Lower Waimakariri River Braided River Bird Breeding Report

2019-2020 Season

Courtney Popenhagen
Environment Canterbury
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Introduction

The lower Waimakariri River, in the context of this bird management programme, runs from the Waimakariri Gorge Bridge to the river mouth (Figure 1). This coincides with the area managed as the Waimakariri River Regional Park (WRRP) by the Environment Canterbury Parks team. This was the eleventh consecutive season that the Environment Canterbury has actively been involved in the management of Braided River Birds in this space.

The Waimakariri River is home to some very rare and unique braided river bird species, including the Wrybill (*Anarhynchus frontalis*), Banded Dotterel (*Charadrius bicinctus*), Black and White Fronted Terns (*Chlidonias albostriata* and *Sterna striata*) and the Black-billed Gull (*Larus bulleri*). These birds are all protected under the Wildlife Management Act 1953, which states that no one may kill or harm the birds, or have them in their possession without a permit. The Department of Conservation (DOC) are the lead agency for protection of these native species in New Zealand, however DOC tend to have limited involvement in the lower Waimakariri River. Environment Canterbury (ECan) has recognised the importance of the lower Waimakariri as a bird breeding habitat and engaged in management as the concerned landowner of this space, with some resourcing available to help DOC with the management of these rare and threated birds.

A River Values Assessment system (RiVAS) was applied to Canterbury's braided rivers in 2010, to determine the relative value of those rivers in terms of bird life (Hughey and Baker 2010). The Waimakariri River was assessed against a series of primary attributes and indicators including relative distinctness, habitat size, numbers of indigenous birds surveyed, number of Threatened or At Risk species present and whether or not is was a significant breeding site (determined by the number of Threatened of At Risks Species present in the river, proportional to the overall population numbers of those species). The Waimakariri River scored High for all of the indicators it was assessed against under the RiVAS, apart from a Medium score for diversity of foraging guilds. This indicates that the Waimakariri is indeed a significant habitat for these birds species and warrants on-going protection and management.

Braided River bird management undertaken by ECan Parks in this space in previous seasons has consisted of several main strategies:

- **A dedicated monitoring and trapping contract:**

Established to engage an ornithologist for the duration of the breeding season, primarily to monitor and report on known black-billed gull and black-fronted tern colonies. These colonial breeding species were prioritised for monitoring as they are generally easier to find in the large environment, and trapping can be targeted around those colonies. Monitoring individual nests and other species has largely not been possible to date due to limited resourcing.

The ornithologist also undertook some localised predator trapping adjacent to monitored colonies and provided management advice and guidance to the ECan contract manager.

- **Blocking vehicle access and placing signage near monitored colonies:**

Concrete blocks and temporary fencing have been used on several occasions where there was the option of trying to block vehicle access to a nesting colony. This is dependent on the location of the colony and how practical the blockade would be (e.g. only one access point). Informative signage is also placed where appropriate, although this is frequently vandalised in more remote locations.

- **Predator Control**

Both mammalian and avian. Sections of permanent mammalian predator trap lines are being established in the very lower end of the river, and it is hoped this will increase over time. Southern Black Backed Gull (SBBG) control is also on-going, as this species is recognised as a main threat to protected braided river species.

- **Social media and public awareness campaigns**

Facebook, Instagram, YouTube and other social media avenues have been useful in promoting the message of the braided river birds to river users. These public awareness initiatives have previously also been backed up by Ranger interactions out in the field, with stickers and informative brochures handed out to the public.

- **Technical Advisory Group**

A Technical Advisory Group (TAG) has been convened every second year, consisting of ecologists, ornithologists, DOC and other relevant industry members, to provide input on the braided river bird management for the upcoming season. The TAG group discuss available funding for the season and what the priorities for expenditure should be, plus any other relevant industry insights. A TAG meeting was held prior to this 2019-2020 season and was again a useful gauge in ensuring the management and funding priorities for the bird season were in line with expert expectations.

