

Crown Pastoral Land Tenure Review

Lease name: ORCHARD ESTATE

Lease number: PT 092

Public Submissions - Part 2

These submissions were received as a result of the public advertising of the Preliminary Proposal for Tenure Review.

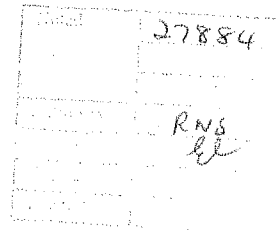
December

05

Royal Forest and Bird Protection Society
PO Box 2516
Christchurch Mail Centre
Ph 03 3666 317
Fax 03 365 0788

23 June 2005

Ray Ward-Smith
DTZ NZ Ltd
PO Box 142
Christchurch
Email christchurch@dtz.co.nz



**FOREST
& BIRD**

ROYAL FOREST AND
BIRD PROTECTION
SOCIETY OF
NEW ZEALAND INC

Dear Ray Ward Smith

**SUBMISSION ON PRELIMINARY TENURE REVIEW PROPOSAL FOR
OMAHAU ORCHARD ESTATE PASTORAL LEASE ("THE FLATS")**

1. INTRODUCTION

The Royal Forest and Bird Protection Society (Forest and Bird) is New Zealand's oldest and most active voluntary conservation organisation. Formed in 1923 the Society has around 38,000 members in 56 branches around New Zealand. This submission is on behalf of the Society's Central Office and the national organisation. Individual branches may also make submissions.

The Society's constitution requires it to:

"take all reasonable steps within the power of the Society for the preservation and protection of indigenous flora and fauna and natural features of New Zealand for the benefit of the public including future generations."

"Protection of natural heritage includes indigenous forests, mountains, lakes, tussocklands, wetlands, coastline, marine areas, offshore islands and the plants and wildlife found in those areas."

2. PRELIMINARY PROPOSAL

Forest and Bird understands the preliminary proposal to be:

- Approx. 75 ha of land to be restored to full Crown ownership and control as conservation area labelled CA1 and shaded in pink on proposed designation map.
- Approx. 15 ha of land to be restored to or retained in full crown ownership and control as riverbed labelled CA2 and shaded in pink on proposed designation map.
- Approx 2302 ha to be disposed of by freehold disposal.
- An easement for public access and management – "a-b-c-d" along the Twizel River.
- An easement for public access and management - "e-f" on terrace above Ohau River.

3. SUBMISSION SUMMARY

Forest and Bird supports the protection of CA1 and CA2.

Forest and Bird opposes:

- a) the freeholding of all of the two “triangular shaped” areas of land between the Tekapo and Ohau, and Twizel and Ohau Rivers.
- b) the freeholding of land adjacent to the Tekapo, Twizel and Ohau Rivers and the failure to restore to full Crown ownership and protect as conservation land an adequate setback of land from the rivers.
- c) The freeholding of the current tracks alongside the Twizel and Ohau Rivers.
- d) The use of easements to provide for public access, rather than secure protection as conservation land.

The preliminary proposal does not promote ecologically sustainable management and is inconsistent with section 24(b) and s24(c)(i) of the Crown Pastoral Land Act (CPLA).

The proposal also fails to implement the Government’s high country objectives as set out in Cabinet Policy Committee POL (05) 14. It does not protect significant inherent values, secure public access and enjoyment, foster sustainability of communities or obtain a fair financial return for the Crown. Instead it will provide a major windfall gain for the lessee through freeholding land with high landscape and recreational values and valuable opportunities for subdivision.

Decision sought

The restoration to full Crown ownership and protection as conservation land of:

- a) “the points” between the Tekapo and Twizel, and the Twizel and Ohau Rivers.
- b) the margins of the Tekapo and Ohau Rivers up to 100 metres landward from the top of the top river terrace including the area currently proposed for easements.
- c) The margins of the Twizel River up to the existing four wheel drive track (so that that becomes the boundary of the freehold land), including the area currently proposed for easements.

4. SPECIFIC ISSUES OF CONCERN

4.1 FAILURE TO RECOGNISE AND PROTECT SIGNIFICANT INHERENT VALUES

The preliminary proposal does not protect significant inherent values because it:

- fails to recognise the importance of the Tekapo, Twizel, and Ohau Rivers and Lake Benmore as habitat for braided river birds, including threatened species such as black stilt and black-fronted tern, and the significance of riparian areas for aquatic birds.
- does not adequately protect riparian habitats from impacts of land uses, such as land use intensification, which will degrade values and disturb wildlife.
- fails to recognise the high landscape values of the “point” between the Tekapo and Ohau Rivers as an elevated lookout over the river deltas and Lake Benmore and the unique landscape experience available here.

- fails to recognise the high recreational values and strategic importance of lake and riverside areas and their value to present and future generations for recreation.
- fails to recognise the relative absence of public protected land close to Lake Benmore.

