriculum, and producing a new colour information booklet and CD of teacher assessment notes. The new resource has been distributed to secondary schools throughout the South Island and is raising a lot of interest. PRR has also provided detailed written resources to assist students with their work. One exciting development this year has been the introduction by the Waterwise Trust of a programme for selected students from South Island secondary schools that looks at water issues in the Waitaki catchment. PRR and other DOC staff at Twizel contributed to a very successful pilot programme this year and we anticipate this becoming an annual event.

In addition to talks to secondary schools, PRR has provided similar support to University field trips and relevant conferences, and met with various stakeholders including the PRR Liaison Group, the Tekapo/Pukaki/Ohau Operational Agreement working group, Fish and Game, ECan, and various private landholders.

PRR's information resources continue to be updated and reprinted as necessary and distributed to schools, businesses and other community groups, with the braided river multi-species poster and braided river field guide still proving to be popular.

4 Project River Recovery's financial statements 1 July 2010 - 30 June 2011

PRR spent \$485,264 in the 2010/2011 financial year (\$479,342 in 2009/2010). PRR's revenue and expenditure for the 2010/11 financial year are itemised in tables 2–4. The PRR Trust Account had a balance of \$80,652 at the end of the 2010/11 financial year. These funds are invested in an interest-bearing call deposit account at Westpac Bank, Government Branch, Wellington.

ble 2. Project River Recovery statement of financial performance for year ending 30 June 2011	
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	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002
	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)
REVENUE										
ECNZ Transfer from revenue in advance	485	472	555	425	437	428	556	416	545	260
Other revenue	0	0	0	0	0	0	12	÷	-	0
TOTAL REVENUE	485	472	555	425	437	428	568	417	546	260
EXPENDITURE										
Personnel costs										
Salaries	129	119	118	172	108	109	68	98	106	67
Wages	-	12	13	4	-	4	-	6	23	30
Other Personnel	-2	9	ю	-	-	0	7	2	-	6
Total personnel costs	128	137	134	177	110	113	76	109	130	106
Administration costs										
Communications/EDP	0	0	-	-	0	2	-	0	5	0
Accommodation	26	26	25	25	25	25	25	25	18	18
Office costs	0	0	-	2	0	0	0	-	-	-
Total administration costs	26	26	27	28	25	27	26	26	24	19
Operating costs										
Professional fees	6	2	15	12	23	9	7	152	100	20
Travel	-	7	5	-	-	2	4	-	e	ი
Vehicle expenses	42	38	37	17	12	14	13	11	15	11
Field operations	273	260	335	190	257	261	436	106	266	95
Information and publicity	4	9	5	-	2	з	0	7	8	9
Grants and miscellaneous	2	ю	0	2	9	2	4	7	-	0
Total operating costs	331	316	397	223	301	288	466	284	393	135
TOTAL EXPENDITURE	485	479	558	428	437	428	568	419	547	260
NET SURPLUS (DEFICIT)	0	-7	-3	-3	0	0	0	-2	Ļ	0

TASK	EXPENDITURE (\$)	(%) OF EXPENDITURE	% - 2009/10
001 Project management	154,006	31.7	26.3
002 Weed control	203,243	41.9	58.1
004 Research and monitoring	80,522	16.6	3.3
003 Wetland enhancement	0	0.0	0.0
006 Advocacy	2,606	0.5	1.7
007 Predator control	44,887	9.3	10.6
TOTAL	485,264	100.0	100.0

Table 3 Summary of core task expenditure over the 2010/11 financial year

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Table 4

2010/11	θ	121,621.37			485,036.00	526,897.00	892.38	80,652.75	3,530.09	6,554.00	90,736.84	
2010/11	÷	Opening balance 1 July 2010	Plus invoices to Meridian 485,036.00	Add funds transferred from DOC on account previous years invoices	Total funds transferred to Westpac Trust account during 2010/11	Less transfer to operating from Trust Account	Plus interest on Trust Account	ACTUAL CLOSING BALANCE IN WESTPAC TRUST A/C - 30 June 2009	GST deducted in error in Dept. L:edger and owed to PRR Revenue (in the next financial year)	Revenue deducted in advance and retained in the Departmental account (to be applied against next year expenditure)	Funds Available as at 30 June 2011	

MDS TRUST ACCOUNT

during the year \$	523,367	-31,549	491,818	-6,554	485,264
Reconciliation of funds transferred from the trust account to the department (operating *) as Revenue d	Transfers to PRR Operating	Revenue Accrued - previous year, funded by the department	Revenue (Cash basis) relevant to current year	Revenue in Advance during the current year	Total revenue recognised during the year as per the Statement of Financial Performance

5. References

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