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*Management and monitoring of shorebirds in the  
Ashley-Rakahuri River during the 2016/17 season*

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Black-billed gull colony on a dairy farm alongside the Ashley-Rakahuri river



**Ashley-Rakahuri Rivercare Group, Inc.**

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in the Ashley-Rakahuri River during the 2016/17 season

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A report by:

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Prepared for:

Ashley-Rakahuri Rivercare Group, Inc.

(composition of Group given on last page – Appendix 4)

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July 2017

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## Summary

Ledgard, N.J. *Management and monitoring of shorebirds in the Ashley-Rakahuri River during the 2016/17 season*. Unpublished report, Ashley-Rakahuri Rivercare Group Inc., Rangiora. 38 pp.

The Ashley-Rakahuri Rivercare Group was formed in 1999. Its main goal is to protect key shorebird populations in the lower reaches of the Ashley-Rakahuri River, between the Okuku river junction and the SH1 road bridge. This is the 13th annual report from the Group.

The Group is now self-funded, with finances coming from a trap making and selling project, donations and local awareness initiatives, plus a share of royalties from sales of the children's book 'Ria the reckless wrybill'. Activities were focussed on management to assist the breeding of three threatened species in the river, namely the wrybill (ngutupare), black-billed gull (tarapuka) and black-fronted tern (tarapirohe). To this end, the main actions undertaken involve on-going bird population surveys, predator control, population monitoring, habitat management, and improving awareness through advocacy to the public and river management decision-makers.

*Bird surveys.* After years of bird populations trending upwards, the 2016 survey confirmed a recent decline. Total bird numbers were 30% lower than the 17-year average and the lowest since 2008. This was the second year of decline since the peak numbers between 2011 and 2014. Most of the major species were affected. Wrybill numbers equalled the long-term average, but were the lowest since 2009. Black-fronted tern and banded dotterel numbers were just above the long-term average, while black-billed gulls were well below the average. The biggest drop amongst the key species was for pied stilts, where numbers were 56% down on last season. A likely reason for this decline is the loss of bare gravel areas due to weed invasion.

*Predator control.* This season saw an increase in trap numbers from 118 last year to 139. In total, 52 potential predators were trapped in 15,114 trap-nights, the second highest ever. The overall summer trap-catch rate was 0.34 predators per 100 trap nights - the lowest annual rate recorded to date. Hedgehogs remain the most trapped predator, followed by cats and rats (highest ever). Eleven mustelids were caught, just over half the number of the previous season, but very similar to the season before. As usual, more predators were caught in the autumn/winter period, with a notable increase in stoats (18 compared to just 2 in 2016) and rats. The winter trap-catch rate was 0.57.

*Monitoring of breeding birds.* As with population numbers, breeding attempts declined in the 2016-17 season. Eight pairs of wrybills attempted to nest in the study area – two less than in the previous season. A minimum of 3 chicks were raised, for a productivity of 0.38 chicks fledged per pair, well below the 13-year average of 0.77. Just 10 pairs of black-fronted terns nested in the 2016-17 season, the lowest number since 2005. Productivity was between 0.4 and 0.6, which although close to the long-term average of 0.41, is rather meaningless with so few pairs nesting. For the third year running, no gull colony established – in fact, not a single pair nested on the river in 2016-17. As with the wrybills and terns, there appears to be a link between the poor nesting and the loss of bare gravel areas. This probably encouraged the gulls to set up a good colony on a cultivated dairy farm just south of the SH1 road bridge. The eventual productivity of between 1.17 and 1.70 is amongst the best ever recorded in the country. This success could be explained by the main riverbed threats (floods, predators, weed invasion and human disturbance) being largely absent or considerably less on a managed farm site. Breeding success or productivity of other species was not recorded, but signs of successful breeding were noted at many sites. However, as their populations also appear to have declined over recent years, breeding success may well have suffered similarly.

*Habitat enhancement.* Habitat threats from predators and human disturbance have not changed recently, but weed invasion has advanced considerably. Vegetation mapping has shown that the total area of bare gravel has declined by 85% since January 2014 – from almost 200ha down to around 30ha. This decline has occurred over the same period as the recent decline in annual bird numbers. A good flood on April 6, 2017, did double the area of bare shingle, and this will be enhanced further by another major flood (1-in-10 year event) in mid-July, but large scale weed clearances are still proposed for the most favoured bird areas over the 2017 winter.

*Awareness / education.* During 2016/17 there were many opportunities to improve awareness of the Group's activities. Twelve articles appeared in local papers. Powerpoint presentations were given to five schools, four service clubs, plus a well-attended braided river seminar (150 present) on June 26, 2017. In September, 2016, Canterbury TV visited the riverbed and made a short video. Riverbed visits during the breeding season proved to be popular with the public, with over 30 attending in early November. Also popular and appearing in many sites throughout Canterbury, were flocks of cut-out birds. 'The Flock' was successful in drawing attention to the arrival of riverbed birds for the summer breeding season, with hundreds of colourfully decorated bird silhouettes made by schools and community groups. Our website ([www.ashleyrivercare.org.nz](http://www.ashleyrivercare.org.nz)) was maintained by the District Council's VisitWaimakariri office, while Steve Attwood ran our Facebook page (<https://www.facebook.com/ashleyrivercare>). The Group remained closely associated with staff from DOC, the Waimakariri District Council and local Zone Committee, Environment Canterbury (ECan) and the Ashley-Rakahuri Regional Park. ARRG also contributes actively to the running of BRaid Inc, a group which aims to improve the ecological welfare of all braided rivers in Canterbury.

*Conclusion.* Relative to the future success of rare and endangered shorebird species breeding in the Ashley-Rakahuri river, it appears that the rising bird population trend up to 2014 is now being reversed by a decline. Populations of all species are either lower than in the previous 2 years, or at best are only matching the long-term average. The breeding of the key study species, wrybill, black-fronted tern and black-billed gull, shows the same trend. The major reason for the decline in bird numbers appears to be a surge of weed invasion leading to major losses of bare gravel areas needed for breeding, plus clear water-shingle margins essential for feeding. Looking into the near future, the major challenges involve controlling weeds and improving bird nesting and feeding habitat, maintaining/improving the control of predators, plus banding more adult birds (particularly wrybills) to determine long-term survival trends. To these challenges and opportunities must be added the ever-present challenge of maintaining public interest, and the involvement of the local community in bird management on the Ashley-Rakahuri River.

Recommendations for future management include:

1. Continue annual bird surveys and monitoring activities - focussing on the three key threatened shorebird species (wrybill, black-billed gull and black-fronted tern).  
*To date:* Surveys and monitoring being maintained adequately.
2. Create and/or maintain improved habitat (eg., islands surrounded by water) for breeding and feeding. This is currently high priority for increased effort.  
*To date:* Some previous work, but large increase proposed for 2017.
3. Improve record keeping and mapping, and band more birds.  
*To date:* Record keeping adequate, but mapping effort has been vastly improved over the past year. Banding recently has been almost non-existent – needs improvement.
4. Explore opportunities for increasing trapping effort and using new technologies for predator control. This effort needs to extend into the lower river and estuary.  
*To date:* Trapping adequate and appears to have lowered predator numbers, but need to keep in touch with improved trapping techniques. No involvement at the estuary so far.
5. Continue advocacy initiatives both by members and other agencies such as DOC. Particular attention should be paid to schools, plus field interpretation / awareness signs for the public.  
*To date:* Good advocacy to date. However, the almost complete lack of field interpretation signs needs priority attention.
6. Maintain funding via local sponsorship and Group initiatives such as trap-making.  
*To date:* Funding adequate over recent years.
7. Continue full support for BRaid Inc.  
*To date:* Good support for BRaid and its outreach programmes.
8. Maintain and improve collaboration with ECan's Biodiversity Programme, the Waimakariri Zone Committee, the Canterbury Water Management Strategy's Regional Committee, Fish and Game and local iwi/runanga.  
*To date:* Good collaboration, but F&G, and iwi/runanga links need improvement.
9. Maintain and improve collaboration with commercial shingle extractors.  
*To date:* Good collaboration, but needs extending. Promote better regulation enforcement by ECan.
10. Support Environment Canterbury's Ashley-Rakahuri Regional Park.  
*To date:* Good collaboration. On-going issues relative to vehicle use of riverbed.



**Figure 1.** Map of lower Ashley-Rakahuri river, showing main breeding areas.



# 1 Introduction

The braided rivers of the South Island are a unique habitat of outstanding importance to endemic wildlife (Cromarty & Scott 1996, Dowding & Moore 2006). In particular, they provide breeding habitat for a range of threatened shorebird species, some of which depend largely or entirely on braided rivers for their survival. Braided rivers commonly have large areas of bare, mobile shingle, multiple channels, and variable flows (O'Donnell & Moore 1983). However their ecological values are increasingly threatened; most have been invaded by weeds and introduced mammalian predators, and are further degraded by a wide variety of human activities. This is well covered in DoC's recent publication 'Management and research priorities for conserving indigenous biodiversity on New Zealand's braided rivers' (O'Donnell *et al*, 2016).

The Ashley-Rakahuri is a medium-sized river located in North Canterbury. From the Ashley Gorge, the river flows east and enters the sea about 25 km north of Christchurch. Halfway to the coast it is joined by its major tributary, the Okuku river. In contrast to the larger snow-fed rivers, the Ashley-Rakahuri is fed by rainfall from the foothills and has relatively low flow rates. The estuary where the Ashley-Rakahuri drains into the Pacific Ocean has large areas of tidal mudflats, and is recognised as one of the best shorebird feeding sites on the South Island's eastern coastline.

The shorebird values of the Ashley-Rakahuri are well-recognised. The Ashley-Rakahuri River and estuary are included in a list of wetland sites which meet criteria prescribed to be of international importance by the International Union for the Conservation of Nature (IUCN) (Cromarty & Scott 1996). Following surveys of Canterbury rivers in the 1970s and early 1980s, the New Zealand Wildlife Service ranked their wildlife and conservation values; the Ashley-Rakahuri was one of five rivers given the highest possible ranking of 'Outstanding' (O'Donnell & Moore 1983). In 2009, declining bird numbers over the previous 25 years led to a reclassification of 'Regional' importance (Hughey *et al*. 2010).

The Ashley-Rakahuri Rivercare Group (ARRG) is a community group (see Appendix 4 for make-up) formed in 1999 to assist with management of the lower reaches of the Ashley River. Its main aims are to protect shorebirds and their habitat in the riverbed, to monitor breeding success, and to promote these activities to the wider public, while at the same time recognising other sympathetic users. In 2005, the Group became an incorporated society. Since 2004, ARRG has received four grants to assist it in carrying out its aims. Initially, funding was supplied by the Pacific Development and Conservation Trust and the New Zealand National Parks and Development Foundation. During 2006/07, the principal sponsor was the Habitat and Protection Fund of World Wildlife Fund (WWF) - New Zealand. In June, 2007, a 2-year grant was approved by the Lotteries Environment and Heritage Committee. A partial extension was granted through to December 1, 2009. In July 2010, a further 2-year grant was approved by WWF-New Zealand. Currently, the Group supports itself by local fund raising and donations. The activities undertaken since 2004 have been described in the Group's annual reports (Dowding & Ledgard 2005, 2006, 2007, 2008, 2009, 2010; Ledgard & Dowding 2011; Ledgard, Spurr and Crossland, 2012; Ledgard and Mugan, 2013; Ledgard & Dowding, 2014 and Ledgard, 2015, 2016), which also record the results of bird monitoring, habitat enhancement, predator control, and advocacy, and make recommendations for future management. The present report documents the management activities and monitoring of birds that were undertaken during the 2016/17 season. An analysis of longer-term results since 2000 is given in the 2013-14 report, with a more recent paper by Eric Spurr and Nick Ledgard published in *Notornis* 63(2), 2016.



In the past, the river has provided breeding habitat for significant numbers of black-fronted terns and many hundreds of pairs of black-billed gulls. Over the last 20 years the number of gulls in particular has declined substantially (Dowding & Ledgard 2005), although a colony has been present for three of the last six seasons. The Ashley-Rakahuri is one of the most northerly rivers on which wrybills breed, following a southward contraction of the core range of the species over the past century (Riegen & Dowding 2003). Wrybill have recently been recorded breeding as a few isolated pairs on the Waiau river, which is about 70 km north of the Ashley-Rakahuri. The Ashley birds remain the northern-most population which is known to have been stable for some time. These three key species have been the main focus of management activities of the Group; all are endemic, have declining national populations and are considered threatened.