4.1.1 Significant inherent values of riverbed and riparian areas

The Conservation Resource (copied Nov 2002 but undated) and the preliminary proposal take insufficient account of the national and international importance of the Twizel, Tekapo and Ohau Rivers for braided river birds. Its summary of wildlife values is inadequate. Its assessment of significant inherent value has a terrestrial focus and largely ignores freshwater and riverbed habitat and the impacts of adjacent land uses on the riverbed riparian ecosystems. This may be because the report has not been updated to recognise new research and publications on braided river birds and habitats.

Protection of the black stilt breeding and recovery centre and the wetland complex as CA1 is appropriate. This ignores the wider habitat values for birds of the river terraces and riparian areas on the reviewable land. The description of fauna values is superficial and fails to even do a basic literature review.

In a Canterbury wide survey for Environment Canterbury¹ the Twizel River has been rated as providing “outstanding habitat” for indigenous birds. Threatened black stilts breed on the river in some years, as do threatened wrybills, and banded dotterel. The Lower Ohau River is also “outstanding habitat” with black stilts breeding on the river, more than 1000 wetland birds present, and around 760 endemic and threatened black fronted terns using the river for breeding.

Lake Benmore is an “outstanding” bird habitat with black stilts feeding and breeding on the delta, and “a high diversity and abundance of braided river birds when lake levels are low.”² The lake is a significant habitat for lake birds especially scaup and a breeding site in recent years for the threatened southern crested grebe.³

The CRR and the preliminary proposal do not recognise the improvement in significant inherent values (ecological, landscape and recreational) from Project River Recovery, including the clearance of willows and weeds from the Tekapo delta. Threatened and endangered species have returned to feed and nest in the delta as a result of this clearance and the natural landscapes are now visible. (See Appendix 1 - “Restoring Braided Rivers” article).

The high wildlife values means the “point” area also has high recreational values for bird watching, and nature photography.

4.1.2 Significant inherent values of riparian areas need protection

Aquatic birds use riparian areas and the preliminary proposal fails to protect these areas. For example, grebes and diving waterfowl nest in vegetation overhanging the water’s edge. Comorants nest high in overhanging trees (especially willows). Dabbling waterfowl such as NZ shoveler and paradise shelduck graze on wetland turf and pasture. These species nest within dense cover in riparian vegetation or swamps.

¹ O’Donnell, C.F.J (June 2000) “The significance of river and open water habitats for indigenous birds in Canterbury, New Zealand. Unpublished report UU00/37, Environment Canterbury.

² O’Donnell C.F.J. (June 2000).

³ O’Donnell C.F.J. (June 2000).

River terraces adjacent to the floodplain and resulting from successive down cuttings of the river are one of five river microhabitats for aquatic birds identified by O'Donnell.⁴ These river terraces are a key feeding microhabitat for deep water waders such as white-faced heron, black stilt, pied stilt, and South Island pied oystercatcher; shallow water waders such as banded dotterel, black fronted dotterel; dabbling waterfowl such as paradise shelduck; gulls and terns such as black fronted tern and black billed gull (both threatened), black backed gull; and riparian species such as NZ pipit, welcome swallow, NZ kingfisher, and harrier hawk.⁵

Riparian terraces are a key breeding microhabitat for black shag, little shag, white faced heron, black stilt, pied stilt, South Island pied oystercatcher, banded dotterel, black fronted dotterel, grey duck, NZ shoveler, grey teal, black fronted tern, black backed gull, pukeko, NZ pipit and harrier hawk.

O'Donnell notes that

"The impact of removing or altering microhabitats that are used by wildlife in specific seasons and represent specialised food sources or breeding microhabitats is likely to be high, because alternative habitats are probably rare.

From the map provided, the preliminary proposal involves freeholding river terraces along both the Twizel and Ohau Rivers. Freeholding creates a high risk of habitat degradation or loss of significant inherent values in these river terrace areas from changing and intensified land use, including from the **bolded activities** below.

O'Donnell (2000)⁶ identifies the following major human induced threats to aquatic bird habitats as including:

- **Abstraction and diversion of water for irrigation** and other uses
- Flood control works and channelisation.
- Use of chemical sprays within rivers
- **Erosion of riparian margins**
- **Damage of riparian wetlands and water bodies**
- **Exotic weed encroachment on riverbeds (eg broom and gorse)**
- **Encroachment by willows**
- Disturbance by people
- Disturbance by vehicles
- Introduced predators
- **Grazing by stock.**
- **Vegetation clearance in the catchment which changes run-off patterns, causes erosion and increased sediment run-off.**
- **Agricultural chemicals**
- Discharges of pollutants and sewage. (my emphasis)

The lessee's plan to develop the area with centre pivot irrigation and intensify land use would potentially significantly change the existing vegetation cover from depleted indigenous short tussock grasslands to exotic species. Increased fertiliser use and nutrient run-off is possible. Regional and district plans fail to control these activities adequately.

