

## Implementation Strategy for the Braided River Flagship Programme – Upper Rakaia and Rangitata Rivers



**Upper Rakaia**



**Upland longjaw galaxias**



**Australasian bitter**



**Weed spraying upper Rangitata**



**Wrybill**



**Marsh crake**



**Broom**



**Rangitata wetland**

*Photos of bittern and marsh crake by Peter Langlands*

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# **Implementation Strategy for the Braided River Flagship Programme – Upper Rakaia and Rangitata Rivers**

## **Introduction**

The Regional Committee has \$240,000 per year over five years (\$1.2 million in total) to allocate as part of the Canterbury Water Management Strategy Immediate Steps programme. The committee has decided to allocate \$540,000 over five years to the Braided River Flagship Programme (\$108k per year plus a minimum one third contribution from other partners).

The Immediate Steps (IS) programme has two parts: funding as well as planning tools (Annex I, Canterbury Water Management Strategy). It is important to note that the incentives funding is only one component of what is needed to achieve the goals and targets outlined in the strategy.

This is the implementation strategy for the Braided River flagship programme. Further background to this project is contained in the Braided River Flagship Brief (Appendix 1) and is guided by the relevant Canterbury Water Management Strategy (CWMS) goals and targets.

The focus of this implementation strategy is on setting priorities for the 'on-the-ground' activities associated with the funding. Other components or actions are identified in italics for completeness but may not be implemented using IS funding.

To develop this strategy a meeting with key stakeholders was held in Mt Somers on 1 June 2011. Around 30 people attended the meeting (with 16 apologies), including representatives from Rangitata Gorge Landcare Group, Whitecombe Landcare Group, Lake Heron Conservation Group, Coleridge Trust, NZ Department of Conservation, Fish and Game, Forest and Bird, Environment Canterbury, Arowhenua Rūnunga, Boffa Miskell, Trust Power, Contact Energy, Timaru District Council and local landowners. Additional key stakeholders were also contacted by phone. Input from the meeting and phone conversations were used to help develop a draft of this strategy.

This draft was then sent out to interested stakeholders including all those who attended the meeting or requested to be sent the document. This plan incorporates the results of the feedback received.

## **Other initiatives**

The Braided River Flagship projects aims to complement the key initiatives underway or about to commence in the upper catchments, and to support existing programmes. Below is a brief summary of these initiatives.

Ô Tū Wharekai is a major initiative by the NZ Department of Conservation which covers the Ashburton Lakes and upper Rangitata. It is one of the three sites that make up the national Arawai Kakariki wetland restoration programme (the other two are Whangamarino in the Waikato and Awarua Wetlands in Southland). This programme includes both restoration and research and aims to understand threats to wetlands, develop tools, and provide information to guide this work.

We plan to work in close collaboration with the Department of Conservation (DOC) to support this nationally valuable programme, and to use the knowledge and tools gained from the Ô Tū Wharekai programme. Our efforts will focus on complementing and expanding the weed control work being done in the Rangitata and support the DOC –led aerial predator control in the upper Rakaia.

Two other major initiatives in the upper catchments are the collective work of the Whitecombe Landcare Group (south bank of the upper Rakaia) and the Upper Rangitata Landcare Group. Both of these have

initiated a number of projects including weed survey and control (Whitcombe LCG), and weed control (especially broom) (Rangitata Gorge Landcare Group & DOC).

A new initiative by Contact Energy is just commencing in the upper Rangitata Valley. After completion of baseline monitoring, and upon completion of its Waikato based HMR Wind Farm, Contact Energy will be undertaking a large-scale predator control programme to enhance productivity and survival for wrybill and South Island pied oystercatcher.

Other initiatives in the upper braided river catchments either underway or potential include:

#### **Upper Rakaia**

- Weed control in riverbeds (approx. \$40,000 per year) (LINZ)
- Predator trapping (Lake Heron Conservation Group)
- Signage to manage 4WD vehicle use (Ashburton ZC)
- Wilding tree control programme (Environment Canterbury and DOC)
- Fencing Glenariffe Stream (F&G)
- Enhancement projects supported by Trust Power funding

#### **Upper Rangitata**

- Deep Creek habitat protection (F&G) including groyne protection, stock crossing culverts, fencing, alternative stock water, and a proposed bridge for stock and tourism operator
- Deep Stream willow control and fencing, including a 35 ha wetland. Recently granted \$20,000 IS funding (F&G, DOC)
- Weed control in riverbeds (approx. \$30,000) (LINZ)
- Wilding tree control programme (Environment Canterbury and DOC)

Note: a list of all the initiatives (and issues raised) are included in Appendix 3.