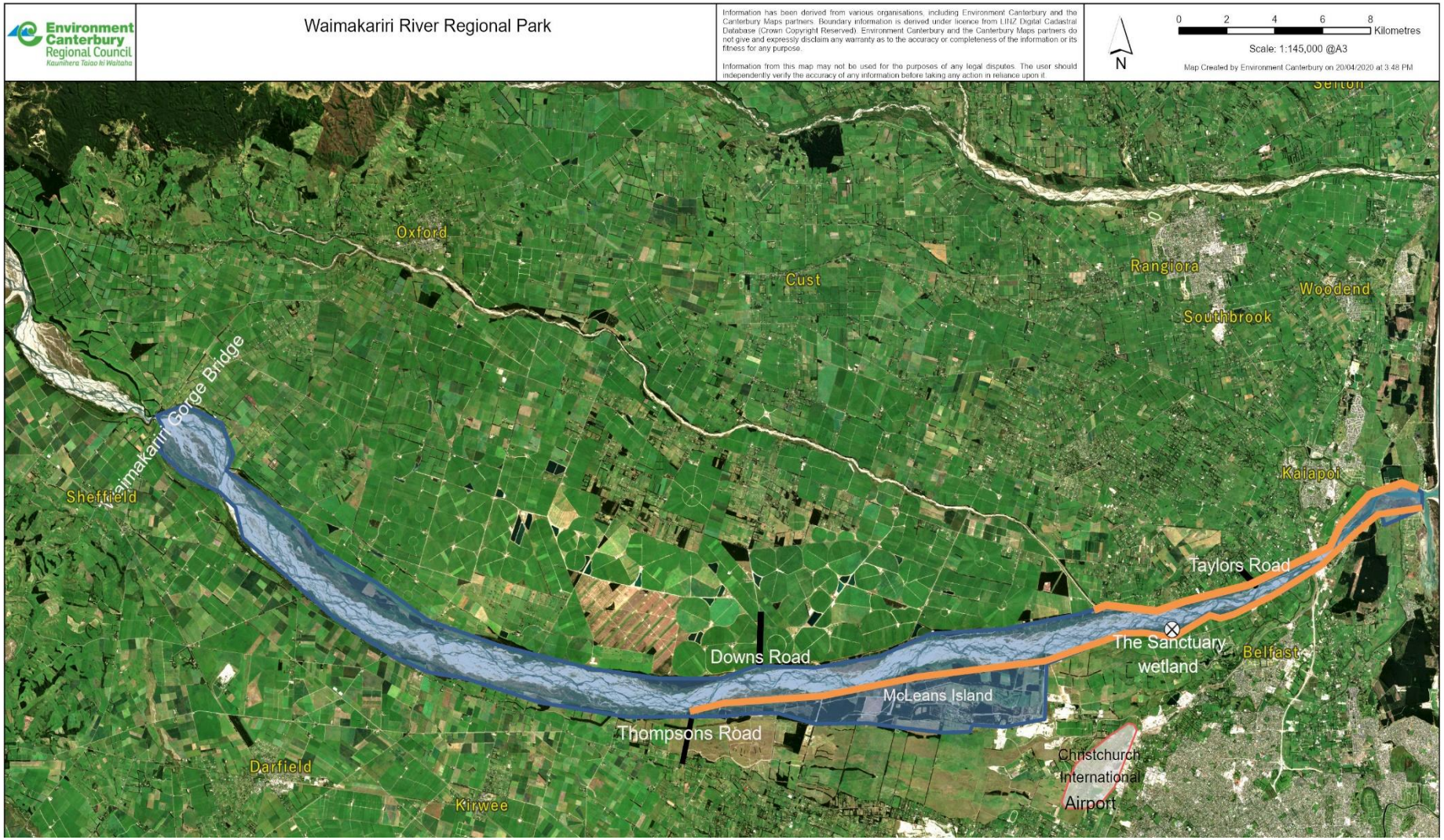
2019-2020 Season Management Strategies

This season, the standard braided river bird management strategies carried over included the Ornithologist monitoring and trapping contract, placement of information signs around colonies and predator control (both mammalian and SBBG). In addition to these standard strategies, this year we also created a new "Birds of the Braids" video to be released prior to next season, emphasising the importance of our braided river species and what we can do to protect them. We also engaged a contractor to write a longer term Lower Waimakariri River Bird Habitat Management Plan (BHMP), to provide a framework for ongoing co-ordinated management of this space.

The intention of the BHMP currently being established is to provide a framework for the long term, co-ordinated future management of braided river birds in the lower Waimakariri River. We are specifically asking for recommendations on how best to manage this space with available resourcing and guidance on prioritisation of management options. This plan should then also help guide prioritisation of funding and support funding applications to external parties. This plan required a significant portion of the available funding for this season, but is seen as a crucial step in guiding future management options. The plan will be established prior to the 2020-2021 season and will guide next season's management actions.

Management strategies that were less used this season than in previous years included Ranger interactions with river users, utilisation of social media and the use of blockades or similar to prevent vehicle access to colonies. Ranger presence in the lower Waimakariri was reduced this season, so interactions with the public and opportunities to hand out information and talk to river users about the birds was reduced. This also meant known colonies were less patrolled and monitored to prevent negative behaviour. There was also less information pushed on Environment Canterbury social media about the birds than in previous years. Blockades to prevent vehicles accessing known colonies was also not used this season, as there were no suitable situations where this would have been effective (colonies had multiple access points or were already cut off by river channels).

Figure 1: The Waimakariri River Regional Park



The Waimakariri River Regional Park is outlined in blue. The extent of developed park infrastructure areas is indicated by orange lines.

(Some landmarks and roads are shown for reference)

Season Timeline

August 2019:

- Signing of Keystone Ecology to fulfil the monitoring and targeted trapping contract.
- A few hundred black-billed gulls reported to be gathered near Weedons Ross Road for several weeks, although no nesting activity.
- Little to no other bird nesting or breeding activity reported.

September 2019:

- Little to no bird nesting or breeding activity reported.
- 23rd of September: small fresh (2.5metres at the gorge) through the river. This was enough to cover moderate amounts of the riverbed, but did not cause concern due to the low bird breeding activity at this stage.