⁴ O'Donnell C.F.J. (June 2000) at p14 .

⁵ O'Donnell C.F.J. (June 2000) Table 3 pp33-34 and Table 4 p 35.

⁶ O'Donnell C.F.J. (June 2000) at pp38-43.

The Mackenzie District Plan contains no controls on subdivision. Nearby Twizel is increasingly popular as a holiday and residential area with a proliferation of lifestyle blocks around the township. There is a high likelihood of some or all of the reviewable land being subdivided, if not by the current leaseholder then future owners, to take advantage of the area's landscape values. Sections fronting the river and lake are likely to be the most desirable. Subdivision and housing here would have major impacts on significant inherent values, both for wildlife, and landscape.

4.1.3 Landscape values inadequately described or protected

The CRR describes the major natural features of the property but at a very coarse scale. It focuses on natural science factors (such as landforms). It does not take account of other factors such as "aesthetic values" (gauged by how memorable the landscape is, its naturalness and composition) which are commonly used by landscape architects in evaluating landscapes; or "transitory values" (e.g. wildlife occurrence, or characteristic moods arising from local weather patterns). Accordingly the preliminary proposal fails to protect landscape values appropriately.

The "point" between the two rivers provides stunning and memorable views of the Tekapo and Ohau deltas, Lake Benmore, the Benmore Range and the surrounding landscape because of its slight elevation. The landscape experience available here is very different from elsewhere in the Mackenzie Basin because of the elevated and close up views "the point" provides of the major river deltas, and Lake Benmore. It is also relatively easily accessible from the State Highway. Enjoyment of other river deltas such as the Dopkins and Hopkins, requires a significantly longer deviation from the State Highway and a more strenuous climb up Rabbit Hill. Neither the CRR nor the Preliminary Proposal recognise this.

Freeholding the point will deny the public this experience, the opportunity to picnic, paint, take photographs or simply enjoy the views from the site. Protecting this area as conservation land is particularly important because of the unique and distinctive landscape experience and recreational opportunity it provides.

4.1.4 Recreation values inadequately described and protected

The CRR has a poor description of recreation values although subsequent correspondence to LINZ and contractors by the Department of Conservation⁷ highlights some of these values. The later recognition of the importance of the riverside tracks and the absence of DoC representatives from initial negotiations with the lessee means that the preliminary proposal does not secure recreational values and public access through protection as conservation land.

The easements in the preliminary proposal ignore the value of and importance to the public of having secure and easy to use public access for recreation close to a booming townships such Twizel. There is a huge value for present and future generations in protecting riverside and lakeside land. Tekapo township would be significantly less attractive today if the generous lakeside reserve had not been established when the town was created. The Omahau preliminary proposal lacks this foresight and fails to recognise the importance the public place on recreating near water.

⁷ Email Mike Clare DoC to M Mackenzie, LINZ 17 September 2003 and letter M. Clare DoC to Bob Lysaght LINZ 16 May 2003

Walkers, mountain bikers and fishers all use the riverside tracks along both the Ohau and Twizel Rivers. The river terrace tracks to the “point” and the deltas provide an opportunity for people of varying ability because of the gentle terrain, to enjoy the river and basin landscapes and the lake. From the upper terraces recreational users have expansive views over the riverbed. The visual contrast between the more densely vegetated riverbed with its matagouri and long grasses and shrubs, and the drier expanse of the basin in more distant views is part of the recreational experience.

There is likely to be substantially increased public interest in and recreational use of the area in future with the expanding resident and holiday population in Twizel, Tekapo, and Omarama, and continuing tourism growth. Residents, holidaymakers and visitors want to get out of the townships and go further afield to enjoy the Mackenzie’s Basin’s distinctive natural landscapes.

There no public conservation land adjoining Lake Benmore, other than the small Otamatapaio Recreation Reserve on the lake’s south western shore⁸. That reserve provides a very different experience with lake views only, rather than access to and views of braided river deltas. The lakeside and riparian areas proposed for freeholding on Omahau are unique in the high country and deserve protection.

The “point” between the Tekapo and Ohau Rivers provides an ideal area to watch birds without disturbing them, and potentially reducing breeding success during the summer breeding season. For walkers and mountainbikers the point is a dramatic halfway point for an excursion from the State Highway. As a round trip it is an unparalleled recreational experience.

The preliminary proposal map shows the gravel road along the north bank of the Ohau as being predominantly within the area proposed for freeholding. This is opposed. It is unclear from the information provided under the OIA how the track was created, but it may have been associated with the hydro development. The track should be in public not private ownership as a significant recreational resource.

