

# Ashley-Rakahuri island creation

## Report to ECan as part of Immediate Steps Fund Grant Agreement with Ashley-Rakahuri Rivercare Group (GRAN/PROG/IMS/434 - Sept 15, 2016)

### Background

For thousands of years, the Ashley-Rakahuri river has been the breeding home for indigenous birds such as the ngutupare (wrybill), tarapirohe (black-fronted tern - BFT) and tarapuka (black-billed gull - BBG). They still return to breed annually from September through to January, although in much reduced numbers compared to 30 years ago, mainly due to predation, human disturbance and the invasion of weeds. The Ashley-Rakahuri Rivercare Group was established in 1999 with the mission of reversing the decline in bird numbers on the river. This goal is being achieved (Spurr and Ledgard, 2016), despite the fact that weed invasion appears to be getting worse.

Braided river birds require clear, open shingle on which to nest, and partly due to the fact that there has been no decent floods in recent years, the river is currently as choked with weeds as it has ever been. In the past, the Group has used physical labour and machines to clear small areas of weeds without much success relative to attracting breeding birds to cleared sites. Over the past year, funds have been obtained from the Waimakariri Zone Committee's Immediate Steps programme for a larger scale attempt at clearing weeds. The sites chosen are known to be favoured by birds such as the BFT and BBG. Wherever possible the cleared sites are on islands, where the surrounding water offers added protection from predators such as feral cats and hedgehogs.

### Method

Two islands had patches of light weeds, where hand removal by volunteers could be effective. One was just above the Cones Road bridge, while the other was at the western end of the Hillcrest site (see Map 1). Eighteen people spent approximately 6 hours in early July clearing 0.7 ha (see Table 1).

Prior to the machine operations, a resource consent for the work was obtained from the river engineering section of ECan. Over 3 days in mid-August, 2016, two 20-tonne diggers operated by Taggarts Earthmoving Ltd (2 days - Aug 16/17) and Nigel Winter (1 day - Aug 19), were contracted to clear approximately 2.4 ha of weeds (Table 1) from 8 islands at four sites - Bridge, Groyne 1, Groyne 2, and Hillcrest Road (see Map 1). A digger was preferred over a bulldozer, due to it being more precise in clearing and depositing shingle, and as it moved around less, there was a smaller risk of sediment being dislodged into moving water.

Neither the Group nor the bulldozer operator had had anything other than passing experience in creating weed-free islands, but a system of scraping surface weeds and depositing the debris on island edges was soon perfected. The yellow tree lupin (*Lupinus arboreus*) was the most common weed, but is readily removed. Less common and harder to remove were gorse and broom, as is a new arrival on the river - seedlings of the yellow-stemmed willow (*Salix alba* var. *vitellina*). While the digger concentrated on areas of dense weeds, the observer often had time to tidy up by hand around the margins, plus carry out removals in areas of scattered weeds. Where possible, logs and mounds of stones were left on site to provide the type of vantage spots often attractive to resting birds.

Once the removal technique was perfected, it should be possible to clear about 2 ha/day (depending on island size and travel time between sites), at an approximate cost of \$750/ha.