October 2019

- In early October there were reports of a number of black-bills gulls hanging around several locations, notably several hundred near The Sanctuary, and around 1000 near Weedons Ross Road, but none showing nesting behaviour yet.
- Also of note was that the SBBG seemed to be very late to gather in the riverbed as well, and those that were present hadn't laid any eggs yet, although some had started to build nests.
- The only real tern nesting activity identified by mid-October was one colony of terns near Dixons Bay, consisting of approximately 15 breeding pairs with some eggs present. This colony had been recorded as over 40 pairs in early October, but numbers were dropping for unknown reasons. Traps were placed adjacent to this colony.
- There were a series of small to medium freshes in the river throughout October (see Figure 2), disrupting birds from settling in several locations. The terns being monitored at Dixons Bay abandoned the site, although 650 black-billed gull pairs had settled nearby.
- A late October update reported that the black-fronted terns appeared to be re-settling near Dixons Bay.
- Reports that wrybills and dotterels seemed to be off to a better start to the season than the terns and gulls, with several nests with eggs reported.
- The lower Waimakariri bird survey postponed due to high water levels.
- 31st October – Heli survey over the lower Waimakariri with CIAL to count SBBG numbers and locate any main black-billed gull colonies (Bell, 2020). Some initial observations from the survey included:
    - SBBG appeared to be very sparse in the lower half of the River (river mouth to approximately Thompsons Road).
    - Past Intake Road to the Gorge Bridge, SBBG numbers were very high and colonies were much more tightly packed than in the lower reaches.
    - No major Black-billed gull colonies were identified, although multiple individuals and small groups were seen.

November 2019

- Early October reports of Black-bills gathering near Weedons Ross Road and also near Taylors Road.
- Black-fronted terns at Dixons Bay were still holding their ground after a recent fresh through the river, however their colony has spread out over a larger area. There were around 40+ known pairs of terns.
- Traps were placed adjacent to Dixons Bay tern colony
- No sign of black-billed gulls at Dixons Bay (washed out).

- 9th November – a moderate fresh through the river, peaking at 3.1m at the gorge, so a fair amount of the riverbed under water.
- The lower Waimakariri bird survey was cancelled (had been earlier postponed) due to flooding.
- 11th October – reports that the black-billed gulls near Taylors Road were still there after the recent flood and appeared to be settling.
- 18th October – another moderate fresh through the river, peaking 3.2 metres at the gorge.
- Black-billed gulls near Taylors Road abandoned the site due to flooding.
- Late October – two black-fronted tern colonies were identified and confirmed as nesting. One at Groyne 44 (approximately 1.5km downstream of Dixons Bay) of around 30 breeding pairs, and one out from Harrs Road. The terns from Dixons Bay had gone.
- The tern colony at Harrs Road is adjacent to a well-known and popular 4WD area and also a large SBBG colony. A SBBG and a Hawk were both observed harassing the terns on several occasions. 4WD tracks are near the colony but not going through it. The area is unable to be blocked as it can be accessed from multiple locations.
- Traps placed adjacent to the two black-fronted tern colonies.
- A group of around 200 black-billed gulls settled near the terns at G44. Signs were placed along the river edge adjacent to these colonies to inform the public of their presence.

December 2019

- 17th December – small fresh through the river (2.2 metres at the gorge).
- A small black fronted tern colony identified upstream from Harrs Road on the North Bank, near G51, directly adjacent to Road Metals gravel extraction site. Road metals agreed to bund off the access to the tern colony so that vehicles couldn't access the site.

January 2020

- The Terns at G51 largely failed for unknown reasons – possibly predation. Of the 12 nests being monitored, only two nests and three chicks remained.
- A short time later, only one of the three chicks could be found. Their outcome is unknown.
- Two black-fronted tern colonies were found: a group of 20-30 pairs near Thompsons Road and another colony of unknown size at the top end of the site below the Waimakariri Gorge Bridge. Access to both sites was very poor and accurate counts could not be made.
- A group of around 200 breeding pairs of Black-billed Gulls identified at Miners Bank Road, with 5 chicks seen.
- Towards the end of the month, as many as 80 chicks were recorded at the site.
- A nest count on the 31st January found 393 total nests, with 75 chicks counted present.
- A large flood at the end of January washed out the terns at Thompsons Road and below the gorge.

February 2020

- Miners Bank Road - only 33 chicks and 20 black-billed gull fledglings present at the start of the month.
- A subsequent visit to the site on the 17th February found all the black-billed gulls had left the site. Five black-billed gull fledglings that would have been days away from leaving the site, were found stoned to death where the colony had previously been. Birds were recently deceased.
- Black billed gull fledglings noted to be hanging around the Waimakariri at several locations. There haven't been enough of these fledglings produced at the Waimakariri this season for them to have come from here, so it is believed they have come from the Ashley/Rakahuri.

Breeding Season Summary

Table of colonies that were being monitored but failed without fledging chicks:

Black Billed Gulls		
Location	*Peak number of Birds counted nesting*	*Comments*
Weedons Ross Road	Up to 1000 pairs	Unknown reason for failure, believed to be flooding.
Taylors Road	400 pairs	Washed out
G44	200 Pairs	Washed out
Black Fronted Terns		
Location	*Peak number of Birds counted nesting*	*Comments*
Dixons Bay	65 pairs	Washed out
G44	30 pairs	Washed out
Harrs Road	Up to 10 pairs	Were observed being repeatedly harassed by both SBBG and a hawk, also right next to a popular 4WD area, although final cause of failure is believed to be flooding.
Thompsons Road	30 pairs	Unknown reason for failure, believed to be flooding.
Below Gorge bridge	Unknown number of pairs (at least 12+ birds sited from a distance but unable to access location)	Unknown reason for failure, believed to be flooding.