Decision sought

Protect as conservation land the points between the Tekapo Rivers and Twizel and Twizel and Ohau Rivers, shown as the cross-hatched area CA3 on Map 1 attached.

This includes restoring to full Crown ownership and protection as conservation land of:

- a) “the points” between the Tekapo and Twizel, and Twizel and Ohau Rivers
- b) the margins of the Tekapo and Ohau Rivers up to 100 metres landward from the top of the top river terrace including the area currently proposed for easements.
- c) The margins of the Twizel River up to the existing four wheel drive track (so that that becomes the boundary of the freehold land), including the area currently proposed for easements.

Increase CA2 by extending it to the south to provide a roadside parking area on the eastern side of the State Highway as a safe pull off point and parking area. While vehicles could park in Twizel township this requires pedestrians to cross an often busy State Highway.

⁸ Canterbury Conservation Management Strategy Vol. II, Map 13 Omarama

5. FAILURE TO PROVIDE FOR SECURE PUBLIC ACCESS

Forest and Bird agrees with Public Access New Zealand's analysis of easements as failing to "to secure public access to and enjoyment of reviewable land" as required by Section 24 (c) (i) CPLA."

As PANZ has noted:⁹

"'Securing' entails more than merely providing access no matter how inadequate that provision may be. Whilst no definition of 'securing' is contained in section 2 CPLA it is normal judicial practice, in the absence of applicable statutory definition, to look at ordinary dictionary interpretations for meaning. The Concise Oxford, Seventh Edition, defines 'secure' as "safe against attack, impregnable, reliable, certain not to fail or give way, having sure prospect...from interruption".

We submit that in most respects, the proposed 'protective mechanism' in the form of a public easement fails to be "safe against attack, impregnable, reliable, certain not to fail or give way, having sure prospect...from interruption".

The terms of the proposed easement would permit extinguishment of the easement, and ill-defined and arbitrary closure to the public.

We refer to specific terms of the easement:

Exclusion of schedules.

Whilst the Ninth Schedule of the Property Law Act 1952 is expressly excluded from the terms of the easement, section 126G of that Act is not. Section 126G allows modification or extinguishment of easements through the courts, at the initiative of either party or one alone. There is no ability for public notification or objection. This omission constitutes a fundamental failure to 'secure' public rights of passage, as required by the CPLA.

.....

Temporary suspension

Under the easement "the Transferee (not being a member of the Public) may, at any time in exercise of her/his powers, temporarily close all or part of the Easement Area for such period as she/he considers necessary".

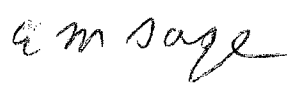
This is open to abuse by the freehold owner to exclude the public at times of their choosing.

The recreational and other values of the area mean that secure public access should be provided through protection as conservation land, rather than easements.

Decision sought

See decision sought under 4.1.4.

Yours faithfully



Eugenie Sage

⁹ PANZ submission on Compensation pastoral lease tenure review.

Regional field officer

Attachments

Appendix 1 – “Restoring braided rivers”

Map 1- Forest and Bird’s revised proposal

Restoring Braided Rivers

SIMON HEPPELTHWAITE finds the South Island's shingle riverbeds 'undervalued, under-represented and under threat'.



The Cass River, which flows into Lake Tekapo, was recently targeted for weed clearance by Project River Recovery. After consultation with local runholders, wilding trees were removed from the riverbed. The next challenge is to bring together the landowners and managers responsible for (and adjacent to) the other rivers, in search of a workable, long-term solution to weed control.

Who is responsible for braided rivers?

There is virtually no formal protection for any braided river habitat. They are currently all designated as Unalienated Crown Land. Land Information New Zealand administers the riverbeds, whilst the regional council carries out flood-protection work. The Department of Conservation is responsible for native plants and animals. Ngai Tahu Maori, district councils, Meridian Energy, Forest and Bird, Fish and Game and neighbouring landholders are the other major players in restoration efforts.

The braided river habitat and surrounding wetlands of the Upper Waitaki River catchment is disappearing fast, and its unusual wildlife is in consequent decline. Here, as in similar habitat throughout the South Island, the homes of some of New Zealand's rarest birds (and animals) are under threat.

This is a place drowned and dewatered by hydro development, and often drained for farmland. It is also extensively invaded by weeds, predators, exotic fish, and people. The Department of Conservation's Project River Recovery is about piecing together the fabric of this degraded landscape to restore the rich tapestry which forms the braided river habitat.

The complexity and scale of this dynamic landscape is daunting. Sinuous strands

of icy water, loosely woven into braids across vast shingle riverbeds, issue forth from glacially carved valleys. The rivers flow across the largest inter-montane basin in New Zealand, and their shifting boundaries are dotted with ponds and wetlands.