The threat categories of all New Zealand birds were revised in 2012 and the results reported by Robertson *et al.* (2013). The most endangered species on the Ashley-Rakahuri River is the black-billed gull which is now classified as Nationally Critical (the same as the black stilt), and internationally as Endangered, making it the world's most threatened gull species (BirdLife International 2014). The next most threatened species on the Ashley-Rakahuri is the black-fronted tern, which is classified as Nationally Endangered, the second-highest ranking possible under the New Zealand scheme. The wrybill has a declining range and is classified as Nationally Vulnerable, as is the banded dotterel, which is considerably more common on the Ashley-Rakahuri River. Other shorebird species which breed on the river (such as the pied stilt and the South Island pied oystercatcher) are listed as At Risk.

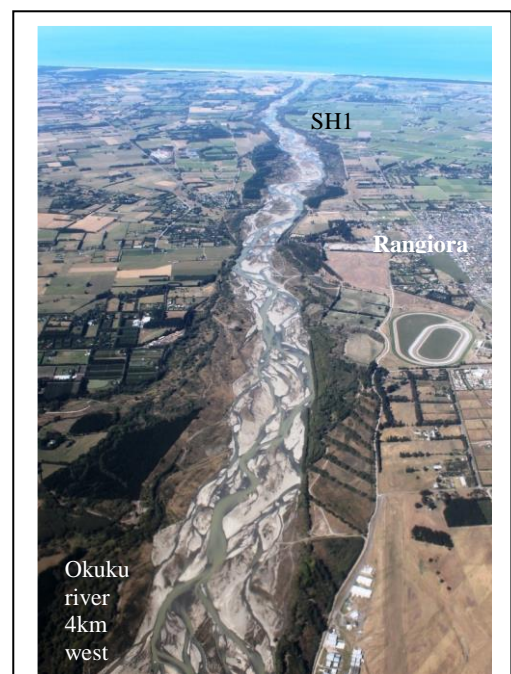
## 2 Study area and methods

### 2.1 STUDY AREA

The study area consists of an 18 km stretch of the lower Ashley-Rakahuri river, from its confluence with the Okuku River to the State Highway 1 road bridge. It was described in detail in the Group's first report (Dowding & Ledgard 2005) and an updated Google-based map of the area is presented in Figure 1.

### 2.2 HABITAT MANAGEMENT

Early reports describe a combination of physical hand-pulling and earth-moving machines which was used to remove weeds from specific sites in order to create potential bird breeding areas. However, experience has shown that these cleared areas can only be small and there is no guarantee that birds will use them. Hence, the reliance has been on natural floods to clear away weeds. But since the May, 2014 flood (480cm<sup>3</sup>) there has been no major event – until those of April 6 (235cm<sup>3</sup>) and July, 2017 (570cm<sup>3</sup>), the impacts of which are discussed in the Discussion (section 4.1), as it had no impact on the 2016-17 breeding season.. Hence, heading into the past season, the river was arguably as choked with weeds (mainly yellow tree lupins) as it has ever been. ARRG member and trained geohydrologist, Grant Davey, did some excellent work quantifying and mapping this invasion over the period 2004 to the present day (see Results and Discussion). For this reason, some major weed clearance and island creation work was carried out in July/August, 2016. Table 1 and Map 2 give details of the areas cleared (just over 3ha) and their locations. The appropriate consents



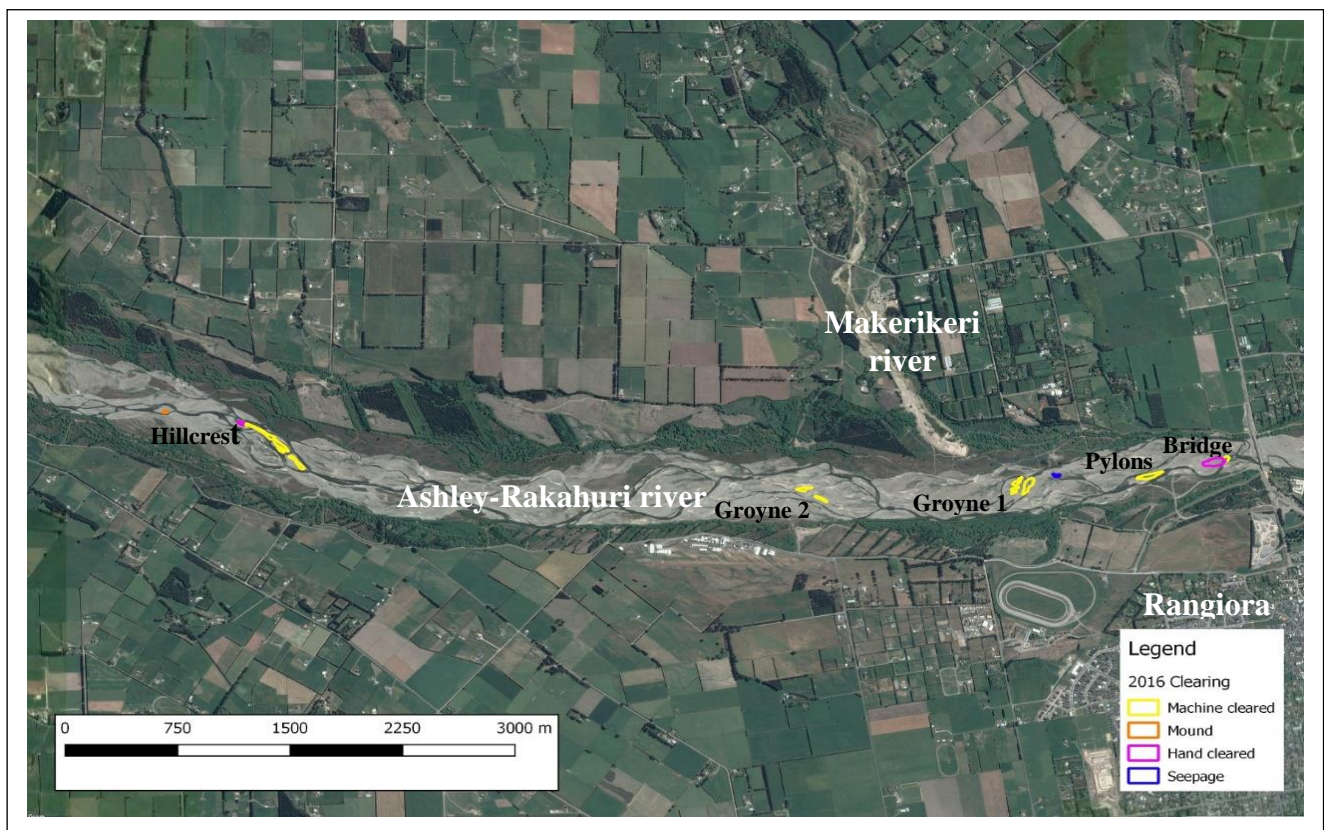


were gained from ECan beforehand and diggers from Taggarts Earthmoving and Nigel Winter Contracting were employed to do the work. Financial support came from the Waimakariri Zone Committee's Immediate Steps fund. A full report on this work has been submitted to ECan (Swales and Ledgard, 2016). Consent has been granted for further clearances in the late winter of 2017.

**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 2.** Location of riverbed weed clearing work, July - August 2016



### 2.3 ADVOCACY

Advocacy and liaison activities are a priority focus. This is undertaken in the form of media articles, displays, talks (usually accompanied by the Group's PowerPoint presentation - to schools, service clubs, land administration agencies, two braided river workshops and the public), a web page and Facebook site, sales of a children's book and bookmarks, plus advertising (both by Group members and local DOC officers) are used to raise public awareness of shorebirds in the river and of the Group's activities. During the breeding season, riverbed visits are organised for the public and customised Corflute signs are placed in managed riverbed areas to ensure people are aware of the location of breeding birds. The Group currently has a sub-committee looking into greater use of interpretation signs on the river.

## 2.4 WALKWAY, BIKE TRACK, 4WD TRACK, RIVERBED ACCESS AND SWIMMING HOLES

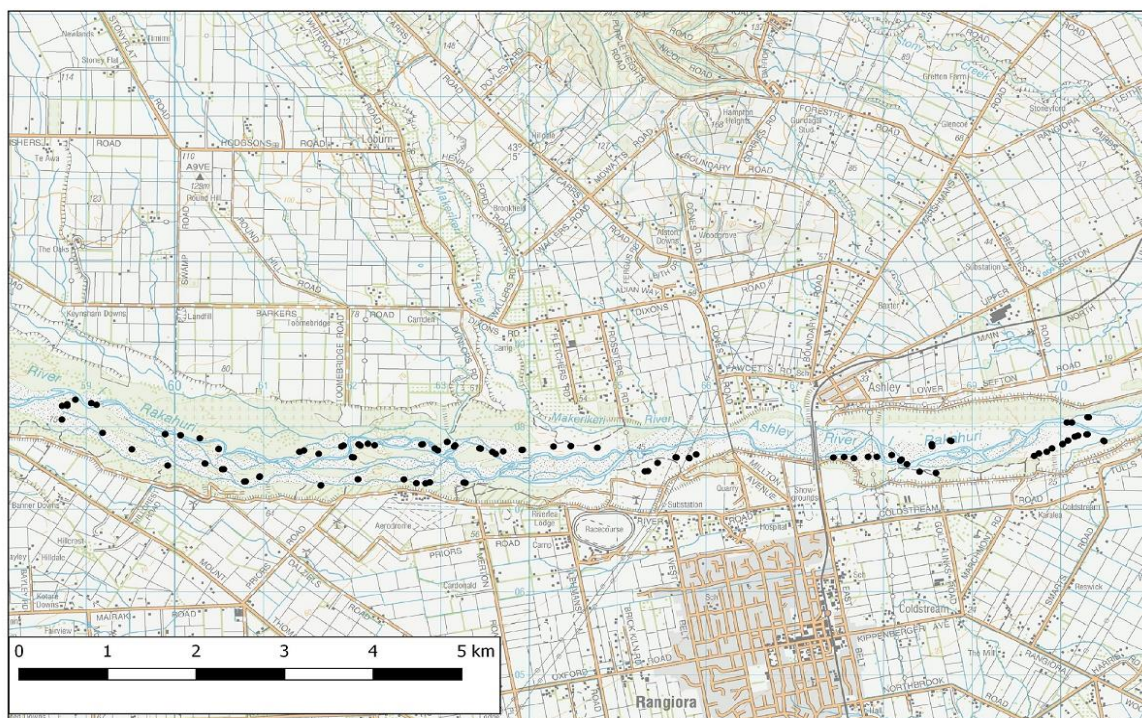
The walkway and bike track along the south bank, and the 4WD track on the north bank between the end of Rossiter's Road and the Makerikeri River aim to encourage recreational activities away from the actual riverbed. In mid-2017 significant funding was granted to the Ashley-Rakahuri Regional Park to extend the mountain bike track down the southern bank of the river towards the estuary. No new planting of native species alongside the walkway was undertaken by the Group over the 2016 and 2017 winters, but weed control was carried out around those already established. In September 2016, a digger was used to close all 4WD access ways into the core bird breeding area (except the major ones). Signs notifying closures and restricted vehicle access were erected at the major entrances in September and removed in February at the end of the bird breeding season. For various reasons, no swimming holes were created.

## 2.5 PREDATOR CONTROL

The area trapped was around the major bird breeding sites on the Ashley-Rakahuri river (see Map 1), extending over approximately 12 kms from the Tulls site in the east (NZTopo50-BW24; E157180, N510880) upriver to the Hillcrest Road site in the west (NZTopo50-BW23; E155920, N510820).

During the year, 8-10 trappers used 136 traps to target mammalian predators (mainly cats, mustelids and hedgehogs) from the Marshmont site up to Hillcrest – a distance of 9 kilometers. (see Map 3). Trap types included cage, Bushby tunnel and PossumMaster, but the vast majority were Timms traps and DOC 200 and 250 traps. When the birds start to arrive in September for the breeding season, traps can be concentrated at sites with a history of use by nesting birds and added or moved as required. Traps were baited with a range of baits, usually salted rabbit or hen eggs, and checked every 1- 2 weeks.

**Map 3.** Location of traps on Ashley-Rakahuri river as of winter, 2016





## 2.6 BIRD SURVEYS AND MONITORING

The annual spring survey of all resident birds was undertaken on November 26 from the Okuku river junction down to the SH1 bridge. It involved 20 members. There was no survey of the 22 km stretch between the Ashley gorge and the Okuku river junction, which was surveyed in 2011 (for the first time since 1981). Nor was there any survey of the Lees Valley section of the river (last undertaken by DOC in 2011).

Monitoring of wrybills, black-billed gulls, and black-fronted terns during the breeding season was carried out as described in previous reports (e.g., Dowding & Ledgard 2005, 2006, 2007), and began this season in August. Riverbed visits were undertaken at least 2 times every week until early February, with most efforts concentrated in the core bird breeding area between the Tulls Road site and Hillcrest Road. Breeding success



Monitoring occupies much time during the breeding season

(productivity) for each of these species was recorded as the average number of chicks fledged per pair. Banding of wrybills is attempted whenever possible, but this was not the case over the past season. Banding is vital if we are to learn more about the long-term survival of individuals.