### **Key biodiversity values identified**

The key biodiversity values, and threats to these values, were identified for the two catchments. This was done to help focus the programme on achieving outcomes (making a difference) rather than becoming too output focussed (activities and projects). The key values that were identified were:

- Braided River ecosystems and associated specialist species (e.g. braided river birds, native fish and plants)
- Wetlands
- Springs and associated tributaries (as hot spots of biodiversity for native fish and invertebrates)
- Native fish populations (e.g. torrent fish, long-finned eel, galaxiids including upland longjaw galaxias) and their habitats<sup>1</sup>

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<sup>1</sup> Within the Rakaia and Rangitata river catchments 18 native fish species (5 classified as threatened) and five introduced species have been recorded. The native fish species can be divided into three groups: 1) catchment-wide species (long finned eel - declining), 2) migratory species found throughout many of the plains catchments (torrent fish - declining, bluegilled bully - declining, common bully, upland bully, lamprey - declining and shortfin eels) and 3) non-migratory species that are restricted to the upper sections of the rivers (upland longjaw galaxias - nat. vulnerable, alpine galaxias, and Canterbury galaxias).

- Significant wāhi taonga and mahinga kai sites that contain indigenous species
- Native forest and dryland shrublands along streams and in upper catchments

## Desired outcomes

Desired outcomes for the basins have been identified based on the relevant CWMS goals & targets (Annex G, CWMS) listed below which were developed through extensive public engagement. These form the basis for the Immediate Steps Flagship programme.

- Maintain the upper catchments as largely natural ecosystems and landscapes.
- Implement actions to correct the decline in freshwater species, habitat quality or ecosystems.
- Enhanced and protected breeding populations of indigenous braided river birds (i.e. those which are have declined such as wrybill, black-fronted tern, black-billed gulls, and banded dotterels).
- Correct the decline in useable braided river bird habitat (e.g. prevent establishment or clear braided river beds of woody weeds).
- Protect the indigenous habitats in riparian wetlands and springs associated with braided rivers.
- Prevent further loss of area of naturally occurring wetlands.
- Involve Papatipu Rūnanga in the Immediate Steps restoration programme and the setting of priorities.
- *Highlighted any high country spring-fed or foothill streams where ecosystem health is declining, and identified the cause with an action plan in place.\**

## Actions

### Priorities

The actions are listed in approximate order of priority for funding from the Flagship Programme. These priorities are based on input from key stakeholders, cost effectiveness, other projects planned or underway, contribution to CWMS priorities, sustainability, and feasibility.

- Weed control
- Wetland protection and enhancement
- Springs and spring-fed tributaries protection and enhancement
- Native fish habitat and population protection and enhancement
- Nesting braided river birds breeding success (predator control)
- Wāhi taonga and mahinga kai sites – protection and enhancement (proposed - to be confirmed by Papatipu Rūnanga)
- Native vegetation protection

Weeds have major impacts on braided river ecosystems, wetlands, and the natural character of the braided river catchments. Without active management, weeds could impact almost all the biodiversity

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\* Items in italics contribute to meeting the desired outcomes for the Braided River Flagship, but may use tools other than Immediate Steps funding

values (and many other values as well) of the upper catchments. The flagship funding can build on current or planned weed control work.

Wetlands have been identified as having very high biodiversity and tangata whenua values and are important habitat for a number of native species and also contribute to healthy aquatic systems. Over 90% of wetlands in New Zealand have been lost. Although drainage is probably the greatest threat to wetlands, fencing and weed control can help to maintain or restore these ecosystems in a healthy state and possibly prevent drainage through heightened awareness and commitment to wetland conservation.

Springs and spring-fed tributaries are 'hot spots' of biodiversity and affect the health of the main streams they feed into. Activities to protect and enhance these areas are important to the ecosystem health of the catchments and the stream systems and can also act as important refuges and nursery areas for native species and communities.

Native fish are important to the aquatic biodiversity of the upper braided river catchments. The upper Rakaia may contain one of the most important and largest populations of the upper longjaw galaxias in New Zealand. Native fish are threatened by introduced fish predation, loss or degradation of habitat, and lack of information. Projects that help maintain key populations of native fish are a high priority regionally.

Nesting braided river birds and their habitats are identified by specific targets in the CWMS. These two catchments are estimated to contain 80% of the wrybill breeding population and are therefore critical for the survival of this species worldwide. Other endemic species which breed in these catchments, such as black-fronted tern, are endangered (IUCN) and recent analysis has shown they are declining in much of their range with a predicted decline of 50% over 30 years in low flow rivers. Predation is one of the key factors in this decline. However, the science of predator control for braided riverbirds is still developing, and Contact Energy is initiating a major predator control programme, therefore this activity is lower on the priority list than other activities where the outcomes are more certain.

Native vegetation is an important element of indigenous biodiversity in its own right as well as providing habitat for other native species. Healthy native vegetation contributes to the health of the freshwater ecosystems and the natural character of the braided river catchments.

### **Planning and other tools**

Under the 'methods' sections two types of activities are listed: 1) those which meet the criteria for Immediate Steps funding ('action on the ground'), and 2) other types of actions needed to achieve the outcomes sought (e.g. planning), which are indicated in italics.

### **Project selection**

Actual selection of projects will be determined based on a variety of criteria including the following:

- Willing landowners/ occupiers
- 1/3<sup>rd</sup> or more contribution, strength of collaboration
- Sustainability of project
- Sufficient information to target the funding strategically
- Contribution to the desired outcomes as outlined above
- Enhancement of wāhi taonga & mahinga kai sites (those with indigenous biodiversity values)
- Ecological assessment criteria (threat status, representativeness, rarity or distinctiveness, naturalness, connectivity, size and shape, legal protection of the site)

## Approach

Wherever possible the programme will assist groups that already have projects underway as a priority.