Among the broad, barren beds of rounded riverstones are the last feeding and breeding grounds of the critically endangered black stilt, one of the world's rarest wading birds. Threatened black-fronted tern and wrybill also nest here, although they migrate to coastal areas for the winter. During spring and summer these braided rivers are home to 26 species of water birds.

Wrybill, in particular, have adapted to this environment by becoming the only bird in the world to have a bill which curves to the right. This allows them to more easily catch

PROJECT RIVER RECOVERY

insects on the underside of river stones.

All of these species, however, have requirements so specific to this habitat that extracting them to the sanctuary of predator-free offshore islands is not an option. Nor can they be isolated from the surrounding farmland or the pressures of recreational pursuits such as angling and off-road driving.

The challenge to reverse the decline in numbers of black stilt, combined with the loss of other braided river species, led to the concept of Project River Recovery conducted by the Department of Conservation in the Mackenzie Basin, near Aoraki/Mount Cook. Its goal is to retain the habitat and native ecological communities of the Upper Waitaki River catchment and stabilize or increase the populations of native animals under threat. Since its establishment in 1991 it has made significant gains, setting the pattern for future river recovery here, and elsewhere on the South Island's shingle riverbeds, which are found from Marlborough to Otago.

'The tools we have developed for the restoration of rivers in the Upper Waitaki catchment could be applied to other restoration projects,' says Kerry Brown, manager of Project River Recovery. 'The project will continue to focus on the key tasks of weed control, predator research and wetland enhancement. Through weed control we can retain habitat, but we need to know more about predators to achieve cost-effective predator control. Our assessment of constructed wetlands with predator-proof fences is very encouraging.'

Exotic weeds such as crack willow, gorse, broom, lupins and wilding (weed) trees seriously degrade the value of the riverbeds by covering feeding and breeding grounds. As they stabilize the normally shifting river channels, these weeds limit the positive effects of freshes and floods which once regularly eroded islands and channels and flushed the habitat clean. The weeds also attract rabbits: predators following them

Wrybill (ngutu parore) at nest with chick (top right). The only bird with a bill bent sideways, this feature is often described as a special adaptation for hunting insects beneath stones in this harsh environment.

The impact of weed and pest invasion also affects the unusual wildlife and plants which have evolved in this extreme environment. The endangered grasshopper Brachaspis robustus (below right) is found only along the riverbeds of the Mackenzie Basin.

find nesting birds, eggs and chicks easy prey.

Weed control has so far resulted in more than 11,000 hectares of riverbed being maintained or restored as prime feeding and breeding grounds for birds. Targeted use of chemical herbicides has produced the best results on lupins, gorse and broom. On the productive deltas where the Tekapo and Ahuriri rivers flow into Lake Benmore, large areas of crack willow, which were smothering the riverbeds, have been mechanically removed and burnt.

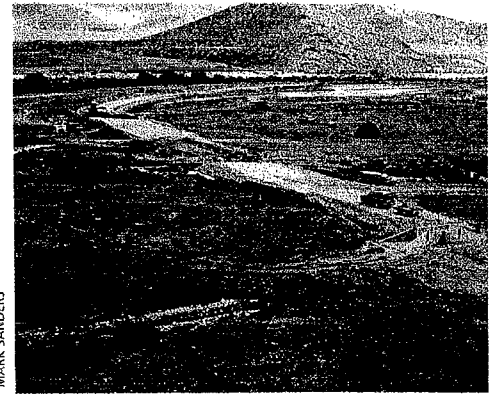
Lupin and willow control is controversial. Many locals regard the plants as attractive additions to the landscape. There were also fears that both spraying and willow removal would degrade trout stocks. Stringent ecological monitoring of herbicide applications found no negative impacts on introduced trout, native fish, insects, birds or water quality.

To accommodate the concerns of the community, Project River Recovery reduced the spray area while staff of the Fish and Game Council surveyed trout numbers. They identified a long-term decline in all size classes of trout which began before willow removal occurred. The decline also occurred in areas not affected by willow, or other weed control, which suggests a natural process is the cause.

Herbicide application provides safe, cost-effective management for Russell lupin. More than \$100,000 was spent investigating biological control without discovering any other viable options.

Measuring the benefits of weed control has not been easy or cheap. Aerial photography of weed distribution is expensive. Superbly camouflaged chicks also make it difficult to measure increases in bird productivity.

Monitoring breeding birds in the Tekapo and Ahuriri deltas shows black stilt, black-



MARK SANDERS

The extension of the Ruataniwha wetland adjacent to the Upper Waitaki River is a major achievement of Project River Recovery. Stop-log weirs control water levels through the seasons. As summer advances the wetlands are progressively lowered exposing fresh areas of the bottom for birds to feed on.

Removing willows from the Tekapo Delta, to restore the natural run of the river. Weed-infested shingle beds, and clogged waterways, destroy bird habitat. After clearance, threatened and endangered species have returned to feed and nest in the delta.