Table of monitored black-billed gull and black fronted tern colonies known to have produced chicks this season:

Black Billed Gulls				
	Peak Number of Birds Counted (Pairs)	*Peak Number of Chicks Counted*	*Estimated No. of Fledglings*	*Comments*
Miners Bank Road	600	80	20	5 chicks almost ready to fledge from this colony found stoned to death.
Black Fronted Terns				
	Peak Number of Birds Counted (Pairs)	*Peak Number of Chicks Counted*	*Estimated No. of Fledglings*	Comments
Groyne 51	5	3	1	Lost track of 2 chicks once mobile, unsure of their outcome. Was very near to a gravel extraction site.
Miners Bank Road	33	2	1	Possibly disturbed by same activity that killed 5 Black bill chicks at this same location. Common area for dog walkers, fishermen etc, although not readily vehicle accessible.

Comparison of Black-billed Gull fledging and nesting success rates across previous seasons:

Season	Recorded adult breeding pairs	Number of known chicks fledged	Nesting success rate
2019-2020	600	20	0.03
2018-2019	792	291	0.37
2017-2018	1029	520	0.51
2016-2017	1120	738	0.66
2015-2016	804	339	0.42
2014-2015	1143	1550	1.1
2013-2014	243	121	0.5

Note: This table takes into account data from colonies that successfully produced chicks. Colonies that were washed out from flooding or failed before producing chicks for other reasons are not included in the tally.

Southern Black Backed Gull Control Summary

Although SBBG are a native bird, they are not protected under the Wildlife Act and are generally accepted as a pest species. SBBG predate the chicks and eggs of other bird species, take up most of the prime breeding habitat, displace other threatened species to less favorable habitat and can negatively impact on local water quality adjacent to large, dense colonies through fecal contamination. SBBG in the lower Waimakariri River also pose a risk of bird strike to overhead air traffic transiting Christchurch International Airport (CIAL). Prior to 2016, Parks and CIAL each worked largely individually to control SBBG numbers in the Waimakariri River. This season marks the fourth year that Parks have worked collaboratively with CIAL to control SBBG numbers in the lower Waimakariri River, through pooled funding and a structured management approach.

Our main method for reducing SBBG numbers has generally been through targeted alpha-chloralose poisoning of SBBG in main breeding colonies throughout the river, with all poisoning work closely guided by a best practice Technical Standard. However in recent years, particularly in the lower reaches of the River below Mcleans Island (Figure 1), alpha-chloralose control of SBBG has become more difficult as the birds become increasingly spread out and show a reluctance to eat plain bread pre-feeds prior to a control. There is also a growing public awareness of these control operations and increasing difficulties undertaking them in more publicly accessible areas of the river.

For the 2019-2020 and 2020-2021 seasons we developed a two-year plan to guide the SBBG control for those seasons, agreed to with CIAL. That plan outlined that shotgun control only would be used for the 2019-2020 season, to target those birds in the very lower reaches of the river that had become spread out due to previous poisoning and disturbance and were now very difficult to target again with poisoning. The two-year plan then specified that a larger alpha-chloralose control would be undertaken in the 2020-2021 season to target the much denser and more settled colonies in the upper reaches of the river where poison control was still a suitable method. Both ECan and CIAL informally agreed, in principle, that if less funding was spent on SBBG control this year through shot-gun control, both parties would commit to a larger contribution next season for a coordinated poison control.

This alternating of control in the lower and upper half of the river each year is one possible method of on-going management, to try and reduce bait shyness and spreading out of the birds. Another possible option may be to move progressively up the river using a combination of shotgun and poison controls (depending on what is more suitable in each situation), as we now generally see very few SBBG in the very lower end of the river. These reduced numbers and cleared riverbed space could gradually be pushed further upstream to free up more habitat.

A longer-term plan for the coordinated, ongoing control of SBBG in the lower Waimakariri River is needed. The Lower Waimakariri Bird Habitat Management Plan that is currently being developed should go some way towards providing a framework and recommendations for these controls. The recently developed Southern Black-backed Gull/Karoro management strategy also provides guidance on control and reduction targets (Bell and Harborne 2019).

For the fifth season in a row, this year CIAL again sponsored an early season helicopter survey in the river to count SBBG numbers. The aerial survey ran east to west from approximately the Motorway bridges to just above the Waimakariri Gorge bridge (SBBG are not included in the formal count numbers above the bridge, but it is useful to gauge their presence and also check if there are Black-billed Gull colonies further upstream). The survey has been conducted at roughly the same time of year (last week of October or first week of November) for each survey, at approximately the same time of day, with a surveyor from Wildlife Management International used to undertake the count and report their findings. This ensures as much consistency as possible over the years to help build a reliable picture of long-term population trends.

