

# Waiau Uwha River Bird Survey Summary 2023



*Thanks to all those that helped during the survey – we couldn't have done it without you!*

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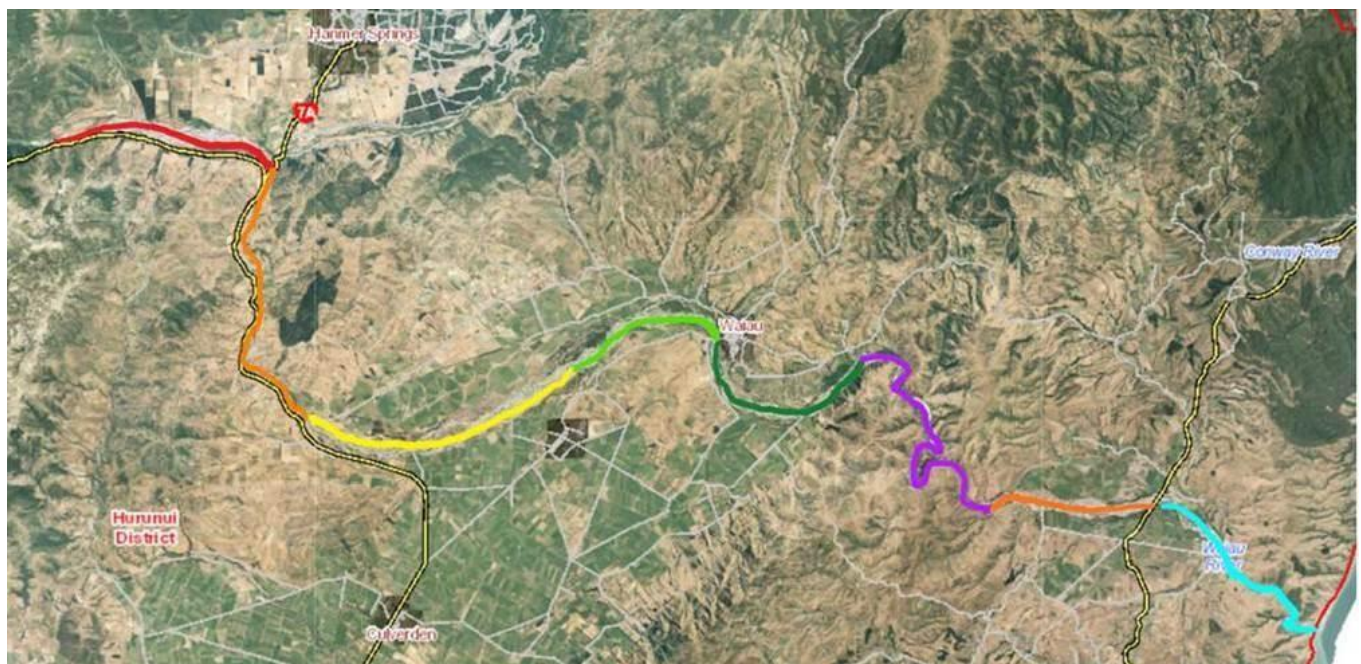
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## The 2023 Waiau Uwha Bird Survey

The Waiau Uwha River is known to be a habitat of outstanding significance for threatened native birds. It has been shown to support the northern-most known breeding population of wrybill/ngutuparore (*Anarhynchus frontalis*) as well as internationally significant populations of black-fronted tern/tarapirohe (*Chlidonias albostratus*) and blackbilled gull/tarāpuka (*Larus bulleri*), and a regionally significant population of banded dotterel/pohowera (*Charadrius bicinctus*). Surveying the river birds of the Waiau Uwha provides important information on the use of the river by these species, informs river management decisions, and guides agency resourcing of conservation activities.

This was the ninth year of surveying the Waiau Uwha river birds. In 1975 the sections from Twin Bridges to Sandersons Road were covered (today's sections 4-8). The 2008, 2009, 2010, 2016, 2017, 2018, 2022 and recent 2023 survey covered the river from Waterfall Stream to the river mouth (Figure 1). As in 2018 and 2022, river bird counts were recorded against 89 one kilometre reaches, improving our understanding of the bird species spatial distributions. Undertaken in three-year blocks, the survey is scheduled to repeat every three to five years.