## 2.7 MEMBERS and MEETINGS

The group email list contains 91 people, who in the past have served as its membership. However, the Charities Commission now requires us to have 'registered members'. Forty members have requested to be placed on the formal membership list, and only they can vote at meetings. No subscription is charged.

During the 2016/17 season, the Group held meetings in the Department of Conservation's offices on River Road, Rangiora, on June 23, September 1 (AGM), November 17 and February 23. Seventeen members attended the AGM, with an average of 12 present at other meetings.

## 2.8 FUNDING and EXPENDITURE

*Funding.* Over the last year the Group's main finances have come from a mix of local sources. Most were obtained from making and selling DOC 200 traps, mitigation payments associated with the new Cones Road bridge, 'environmental compensation' fines (courtesy of ECan), sales of bookmarks and the reprint of Jane Buxton's children's book 'Ria the reckless wrybill', plus a sausage sizzle outside the Warehouse.

*Expenditure.* Most expenses have been associated with buying materials for trap making. Smaller amounts have been spent on maintaining the website, advertisement and riverbed signage. The Group now has the funds to support more riverbed bird studies, and in the past year has supported a student looking at social attractants (decoys, taped calls) to promote the breeding of black-fronted terns. A major upcoming expenditure for the 2017 year is for the clearing of weeds and creation of islands in the riverbed. Funding has been obtained from Group funds, the Waimakariri Zone Committee's Immediate Steps fund, and the Rata Foundation.

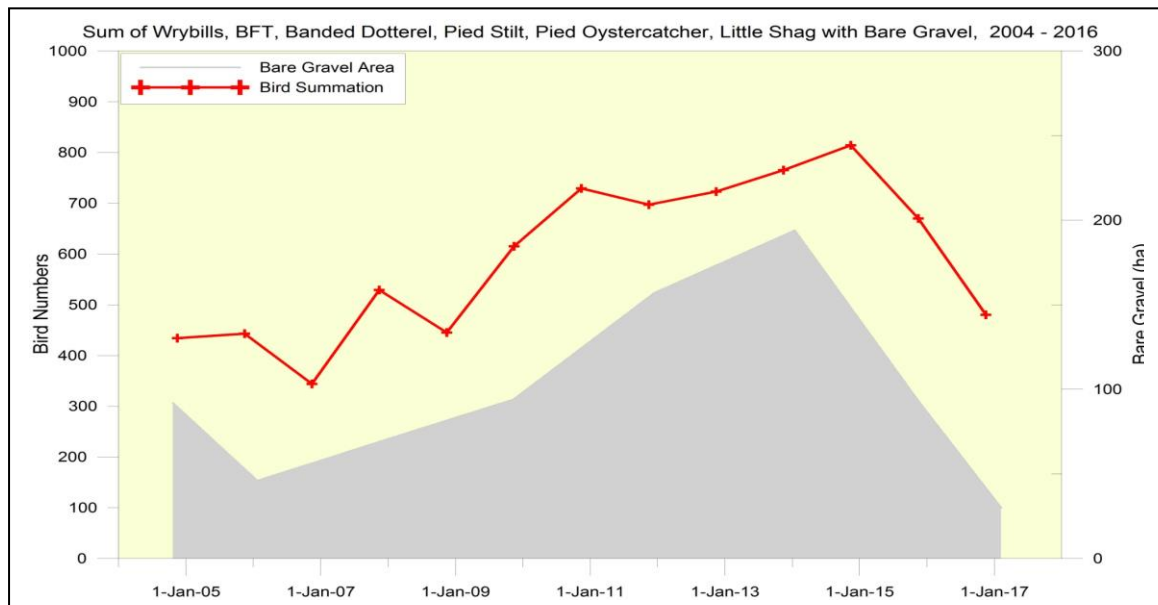
### 3 Results

#### 3.1 HABITAT MANAGEMENT

Riverbed birds require open shingle for breeding. Until the April 2017 flood, there had been no major floods since mid-2014, resulting in the river during the last breeding season being arguably as choked up with weeds as it had ever been. Hence, the clearance of weeds over 3.2ha at five sites in August, 2016 (see 2.2 above). Within days of the bare gravel 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 in nesting. The site which attracted most birds and did host some nesting, was the island off Groyne 1 - despite it being the roughest in terms of remaining vegetation and shingle undulations. By the end of August, a pair of wrybill were present, plus stilts, dotterels and black-fronted terns. Tern numbers climbed to as high as 60, and by the end of October at least 10 pairs were nesting on the island. Stilts and dotterels used the island throughout the season, with at least 3 stilt and 5 dotterel pairs nesting. Floods of 60 and 90 cumecs in late November (see Appendix 4) 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 black-billed gulls inspected the island, but did not stay.

The rising threat of weeds was emphasised in last season's report. Figure 1 below, generated by ARRG member, Grant Davey, is graphic quantification of changes in bare gravel extent since 2004. The figure shows how the total area of bare gravel has declined by 85% since January 2014 – from almost 200ha down to around 30ha. This decline appears to show a strong relationship with the recent decline in annual bird numbers.

**Figure 1.** Changes since 2005 in bare gravel area relative to numbers of key bird species.



The reasons for the sudden rise in weed area, the 'new' species involved and the impact of the April 2017 flood are addressed further in 4.1 and Appendix 2.

#### 3.2 ADVOCACY

During the 2016/17 breeding season, many opportunities were taken to ensure that the public were kept aware of the Group's activities in the riverbed. These are listed in Appendix 1. Twelve articles appeared in local papers. Powerpoint presentations were given to five schools,



four service clubs, plus two addresses (on weed invasion / bird population declines and the Waikuku farm black-billed gull colony) were given at a well-attended braided river seminar (134 present) on June 26. In September, Canterbury TV visited the riverbed and made a short video. Riverbed visits during the breeding season proved to be popular with the public, with over 30 attending in early November. Also popular and appearing in many sites throughout Canterbury, were flocks of cut-out birds. 'The Flock' was successful in drawing attention to the arrival of



riverbed birds for the summer breeding season. Some hundreds of colourfully decorated bird silhouettes were made by schools and community groups. Our website ([www.ashleyrivercare.org.nz](http://www.ashleyrivercare.org.nz)) was maintained by the District Council's VisitWaimakariri office, while our Facebook page (<https://www.facebook.com/ashleyrivercare>) was maintained by Steve Attwood (see 4.3 for use details).

During 2014-15, the Group remained closely associated with staff from DOC, the Waimakariri District Council and Zone Committee, ECan, the Tuhaitara Coastal Park and the Ashley-Rakahuri Regional Park, representatives of which usually attend our meetings. ARRAG also contributes actively in the running of BRaid Inc, a group which aims to improve the ecological welfare of all braided rivers in Canterbury.

A regular email update was sent to all Group members during the breeding season.

### 3.3 WALKWAY, 4WD TRACK, RIVERBED ACCESS AND SWIMMING HOLES

The Ashley-Rakahuri Regional Park staff have continued to develop walking and trail bike tracks and grass areas in the berm alongside the river. This discourages people from recreating in the riverbed itself, as does the 4WD track (on the northern bank) and open 'dirt-bike' areas. In the spring, a digger was hired for two days to close off tracks running from the berm into the river. There is little doubt that this reduces vehicle use of the riverbed during the breeding season, but after blockages are removed in early Feb, it resumes in earnest during the remaining summer weeks and over winter. No swimming holes were dug in the riverbed this season.

### 3.4 PREDATOR CONTROL

This season saw an increase in trap numbers from 118 last year to 139. In total, during the bird breeding season, 52 potential predators were trapped in 15,114 trap-nights. Hence, the overall trap-catch rate for that period was 0.34 predators per 100 trap nights.

Predators trapped consisted of 31 hedgehogs, 5 cats, 4 stoats, 6 weasels, 5 rats and 1 ferret. The number of trap-nights was the second highest ever, due to the recruitment of two new trappers, more funds for trap purchase, and additional work by regular trappers. Hedgehogs remain the most trapped predator, followed by cats and rats (highest ever). Fifteen mustelids were caught,

only half the number of the previous season, but very similar to the season before (16). Details of trap nights and trap catches since 2004 are shown in Table 1. It is good to note a further decline in catches/100 trap-nights over this period.

**Table 1.** Predator trap-nights and trap-catch from September 1, 2016 to January 31, 2017

Season	Trap nights	Cat	Stoat	Weasel	Hedgehog	Rat	Ferret	Other	Catch/100 trapnights
2004-05	4092	4	4	6	46	1	0		1.5
2005-06	3834	8	2	0	62	0	0		1.9
2006-07	3445	3	2	1	45	1	0	2 mice	1.6
2007-08	3983	4	3	4	39	3	0	2 mice	1.4
2008-09	3980	7	5	1	17*	0	0		0.75
2009-10	3981	3	3	2	17	1	1		0.68
2010-11	3732	3	4	2	23	0	0		0.51
2011-12	5048	2	1	1	34	0	1		0.78
2012-13	6373	2	3	3	36	5	1		0.79
2013-14	5786	4	2	3	28	0	0		0.65
2014-15	7560	6	7	3	35	0	1		0.66
2015-16	17459	14	6	10	51	0	3		0.48
2016-17	15114	5	4	6	31	5	1		0.34
<b>Mean</b>	<b>6491</b>	<b>5.0</b>	<b>3.6</b>	<b>3.2</b>	<b>36.0</b>	<b>1.2</b>	<b>0.54</b>		<b>0.93</b>

\*Major drop in hedgehog numbers probably due to large flood in Feb 2008

A post-season trapping period was initiated in the winter of 2014. In 2017, the trap-lines will run from the Marchmont site up to Hillcrest (about 9 km) from February through to the end of August - when the spring bird breeding season trapping began. At the time of writing (July 17), 136 traps had been set for 23,729 nights, resulting in the capture of 135 predators (79 hedgehogs, 18 stoats, 15 weasels, 6 ferrets, 9 cats and 8 rats), giving a trap-catch of 0.57 predators / 100 trap nights.

Table 2 below records predator numbers caught over winter, since winter trapping began in 2014.

**Table 2.** A summary of winter trapping since initiation in 2014

Year	No traps	No of trap nights	H'hog	Cat	Stoat	Weasel	Ferret	Rat	Other	Catch / 100 nights
2014		2680	1	8	1	1	1			0.48
2015		4477	17	8	1	1	1			0.64
2016	119	17136	66	16	2	13	9			0.61
2017	136	23729	79	10	18	15	6	8	2 mice	0.57

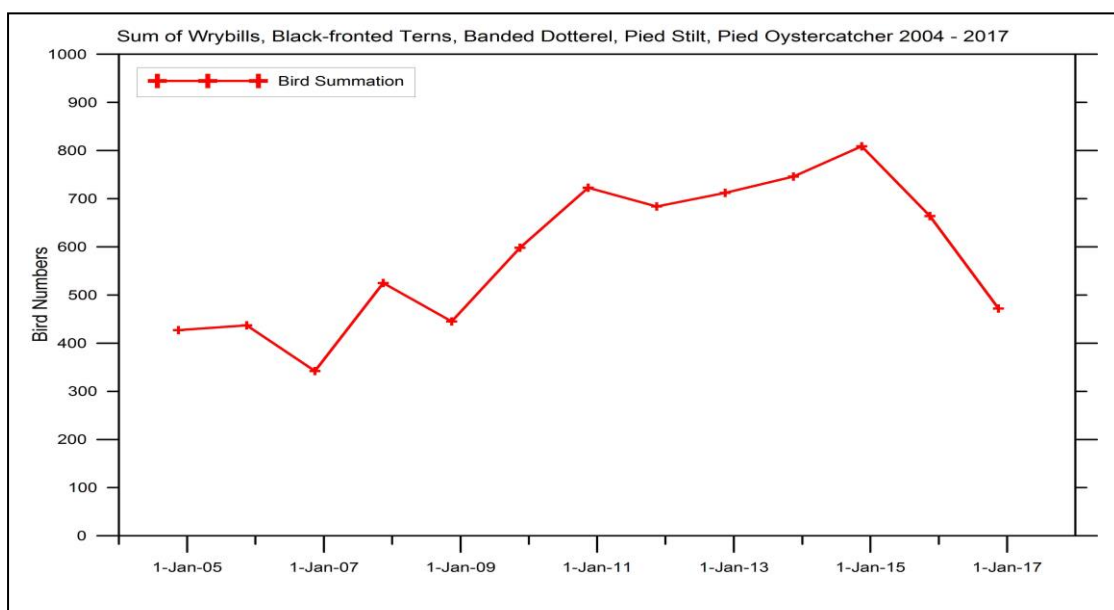
### 3.5 SPRING BIRD COUNTS

Survey figures from 26 November 2016 are given in Table 3, with results of earlier counts shown for comparison.