## Weed control

Aim - contain (stop spread) and, where possible, progressively eradicate weeds that affect freshwater biodiversity values.

### Outcomes sought

- Prevent establishment of new invasive weed species that could spread into or impact braided river beds, wetlands, springs, spring-fed tributaries, or other key freshwater ecosystems or freshwater related native vegetation
- Keep clear areas clear – i.e. maintain areas which are currently clear of existing weed species clear of those weeds
- Progressively clear areas of key environmental weeds, normally beginning at the tops of the catchments and moving downwards

### Methods

- Determine weed distributions where they are not well known in order to target control strategically and understand scope and determine priorities.
- Target the head of both catchments – starting from the top, eliminate seed sources that flow downstream. (A key priority for Rangitata catchment is the Potts River and John's Stream – for crack willow, gorse, broom, false tamarisk, lupins. For the Rakaia - the area above the Mathias confluence – cotoneaster, gorse, broom, and willow).
- Keeping clear areas clear. Prevent establishment of new woody weeds (early surveillance and control). Control or eradicate woody weeds beginning at the top of catchments where there are willing landowners.
- Prevent, as much as feasible, seeding over the five year period of the targeted weeds in order to reduce or eliminate the seed bank and decrease the population as rapidly as possible
- Only do weed control where there is sufficient commitment by key landowners (e.g. those upstream or adjacent, where ongoing maintenance is required).
- Collaborate with and expand on the work of the Whitcombe and Upper Rangitata Landcare Groups, Algidus & Glenthorne Stations, DOC, LINZ. Explore MOUs and combined contracts.
- Collaborate with DOC, LINZ, Whitcombe Landcare & north side of the Rakaia stations to develop an operational plan for the upper Rakaia.
- Provide incentives for landowners to accelerate the aggressive control of woody weeds on their properties, especially where there are significant financial or other barriers to effective control.
- Seek advice from DOC, Lincoln University, or others on key species to target and work with DOC (and others as above) on an operational plan for the upper Rakaia.
- Support vehicle and stock management and barriers (e.g. fencing) to prevent or minimise the spread of weeds especially in upstream or takeoff areas.
- *Support compliance with Regional Pest Management Strategy (RPMS).\**

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- *Encourage and support stock and equipment movement/ management/ education to reduce spread of seeds in fleeces, on heavy equipment, etc.\**

#### *Monitoring\**

- *Effectiveness of control (percent kill of target species)*
- *Extent of weed species or areas that are free of specific weed species*
- *Weed mapping (extent, species, abundance)*
- *Where weeds are in low abundance – numbers of weeds killed per annum*
- *Number of key species of weeds in the sub-catchments*

### **Wetland protection and enhancement**

Aim – to protect and enhance wetlands - their extent (numbers & area) and health along with their associated native species (especially those that are rare or threatened).

#### Outcomes sought

- Healthy wetlands protected from stock, feral pigs, and feral deer and other browsers and dominated by native vegetation, with few or no weeds.
- Healthy populations of associated native wildlife species (e.g. Australasian bittern, crakes)
- Increased in indigenous mahinga kai species.

#### Methods

- Fencing or other methods to exclude stock from wetlands
- Exclude vehicles from wetlands
- Weed control if necessary
- Explore pest control and habitat enhancement for native wildlife species such as Australasian bittern and other wetland bird specialist species.
- *Maintain hydrology of wetlands\**
- *Encourage legal protection of wetlands\**

#### *Monitoring\**

- *Area, numbers of, and health of wetlands including aquatic species (fish, invertebrates) and signs of digging, browsing or other impacts of introduced mammals*
- *Area of wetlands fenced or with stock and/or vehicle exclusion*
- *Numbers and extent of weed infestations*
- *Appropriate type/ trophic state of wetlands and associated water quality*
- *Area dominated by native wetland species*
- *Status of threatened species in wetlands (increasing, decreasing, stable)*
- *Mahinga kai species – (proposed - to be confirmed by Papatipu Rūnanga)*



## Springs and spring-fed tributaries

Aim – to protect and enhance springs and spring-fed tributaries which are hotspots of native biodiversity, especially aquatic invertebrates and fish. This in turn contributes to the health of downstream ecosystems and water quality. These are the primary source of food production to the braided reaches<sup>2</sup>.