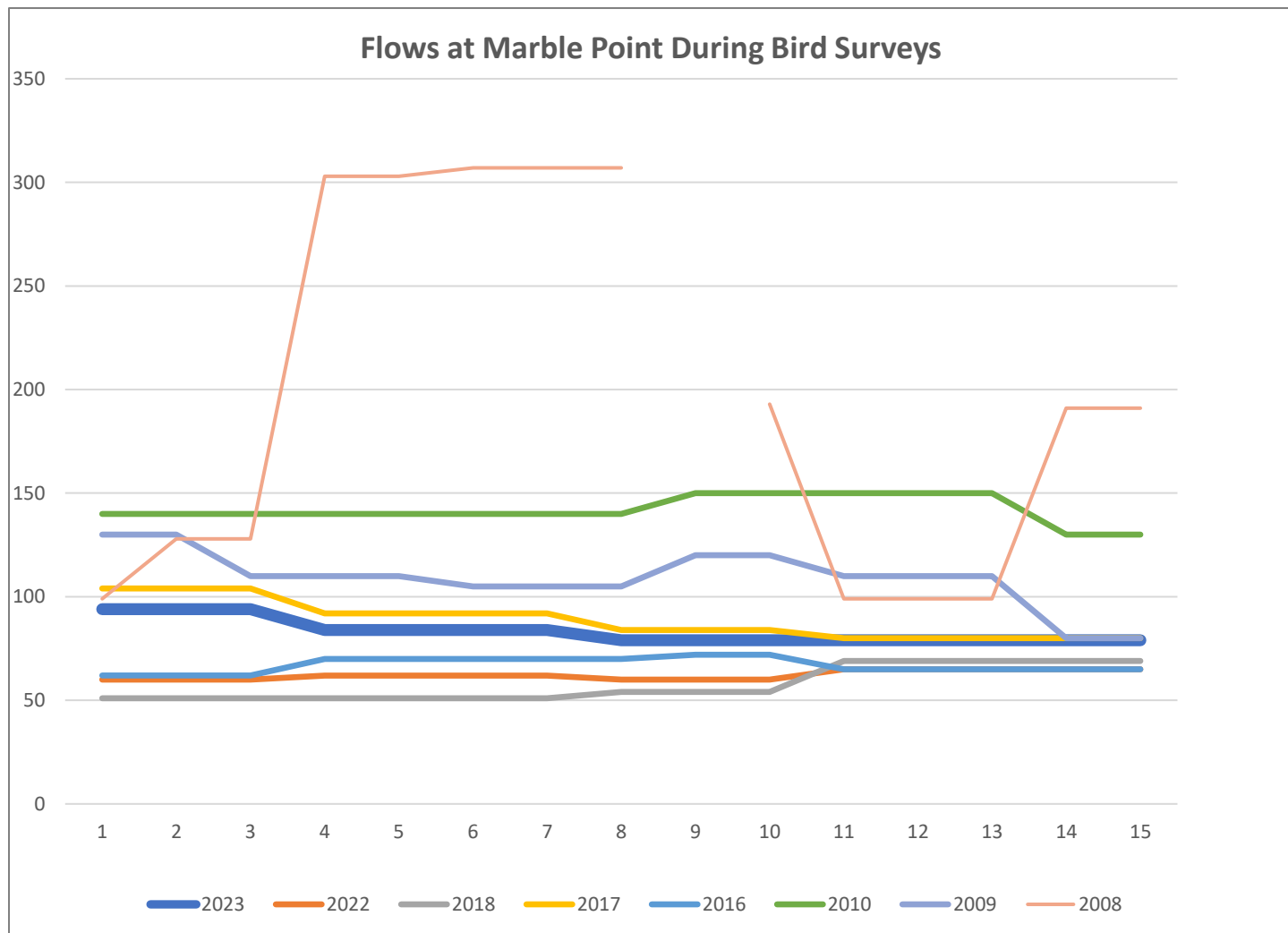
As in other years, the 2023 survey ran over four days, from November 7<sup>th</sup> to the 10<sup>th</sup>. This aligns with best practise timing to conduct surveys between mid-October and mid-December as surveys should reflect the timing of breeding. Thirty-six participants took part in the survey, covering the riverbed from the Waterfall Stream starting point, through the gorges to the river mouth (Figure 1). During the four days weather conditions varied from overcast with a light breeze through to cloudy and at times showers. A flood event was occurred 12 days prior to the lead up of survey (600m<sup>3</sup>/s) would have displaced some nesting birds, however flows dropped in the subsequent ten days prior to the survey with the highest flow occurring within 10 days at 172 cumecs. During the survey river flows were slightly higher compared to previous years; recorded as 79-94 cumecs at the Marble Point gauge (Figure 2).