SBBG Control Timeline

29.8.19	McLeans Island	McLeans Island SBBG colony targeted "pre" breeding season, using shotgun. Birds gathered but not yet nesting. Around 40 adults removed from the site, which we would consider a successful number as birds not yet on nests (so not "held" to the site)
26.9.19	McLeans Island	McLeans Island colony targeted, birds showing signs of starting to nest but no eggs yet. 73 adult SBBG removed from site.
30.10.19	McLeans Island	Mcleans Island colony targeted, majority of nests have eggs. 113 adult SBBG controlled, plus many eggs smashed to delay the colony breeding cycle.
29.11.29	McLeans Island	Mcleans Island colony targeted, both eggs in nests and chicks present. 50 Adult SBBG removed, plus around 70 chicks euthanized and eggs crushed in the wider control area. This was a slower shoot and the adults seemed to fly at higher range/have become gun shy?
19.12.19	Harrs Road	Harrs Road colony, majority of nests have eggs and some small chicks present. Approx. 116 adult SBBG removed from the site plus 20 chicks (numbers are best estimate as this site is densely vegetated and recovering all birds was difficult).
16.1.20	Harrs Road	Harrs Road colony, large almost fully-fledged chicks present (although some nests still with eggs in them). estimated 105 gulls controlled - maybe 20 - 30 of those being large and almost fully-fledged chicks. Very little gull activity left at this Baynons colony following this control. At this stage of the season I estimate to have removed somewhere between 480 – 500 adult SBBG, plus many chicks and eggs (we've also removed a few pigeons, geese and hares). Good to also get those large, almost fully-fledged chicks as adults unlikely to re-lay again now this season.
30.1.20	Harrs Road	Approximately 60 SBBG removed, with a handful of those being large, fledged chicks. As most of the birds at this site were now mobile, the shooting was a bit slower (birds weren't "held" to nests), but 60 is still a successful number given this stage in the breeding season. A combination of decoys, pre-feeds, shooting a colony location and good ground/camouflage cover means there was still some success.

While we were never going to get huge numbers using shot-gun control only (as compared to a large poison control), we still caused significant disruption to the Mcleans and Harrs Road colonies to greatly reduce both the number of adults present and the number of chicks each colony was

able to produce. These colonies would have otherwise been very hard to poison and the regular shotgun controls contributed to a reduction of SBBG numbers in the lower half of the river in a safe and humane manner.

Shot gun control is becoming an increasingly useful tool to control SBBG numbers, as a supplementary measure to alpha-chloralose poisoning, or where poisoning is not possible. With further fine tuning, we may be able to develop a best practice standard that could be used for engaging contractors to undertake this work on our behalf.

Summary of SBBG Heli-survey data to date

Date of Heli Survey	Number Counted	Observations
31st October 2019	3,810 pairs	Colonies were of smaller average size than in previous years. Birds were very sparse below Thompsons Road, but present in high numbers and dense colonies above this point.
2nd November 2018	4,017 pairs	A large colony of over 6000 black-billed colonies was observed during the flight, although this colony did not successfully nest.
1st November 2017	3,031 pairs	Less birds counted this year was put down to the flight being flown in the opposite direction to the other years, with sunstrike causing sub-optimal viewing conditions (all subsequent flights will be flown east to west, before lunch time).
October 2016	5,015 pairs	The first annual survey conducted by Wildlife Management International Limited. Colonies were present throughout the river, and had the highest average colony size of all surveys undertaken to date.

Since the surveys began, there is a loose trend towards decreasing SBBG numbers throughout the lower Waimakariri River. While we assume that the decreasing numbers can at least partly be attributed to on-going population control measures, we can't definitively say that is the case. There could have been individual fluctuations in numbers present on the day of the survey, or other unknown factors contributing to the number of birds present at time of surveying. These surveys should be continued annually to build a stronger picture of population trends over time.

An interesting observation that we can take from the surveys to date is that the mean colony size appears to be decreasing, with more colonies present with a fewer number of birds in each. Trends over the past few years of surveying also seem to show that SBBG are becoming less present in the lower half of the River, but with high numbers remaining between Thompsons Road and the Gorge Bridge. We believe this is in response to ongoing control pressure in the lower reaches, with alpha-chloralose controls taking out the denser "core" of colonies and leaving birds more spread out over time. The higher number of birds seen in the upper half of the river may be attributed to either on-going pressure in the lower half causing birds to leave this area, or the upper half of the river being adjacent to intensively farmed agricultural land with more food available, or a combination of both factors.