Outcomes sought

- Healthy springs and spring fed tributaries with wide margins and buffers dominated by healthy native vegetation and minimal or no grazing, pugging, eutrophication, faecal deposits, erosion/sedimentation, or weeds.
- Healthy (diatom) phytoplankton communities supporting invertebrate, fish and bird populations.
- Diverse and abundant production of aquatic macroinvertebrates and healthy native fish populations.
- *Mahinga kai species – (proposed - to be confirmed by Papatipu Rūnanga)*

Methods

- Fencing/ stock exclusion especially in reaches with no salmon or trout access (important for native fish)
- Weed control as needed
- Possibly pest animal control
- *Maintain hydrology\**
- *Critically evaluate proposals for structures that intrude into rivers that could impact the hydrology of springs and cause them to disappear.\**

Monitoring\*

- *Number and area of springs and spring-fed tributaries protected from grazing.*
- *Health and dominance of adjacent riparian native vegetation.*
- *Health of stream, aquatic habitat.*
- *Presence and abundance of native fish and diverse macroinvertebrate communities*
- *Mahinga kai species – (proposed - to be confirmed by Papatipu Rūnanga)*

## Native fish/ streams and rivers

Aim – Protect and enhance native fish populations and habitat and aquatic/ stream health.

Outcomes sought

- Protect healthy populations of native fish (e.g. torrentfish, long-finned eel etc.) in braided reaches and longjaw populations in tributaries of upper Rangitata and Rakaia.
- Enhance populations of any threatened or at risk species of native fish.
  - Protect and enhance habitat and populations of upland longjaw galaxias (*Galaxias prognathus*) including those in Double Hill Stream and down river (e.g. vicinity of SH 77)

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<sup>2</sup> Gray, D. M. R. Scarsbrook, J. S. Harding. 2006 Spatial biodiversity pattern in large a New Zealand braided river. *New Zealand journal of marine and freshwater research* 40:631-642.

\* Items in italics contribute to meeting the desired outcomes for the Braided River Flagship, but may use tools other than Immediate Steps funding

bridge and near Steeles Rd). These are the lowest altitude populations of this species and therefore unique.

- Maintain or enhance stream health.

#### Methods

- Fence side channels and nursery habitat for native fish to prevent damage from stock (erosion, pugging, siltation, nutrification, weed spread, etc) especially in upper reaches and where there is no trout/salmon access (important areas for native fish).
- Collate existing information on native fish populations (i.e. Gray and Harding) and seek additional information/advice from DOC, Trustpower, Canterbury University or other sources
- Seek advice on key activities that will protect or enhance native fish populations and habitat in braided reaches and tributaries.
- Protect wetland spring areas in the immediate vicinities of known upland longjaw and other galaxias populations (recent work indicates these are the spawning habitats of many galaxias species in braided river systems).
- Explore options for maintaining trout free (and eel free) areas for native fish.
- *Manage landuse to avoid adverse impacts on native fish and their food sources.\**
- *Critically evaluate proposals for instream works (e.g. groins) that may cause declines due to changes of habitat such as loss of springs.\*\**

#### Monitoring\*

- *Native fish populations and habitat quality and quantity in tributaries*
- *Diversity and abundance of native fish in main stem braided reaches.*
- *Distribution and abundance of introduced fish species that may be impacting on indigenous species.*

### **Braided river nesting birds (e.g. wrybill, black-fronted tern, black-billed gull)**

#### Aims:

- Protect and enhance breeding populations and success for key endemic braided river species.
- Reverse the channelization of the Rakaia river above the gorge caused by willows and the resulting loss of the braided nature of the river and nesting habitat for wrybill. Restore braided river function, allowing for action of freshes and floods in the lower Rakaia River to improve historically critical wrybill nesting habitat.
  - Restore the braided nature of the river
  - Allow flood flows to mobilise gravels and remove woody weeds
  - Restore fine, clear gravels for wrybill and black-fronted tern nesting habitat and feeding

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\* Items in italics contribute to meeting the desired outcomes for the Braided River Flagship, but may use tools other than Immediate Steps funding

Outcomes sought for key endemic braided riverbird species (e.g. wrybill, black-fronted tern, banded dotterel)

- Steady or increasing areas of good quality (i.e. clear gravels on islands) of breeding habitat
- Steady or increasing breeding populations using both upper catchments
- Increased information on the current numbers and distributions of key breeding riverbird species

#### Methods

- Mechanically remove or chemically kill large willows from a reach of the Rakaia River above the gorge that is historically important wrybill breeding habitat which has become channelized. This will allow flood flows to clear woody weeds (e.g. gorse & broom) and enhance nesting habitat and shallow riffles for feeding.
- Implement/ support black-backed gull control in upper Rakaia River to reduce aerial predation on wrybill, black-fronted tern and other nesting braided river birds.
- Collaborate and/or build on planned work by Contact Energy for predator control in the upper Rangitata River
- Manage access to minimise disturbance to nesting birds on clear gravel areas during the breeding season (signs, barriers, work with 4WD clubs, etc)
- Coordinate with Environment Canterbury River Engineers and other agencies as needed concerning willow plantings or other flood control work.<sup>3</sup>

#### Monitoring\*

- *Number of breeding pairs of wrybill and black-fronted tern using the reaches cleared*
- *Productivity and survival of key breeding braided river birds in managed section*
- *Length or area of river with improved braided characteristics (less channelized) or clear gravel areas for nesting and shallow riffles for feeding*

### **Native vegetation – upper catchment forest protection and lowland, dryland areas**

#### Aims

– protect existing native vegetation including native shrublands as these are adjacent to waterways, under-represented in conservation estate.