Day#Group#	D1	D1	D1	D2	D2	D2	D2	D3	D3	D3	D4	D4	D4	D4	D4
Survey	G1	G2	G2	G1	G1	G2	G2	G1	G1	G2	G1	G1	G2	G2	G2
Section	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

**Figure 1:** Map showing the sections of the river covered by the four-day survey. The different colours denote a day's work by either surveyor group. (e.g., red and orange was day one for groups 1 and 2 respectively).

Survey data will be shared with the local braided river bird advocacy group Braided River Aid (BRaid)<sup>1</sup>, the Department of Conservation (who collates all braided river bird count datasets into a national dataset) and made accessible to the public via eBird<sup>2</sup>. This survey was the second time we attempted to record all bird species observed along the river. This is to allow the bird counts to be considered 'complete' surveys and incorporated into a national ornithological atlas study<sup>3</sup>.



**Figure 2:** Flows at Marble Point during bird 2023, 2022, 2018, 2017, 2016, 2010, 2009, 2008 surveys. Note that in 2008 adverse weather conditions resulted in survey sections being undertaken across non-consecutive days from mid-October to late November.

<sup>1</sup> <http://braid.org.nz/>

<sup>2</sup> <https://ebird.org/newzealand>

<sup>3</sup> The New Zealand Bird Atlas project. See <https://ebird.org/atlasnz/home>

## Key observations from 2023

### General observations

Total counts are presented in Table 2 & Table 3. Counts were down for braided river breeding birds and increased for exotic river birds, the two gull species and other native birds that do not specifically breed on braided rivers. Both species of gull were higher than previous average count over all surveys (Figure 3). For the black-billed gull this is often dependant on whether a colony is present on the river or not. Solitary nesting and wading braided river birds (banded dotterel, wrybill, South Island pied oystercatcher and pied stilt) were lower than previous average counts over all surveys. Exotic species including Canada goose or native birds that do not specifically breed on braided river such as the spur-winger plover were also counted in higher numbers compared to previous averages.

The counts of colonial nesting gull species often fluctuate greatly between years due to the use of different rivers by the birds in any given year. This is highlighted by the differences in colony size observed for black-billed gulls between 2022 and 2023. Colony counts indicate that there was only one colony on the river each of these two years however the size of this each colony differed greatly between years with the 2022 count at 60 compared to the 2023 count at 600 (table 1).

A multitude of factors may explain the fluctuating counts of river bird species. Factors include the mobile nature of the birds, birds using non-riverine habitats and habitat condition (weeds, disturbance etc.). Other factors, which are mitigated somewhat by using standardised survey methods<sup>4</sup>, assessing recent river conditions leading up to and during the survey (i.e., avoiding flood events occurring within 10 days prior to survey and during the survey), survey methodology, survey conditions, surveyor effort and previous experience (Table 2). While inferences regarding count trends of a species can be made (Figure 4), counts also provide valuable information on the habitat suitability of the river which can be used to inform and prioritise river bird management actions.