Flooding

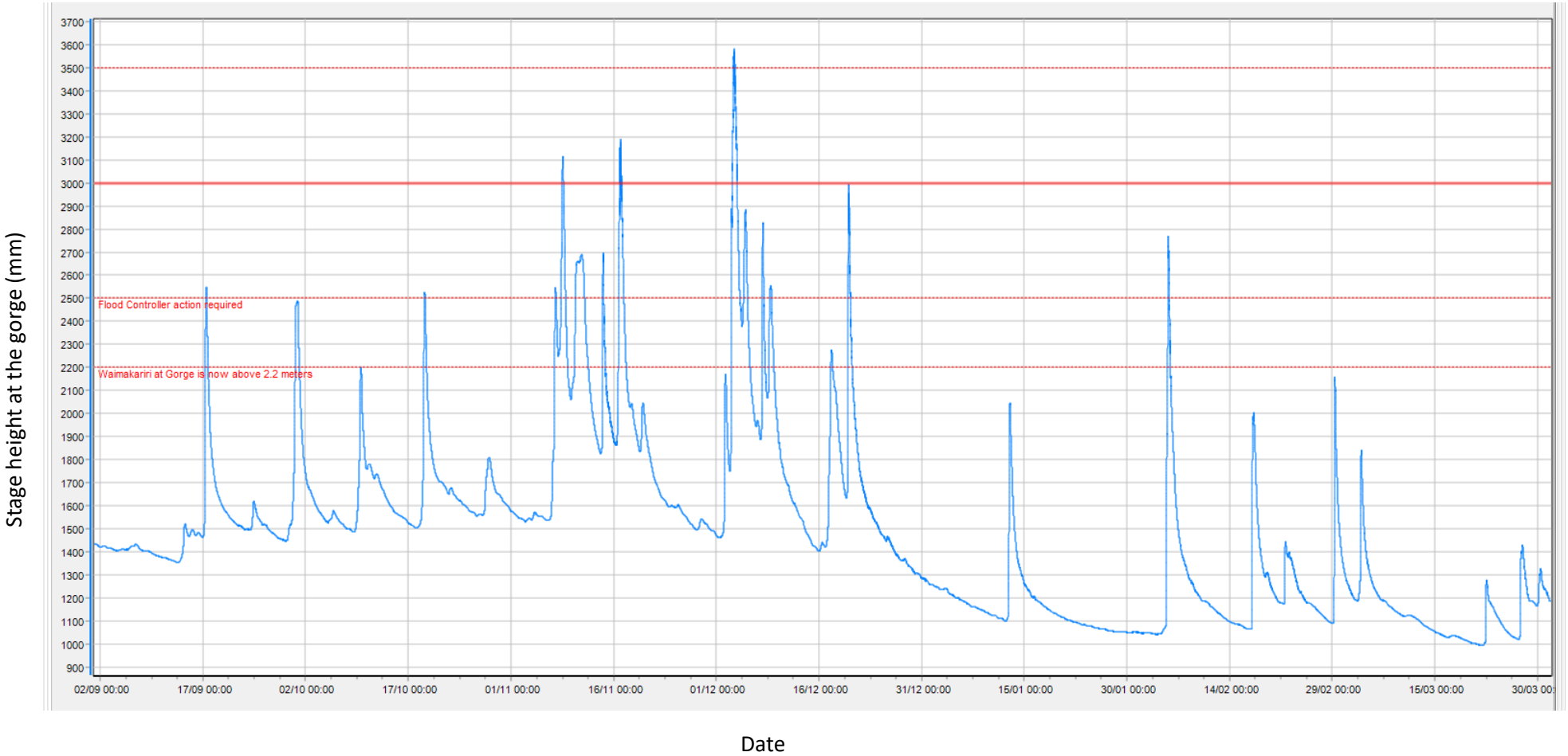


Figure 2: Waimakariri River stage height at the gorge (in meters) between September 2019 and March 2020.

The river levels fluctuate regularly throughout the season and rise above or near to 2.2m at the gorge on several occasions. 2.2m at the gorge is generally accepted as the level at which large parts of the lower end of the river will be under water