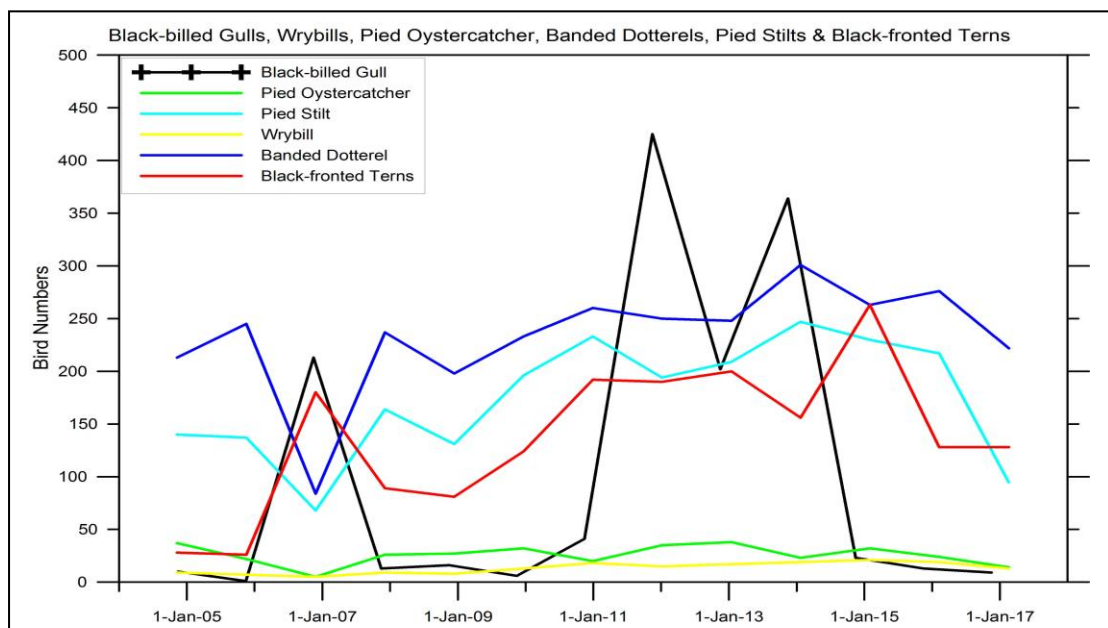
Total bird numbers were 30% lower than the 17-year average and the lowest since 2010. This was the second year of decline since the peak numbers between 2011 and 2014 (Figure 2). Most of the major species were affected (Figure 3). Wrybill numbers (13) equalled the long-term average, but were the lowest since 2009, and well below the peak years between 2013–2015 (19, 21, 19). Black-fronted tern and banded dotterel numbers were down on previous years, but just above the long-term average, while black-billed gulls (9) were far below the average of 97. The biggest drop amongst the key species was for pied stilts, where numbers were 56% down on last season and 42% down on the long-term average. A likely reason for this decline is the loss of bare gravel areas due to weed invasion (see Figure 1 in 3.1 above).

Of unusual note were two white-winged black terns seen with black-fronted terns at Smarts on Sept 6 and 24. Last season a single bird of this species was also seen in September - at Hillcrest.

**Figure 2.** Total numbers of core bird species, 2004 - 2017



**Figure 3.** Annual numbers of core bird species, 2004 - 2017



**Table 3** Results of the bird count undertaken in the Ashley-Rakahuri River (from Okuku junction down to SH1) on November 26, 2016. Counts from previous years, plus the 16-year mean, are shown for comparative purposes.

Species	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Ave
Black shag	18	3	nc	8	7	2	2	10	9	6	2	5	6	3	4	1	5	6
Little shag	3	6	nc	4	7	6	2	4	0	17	6	13	11	19	5	6	8	7
SI Pied																		
oy'catcher	25	22	19	22	37	22	5	26	27	32	20	35	38	23	32	24	14	25
Variable																		
oy'rcatcher	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
Pied stilt	229	82	70	138	140	137	68	164	131	196	233	194	209	247	230	217	95	164
Black stilt	0	0	0	0	2	1	1	1	1	1	0	0	0	0	0	0	0	1
Banded																		
dotterel	199	130	115	169	213	245	84	237	198	233	260	250	248	301	263	276	222	214
Wrybill	17	7	6	16	9	7	5	9	8	13	18	15	17	19	21	19	13	13
Spur-wing																		
plover	18	nc	16	13	27	149	37	116	11	39	15	89	55	65	37	9	6	44
Black-back																		
gull	26	nc	11	10	27	3	5	12	10	19	19	2	11	17	7	13	4	12
Black-																		
billed gull	314	3	5	0	10	1	213	13	16	2	41	425	202	364	23	13	9	97
Black-front																		
tern	74	44	165	102	28	26	180	89	81	124	192	190	200	156	263	128	128	122
White-front																		
tern	0	0	0	0	0	0	0	0	0	0	8	77	6	2	0	0	0	5
Caspian																		
tern	0	0	0	4	0	0	1	0	0	0	0	0	0	1	0	0	0	1
<b>Totals</b>	<b>923</b>	<b>287</b>	<b>407</b>	<b>476</b>	<b>509</b>	<b>599</b>	<b>602</b>	<b>681</b>	<b>492</b>	<b>683</b>	<b>806</b>	<b>1295</b>	<b>997</b>	<b>1217</b>	<b>884</b>	<b>706</b>	<b>504</b>	<b>721</b>
<b>Totals -</b>																		
<b>BBG</b>	<b>609</b>	<b>284</b>	<b>407</b>	<b>476</b>	<b>499</b>	<b>598</b>	<b>389</b>	<b>668</b>	<b>476</b>	<b>681</b>	<b>765</b>	<b>825</b>	<b>795</b>	<b>853</b>	<b>861</b>	<b>693</b>	<b>495</b>	<b>624</b>

nc = not counted



### 3.6 SHOREBIRD BREEDING

Locations of shorebird territories are shown in Figure 1. There were no major ‘nest-destroying’ floods during the 2015-16 breeding season (see Appendix 3).

#### **Wrybills**

Banded birds are identified by their colour-band combinations, bands are recorded left leg first and top to bottom (possible colours are: O=orange, R=red, B=blue, Y=yellow, G=green and W=white). M=metal, UB=unbanded.

#### Breeding pairs

Eight pairs of wrybills attempted to breed in the study area in the 2016-17 season. This is less than the ten pairs present for the previous 2 seasons, but more than the previous best of seven pairs in each of the years 2010 and 2013.

##### 1. Male: UB Female: UB

A UB pair were first seen at the western end of the Smarts site on Sept 6. A nest was never found. In early November the parents were seen acting as if chicks were present, but none were observed. The adults were still present at the end of November, when their actions indicated that they might be renesting, but no nest was located. In 2014-15, a female YO-RO nested for a second time at this site, but this bird has not been seen on the river since.

Result: No chicks fledged

##### 2. Male: UB Female: UB

On Nov 8, a second UB pair was observed at the Smarts site – at its eastern end. The pair were seen regularly and on Nov 20 were observed with a half-grown chick. Although the chick was not seen again, the actions of the parents indicated it remained through to fledging age.

Result: One chick fledged.

##### 3. Male: UB Female: UB

A UB pair was seen copulating on the south bank at the Railway site just above the power lines on Sept 6 – in the same place as a nest was located the previous season. The pair were seen regularly right through to the end of November, and at one stage were acting chick-like, but no chick was ever observed. The previous year (Nov, 2015), the female of the pair at this site was banded (RB-YB), but was not seen this season.

Result: No chicks fledged.

##### 4. Male: UB Female: UB

Two UB males were seen contesting territory off Groyne 1 on August 29 – the first wrybills on the river for the season. On October 2 a UB pair were present, and observed play-nesting on October 20. The pair was seen regularly right through to the end of November, and at times indicated the presence of a chick, but none was ever observed. For a number of previous seasons, a female bird, WO-WY, mated with WO-M at this site, but the male bird was not seen in 2015-16, and the female was not seen in the 2016-17 season.

Result: No chicks fledged.

**5. Male: UB Female: UB**

A UB pair and a single bird were seen off Groyne 2 on September 1. This pair, often with a single male, were usually present and observed with a chick on October 20. Birds remained until at least mid-December, with a fledged chick seen on Nov 20.

Result: One chick fledged.

**6. Male: BW-BW Female: UB**

BW-BW and a UB mate were first seen just above Groyne 2 on Sept 1. A 2-egg nest was found on October 3 and had hatched by October 13. A chick was observed on October 30 and again on November 20. BW-BW was banded in the spring of 2010, and is now the only banded bird remaining on the river. He and a UB mate have nested off Groyne 2 over the last four seasons.

Result: One chick fledged.

**7. Male: UB Female: UB**

A UB male bird was first seen at Dalziels on October 3, and was defending territory with a UB female on October 10. A single bird was present on October 24 and November 12, but no nest or chicks were ever observed. A UB pair occupied this site last season, with no sign of breeding success.

Result: No chicks fledged.

**8. Male: UB Female: UB**

A UB male was first seen at the upper Hillcrest site on October 2, and defending territory with a UB female on October 10. The male was observed acting chick-like on November 8 and was still present on November 21, but no chick was ever observed.

Result: No chick fledged

Overall result: At least 8 pairs raised a minimum of 3 chicks, for a productivity of 0.38 chicks fledged per pair. This is well below the 12-year average (0.83), last year's 0.7 and the record 2014-15 figure of 1.3.

**Black-fronted terns**

As in past years, this season was one of on-off indications of nesting by small colonies. Results were disappointing. Occasional birds were noted on the river over winter, with numbers starting to build up and courting flights seen during August. There were 22 birds at Groyne 2 on Aug 16, 20 at Pylons and 12 at Groyne 1 (Aug 29), over 80 present at Smarts (Sept 6) with 60 still there on Sept 24 (including two white-winged black terns), and over 50 at Hillcrest on Sept 15. It is likely that some of these birds were moving between locations as they looked for breeding sites. On Sept 30, 40 birds looked like settling on the newly created island just above the Pylons, but 2 days later they were gone. No birds nested at Smarts, Pylons, Groyne 2 or Hillcrest, all of which have had breeding birds in recent seasons. The best breeding site was on the created island off Groyne 1, where over 60 birds were present on Oct 20. On Oct 30 an estimated 10 pairs had egg nests, but at least half of these were swept away by small floods on Nov 13 (63m<sup>3</sup>) and Nov 18 (91m<sup>3</sup>). It may well have been these displaced birds which started to breed just below the Cones Road bridge in early December. There were seven pairs with egg-nests on Dec 16, but they had deserted by Dec 22 - probably due to the frequent human disturbance at this popular spot. A few pairs persisted at Hillcrest into November, and although acting aggressively at times, no nests or chicks were observed. Three pairs were found on egg-nests just above Groyne 2 on Jan 10, but the nests were empty by Jan 30, with no sign of chicks. The only flying juveniles were observed in late November at the Groyne 1 island site, where 4-6 chicks were fledged.

**Result:** Over all the sites, it is estimated that only 10 pairs nested (Groyne 1) fledging 4-6 chicks, for a productivity of between 0.4 and 0.6. The number of nesting pairs does not include those suspected of renesting (unsuccessfully) later in the season (7 pairs below the Cones Road bridge and 3 pairs at Groyne 2).

### **Black-billed gulls**

For only the second time in 13 years, no black-billed gulls nested on the river. The first was in 2010. At the start of the season, gulls appeared to be prospecting for sites. On Sept 24, 50 were present at Smarts; 34 on the new island at Pylons (Sept 30); 26 at Hillcrest (Oct 2) and 120 on the new island off Groyne 1 on Oct 28. But no nesting was initiated at any of these locations. The most likely reason is that all these birds eventually ended up nesting on the Woodend Beach dairy farm on the east side of SH1 just south of the main road



Erecting a hot wire around gull colony at Waikuku beach farm

bridge. This farm was in the process of replacing border dyke irrigation with centre pivots, so had large areas of bare ground when the birds were choosing a nesting site. In addition, the cultivation unearthed a rich supply of food in the form of insects and earthworms. According to the farm manager, James Henderson (owner, Tim de Laney), the birds started building nests in late October. A low viewing angle and rank surrounding grass prevented accurate bird counts, but on the first formal visit on Nov 14 it was estimated that around 500 birds were occupying about 250-300 nests, all of which appeared to have eggs. An accurate count after the chicks had left the colony (Jan 1) revealed 340 nests. The colony was fenced with a single hot wire on Nov 22. On Nov 27, a count of 600-800 birds was made. The first chicks hatched on Dec 5, with the first seen flying on Jan 1. At that time, 10 birds were still sitting on eggs. From January on, chicks were in long grass close to the nest site. They were not easy to distinguish from adults and never gathered into one large creche. Counts of chicks ranged from 350 to close to 500. Losses to predation appeared minor (see Discussion). By mid-January, most birds had moved to the Ashley – Saltwater creek estuary, less than 2km away.