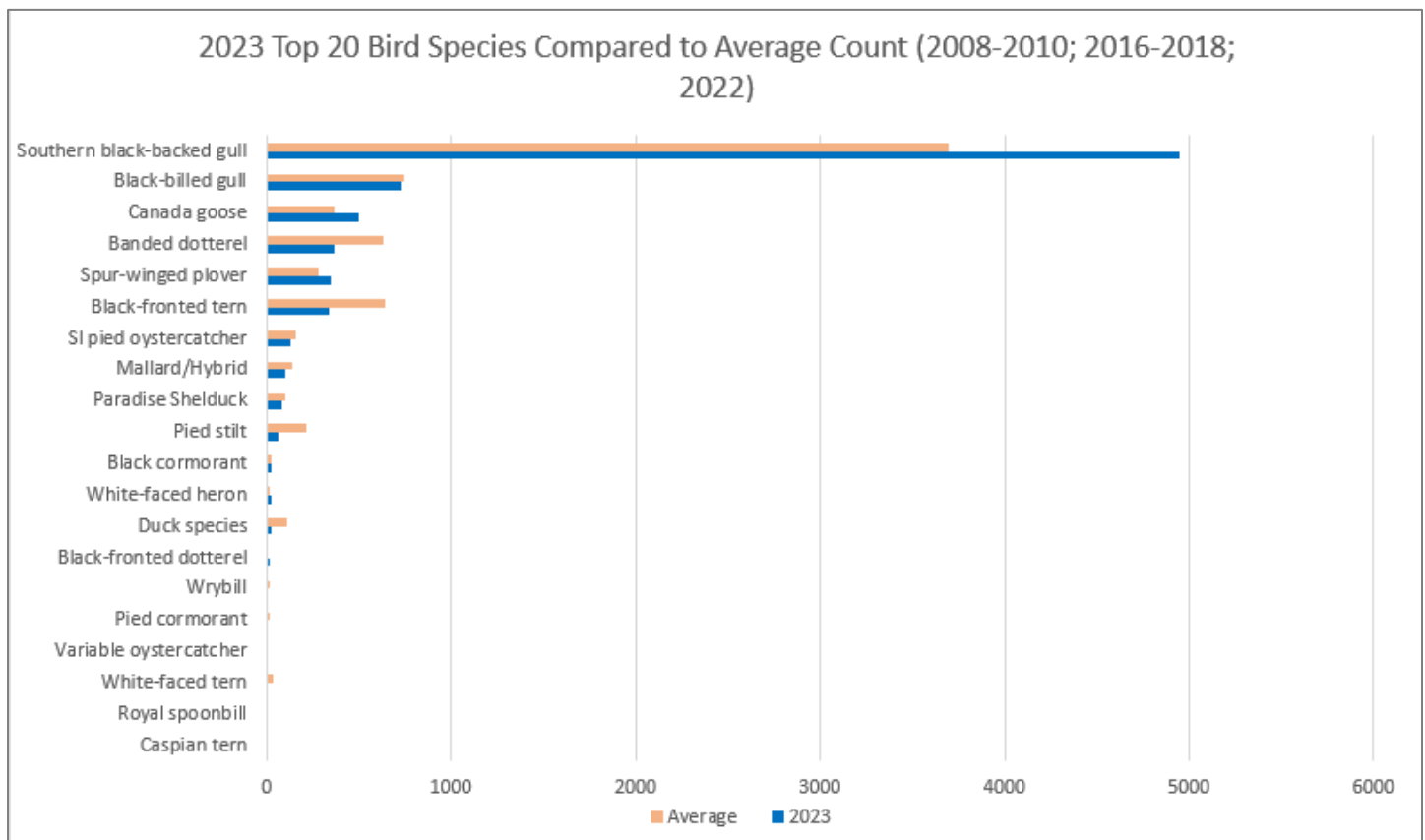
As in other years, total bird counts were highest within Sections 1 (see Figure 1; red on the map), 4, 5 (yellow), 8 (dark green) and 12 (pink). Largely these hotspots are driven by colony nesting species such as southern black-backed gull counts (Figure 5), however these sections were also favoured by solitary nesting birds such as banded dotterel and South Island pied oystercatchers (Figure 6). Generally, these areas offer wider, clearer and a more braided floodplain environment than other areas along the river.

This year is the second year that all bird species able to be identified and observed over the braid plain were recorded. This included the many passerine species which utilise the exotic shrubland, grassland and willow forest found within the survey area (Table 3). While many passerines were simply recorded as '*passerine sp.*', the most frequently identified were chaffinch, welcome swallow, skylark and blackbird. Native passerine species observed included South Island fantail, grey warbler, bellbird, NZ pipit, silvereye and shining cuckoo. Most frequently counted species (excluding the generic '*passerine species*') were chaffinch, skylark and welcome swallows.