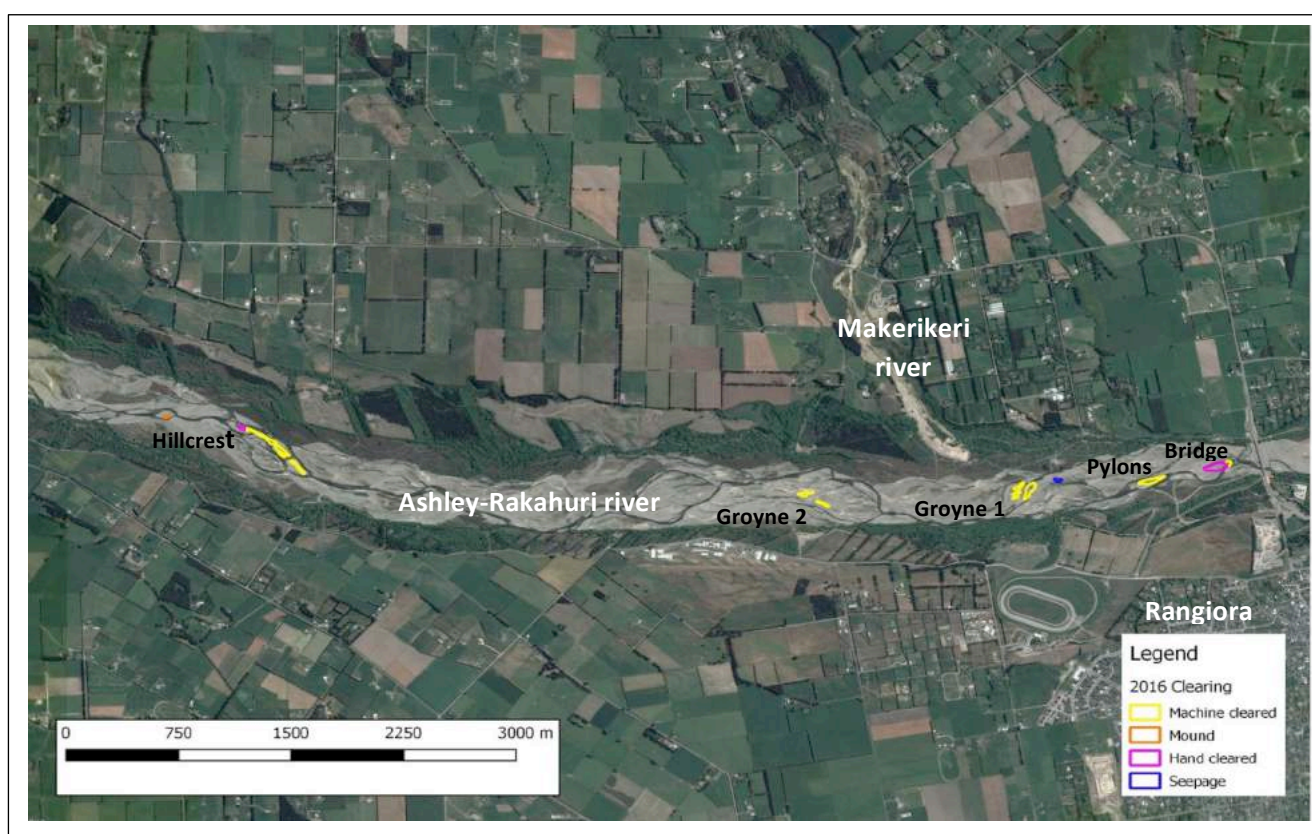
While the diggers were on the river, the opportunity was taken to clean out a small seepage area off Groyne 1. Over the last year, many seepages and shallow water edges have been invaded by weeds,

particularly water cress (*Nasturtium officinale*) and to a lesser extent monkey musk (*Mimulus guttatus*). Consequently, seepages and slow-moving braids where the likes of wrybills and pied stilts were seen feeding last season are now covered in dense mats of weeds – where any feeding by wading birds is now impossible.

**Table 1.** Areas cleared on Ashley-Rakahuri river in July / August, 2016

Area (m <sup>2</sup> )	Type of clearance
7303	Nesting area cleared by hand
23641	Nesting area cleared by machine
30944	Total nesting area cleared by hand and machine
741	Feeding seepage area cleared by machine
31685	All clearing (nesting and feeding)

**Map 1.** Location of weed clearing work, July - August 2016



## Monitoring

Monitoring of bird use was undertaken throughout the season. This involved regular visits to record bird presence, with closer inspections of any breeding by the species of most interest, ngutupare (wrybill), black-fronted tern (BFT) and black-billed gull (BBG).

At the Hillcrest site, a Lincoln University student, Courtney Hamblin, undertook a social attractant study. This involved placing BFT decoys and playing taped calls on one of the islands to determine if these make sites more attractive for nesting. The experiment is being repeated on five other braided rivers.

Depending on the regrowth of weeds during this season, it was hoped that a light aerial spray could be used to keep the islands clear of weeds (before they seeded) – but this turned out to not be possible.

On average, the island sites were visited once every week during the season (mid Sept to mid January – 17 weeks), with each visit lasting at least 4 hours. This makes a total time spent by one person of 68 hours.



For many visits, more than one person was present. The average distance travelled per visit was about 20km, meaning the total mileage involved was around 340km.



Hillcrest Island before and after clearance



Pylons Island just after clearance. Used for nesting within 1 month (see Results below)



Groyne 1 Island before and after clearance. This site attracted the most attention from breeding birds (see Results below).



Hand-clearing weeds from part of Hillcrest Island



Clearing herbaceous weeds from Groyne 1 seepage site

## Results

Within days of island creation, there was evidence of birds making use of some of the islands, although on the majority of sites this early interest did not eventuate into nesting.

*Bridge site (hand-cleared July 2 & 9).* Banded dotterels (BD) were the first to arrive (while the site was still being cleared). Although no nests were found, the indications were that at least 2 BD pairs bred on or near the cleared site.