**Result:** No pairs nested on the riverbed. If a figure of 300 occupied nests is used for the farm site, productivity ranged from 1.17 to 1.70.

### **White-fronted terns**

No breeding birds were recorded.

### **Pied oystercatchers**

During the season, breeding pairs were noted to be present at a minimum of seven locations. Chicks were observed at Hillcrest (2 pairs), Dalziels, Groyne 1, Pylons and Smarts. Others could have attempted breeding elsewhere, although only 14 birds were seen on the Nov 26 survey. No formal count of pairs or chicks has been attempted since 2008.

**Banded dotterels**

Banded dotterels nested throughout the study area. The number seen on the Nov 26 survey (222) was just above the long-term average of 214. Although no attempt was made to record productivity, nests were found and a number of chicks seen. The first birds (competing for territory) were seen in early July, and by early Sept they were present at virtually all the sites. Good numbers were particularly noticeable at Marchmont/Smarts, Rossiters/Pylons, between Groyne 1, Groyne 2, Dalziels and Hillcrest. Chicks of a range of ages were noted at most sites during the season. Flocks of adults and juveniles are more common towards the end of the season, with the largest being 17 at Hillcrest on Dec 26.

**Pied stilts**

Many pairs of pied stilts bred in the study area, although survey numbers on Nov 26 were well down (98) on the previous season's 217 (long-term average 168). Pairs were fairly evenly spread from just above Tulls right through to Hillcrest, but the best breeding sites appeared to be at Smarts, Groyne 1 and Hillcrest. On Nov 8 there were 25 present at Smarts (at least 3 nests), with 3 nests at Groyne 1 island, and 8 pairs in the Hillcrest area. Many juveniles were observed. Pied stilt productivity was not recorded.

**Black stilt**

The black stilt (GK-OW) which bred on the river (always with a pied mate) for many years up to 2009, has not been seen on the riverbed since.

**Black-backed gull**

Numbers remain very low (4 on Nov 26 survey). Since 2000, only one pair has been observed breeding on the river (2013), with no chicks fledged.

**Caspian tern**

Lone Caspian terns were seen on the river during the season, but there was no sign of breeding.

**Spur-winged plover**

This species is most often seen in flocks on the riverbed over winter. Even though a few pairs could well have bred on the river, they are only seen in small numbers during the main part of the season, and no nests were located. A flock of 20 was seen at Hillcrest on Dec 30, with a flock of 40 birds present at Groyne 1 on Jan 19.

**Social attractant study.**

Over the past year, the Group has supported a Lincoln University student, Courtney Hamblin, with a Masterate study looking at social attractants (decoys, taped calls) to promote the breeding of black-fronted terns. She had 10 sites in Canterbury, one of which was at Hillcrest on the Ashley-Rakahuri river. The decoys and calls did attract bird attention, but no nesting resulted. However, overall she found a significant interaction with the social attractants, compared with the paired control plots, and nesting was observed near the attractants at some of the other sites

## **4 Discussion**

The shorebird species in the Ashley-Rakahuri river face three main threats – the invasion of weeds (mainly yellow lupins, broom / gorse and willows), reduced survival and productivity due to introduced predators, and disturbance by human activity. The Group's attention continues to



be focussed on reducing impacts from these – with particular focus on assisting the wrybill, black-fronted tern and black-billed gull.

The success of management in reducing the above threats is assessed by an annual survey of bird populations, plus monitoring of breeding success in order to determine productivity (number of chicks fledged per nesting pair of adults).

#### 4.1 HABITAT MANAGEMENT

**4.1.1. Weed removal.** In the past, we have largely relied on natural floods to clear excess weeds from the riverbed. However, the lack of recent floods has allowed a significant increase in weed growth over the past year – mostly the yellow lupin, but also more scattered gorse and broom seedlings (most still under 10cm tall and well ‘clipped’ by hares). The seed from these may well have been carried to the higher fairway sites by the large flood (480cm<sup>3</sup>) of May, 2014. The lack of freshes has led to the weed problem extending beyond the raised shingle (potential nesting) sites to the shallow water/shingle margins, where mats of herbaceous growth are submerging formerly open stone/water interface surfaces. These are very important areas for shorebird feeding, particularly where springs emerge within and along the side of the main riverbed. Another ‘new’ weed problem in the wetter shingle areas is the establishment of willow seedlings. This appears to involve three species of shrub or osier willows; the grey willow (*Salix cinerea*), the yellow-stemmed willow, *S. vitellina* (or *S. alba* var. *vitellina*) and *S. elaeagnos*. Despite the fact that the last species was brought into NZ only as a single female clone, all three are growing from seed, and once established will be much harder to eradicate than lupins. The April, 2017 flood (235m<sup>3</sup>) demonstrated how these newly arrived gorse, broom and willow seedlings are not nearly as readily removed as lupins. The impact of this flood is addressed in the last paragraph of this section.

The increased weed presence leading to declining bare shingle areas (breeding sites) and fewer clear riparian water shingle interfaces (feeding sites), and its apparent link to recent declines in bird numbers was described in a Powerpoint address given at a braided river seminar on June 29. This is reproduced in Appendix 2 of this report.

As mentioned in 3.1, diggers carried out weed clearance on over 3ha on seven sites in August 2016. This was not as successful in attracting breeding birds as hoped, but it did have a positive effect (see 3.1), and similar work has achieved success elsewhere. Due to this, and even more so due to the negative impact weed invasion is having on the birds which breed on the Ashley-Rakahuri river,

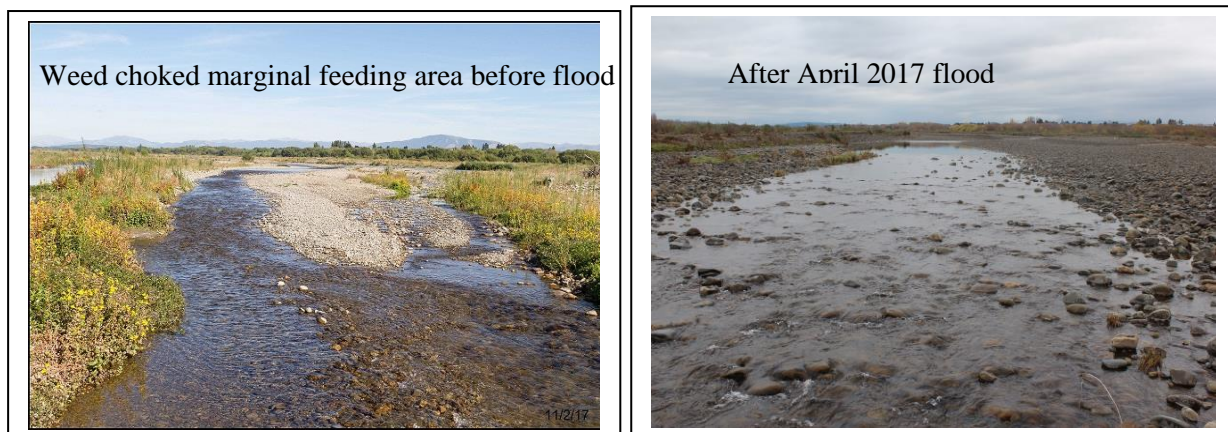


consent and funding has been obtained to carry out more substantial island weed clearance (up to 50ha) during the winter of 2017. The work is being undertaken in conjunction with DOC who are involved with similar work on the Waitaki and Clarence rivers, and the plan is to increase the cleared areas and maintain on-going weed control into the future.

During 2015, shingle extraction in the lower Makerikeri riverbed, created a 2-3ha open area which contained a good body of water well into the summer. Good shallow water feeding habitat initially attracted a number of banded dotterels and pied stilts. Although the situation

demonstrated how formerly rank weed-infested riverbed could be transformed into attractive shorebird feeding (and possibly breeding) habitat, it subsequently showed that without on-going weed control the site would soon revert to rank weeds and be of no attraction to birds.

*April and July 2017 floods.* These were 235m<sup>3</sup> and 572m<sup>3</sup> respectively (Appendix 3). They presented a great chance to see how good floods affect a weed-choked river. Extrapolation from detailed mapping of a 2km stretch of riverbed (between Groynes 1 and 2) immediately after the April flood indicated that the area of clear gravel rose from 30 ha to 75 ha (see App 2). The increase in bare gravel from the July flood (a 1-in-10 year event) has yet to be calculated. The cleared areas appeared greatest where weeds had already been removed – by gravel extractors and Group island creation works last season. This makes sense, as in those locations there would not have been the vigorous woody weed cover to slow down the flow (tops) and hold the shingle together (roots). Also, the gravel extractors often leave chains of pools alongside the main channels, and floods quickly enter these and sweep down them, creating new flow paths. Therefore, it may not take as much time and funds to implement the clearances intended during the 2017 winter. In summary, the recent floods reinforced the historical importance of a good floods for weed clearances. However, the lack of regular large floods underlines the urgent need for artificial interception if we are to retain sufficient bare gravel areas to maintain viable bird populations.



*4.1.2 Vehicle access.* Braided riverbeds are not only attractive to birds, but they also encourage greater use by off-road vehicles (trail bikes, ATVs and 4WDs), especially if access tracks remain open after summer riverbed operations - such as shingle extraction or stopbank repair. For this reason, the Group works with the Regional Park staff to erect appropriate signs and to block off all but the major access tracks early in the season. The Group also has an agreement with the Combined 4WDDrivers Club, that their members will not use the bird-breeding section of the riverbed from Sept 1 to Feb 1. Without a doubt, these actions reduce vehicle access during the season, even though not all drivers are Club members and ways are found to negotiate barriers over time. Vehicle pressure is greatest to the east where there is ready access just above SH1, plus established tracks into the river bed at the end of Toppings Road and at the Tulls, Smarts and Marshmont sites.

*4.1.3 Drying river.* Dry conditions over the 2015 and 2016 summers led to a rapidly reducing water flow from December on, mainly from the Railway bridge down to the Toppings Road access. However, wet weather during the mid-late 2017 summer meant that there was no significant drying of the river this season. Drying in the lower Ashley-Rakahuri has been documented as occurring every few years since records began, and when coupled with recent climate change, there can be little doubt that we will see periods with a dry river bed in the future.

## 4.2 PREDATOR CONTROL

The number of trap-nights during the 2016/17 breeding season (15,114) was slightly below that of the previous season (17,459) which was the highest since regular trapping started in 2004. The reason for this is extra trappers in the volunteer trapping team (now ten), additional work by the regular trappers, and an increase in trap numbers from 61 in 2014-15 to 120 in 2015-16 to 139 currently. The trap-catch rate of 0.34 predators / 100 nights (Table 1) was the lowest ever recorded - 29% less than last year. This continues the significant downward trend over time (see App 2 in 2013-14 report). Hedgehogs remain the most trapped predator, but numbers of all species were lower than in the previous season, with the exception of rats, which rose from zero to five (the equal highest ever). Even though rat numbers rose, they remain very low - only sixteen trapped since 2004. The reason for this is a mystery as rats are common not far away from the river, but there could be a link with the 64% drop in cat numbers since the previous season.

During the 2017 winter trapping period (Feb 1 to July 17), the trap-catch rate (0.57) was higher than during the breeding season (0.34), but a little lower than that of the 2016 winter (0.61). As in the breeding season, hedgehogs were caught most often - even though hibernation meant few catches after May. Cat numbers were down, but it is disappointing to report a much higher percentage of stoats and rats. Eighteen stoats were caught, compared to just 2 in 2016, while the 8 rats equated to half the total number trapped in the last 10 years (16).



Stoat numbers appear to be on the increase

The reason for the higher stoat and rat catch is unknown, but the overall higher winter predator numbers is often noted elsewhere (particularly in autumn) and is probably due to young animals being forced from parental territories, plus less food sources.

Although the rabbit population seemed to be on the rise early last season, numbers now appear to be back to previous low levels. They have never recovered since RCD arrived and decimated them in 1998. This is where the Ashley-Rakahuri remains fortunate, in that predators must have an alternative food supply other than the occasional bird during the breeding season – and elsewhere rabbits are often that prime food source.

Despite the increased work, the trapping team remains small, and the Group continues to try to attract more volunteers. For this reason, the Group needs to keep well informed of new, more time-efficient predator control techniques being developed, and also to explore the possibility of employing professional trappers.

Investigations into shorebird predation on other braided rivers, such as the Waimakariri (Dale McEntee, pers comm.) and Wairau (Steffens *et al*, 2011) rivers have revealed significant losses to avian predators such as black-backed gulls and harrier hawks. This does not appear to be the case on the Ashley-Rakahuri river. On the lower reaches of the river, numbers of black-backed gulls have always been low. The long-term average from annual surveys is just twelve, and the survey figure for 2016 was only four. Swamp harriers (harrier hawks) are not counted in the annual surveys, but are relatively common on the Ashley-Rakahuri. However, even though they are frequently seen being chased away by breeding birds, no actual predation has been observed on the river in recent years.