ROD MORRIS, DEPARTMENT OF CONSERVATION



MESOPER, DEPARTMENT OF CONSERVATION



ROBIN SMITH, DEPARTMENT OF CONSERVATION

Project River Recovery

The restoration of the braided rivers of the Mackenzie Country began in 1991. Project River Recovery was set up by the Department of Conservation and ECNZ after consultation with the Waitaki Water Rights Working Group, of which Forest and Bird was a member. The compensatory-funding agreement between ECNZ (now Meridian Energy) and DoC will continue until 2024. It aims to work with Meridian Energy to create or enhance areas of river and wetland habitat similar to those lost through hydro development in the braided rivers of the Upper Waitaki.

Predator Research

Video photography identifies the main predators at birds' nests as cats, ferrets and hedgehogs. Stoats, a hawk and a magpie also preyed upon chicks and eggs, says project scientist Mark Sanders.

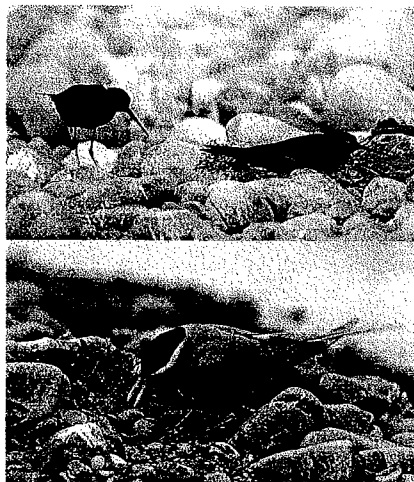
Video cameras set up at nest sites provide indisputable proof of the impact predators have on nesting birds. Little is known, however, of the survival rate of mobile chicks that leave the nest.

Using radio transmitters on black-fronted tern chicks and juveniles, and banded dotterel juveniles, PhD student Rachel Keedwell is measuring chick and juvenile mortality to establish population models. Banded dotterel chicks are too small for transmitters, so a muzzled tracker dog will be used to locate them next season.

More than 1000 hedgehogs were caught in a trapping campaign which was undertaken in response to the illegal introduction of rabbit haemorrhagic disease (RHD, formerly known as RCD). Videos also identified them as important predators.

Over two summers hedgehogs were tracked by research student Kirsten Moss, who found they ate a wide range of insects. However their guts also contained feathers, egg shells and lizards. She also discovered that they have large home ranges, but mostly use a core area of about eight hectares. This is important information for designing hedgehog control operations.

Several other predator research projects are underway in the upper Waitaki, by Landcare Research, university students and DoC. A regular research meeting run by the project brings these parties together to discuss methods, findings and directions, and helps to avoid unwanted overlaps between experiments.



Top: Black stilt (*kaki*), at nest on the Tekapo River. This is the only known breeding area of this 'critically endangered' bird, of which only a few more than 100 exist. Above: Black-fronted tern with eggs. This is an inland bird usually seen hawking insects over fields, and the shingle riverbeds where it nests. It winters on the coast.

ROD MORRIS, DEPARTMENT OF CONSERVATION

Shock waves from RHD (RCD)

The introduction of RHD (RCD) was a huge pebble in our ecological pond. Rabbits have declined (at some places and at various times) and, as expected, predators have switched to eating more native fauna. In some areas up to 36 percent of rabbits are already immune to RHD. There are fears that fluctuations in rabbit and predator numbers could result in repeated prey-switching events, with hungry predators turning more to birds. Alternatively, reduced rabbit and predator numbers could mean reduced predation pressure but it's too early to tell. Fewer rabbits can also mean more weeds, especially in riverbeds. More vegetation means more lizards and invertebrates, with a probable increase in their predators (rats, stoats and hedgehogs) and a corresponding decline in the rabbit-eating cats and ferrets. Due to the complex nature of the system it will be decades before the net gain or loss to native fauna is known.

fronted tern, and many other species nest in the restored habitat. Studies comparing foraging and nesting behaviour, between cleared, uncleared and willow free areas, conclude that willow removal is beneficial to birds. Predator control may also be required, however, to increase populations.

Along with habitat loss, predation is a major threat to birds in braided rivers.

'Project River Recovery now has the tools to provide quality habitat for these species to feed and breed,' says Kerry Brown. 'The challenge is to provide enough protection from predation and disturbance to allow their populations to grow.'

Initially there was little definitive evidence of population decline among many riverbed species. Project managers set out to determine the importance of predation and to identify the key predators; and to measure bird population trends. Over a five-year study, video cameras recorded the causes of death at 138 nests of black stilt, black-fronted tern and banded dotterel. Cats, ferrets and hedgehogs caused 89 percent of predation. All except one raid occurred at night.