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<sup>4</sup> Survey protocols follow: Mischler, C. & Maloney, R. 2019. Protocol for best practice in monitoring braided river birds. Department of Conservation, Wellington. DOC – 6056286.





**Figure 3:** Total 2023 adult bird counts of the most abundant river dependant species (top 20) on the Waiau Uwha river compared to the average survey count of previous surveys (2008-10; 2016-18; 2022). \*Excludes birds not previously counted in all years.

### Specific species observations<sup>5</sup>

See Figure 4 for recorded yearly counts and Attachment 1 for 2023 distribution maps.

**Ngutuparore – Wrybill - *Anarhynchus frontalis*** (Threatened - Nationally Increasing; Population estimate: 5,000-5,500).

A total of 10 wrybill were counted, down from 2022 (n=17), 2018 (n=29), and the pre-2023 average (n=19). Wrybill were observed within four of the fifteen survey sections, with highest counts within section 7 (n=4), 1 and 12 (n=3). Wrybill were observed breeding on the river this season with one nest with two eggs observed in section 12. This was the lowest number of wrybills observed during the ground surveys since Environment Canterbury have been undertaking these surveys (previous low count was 11 in 2008). Due to the low numbers and cryptic nature of wrybills and the slow-moving pace of the survey methodology identifying wrybills can be challenging.

**Tūturiwhatu - Banded Dotterel - *Charadrius bicinctus*** (At Risk - Declining; Population estimate: 50,000)

A total of 368 banded dotterel were counted, down from the 2022 (n=555) and the pre-2023 average (n=636). Banded dotterels were observed in all 15 sections down the river with highest counts within section 1 (n=72), section 12 (n=43) and sections 5, 6, 8 (n=34). This was the lowest number of banded dotterels observed during the ground surveys since Environment Canterbury have been undertaking these surveys (previous low count was 451 in 2008). 21 different breeding observations were recorded for banded dotterel at (11 nests with chicks, 2 nests with eggs and 8 assumed nests due to behaviour).

<sup>5</sup> Population is from NZ Birds Online: <http://nzbirdsonline.org.nz/>; Threat status is from the 2021 NZ Threat Classification System

Tarapirohe - Black-fronted Terns - *Chlidonias albostratus* (Nationally Endangered; Population estimate 5,000-10,000).

A total of 343 tarapirohe were counted this year down from the 2022 (n=462) and the pre-2023 average (n=672). This was the lowest number of tarapirohe observed during the ground surveys since Environment Canterbury have been undertaking these surveys (previous low count was 462 in 2008). After the survey a helicopter survey 2 days later by WMIL counted 200 more terns than the ground survey. This difference was based on the count of the largest colony at the Sharks Tooth within survey section 2. Three colonies of black-fronted tern occurred within sections 1,3, and 5, ranging in size from 30 to 100. This number of colonies was low compared to previous years (table 1).

Tarāpuka – Black-billed Gulls - *Larus bulleri* (At Risk – Declining; Breeding population estimate 60,025)

A total of 725 Tarāpuka gulls were counted on the river this year, with a large colony estimated at 600 birds recorded in section 12. Up to 2,035 and as low as 118 of these birds have been counted in previous surveys. The highly fluctuating count of this colonial nesting species within one river system highlights the value of using complementary monitoring methods (e.g., fixed wing surveys of multiple rivers) to understand trends in black-billed gulls across the region during the same breeding season.