### 4.3 ADVOCACY

The Group's advocacy efforts over the past years continue to improve local awareness of the problems faced by riverbed birds, and of the Group's activities to protect them. Appendix 1 lists 42 occasions used to improve awareness, and these are addressed in more detail in the Results section above (3.2).

The long-term future of braided river birds will rest in the hands of today's children. Therefore, it is pleasing to report that the Group is part of a Waimakariri District Council-assisted programme 'Down the Back Paddock', which aims to address all primary schools in N. Canterbury over a 4-year period. There were five such visits over the past year. At all schools, every child is given a 'threat of extinction' bookmark, specially designed and printed by the Group to highlight the endangered status of our braided river birds.

Our webpage ([www.ashleyrivercare.org.nz](http://www.ashleyrivercare.org.nz)) has had 949 hits since it moved to a new platform late last year. The new platform is more reliable than the old one, and is set up to give better use statistics. This is good news, and the Group goes out of its way to keep the site current, utilising the assistance of the Promotions section of VisitWaimakariri. In late 2014, it was decided that we needed to have a greater presence within today's social media, and to this end a Facebook page (<https://www.facebook.com/ashleyrivercare>) was launched in September, 2014. It is maintained by member, Steve Attwood. Over the period July 1, 2016 to June 30, 2017, we have put up an average of two posts per month, more over the spring summer period when there has been a lot of activity to report, less through the autumn and winter. Total posts have been 29. We now have more than 500 page followers, people who receive a Facebook alert whenever there is a new post. The average number of people reached per post (people who have "looked" at a specific post) has dropped a little from previous years but is still running at more than 200 people per post. The most popular post in the period was seen by 2,916 people. This was a post about one of our weed clearing days combined with a report on our efforts to use machinery to create weed-free islands. Overall, our Facebook page has attracted less interest in 2016-17 but the total number of unique visitors still numbers more than 5000. The key to building numbers is fresh content. We need to ensure that all activities on or about the river and our efforts are reported so they can be placed on the Facebook page. Social media remains a very effective way of reaching out to our communities.

All these promotional activities take considerable time and effort, but if awareness is to be continued at a high level, such effort must be maintained on an annual basis.

Out on the river, customised Corflute signs are placed in managed areas during the season. We are also in the process of making interpretation signs to be erected at the most visited parts of the river. These are essential to improve public awareness and to minimise human disturbance during the breeding season.

The Group remains actively involved in the running of BRaid Inc, a group which aims to improve the ecological welfare of all braided rivers in Canterbury. We closely assisted with deployment of The Flock, an initiative to draw attention to the birds returning to their braided river breeding sites in the spring. On June 26, BRaid organised a very successful public seminar on braided river ecosystems, particularly



Environmental award to Taggarts Earthmoving

the birds. It contained two presentations by ARRG members and was attended by 134 people. Nick Ledgard (Group chairman) is currently BRaid Chairman.

#### 4.4 SPRING BIRD COUNTS

The 2016 annual survey of the lower reaches of the Ashley-Rakahuri took place on Nov 26. Results show a decline, or at best a levelling off, of numbers since the peak years between 2011 to 2014. Total bird numbers were 30% lower than the 17-year average and the lowest since 2008. For some species such as wrybill and pied stilt, the last 2 years have shown an obvious drop-off (see App 3), for others such as the banded dotterel it is not so clear. Figure 1 highlights the relationship between the population decline and the loss of bare gravel areas. There is no evidence that the other two major factors which influence bird numbers, predators and human disturbance, have changed significantly in recent years.

Fortunately, the Group has excellent records of bird numbers since 2000, against which to compare future changes. Population trends were described in detail in a *Notornis* paper by Spurr and Ledgard (2016). This peer-reviewed paper described a significant improvement in bird numbers on the river, particularly since 2000, and it suggested that ‘the Rivercare Group’s management actions have contributed to these successes, and support continuation of their actions.’ Hence, we await the outcome of the 2017 survey with considerable interest, as the recent declines have only been over the short period of 2 years.

*Kaki (black stilt) relocation.* Last year’s report described how the lower Ashley-Rakahuri river had been evaluated as a potential site for the relocation of the kaki – arguably the country’s most threatened species, the last remnants of which are only found in the Mackenzie Basin. The evaluation found that the lower river, combined with the Ashley-Saltwater Creek estuary and the Tuhaitara Coastal Reserve, compared very favourably with another potential release site in the upper Rangitata river catchment. The Group is in the process of implementing recommendations in preparation for a possible release in 3-4 years’ time.

#### 4.5 SHOREBIRD BREEDING

The Group has been monitoring bird breeding since 2004 – although only the three focus species of wrybill, black-fronted tern and black-billed gull since 2008. As with population numbers, breeding attempts declined in the 2016-17 season, and a link with weed invasion and loss of bare gravel areas is suspected (see App 3).

During the 13-year monitoring period, breeding has tended to concentrate in certain stretches of the river – Smarts, Ashley bridge to Groyne 1, Groyne 2 and most recently, Hillcrest. These four areas stretch over about 11kms of the total 18km study area. Considerable weed clearance is proposed for these areas over the 2017 winter in order to further improve feeding and breeding habitat.

##### **Wrybill**

At least eight pairs attempted to nest in the study area in 2016-17 – two less than in the previous season. A minimum of 3 chicks were raised (by three pairs), for a productivity of 0.38 chicks fledged per pair. This is well below the 13-year average of 0.77. Even though most pairs could only be visited infrequently, which could account for the failure to observe fledging, the figure is unlikely to have been much higher as none of the other five pairs were seen with chicks.

*Most popular site.* Over recent years the most frequented area for wrybill nesting has been off Groyne 2. Six pairs were present in 2014-15, with four pairs the next season. Just two pairs nested there in the last season, the same number as at Smarts. Significant weed clearance is proposed for both sites during the 2017 winter.

*Banding and adult survival.* Many NZ native birds depend on good adult survival for maintaining populations (as opposed to higher breeding productivity and shorter life spans).

Therefore banding is vital if we are to learn more about the long-term survival of individuals.

This season, just 1 banded bird was present on the river – BW-BW off Groyne 2. Although we



cannot monitor unbanded individuals, the number of returning juveniles also appears low (see 2015-16 report). In order to learn more about long-term survival, the Group needs to get more adults banded, and to push for more investigation into why the level of adult survival on the Ashley-Rakahuri river appears to be so low.

### **Black-fronted tern**

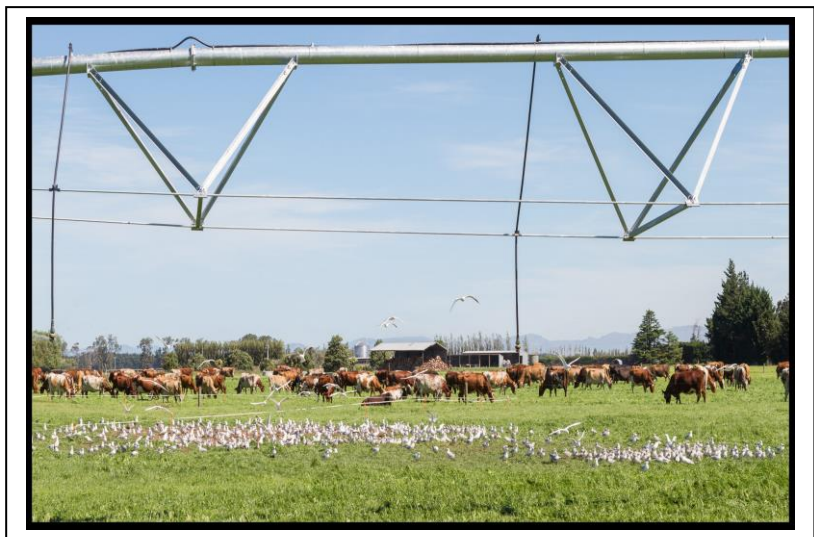
Although always present on the river (one of the few native species remaining, albeit in low numbers, over winter), breeding success for this species remains variable at best, poor at worst. Detailed results are given in 3.6 above, but overall just 10 pairs nested in the 2016-17 season, the lowest number since 2005. This does not include those suspected of renesting (unsuccessfully) at the end of the season. Productivity (fledged chicks /pair) was between 0.4 and 0.6, which although close to the long-term average of 0.41, is rather meaningless with so few pairs nesting. As with total bird numbers and wrybill nesting, there appears to be a link between low nesting attempts and loss of bare gravel areas (see App 3). Success was not helped by the November floods, which although not large, were able to sweep through the main island nesting site off Groyne 1 and remove half the few nests present.

One can only admire the persistence which terns apply to their breeding attempts. Many nests fail early on, but renesting is nearly always reattempted at least once. If that also fails, it appears that they will try yet again, as new egg-nest were found just below the Cones road bridge in mid-December and off Groyne 2 in early January. None survived through to hatching.

The Group feels that its best strategy for improving tern productivity is to persuade them to nest in numbers on weed-free island sites surrounded by water, together with good predator control and adequate signage to deter human disturbance. Habitat creation along these lines is proposed for over the 2017 winter.

### **Black-billed gull**

Success with this species depends primarily on whether a colony chooses to nest on the riverbed. For the third year running, no gull colony established – in fact, not a single pair nested on the river in 2016-17. As with the wrybills and terns, there appears to be a link between the poor nesting and the loss of bare gravel areas (see App 3), which most probably encouraged the gulls to set up a good colony on a dairy farm just south of the SH1 road bridge. Details on this colony and its success are given in the Results section above (3.6). The eventual productivity of between 1.17 and 1.70 is amongst the best ever recorded



in the country.

This success could be explained by the main riverbed threats (floods, predators, weed invasion and human disturbance) being largely absent or considerably less on a managed farm site. But there were other issues associated with normal intensive farm management, such as grazing and irrigation. We liaised closely with both the farmer and manager, who were keen to see a successful outcome. The birds showed no obvious concern with the centre-pivot irrigator passing just 3 m above their

Successful black-billed gull colony at Waikuku beech dairy farm

heads, probably because they were very familiar with feeding in intensively managed, irrigated paddocks. Similarly with the close proximity of grazing cows - just meters away beyond a single electric tape. Traps were set along fence-lines close to the colony, but no predators were caught. The combination of distance from tall cover and long periods with rank grass alongside the colony would not have been attractive to ground predators. Aerial predators in the form of harrier hawks and black-billed gulls were seen locally, and they may well have removed dead chicks (few seen), but there was no evidence of anything other than minor losses to predation – or to climatic events. Neither was there evidence of losses due to poor food availability. The flight path of adults arriving with food could usually be traced back to dairy paddocks being grazed, irrigated or cultivated. In other words, the developed farm environment was not only free of the major threats (predators, woody weed invasion and human disturbance), but was also a reliable food source. At the end of the season, BRaid Inc presented the farm with a Bronze Award for their hosting of a successful black-billed gull colony.

Once the fledged chicks departed the nesting site, monitoring was extended to other parts of the farm and to the adjacent riverbed and estuary. As no other gull colony was known to have been present locally, it was presumed that juveniles seen at these sites were the product of the farm colony. The most favoured site was the estuary, where an estimated 340 juveniles were counted

on January 17. Interestingly, close examination of adults feeding juveniles at the estuary showed that worms were an important food item (*see image alongside*). The most likely source of these worms must have been adjacent irrigated farmland. Little is known about juvenile survival in the early days after leaving a nesting site, but observations at the estuary indicated that food may have been more limiting, and that survival less assured. At the colony site, many adults were noted feeding two chicks.



Far fewer were seen feeding two chicks at the estuary. Certainly there was a greater presence of black-backed gulls, ready to predate on any weak birds.

### Other species

Breeding success or productivity was not recorded for S. Island pied oystercatchers, pied stilts and banded dotterels during the 2016-17 season, but signs of successful breeding were noted at many sites. However, as their populations appear to have declined over recent years (see 3.5 above and App 3), breeding success may well have suffered similarly.

The kaki (black stilt), which bred on the river for three consecutive years through to the 2009-10 season, has not been seen since – although kaki in low numbers visit the Ashley-Saltwater creek estuary fairly regularly (at least one present for most of the 2016 winter). An investigation continues relative to a possible kaki relocation attempt on the Ashley-Rakahuri in a few years' time (see 4.4 above)

The continual absence of breeding black-backed gulls on the Ashley-Rakahuri river appears unusual, considering the high numbers which breed on the Waimakariri river, only 20 km to the south. There is also a colony which breeds regularly at the estuary and in the upper Ashley-Rakahuri in Lees Valley. The reason for their absence in the lower river is unknown, as the surrounding farmed land is very similar to that occurring alongside the Waimakariri, and good numbers of gulls can often be seen feeding in cultivated and irrigated paddocks close to the

Ashley-Rakahuri river, and at the estuary. Their absence on the riverbed is welcomed, as they can be major predators of eggs and young chicks on other rivers.