Simply eliminating these predators is not an option, however, due to constant re-invasion from surrounding land. Research now aims to identify how much predator control is needed to enable threatened bird species to recover. (See box).

Fences to control predators may be an alternative to trapping but they cannot be applied to braided rivers because of the unpredictable, changing courses of the river channels.

The option of fencing adjacent wetlands was tested at seven sites by Mark Sanders, who was based at Canterbury University in 1993 and 1994 (prior to joining the project staff). He found that new or modified wetlands could provide large quantities of suitable prey species for wetland birds.

During the 1970s pioneering work on predator fencing was undertaken at two high-country lagoons by South Canterbury Forest and Bird, along with the Wildlife Service and Ray Pierce. The fences and lagoons have since been enlarged and updated as part of Project River Recovery, and water levels are better controlled through stop log weirs. By gradually lowering the level of water, to create fresh shallows, the maximum feeding habitat is provided during the breeding season. The weeds, which sprout up in the freshly exposed areas, become food for microbes and insects when the ponds are refilled during winter.

On a terrace above the Ohau River, the 11-hectare Ruataniwha Wetland was created and fenced in 1993. So far 98 hectares of

13-11-96 24H
0:47:59



Caught by a night-sight video camera, a hedgehog (centre) preys on the riverbed nest of a banded dotterel. Research demonstrates that predation is the main cause of nesting failures.

PROJECT RIVER RECOVERY

PROJECT RIVER RECOVERY



Braided river landscape typical of the Mackenzie Country, where rare and endangered birds are breeding. Project River Recovery aims to restore this form of landscape by removing weeds and researching effective pest control and creating protected wetlands. Picture shows the Hopkins and Dobson rivers and their associated wetlands, near Lake Ohau.

wetland and surrounding breeding areas have been predator fenced. Another 19 hectares of wetland have recently been created at two further sites, although they have yet to be fenced. A six-year study is currently underway to determine the relative conservation gains of wetlands with predator fences.

Wetland enhancement and creation, along with predator fences and trapping, have already proved highly successful, with a variety of birds making immediate use of them. Some wetlands have been used as release sites for captive-reared black stilt. A colony of 80 black-fronted tern nesting in the new Ruataniwha Wetland was another notable success. The birds nesting in the fenced wetlands have a much higher breeding-survival rate — over 90 per cent. Birds nesting outside the fences typically have less than a 40 per cent survival rate.

Fenced wetlands also have the advantage of keeping out people, who are another major factor in disturbing the birds. There has long been conflict between some anglers and river birds, while the growth of 4WD use has dramatically increased interaction and conflict in the riverbeds. The spring fishing season clashes with the breeding season and disturbance from anglers, walkers, drivers and dogs can cause birds to abandon nests and chicks. Four-wheel-driving can crush eggs and chicks, and the wake from a jet boat can swamp nests.

It is difficult for recreational users to see braided rivers as fragile nurseries for threatened species when they look like barren wastelands. To increase awareness of the needs of wildlife, an advocacy programme has been established to alert the public to the impacts of weed invasion, predation and disturbance. Signs, articles, pamphlets and press releases have been produced and riverbed access roads have been clearly marked to encourage the use of established tracks. A liaison officer was based at the Ohau-Tekapo delta last summer when adjoining campgrounds were full. A 'braided river care code' has been produced and efforts are directed at educating anglers to recognize bird disturbance, and respond appropriately.

Project River Recovery is producing the hard facts about conservation and the techniques which could save our threatened braided rivers elsewhere in the South Island.

SIMON HEPPELTHWAITE is community relations officer for the Department of Conservation at Twizel in the Mackenzie Country. His background is in ecotourism, education and ecological restoration.

Gracefield

PAPER NZ LTD

...is choosing to make a difference!

You can now buy Gracefield's Elite range of Environmental Choice labelled toilet tissue, facial tissue, serviettes and paper towels.

Elite tissue products:

- ✓ use 100% recycled paper
- ✓ contain NZ waste paper
- ✓ are not bleached with chlorine
- ✓ reduce waste to landfills
- ✓ carry the NZ Government endorsed Environmental Choice label



Now available from selected PAK'N SAVE, New World and The Warehouse stores.

Gracefield Paper NZ Ltd.