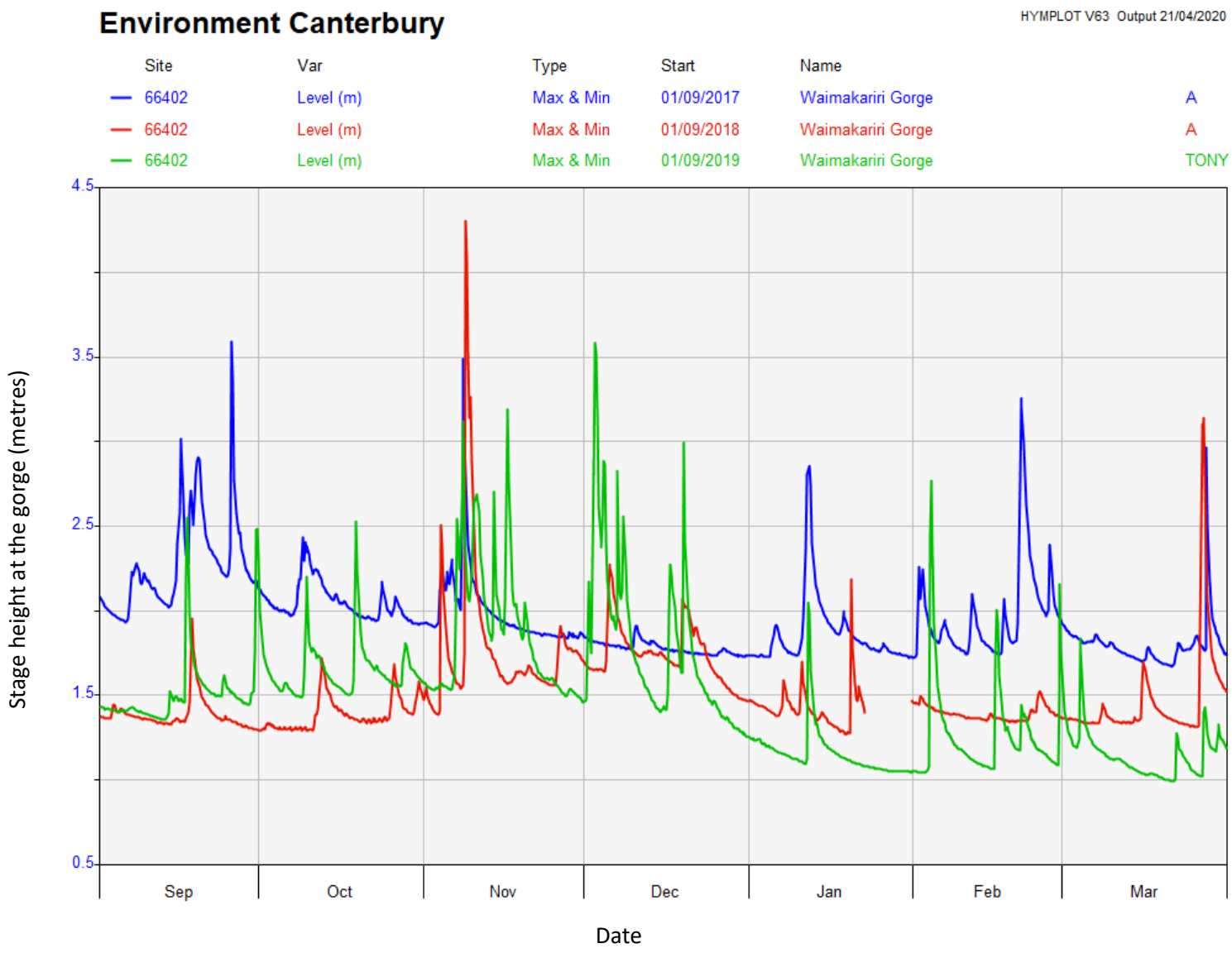


Figure 3: Graph showing water stage height at the Waimakariri Gorge (in metres) over the past 3 breeding seasons.

Season Expenditure

Item	Cost excl GST*
"Birds of the Braids" video	$3,600
Lower Waimakariri Bird Habitat Management Plan	$18,559.28
Bird Monitoring and Trapping Contract	$11,000
SBBG Control	$750**
Monthly checks of "North bank" predator trap line	$3,410
Total season expenditure	$38,909.28

*These figures only include Goods and Services expenditure. Overheads and staff hours and not included.

**This is only a best guess of the consumables used for shotgun controls this season, ie ammunition and bread baits. Volunteer time, truck running etc are not included.

The bird monitoring and trapping contract came in under the allocated budget of $17,000. This was largely due to repeated flooding which hindered river access and often meant there were less opportunities for the ornithologist to visit the river and collect data. The monthly trap checks also came in under the allocated budget of $4,300, as the last few checks of the year could not be completed due to Level 4 Covid related work restrictions.

Discussion

The creation of a Lower Waimakariri Bird Habitat Management Plan (BHMP) has been a key feature this season and will provide a framework to guide management of the lower Waimakariri River as bird habitat going forward. The BHMP will aim to address prioritisation of funding, resourcing and general management priorities. This plan should be finalised and in place by July 2020, to provide guidance for the 2020-2021 season.

We have asked for the BHMP to provide guidelines for prioritisation of funding for our management strategies used throughout the river. The lower Waimakariri is a very large space to cover with a relatively small budget, and traditionally black billed gulls and black fronted terns have been targeted for monitoring and protective trapping due to them being generally easier to find than other species (as well as being endangered species). The BHMP will discuss whether this is still the best method going forward and outline other potential monitoring and management options.

This was a season again marked by regular and reasonably significant flood events through the River. While there were flooding events seen in all three past seasons, figure 3 shows that the flooding in the lower Waimakariri this year was more regular with an event to cover significant portions of the riverbed every few weeks. In addition, this year the water levels dropped lower between flood events than in previous years, which may have encouraged birds to re-nest in lower lying areas that would then be more prone to washing out in subsequent flood events.

If the birds are to have a chance of withstanding these repeated flooding events to produce chicks, more high-level habitat needs to be available throughout the riverbed. Currently most of the higher island sites that withstand the larger flood events are covered in either or both of weeds and SBBG. In the lower half of the river (approximately Mcleans Island downstream), the river becomes narrower and more modified and the bed levels are slightly lower due to gravel extraction. This means that, while these areas are generally clearer of weeds, they also tend to be more easily inundated in flood events. The riverbed above Mcleans Island tends to have more islands that withstand flood events, but the weeds and predators present on those islands would

need to be cleared for them to be suitable breeding habitat for the protected bird species. We hope that the Bird Habitat Management Plan will give some guidance as to what priority levels weed clearance and island creation should receive.

It is worth noting that building artificial islands has been trialled several times over previous years in the lower Waimakariri and there have been no reports of protected birds having successfully nested or fledged chicks on those man-made islands. It may be that there is too much space for the birds to choose from in the lower Waimakariri and enticing the birds to use the created spaces isn't feasible. The BHMP should weigh up the options of creating man-made islands compared with clearing weeds and pests from existing high island sites in terms of long-term benefits and bang for buck.

While the numbers of known fledglings produced this season is low, it is also important to note that this is only a record from known colonies that we were monitoring. The lower Waimakariri River is a very large space to cover and monitor with a relatively small budget, and it is possible there were other colonies that we were unaware of. This is less likely for the black billed gull, which is generally easier to find in its more densely packed breeding colonies, but there were likely many more black fronted tern colonies that we did not know about and so were not monitored.

Additionally, terns continue to prove to be difficult to monitor, with colonies often spread out over large areas and nests hard to spot from a distance. Island sites are often cut off by braids of water and only monitorable from a distance, which was exacerbated this year by frequently high-water levels. Tern chicks are also very hard to keep track of once mobile. While we do our best to select nests that we can monitor and provide information on as a representation of what has occurred on a wider scale, it is worth noting that this is not the full picture and the true number of tern chicks fledged cannot be known. Again, it is hoped the BHMP can make recommendations on best practice monitoring to fit within our budget going forward.