Spur-winged plovers were present in low numbers throughout the season. No breeding was observed on the riverbed, although nests in such sites are always hard to find. Sizeable flocks were most obvious at the end of the season and through into the autumn and winter. This is a pattern observed for the species in the post-breeding season on many Canterbury braided rivers (Andrew Crossland, pers. comm.).

No doubt, all these other species would have benefitted from the lower predator numbers and less human disturbance associated with the management targeted at wrybills, black-fronted terns and black-billed gulls. However, the increase in weed cover with the associated loss of bare gravel areas remains a major source of concern

#### 4.6 INCOME and EXPENDITURE

*a) Income.* In 2012 the Group felt that it had a sufficiently high profile to raise funds locally and to ‘wean’ itself from national funding agencies such as the World Wildlife Fund and Lotteries, which have supported ARRAG since the early 2000s. Hence, since that time finances have been derived primarily from local sources. The biggest income earner recently has come from selling DOC 200 traps assembled by the Group. During the past year, a total of 269 traps have been sold. As a result of the above, the Group finds its finances to be currently in a healthy state. Local fund-raising has not only been successful, but has the advantages of encouraging community participation and obtaining better public exposure.

*b) Expenditure.* The main expense has been on materials for traps, but this is all recovered in sales. Two grants have been made to students carrying out studies on the Ashley-Rakahuri river. Julia Nicholls, a Dunedin University Masterate student was given \$1500 for her kaki relocation study (see 4.4 above), while Courtney Hamblin received approval for up to \$3,500 to assist her study of social attractants for black-fronted terns (see 3.6 above).



Selling DOC200 traps during Conservation Week

The Group is keen to use ‘excess’ funds for habitat management and studies which improve the prospects for birds on the river, with the proviso that at least \$7,000 is always kept in reserve for ‘emergency’ use.

## 5 Conclusions

Relative to the future success of rare and endangered shorebird species breeding in the Ashley-Rakahuri river, the rising trend up to 2014 is now being reversed by a decline. Populations of all species are either lower than in the previous 2 years, or at best are only matching the long-term average. Pied stilt numbers in the 2016 survey were the lowest for 10 years. The breeding of the key study species, wrybill, black-fronted tern and black-billed gull, shows the same trend. Both the nesting and productivity success of wrybill and tern pairs declined, and not a single gull nested on the riverbed in the past year.

The major reason for the decline in bird numbers appears to be a surge of weed invasion leading to major losses of bare gravel areas needed for breeding, plus clear water-shingle margins essential for feeding. This cause–effect relationship is supported by the Group’s new mapping of riverbed vegetation changes since 2004 and the comparison of this with our long-term data on bird populations and the breeding success of core species. There is no evidence for major recent changes within the other two major bird influences, predation and human disturbance. Consequently, the Group is proposing large-scale clearance of weeds at four riverbed sites most favoured by birds.

The Group continues to maintain a high profile relative to public awareness and education, assisted by agencies such as DOC and ECan, particularly staff from DOC’s Rangiora Field Base and ECan’s Ashley-Rakahuri Regional Park. During 2016-17, the Group created many opportunities to improve awareness. Most involved media articles, presentations to schools and local groups, and displays at public events. Key presentations were made at two well-attended braided river seminars.

During all its initial years, the Group relied on outside agencies (eg. Lotteries, WWF) for funds, requiring considerable time and effort in writing applications and supplying reports. Hence, it is pleasing to record that for the last 5 years, the Group has been able to survive on its own fund-raising projects, plus donations. The generosity of the latter is due to our improved public profile.

Looking into the near future, the major challenges involve controlling weeds and improving bird nesting and feeding habitat, maintaining/improving the control of predators, plus banding more adult birds (particularly wrybills). To these challenges and opportunities must be added the ever-present challenge of maintaining public interest, and the involvement of the local community in bird management on the Ashley-Rakahuri River. This not only enhances fund raising opportunities, but also helps to reduce human disturbance in the riverbed during the breeding season.

## 5 Recommendations

1. Continue annual bird surveys and monitoring activities - focussing on the three key threatened shorebird species (wrybill, black-billed gull and black-fronted tern).

### *Justification*

Collection of information through surveys and monitoring is vital, as it indicates if the Group is attaining its goal of improved bird numbers, as well as providing vital data for future management and decision-making.

*To date:* Surveys and monitoring being maintained adequately

2. Create and/or maintain improved habitat (eg., islands surrounded by water) for breeding and feeding. This currently high priority for increased effort.

### *Justification*

A rise in weed invasion over recent years is leading to a significant loss of bare shingle areas. Experience elsewhere has shown that bird breeding is most successful on islands surrounded by water, and that these are not difficult to create or maintain using heavy machinery operated by the likes of shingle extractors, plus appropriate use of chemicals.

*To date:* Some previous work, but large increase proposed for 2017.



3. Improve record keeping and mapping, and band more birds.

*Justification*

Good records and mapping are essential for effective monitoring over the long-term.. Banding provides information on adult survival and pairing, plus movements of individual birds.

*To date:* Record keeping adequate, but mapping effort has been vastly improved over the past year. Banding recently has been almost non-existent – needs improvement.

4. Explore opportunities for increasing trapping effort and using new technologies for predator control. This effort needs to extend into the lower river and estuary.

*Justification*

Predator control occupies more of the Group's time than any other single activity. Improved finances allow for increased trapping effort, plus new techniques involving self-resetting traps and user-friendly poisons could reduce the level of this commitment considerably. The estuary is an essential part of the lower river eco-system, and integral relative to any relocation of the kaki (currently under consideration).

*To date:* Trapping adequate and appears to have lowered predator numbers, but need to keep in touch with improved trapping techniques. No involvement at the estuary so far.

5. Continue advocacy initiatives both by members and other agencies such as DOC, making use of the website (including social media such as Facebook), the Powerpoint presentation and printed material such as handout fliers, posters and bookmarks. Particular attention should be paid to schools and field interpretation / awareness signs for the public.

*Justification*

Although awareness has improved significantly since the Group was formed in 1999, it can only be maintained and improved by continued effort, plus the utilisation of appropriate modern technologies. Children are excellent advocates for influencing adults, and future management will be in their hands. Most field sites have no interpretation panels.

*To date:* Good advocacy to date. However, the almost complete lack of field interpretation signs needs priority attention.

6. Maintain funding via local sponsorship and Group initiatives such as trap-making.

*Justification*

Obtaining funding from traditional sources such as the Lotteries Board and World Wildlife Fund involves considerable time and effort both in applications and reporting (all carried out by volunteers). The Group now has a sufficiently high profile to seek local sponsorship, which not only further increases community exposure, but also lessens the time and effort spent securing funding from further afield. Trap-making not only adds to funds, but promotes effective predator control elsewhere.

*To date:* Funding adequate over recent years.

7. Continue full support for BRaid Inc.

*Justification*

BRaid Inc aims to improve environmental awareness and management on all South Island braided rivers. It has become a recognised 'umbrella' group for maintaining braided river ecosystems. BRaid has a part-time Manager, and regularly organises advocacy workshops and training courses.

*To date:* Good support of BRaid and its outreach programmes.

8. Maintain and improve collaboration with ECan's Biodiversity Programme, the Waimakariri Zone Committee, the Canterbury Water Management Strategy's Regional Committee, Fish and Game and local iwi/runanga.

*Justification*

Decisions on the future use of water from braided rivers rest with these agencies and committees. Too much water taken from braided rivers for hydro generation and irrigation will adversely affect bird numbers. These agencies also dispense considerable funds for river management.

*To date:* Good collaboration, but links with iwi/runanga and F&B need improvement.

9. Maintain and improve collaboration with commercial shingle extractors.

*Justification*

Gravel (shingle) extractors are the major commercial users of the Ashley-Rakahuri river, and have opportunities to create weed-free sites and islands surrounded by water that encourage successful bird breeding.

*To date:* Good collaboration, but needs extending. Need to promote better regulation enforcement by ECan, particularly of the smaller operators.

10. Support management of Environment Canterbury's Ashley-Rakahuri Regional Park.

*Justification*

A major objective of the Park's plan is the long-term maintenance of key shorebird populations on the Ashley-Rakahuri River.

*To date:* Good collaboration. On-going issues relative to vehicle use of riverbed.

## 7. Acknowledgements

We are particularly grateful for major past financial support from national agencies such as:

- World Wildlife's Habitat and Protection Fund
- Pacific Development and Conservation Trust
- New Zealand National Parks and Development Foundation
- Lottery Environment and Heritage Committee of the New Zealand Lottery Grants Board

Local funding acknowledgement is owing to ECan and its Waimakariri Zone Committee's Immediate Steps fund, the Waimakariri District Council (especially its bridge building mitigation fund – now finished), Taggart Earthworks Ltd, the Ohoka Market, and Jane Buxton, author of the children's book 'Ria the reckless wrybill'.

Other agencies who have offered special assistance are the Dept of Conservation and the Ashley-Rakahuri Regional Park and its staff, whose aspirations for the birds on the river mirror those of the Group. The Group also thanks its members and their friends and families for help with bird monitoring, participation in the spring survey, advocacy, and attendance at meetings. Particular acknowledgement must go to the small band of trap-makers, and the trappers who weekly maintain many traps over the full year.

Images in this report are courtesy of Steve Attwood, Lynley Cook and Nick Ledgard.

The activities recorded in this report would not have been possible without the above support.

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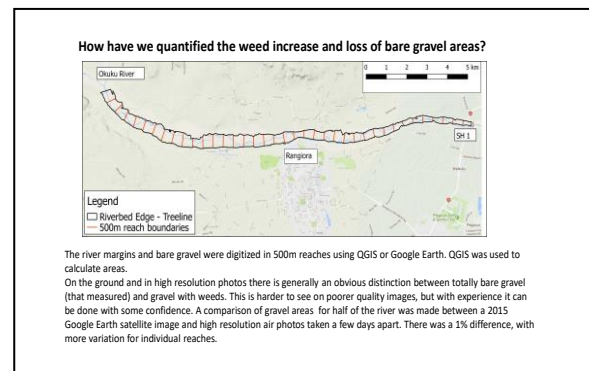
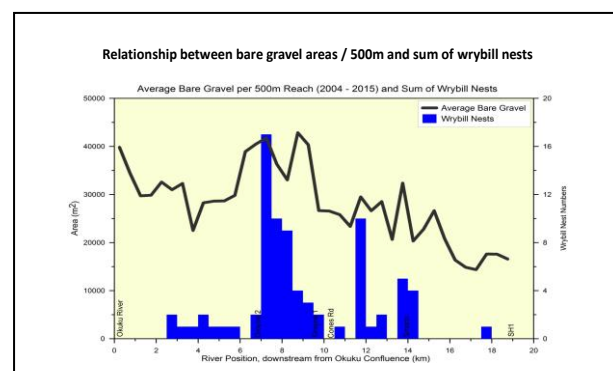
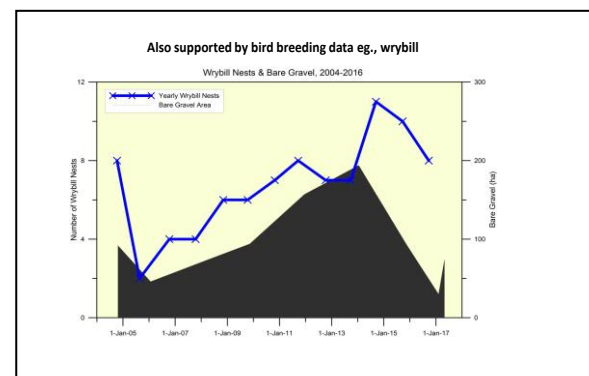
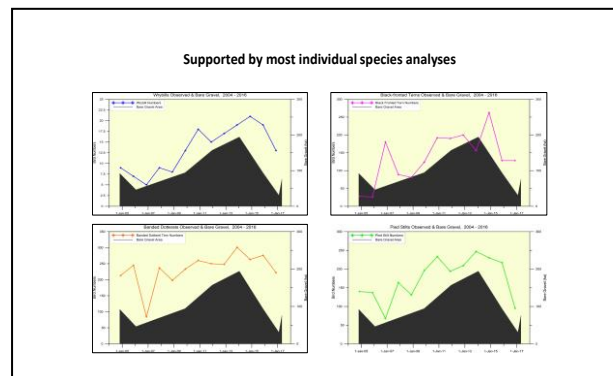
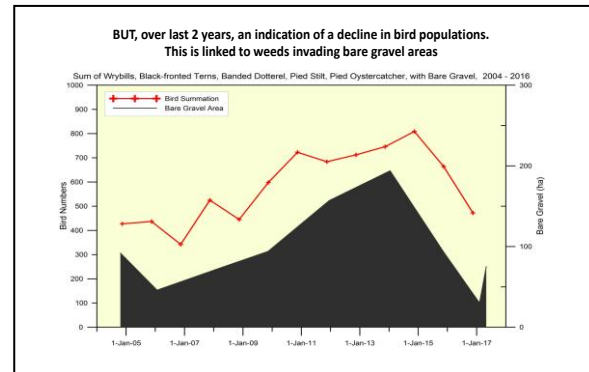
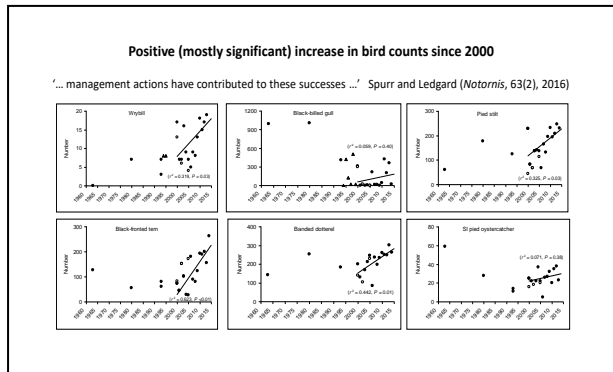