– maintain or enhance native forests and contribute to stream health and native fish habitat

#### Outcomes sought

- Healthy extensive areas of native bush and riparian areas in the upper reaches of the catchments contributing to wetland and stream quality
- Extensive, healthy areas of dryland shrubs, especially on the river terraces

#### Methods

- Fencing/ stock exclusion

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<sup>3</sup> No willow planting is being done by Environment Canterbury in Rakaia above gorge. In other area river engineers are using male clones of various willow species (to minimise spread) but not crack willow. There are some willow plantings by ADC in upper Rangitata, possibly at or near Potts River, to protect a bridge (unsure which species of willow).

- Weed control
- Introduced mammal control
- *Encourage legal protection through covenants or other agreements to ensure long-term protections of the areas*

#### *Monitoring\**

- *Hectares enhanced or protected*
- *Health (lack of weeds, good regeneration, lack of browsing or damage by introduced mammals, etc.)*

### **Key information needs**

- Braided riverbird survey of the upper Rakaia River including Cameron and Mathias
- Weed distributions for some areas of the upper Rakaia and Rangitata rivers
- Threatened plant and shrubland remnants surveys in areas where intensification is likely such as river terraces.
- State of primary production in river (periphyton) and change in communities, abundance, invasive taxa (didymo) and undesirable species (cyanobacteria).
- Current state of macroinvertebrate communities, abundance, diversity, production.
- Native fish distributions and abundance in tributaries and braided reaches (either through collecting existing information or new surveys).
- Avian predator control effectiveness
- Instream values

### **Key documents**

- A Management Strategy to restore the natural values of a vital braided river system, prepared by Resource Care Section, ECan, December 2006.
- Operational Plan for the Control of Invasive Weeds in the Upper Rangitata River, Kennedy Lange, DOC, August 2006.
- Whitcombe Landcare Group – Review: Invasive Weed Management. C.M. Scott, 20 May 2011.
- Gray D. & Harding J.S. (2007). Braided river ecology: a literature review of physical habitats and aquatic invertebrate communities. Science for Conservation 279. 51p.

## Appendix 1 - Brief presented to the Regional Committee 15/2/2010

### High Country Braided River Flagship Project

#### Project Overview:

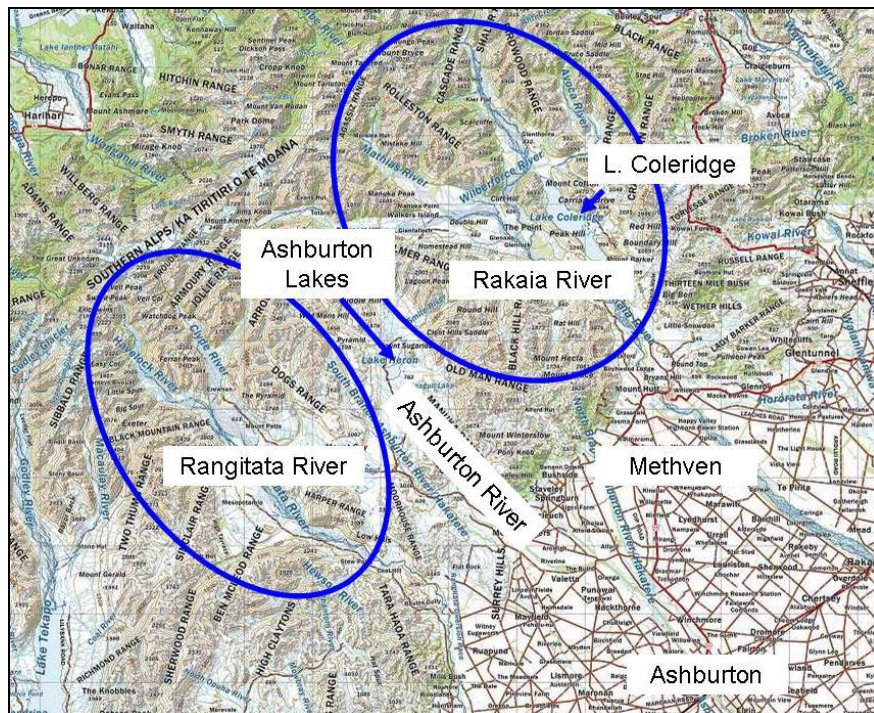
Braided rivers are a high priority with specific targets relating to their natural character, processes and ecological health identified within the Canterbury Water Management Strategy. The upper Rakaia and Rangitata Rivers are nationally important braided rivers with significant biodiversity and landscape values, they are relatively weed free in relation to other braided river systems. The open braided river ecosystems are home to many threatened bird species including black-fronted tern, wrybill and banded dotterel.

The Upper Rakaia and Rangitata are of cultural significance to Ngāi Tahu, with several associated places being specifically recognised in the Ngāi Tahu Claims Settlement Act. There are Statutory Acknowledgements and Deeds of Recognition over Whakamatau/Lake Coleridge, Ō Tū Wharekai/Ashburton Lakes & the Maori Lakes, the Hakatere/Ashburton River, and the Rangitata River.