Tel: (09) 636 6737 Fax: (09) 636 6762



CHOOSE TO MAKE A DIFFERENCE

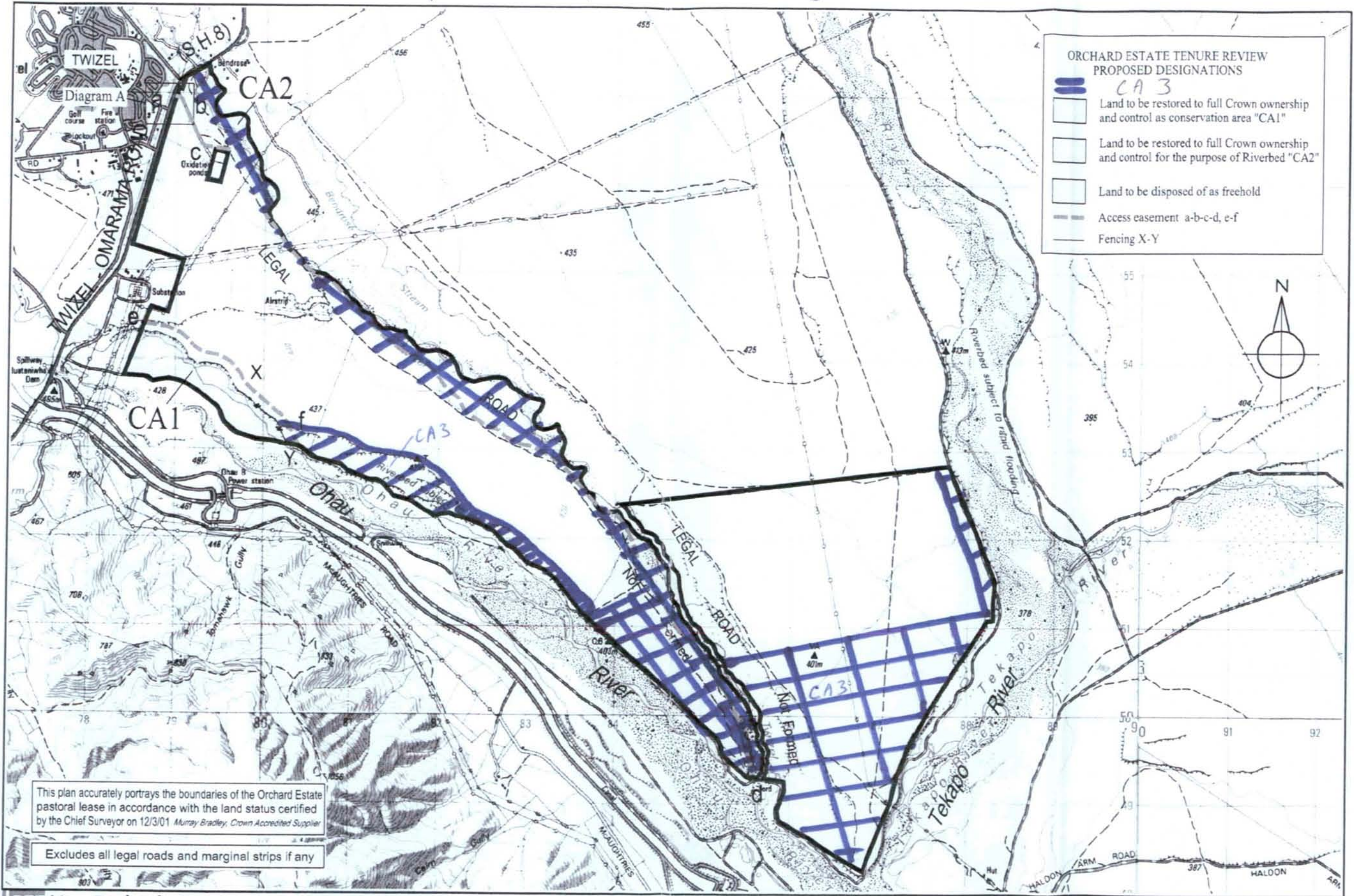
ENVIRONMENTAL CHOICE

- ✓ Helps consumers choose products which are better for the environment
- ✓ Verifies that products meet strict environmental requirements
- ✓ Is endorsed by the Minister for the Environment
- ✓ Operates to international standards

Environmental Choice New Zealand licences companies to put the Environmental Choice label on products.

For further information:

Tel 09 525 6655 Email marseneault@ianz.govt.nz Website www.ianz.govt.nz



This plan accurately portrays the boundaries of the Orchard Estate pastoral lease in accordance with the land status certified by the Chief Surveyor on 12/3/01 Murray Bradley, Crown Accredited Supplier
 Excludes all legal roads and marginal strips if any

DITZ New Zealand
 International Property Advisors
GF
 GLASSON POTTS FOWLER

The boundaries shown on this plan are indicative and are for illustrative and discussion purposes only. Precise boundary positions will be determined by survey during implementation

Land being disposed of as freehold will be subject to Part IV A of the Conservation Act 1987, and Part IV A applies to the entire length of the Ohau, Pukaki & Tekapo rivers within the boundaries of the land to be disposed of

ORCHARD ESTATE PASTORAL LEASE



Version	1	2	3	4	5
Canterbury Land District			Sheet 1 of 1		
Topographic Map 260 - H38&H39			Date: February 2005		