## 9. Appendix 1. Promotional activities during 2015-16

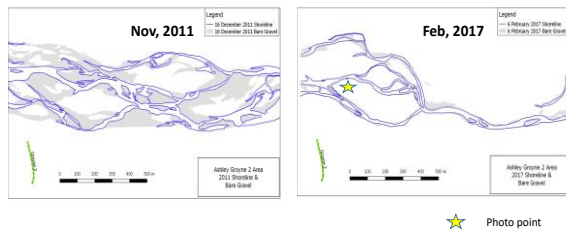
Promotion / activity	Date	Comment
<b>Meetings</b>	June 23, Sept 1, Nov 17 3, Feb 23	DOC offices, Rangiora: 9-17 participants
AGM and meeting	Sept 1, 2016	DOC offices, Rangiora: 17 participants
Annual bird survey	Nov 26	20 participants
<b>Presentations/Representation</b>		
Waimak ZC Biodiversity meet	May 18	Rangiora
BRaid workshop - Lincoln	May 31	Includes ARRG presentation (150 present)
School presentation	June 20	Rangiora Borough, Back Paddock series
U3A Ellesmere presentation	June 29	Lincoln (80 present)
Rotary presentation	July 21	Rangiora
Flock planning and making	July 22 & Aug 12	Rangiora (in conjunction with BRaid)
U3A Pegasus presentation	Aug 2	Pegasus hall
Probus presentation	Aug 16	Amberley
Bird of Year meeting	Aug 4 & Sep 16	Woodend (Tuhaitara offices)
School presentation	Aug 31 & Sep 7	Clarkville School, Back Paddock series
The Flock activities	Sept on	Many sites – in conjunction with BRaid
Waimak Zone Committee video	Sept 5	Ashley riverbed
Conservation week	Sept 11-18	Assistance to DOC in Rangiora and field
CTV visit	Sept 13	Estuary and riverbed
School presentation	Oct 31	Ashley School
Display & Flock	Nov 6	Tuhaitara Open Day
School presentation	Nov 7	St Joseph's, Back Paddock series
Market display	Nov 11 to Xmas	Ohoka
Riverbed bird visits for public	Early Nov	Smarts – over 30 present
Display and Flock	Dec 1	Christchurch (part of 'First Thursday' series)
School presentation	Feb 28 & Mar 7	Mandeville School, Back Paddock series
Waimak Zone Committee talk	Mar 15	Rangiora
Waimak ZC water talk	Apr 2	Rangiora
Riverbed visit	Apr 8	'Walk for Planet' series
<b>Media articles etc</b>		
Northern Outlook	June 8	'Braided river birds capture attention'
N. Canterbury News	Sept 1	'Trial to help endangered birds'
N. Canterbury News	Sept 8	Conservation Week promoted
N. Canterbury News	Sept 15	'Flock has landed in N. Canterbury'
Northern Outlook	Oct 19	'Regenerating a river's birdlife'
N. Canterbury News	Nov 3	'Survey indicates small drop in bird numbers'
Northern Outlook	Nov 23	'Ashley river bird survey'
Northern Outlook	Nov 30	'Survey reveals bad news for river birds'
Northern Outlook	Dec 17	'Ditching the river life for the farm life'
Northern Outlook	Feb 9	'Efforts to revive bird population rewarded'
Northern Outlook	Mar 29	'Weeds keep up the attack on riverbed'
Northern Outlook	April 5	'Gulls dispersed to the wind'
<b>Fund raising / other</b>		
Island creation - volunteers	July 2 & 9	Bridge / Pylons area
Island creation - machines	Aug 15-18	Hillcrest, G1 & G2, Pylons – Taggarts / Winter
Sausage sizzles	Dec 23	Outside Warehouse, Rangiora
Trap making	June 21, Sept 5,	For ARRG, DOC and private buyers

## 10. Appendix 2. Increase in weed invasion and decline in bird numbers.

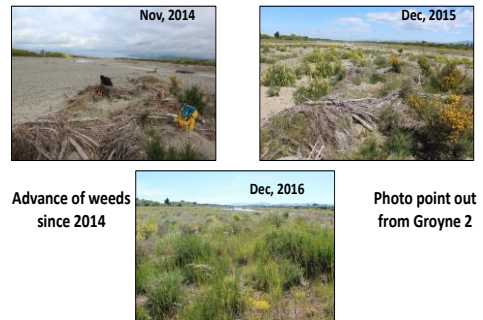
Slides from a Powerpoint address to the BRaid seminar held at Lincoln on June 29, 2017. “Quantification of the weeds / birds battle on the Ashley-Rakahuri river” by Nick Ledgard and Grant Davey.



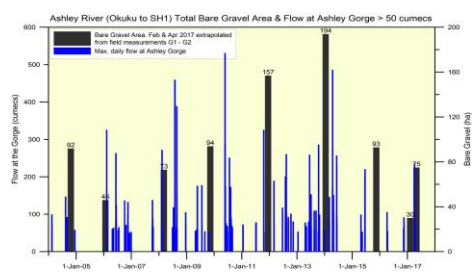
## Changes in the same stretch of riverbed over time



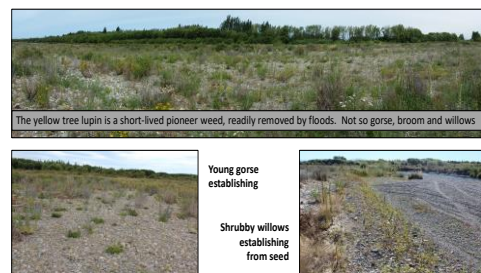
## Photo point over time in same stretch of riverbed



## What are the reasons for this major increase in weed invasion since 2014? Probably, a natural decrease in catchment maximum flows, coupled with fewer large floods.



## Of added concern is recent increase of more persistent woody weeds in the riverbed fairway – gorse, broom and shrubby willows

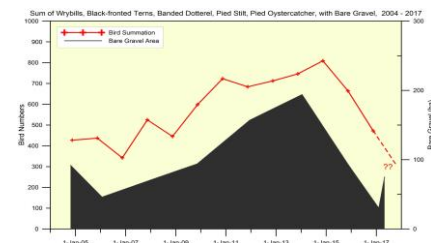


## In addition, important shallow water feeding areas are becoming choked with herbaceous weeds



## So, what do we do about this bird decline associated with weed increase and bare gravel loss?

If we do nothing we seriously risk losing the indigenous shore birds which breed on the Ashley-Rakahuri river – species which have been there for 10's of thousands of years.

Will a return of floods do the job?  
Recent April 6, 2017, flood indicates it will help, but not be enough.

It is estimated that this flood of 235 cumecs doubled the area of bare gravel from around 35ha to 70ha

## Traditional bare gravel creation by commercial shingle extractors certainly helps



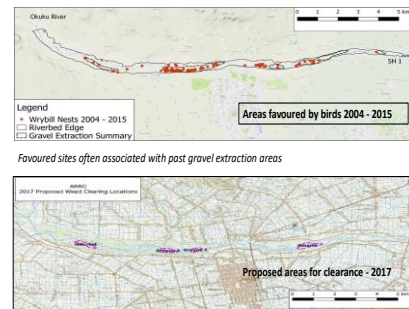
So, no alternative other than to artificially clear weeds from the riverbed.

Has been tried in previous years

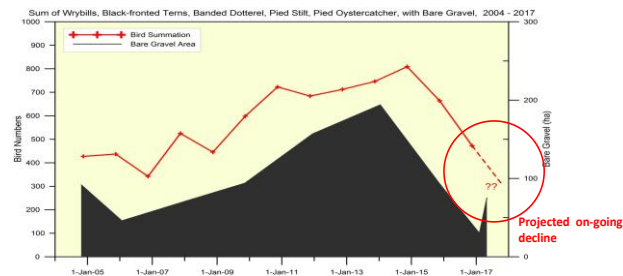


Variable results on Ashley-Rakahuri, but success elsewhere (eg., Clarence and Waitaki) indicates further work warranted.

2017. Large clearances (50+ha) intended in sites historically favoured by birds



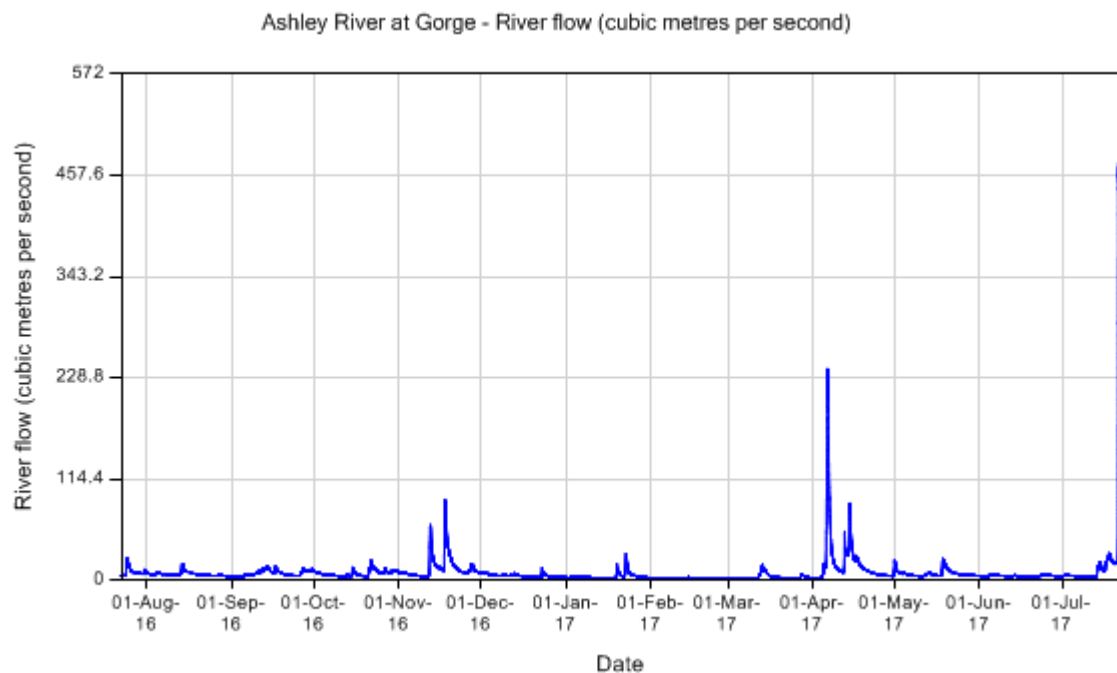
The evidence is clear. Without direct action to increase bare gravel areas, we risk losing the indigenous shore birds which breed on the Ashley Rakahuri river.



It is one thing to suffer the consequences of undetected changes – it is quite another, if no action is taken when the consequences are clearly indicated beforehand.



**11. Appendix 3.** River flow (cumecs) at Ashley Gorge from July, 2016 to July, 2017 (from Environment Canterbury website [www.ecan.govt.nz](http://www.ecan.govt.nz)). The 2016/17 bird breeding season lasted from August, 2016 to February, 2017.



## 12. Appendix 4. ARRG office bearers and management structure

**Chair:** Nick Ledgard (nick.ledgard@xtra.co.nz)  
**Secretary:** Joan Miles (k.jmiles@icloud.com)  
**Treasurer:** Sue Mardon (suemardon02@gmail.com)  
**Trapping organiser:** Geoff Swailes (swailesgc@xtra.co.nz)

**Committee:** Office-bearers, plus Bev Alexander, Steve Attwood, Chris Martin, Linda Pocock and George Scott

The Group has 42 signed-up members, plus a greater number of interested people on our email list.

The Group has a website ([www.ashleyrivercare.org.nz](http://www.ashleyrivercare.org.nz)) maintained by the District Council's VisitWaimakariri office, while our Facebook page (<https://www.facebook.com/ashleyrivercare>) is maintained by Steve Attwood.