The Immediate Steps funding from the Regional Committee would be just one component of the work undertaken to achieve the biodiversity goals to enhance and protect nesting sites, the wetlands and tributaries associated with these ecosystems. A variety of work is already underway, or has been identified, and it is the intent of this flagship project to build on and complement this work so that the achievement of biodiversity outcomes can be accelerated. The 2010 and 2015 Canterbury Water Management Strategy goals and targets which relate to this project are presented in Appendix 1.

The key focus of the Regional Immediate Steps funding would be related to a range of activities within the upper catchments such as weed control, predator control and the management and exclusion of stock that together would enhance and protect the open braided river and the associated wetlands and tributaries.

#### Project Location: Upper Rakaia and Rangitata Rivers



## Values of Rakaia and Rangitata Rivers

The importance of the Rakaia and Rangitata Rivers arise from their large area of river bed, more than 30,000ha and 20,000ha respectively, and the high degree of naturalness of its habitats. These upper catchments, along with the Ashburton Lakes wetlands (>10,000ha) are part of the largest habitat for aquatic birdlife in New Zealand. These environments support all the water and wading bird species representative of New Zealand's braided rivers, coastal bar type lagoons and South Island lacustrine and palustrine wetlands (>80 species). The upper Rakaia and Rangitata braided river ecosystem has significant importance in regard to providing breeding habitat for a range of bird species including the wrybill, banded dotterel, black-fronted tern, SIPO and pied stilt. In excess of 80% of breeding birds for the wrybill (nationally vulnerable) populations breed in these catchments.

The braided river ecosystem is also of outstanding value for threatened animal and plant species. At least 16 threatened bird species, one bat species and four lizard species are present. More than 20 threatened plant species, with habit forms especially adapted to braided rivers, are found within these environments.

As noted, this area is also of cultural significance to Ngāi Tahu. The Rakaia and Rangitata rivers were important as mahinga kai areas, and formed part of the trails between Canterbury and the West Coast. These trails were used by the tūpuna in order to ensure the safest journey and incorporated locations along the way that were identified for activities including camping overnight and gathering kai. Knowledge of these trails continues to be held by whānau and hapū and is regarded as a taonga.

Whakamatau/Lake Coleridge was occupied by Ngāti Mamoe and later Ngāi Tahu hapū, and as a result of the area's history as a settlement site and part of a trail, there are many urupā associated with the lake. Whakamatau was a notable mahinga kai where tuna (eel) and water fowl were taken. The kiore (polynesian rat) was also taken in this region.

The Rangitata was a major mahinga kai for Canterbury Ngāi Tahu. Weka and other forest birds were the main foods taken from the inland reaches of the Rangitata. Tutu berries were also taken along the waterway. Mahinga kai resources taken from Ō Tū Wharekai included: tuna (eels), weka, kākā, kererū, tūi, pūkeko and other waterfowl, aruhe, kiore, kauru, matai and pōkākā. The Hakatere was also a major mahinga kai for Canterbury Ngāi Tahu. The main foods taken from the river were tuna (eels), inaka (whitebait) and the giant kōkopu. Rats, weka, kiwi and waterfowl such as pūtakitaki (paradise duck) were also hunted along the river. (Excerpts from Ngāi Tahu Claims Settlement Act 1998.)

## Opportunities to work with community:

The Regional Committee, through the allocation of Immediate Steps funding to this project, has an opportunity to accelerate activities to achieve the targets of the Canterbury Water Management Strategy in relation to the natural character and ecological health of braided rivers. This flagship project provides the opportunity to build on the existing weed control programmes currently occurring in the catchments as well as assist in implementing other activities that are currently being undertaken or proposed by the groups within this high country community. In these catchments many of the properties have just completed, or are nearing completion of tenure review. This will most likely see the intensification of farming activities in the freeholded areas. This initiative provides a real opportunity to work with property owners over the next five years to ensure that the biodiversity target areas are protected. It is important to highlight that these activities will only achieve the outcomes sought when partnered with other mechanisms such as the adoption of on-farm best management practise, the setting and management of appropriate flow regimes and the implementation of other more planning oriented mechanisms.

The Upper Rangitata Gorge Landcare Group (RGLG), Department of Conservation (DOC), Land Information New Zealand (LINZ), the Territorial Authorities of Ashburton and Timaru (ADC & TDC) and Environment Canterbury (ECan) have all been working collaboratively and in an integrated manner for ten years to undertake weed control to protect and enhance braided river nesting sites. The groups within this integrated programme have given financial support in the past and are committed to implementing ongoing weed control. Over the past three seasons \$320,000 has been spent to undertake weed control within the Upper Rangitata catchment. Some of the funds for this work were secured through a Biodiversity Condition Fund grant, as well as landholder and agency

contributions. Other organisations, such as Forest and Bird (F&B) and Fish and Game (F&G), have indicated support of this programme although they have not contributed financially to the work undertaken in the catchment to date.