In past years, Park Rangers have provided a key role in patrolling known colony sites, interacting with the public and providing education to river users, plus assisting with placement of signs and other physical works. Ranger interaction with the public through talking to river users, handing out stickers and pamphlets and generally sharing knowledge about the birds has been key to helping build public awareness and reduce harm to the birds. In the past, Rangers have also been valuable in helping to place vehicle barricades on the odd occasion when required, and helping to enforce those barricades. While the Ranger presence in the Waimakariri River this season was generally less than in previous years, it is hoped this will be increased again in future.

While there was less face to face interaction with river users this year, we were still able to spend a portion of the budget creating a "Birds of the Braids" short video that will be pushed out to river users prior to next season through social media channels. This video is hoped to help push the message to general river users that we share the river space with rare and threatened species, and there are things we can do to help keep the birds safe over breeding season. The video will be available on Youtube and hosted on an Environment Canterbury webpage, with information about the main braided river bird species also available on that page prior to next season.

The need to control SBBG numbers was again particularly evident this season. Apart from frequent sightings of SBBG harassing other bird species throughout the riverbed, it was also noted that very high numbers of SBBG nests and chicks were able to survive the regular flooding events as they generally occupied the higher island sites. Even following the large flood in December, there were still many SBBG colonies with eggs and hatched chicks that easily survived on their high islands.

Clearing the SBBG from these higher sites would go a long way to freeing up that habitat for other protected species to use. However the SBBG don't seem to mind high levels of vegetation and woody weeds on the island

sites and most of their colonies that survived the flooding were heavily vegetated. On several occasions, SBBG have been noted to nest directly amongst or underneath the vegetation. Clearing the SBBG from these islands would only be one part of the problem, with extensive vegetation clearance then also being required on the higher island sites. Putting in this effort to clear SBBG and weeds from existing high island may be a more effective long-term solution that building small, man-made islands.

It is hoped that if the SBBG population in the lower Waimakariri can be brought to lower, more manageable levels over time, less invasive measures could be used to keep the population in check. One option to explore further in future seasons is the relationship with rūnanga and their interest in mahinga kai and feather gathering. Runanga have previously expressed interest in both the adult birds for meat and feathers, plus the eggs. When numbers are brought back to a manageable level, more traditional methods such as cultural harvesting may be useful for helping to keep the population in check.

An important observation noted again this season is the probable connection between the Waimakariri and Ashley/Rakahuri Rivers. Last season a colony of black-billed gulls nesting in the Ashley/Rakahuri was believed to have come from the Waimakariri River following a large flood event and it was noted that the birds perhaps use the rivers interchangeably as breeding ground. This season we observed that, while the Waimakariri River itself produced very few black-billed gull chicks, there were still several dozen young birds seen feeding along the Waimakariri in the later weeks of February and early March. We do not believe there were enough chicks successfully fledged from the Waimakariri to support the number of young birds seen feeding. The presence of these young birds also generally coincided with the breeding and fledging of a large colony of black-billed gulls at the Ashley/Rakahuri, which may further indicate the linking of the two rivers as important breeding habitat.

While the Waimakariri may not have produced that many chicks itself, it would appear to still play an important role in the success of the local birds as a feeding ground. It may be useful in future breeding seasons to compare the total number of black-billed gull chicks fledged across both rivers to build a picture of the interconnectedness of the populations.

Unfortunately, the reason for fewer fledglings this season can again at least partially be put down to human disturbance. One of the main black-billed gull colonies we were monitoring out from Miners Bank Road, that looked like it would be one of the few to successfully produce chicks this season, was found to be partially abandoned late in the season with five nearly fledged chicks found stoned to death nearby. There were bloodied rocks found near the birds, which had obviously been used to kill them. While this area is not easily accessible to vehicles, it is accessible on foot and sees the occasional fisherman or dog walker.

Our peak count of chicks at this colony was 80, but only 20 are known to have successfully fledged. A nearby black-fronted tern colony at this location also looked promising but collapsed around the same time for unknown reasons. These human disturbances are extremely disappointing and potentially have massive negative impacts on the breeding success of these birds. What looked like two promising colonies, that had withstood numerous floods to still produce chicks late in the season, were disturbed by violent and reckless human actions. While DOC were notified of this incident, there was insufficient evidence available to pursue follow up action.

Unfortunately, human disturbance will likely continue to be a challenging factor for these birds to deal with when nesting and breeding in these publicly accessible spaces. We are open to the use of cameras where we can, but this brings with it a number of challenges, including how to gather meaningful data such as a vehicle registration that would actually allow a person to be tracked down, as well as privacy and data storage issues. A better option would be to prevent these incidents from happening in the first place, by increasing public awareness around the protected threatened status of these birds. We will also continue to place informative

signage near colonies, although this has proven to be ignored and vandalised multiple times in the past, and encourage Ranger patrolling of known colonies where possible.

We will continue to offer these birds what level of protection we can in future, starting with advocacy but looking to enforcement options if necessary. The BHMP may also make further recommendations around further ways to protect breeding and nesting colonies. The success of these birds depends on an on-going collaborative effort between a number of different parties including local government, landowners, DOC and river users. We all have a role to play in ensuring the survival of the birds into the future.

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