*Pylons site (digger cleared, Aug 17).* By the end of August, black-fronted terns (BFT), BDs, pied stilts (PS) and S. Island pied oystercatchers (SIPO) were all present, almost certainly attracted by the cleared shingle. There was regular bird activity on the island throughout September, and on Sept 30, 40 BFTs were noted, together with 34 black-billed gulls (BBG). In addition, there were 5 PSs, a pair of SIPO, and 2 pairs of BDs. The BDs and SIPO nested and raised chicks, and PSs were often seen roosting on the island, but the BFTs and BBGs departed for good in early October.

*Groyne 1 site (digger cleared, Aug 19).* Although this was the roughest in terms of remaining vegetation and shingle undulations, it attracted the most breeding attention. The probable reason is that this part of the river had good feeding braids and has always been one of the most popular breeding sites since regular records began in 2004. By the end of August, a pair of wrybill were present, plus PSs, BDs and BFTs. BFT numbers climbed to as high as 60 (Oct 20), and by the end of that month at least 10 pairs were nesting on the island (the most pairs nesting on the river this season). PSs and BDs also used the island throughout the season, with 3-4 PS and 5-6 BD pairs nesting. Floods of 60 and 90 cumecs in late November (largest since June 2015) destroyed some nests on lower-lying parts of the island, but all three species fledged a few chicks. The wrybill pair were present for most of the season, but no nest or chicks were observed. A SIPO pair nested in the vicinity of the island. On Oct 28, 120 BBG gulls inspected the island, but did not stay.

*Groyne 2 site (digger cleared Aug 17).* This is a favoured site for wrybills. The area cleared was small and only alongside the river, not an island. At least 3 wrybill pairs were present, but there was no evidence that the weed cleared area added to the site's attraction.

*Hillcrest site (digger cleared Aug 16, small part hand-cleared Aug 27).* Over recent years this has been a favoured site for bird feeding and breeding, but was not so utilised this season. The cleared islands did attract BDs, PSs and SIPOs, with a few of all three species nesting on parts of them. Initially, BFTs (60 on Sept 5) and BBGs (26 on Oct 2) were present in some numbers, but none stayed on to breed. A wrybill pair



most likely nested locally (not on a cleared island), but did not successfully fledge any chicks. The student BFT social attractant study (making use of decoys) did attract interest from birds, but not to the extent hoped.

*Seepage site (Groyne 1).* This seepage site was often used by feeding birds prior to becoming overrun with herbaceous weeds over the preceding year. The digger cleared the upper half, but birds were rarely seen utilising the cleared area – possibly because the uncleared and weed-choked lower half did not allow adequate water flow.

*Maintaining sites.* There has been plenty of weed regrowth on the islands since clearance, particularly at the ‘rougher’ Groyne 1 site. Faster-growing herbaceous weeds (grasses, annuals and perennials) are the most obvious, but more persistent woody weeds such as lupins, gorse and broom are also becoming established. No decision has yet been made about control in the immediate future, using herbicides.

### **Future island work**

1 .The creation of improved bird breeding habitat on the Ashley-Rakahuri river by weed clearing and island creation, has had some success - although not as much as hoped. However, the initial intention of a 3-year ‘trial’ remains. Hence, future plans are not only to maintain the cleared islands, but to create more – particularly as similar work recently on the Clarence and Waitaki rivers has had good results for breeding birds.

2. In addition, apart from the nesting sites, there is the rapidly increasing problem of weeds invading shallow water braids and springs, which are vital shorebird feeding areas. One thing is certain - if nothing is done and weeds are allowed to become even more dominant, populations of indigenous shorebirds on the Ashley-Rakahuri river will decline. This past season’s lower than normal bird counts and breeding success could be a reflection of the impact of recent weed invasions of formerly clear shingle areas. If so, it is a reversal of the positive trends recorded since 2000 through to 2015 (Spurr and Ledgard, 2016).

### **Schedule Four : Statement of input from Applicant**

**Maintenance** Labour to operate traps specific to cleared islands: 60 hours.

Labour to arrange Consents, availability of machinery, manage work by diggers and operator: 39 hours

Labour to manage and monitor bird use of islands: N Ledgard 68hours , Other persons 20hours (estimated ).

Labour to compile records and report: N Ledgard and G Swailes : 20 hours.

Total labour input: 207 hours @\$20/hrs = \$4140. Note this is greater than estimated .

**Travel** N Ledgard 340km, others 100km (estimated): Total 440km @ \$0.75 = \$330 . Note this is less than estimated.

### **Reference**

Spurr, E.B; Ledgard, N.J. 2016. Population trends of braided river birds on the Ashley river (Rakahuri), Canterbury, New Zealand. 1963 – 2015. Pp73-86