In 2007 Ō Tū Wharekai was launched as one of three national wetland restoration programmes. The Upper Rangitata River and Ashburton lakes compose this national initiative that is undertaken by the Department of Conservation. Weed control both in the Ashburton lakes area and the braided river environment has been an important component of this work. Te Rūnanga o Arowhenua have been actively involved in the Ō Tū Wharekai wetland project, with the Department of Conservation, in particular carrying out inventory and monitoring programmes for freshwater species.

The existing community involvement and future opportunities to involve others in the achievement of the biodiversity goals and targets for the Rakaia and Rangitata braided river ecosystems are listed below. The majority of these groups and organisations have already expressed support in principle of this combined braided river project or the work underway within the specific catchments. At the time of preparing this brief there has been an indication of support in principle from the following groups:

- Te Rūnanga o Arowhenua <sup>4</sup>
- Selwyn District Council (SDC)
- Ashburton District Council (ADC)
- Timaru District Council (TDC)
- Royal Forest and Bird Protection Society of New Zealand (Canterbury);
- Department of Conservation (DOC)
- Whitcombe Landcare Group (WLG)
- Coleridge Enhancement Trust (CET)
- Upper Rangitata Gorge Landcare Group (URGLG)
- New Zealand Fish & Game Council (F&G)
- Contact Energy (CE)
- Environment Canterbury (ECan)
- Department of Conservation (DOC)
- Land Information New Zealand (LINZ)
- Zone Committees for Selwyn-Waihora; Ashburton and Orari-Opihi-Pareora

#### **High Country Braided River Flagship Project – activities and outcomes:**

In order to achieve some of the key biodiversity and kaitiakitanga targets identified in the Canterbury Water Management Strategy a number of activities, that could be funded through the Immediate Steps programme, have been identified and are summarised in table one. These activities broadly relate to a range of weed control methods, predator control and the exclusion of stock from wetlands and tributaries.

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<sup>4</sup> At the time of preparing this brief there still needed to be discussions with Taumutu Runanga and Ngai Tuahuriri who also have an association with Rakaia area

**Table 1: Summary of biodiversity outcome, associated activities, opportunity for working with others and programme costs.**

<b>Outcome Sought</b>	<b>Required Activity</b>	<b>Current &amp; Potential Community Involvement</b>	<b>Programme Cost Estimates*</b>
Maintain and enhance an open braided river landscape & enhanced bird nesting opportunities	Weed control	Te Rūnanga o Arowhenua (Taumutu & Ngai Tuahuriri for Rakaia project) WLG CET URGLG LINZ DOC ECan Selwyn-Waihora CWMS-ZC Ashburton CWMS-ZC Orari-Opihi-Pareora CWMS-ZC SDC ADC TDC Contact Energy	\$900,000
Enhanced & protected bird nesting opportunities	Predator control		\$1,400,000
Protection and enhancement of wetlands and tributaries	Stock exclusion (fencing, bridges etc) Weed control		\$80,000
Enhanced & protected bird nesting opportunities	Vehicle Control through signage and education		\$15,000
	<b>Total</b>		<b>\$2,395,000</b>

*\* The values identified in this column represent a high level estimate of the total cost of the programme over the next five years. Some agencies and groups within the community are already contributing to certain activities through their existing work. There is no intent to indicate an agreement to contribute to future funding of this programme.*



## **Appendix 1: 2010 and 2015 biodiversity targets and goals relating to the High Country Braided River Flagship Project (from Annex G of CWMS)**

### **Natural character, processes and ecological health of braided rivers:**

From 2010

- Maintain the braided character of all Canterbury's braided rivers by
- Maintaining the upper catchments of Canterbury's alpine braided rivers as largely natural ecosystems and landscapes
- Implement actions to correct the decline in useable braided river bird habitat

By 2015

- Protect the indigenous habitats in riparian wetlands, springs and the lagoons associated with braided rivers.
- Enhanced and protected breeding populations of indigenous braided river birds.

### **Ecosystem health/biodiversity:**

From 2010

- Implement actions to correct the decline in freshwater species, habitat quality or ecosystems
- Prevent further loss of area of naturally occurring wetlands
- Maintain existing high quality indigenous aquatic and dryland ecosystems in intermontane basins and on the plains

By 2015

- **Highlighted** any high country spring-fed or foothill streams where ecosystem health is declining, and identified the cause with an action plan in place

### **Kaitiakitanga:**

From 2010

- Prevent further loss or degradation of Ngāi Tahu nominated wāhi taonga
- Involve Papatipu Rūnanga in the Immediate Steps restoration programme and the setting of priorities.

By 2015

- All degraded wāhi taonga (treasured places) and mahinga kai waterways nominated by Ngāi Tahu have an active restoration programme in place that responds to cultural priorities.

## **Appendix 2 – Notes from the Braided River Flagship meeting, Mt Somers, 1 June 2011 - Current Initiatives & Issues**

### **Mark Webb – F&G (handout)**

Input into water conservation order on Rangitata

Rangitata:

- Deep Creek (Mt Potts) protection/enhancement works including groyne protection on Rangitata main stream
- Deep Stream (Mesopotamia) willow control, fencing project (received IS funding)

### **Donna Field – WLCG**

Vegetation monitoring programme since 1989 – effects of land intensification

Biod Advice Fund – weed identification and sites – produced booklet

Biod Condition Fund – weed programme: cotoneaster, elderberry, false tamarisk, Himalayan honeysuckle, lupine etc.

### **Phil Millar – Boffa Miskell**

LINZ contracts = \$40K Rakaia, \$30K Rangitata

### **Richard Clayton – Lincoln Uni PhD student**

Looking at role of disturbance on biodiversity.

Invasive species. Study sites where there has been little weed control.

Changing disturbance regimes, river flows, invasive species management.

### **Ross Gordon – Lk Heron Conservation Group**

Predator trapping. Partnership between landowners, DOC and volunteers. 18 months.

### **Emily Moore – F&G**

Rakaia – stable spring fed streams for salmon spawning - fencing Glenariffe Stream

### **Sam Thompson – Ecan Biosecurity Officer**

Compliance issues – gorse and broom. Nassella tussock programme. Good to work with Landcare Group.

### **Laura Marra – Trust Power**

More water available in summer – Coleridge Scheme

### **Stephen Daysh – Contact Energy (handout)**

Rangitata wrybill and SIP Oystercatcher project - predator control (HMR Windfarm offset mitigation).

Baseline monitoring for 3 years.

### **Ro Acland – Rangitata Gorge Landcare Group**

Negotiating contract with Contact Energy – predator control programme

Broom control programme, volunteer spray days etc – has shown success

Vegetation monitoring

### **Sally Stevens – Rangitata Landcare Group**

Broom and gorse control + False Tamarisk, Crack Willow,

Didymo - communication – signage, wash stations

### **Kennedy Lange – DOC**

Work with Landcare Groups – weed control

O Tu Wharekai = some of the best remaining wetlands of their type.

Holistic view to how funding is applied – partnerships.

### **Warren Jowett – Forest & Bird**

Fundraising to restore Hakatere farm buildings at end of Lk Heron Rd. Focus for Haratere Basin.

**Donna Field – WLCG**

Ashburton Zone Committee

Signage upper Rakaia – 4WD vehicles

- showing direction, weed description, nesting birds

Support from Canty Combined 4WD club

**Graham Sullivan – ECan**

Wilding tree control \$100K

**Peter Howden – Coleridge Trust**

Weed control 'watchdog' group rather than a working group, as mostly not our responsibility (requirement of landowners etc).

Project to eradicate broom from the Lk Coleridge Island – very difficult.

**John Dowding**

4WD – Ashley Rakaia Rivercare Group. Problem with 4WDers is generally with non-members. Harder to control.

**Karl Russel – Ngai Tahu, Arowhenua rununga**

Undertaking 'cultural mapping'

Mahinga kai map

- naming
- is food still there
- is it ok? Y/N – why?

O Tu Wharekai freshwater mussel survey

**John Dowding**

Gaps in information – we don't have good baseline data to compare against.

Last survey in Upper Rakaia was about 30 years ago.

How can we establish we have made a difference?

Predator control not enhancing river bird numbers.\*

**Ross Millichamp – F&G**

Increasing intensification of riverside land- often due to tenure review.

Initiatives = fencing.

Still seeing wetland draining.

**Peter Kloosterman – TDC**

Landuse compromising biodiversity

Do we need to control landuse into future?

**- Stephen Hall – Ecan**

- ZIPs – inform tools eg. District Council planning changes.

**Fraser Ross – Forest and Bird**

Blue ducks in some areas – shouldn't be overlooked

**Donna Field**

Vegetation damage through pests

**John Dowding**

What is the process to prioritise? Very ambitious goals

**Donna Field**

Should have some areas to discourage spawning of introduced fish

## **Appendix 3 – Selected feedback received from draft**

### **Stephen Daysh (Contact Energy)**

Noted the comment John Dowding made as recorded in Appendix 2 regarding the predator control not enhancing shorebird numbers. The article referenced below may be of some interest in this regard.

O'Donnell & Hoare (2010) Meta-analysis of status and trends in breeding populations of black-fronted terns (*Sterna albobriata*) 1962 – 2008. NZJ Ecology 34.

[This paper reports on black-fronted tern breeding populations on braided rivers in the South Island. Declines in the populations were detected on eight rivers, increases on one river (the Eglinton), and no trends were detected on the remaining 20 rivers. The Eglinton is the only river with sustained predator control. The rivers with declines were characterised by having relatively low flows ( $<30 \text{ m}^3 \text{ s}^{-1}$ ).]

### **Mark Sanders (TAG)**

I see habitat as a pre-requisite, so maintaining habitat by preventing weed invasion (esp. any new incursions) is important, but I am more convinced than ever that until we solve predation we'll still have declining populations of some species.

### **Kerry Brown (TAG)**

I appreciate that you have made predator control a lower priority because you have limited resources and we don't have it sussed. You also refer to Avian predator control under key information needs. In my opinion predator control is the highest priority and it is likely that integrated (avian and mammalian) predator control will be what is needed at most if not all sites.