Karoro – Southern Black-backed Gulls - *Larus dominicanus* (Not Threatened; Population estimate: Very abundant)

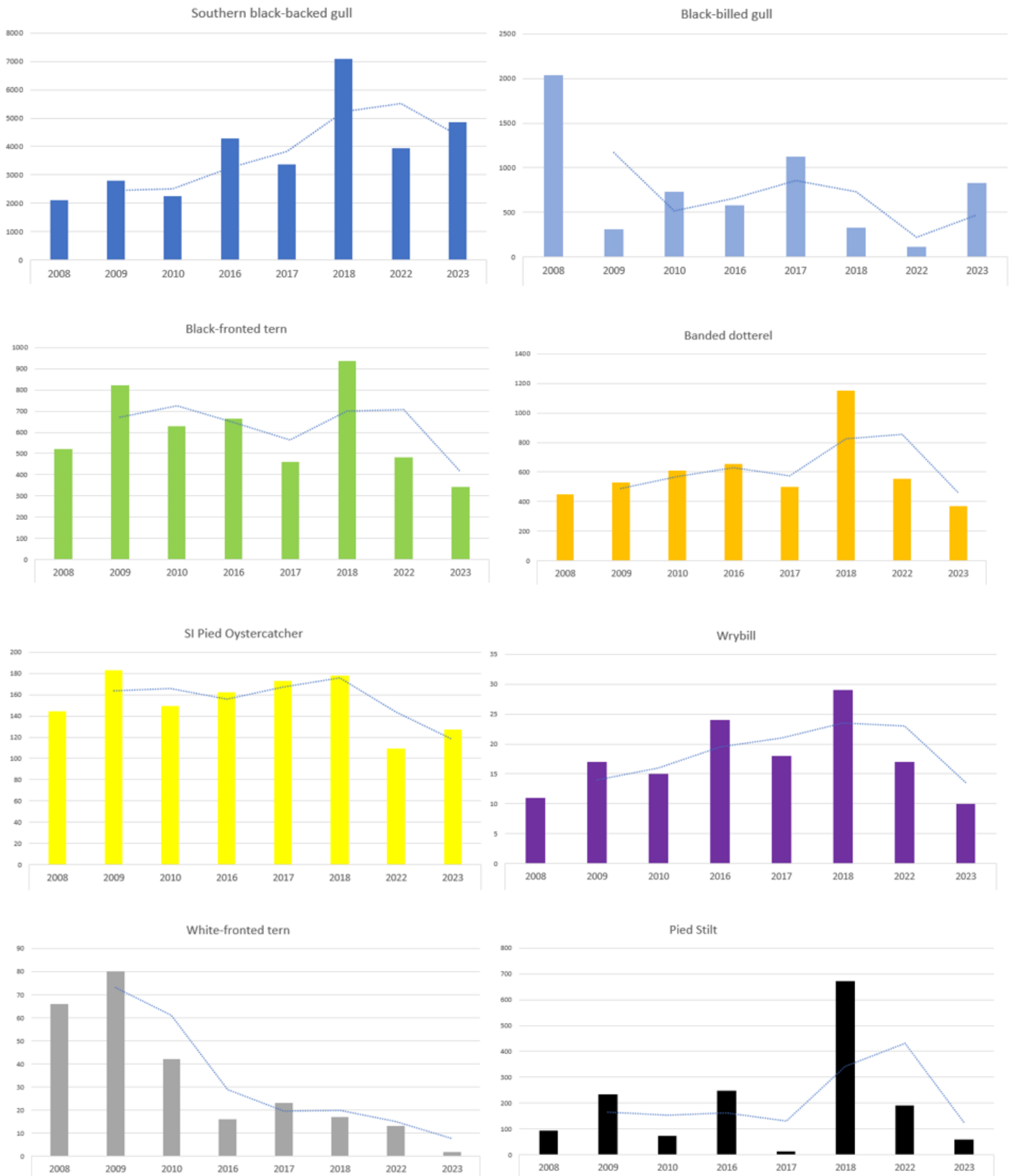
Just under 5000 Karoro were counted on the river, up from 2022 (~4000 birds), but down several thousand from the record high 7000 in the 2018 survey. The largest colony occurred in section 5 and comprised an estimated 1000 birds. Karoro numbers have remained consistently ranging above 3000 birds from 2016 onwards. This suggests that conditions for the fecundity of the karoro along Waiau Uwha and the surrounding landscape are enabling high karoro numbers.

Poaka - Pied Stilt - *Himantopus leucocephalus* (Not Threatened; Population estimate: 30,000)

Compared to 2022 notably fewer poaka were recorded and the count of 60 adult birds is below the average count of 218 birds. The numbers of Poaka fluctuate from year to year from only a dozen to several hundred.

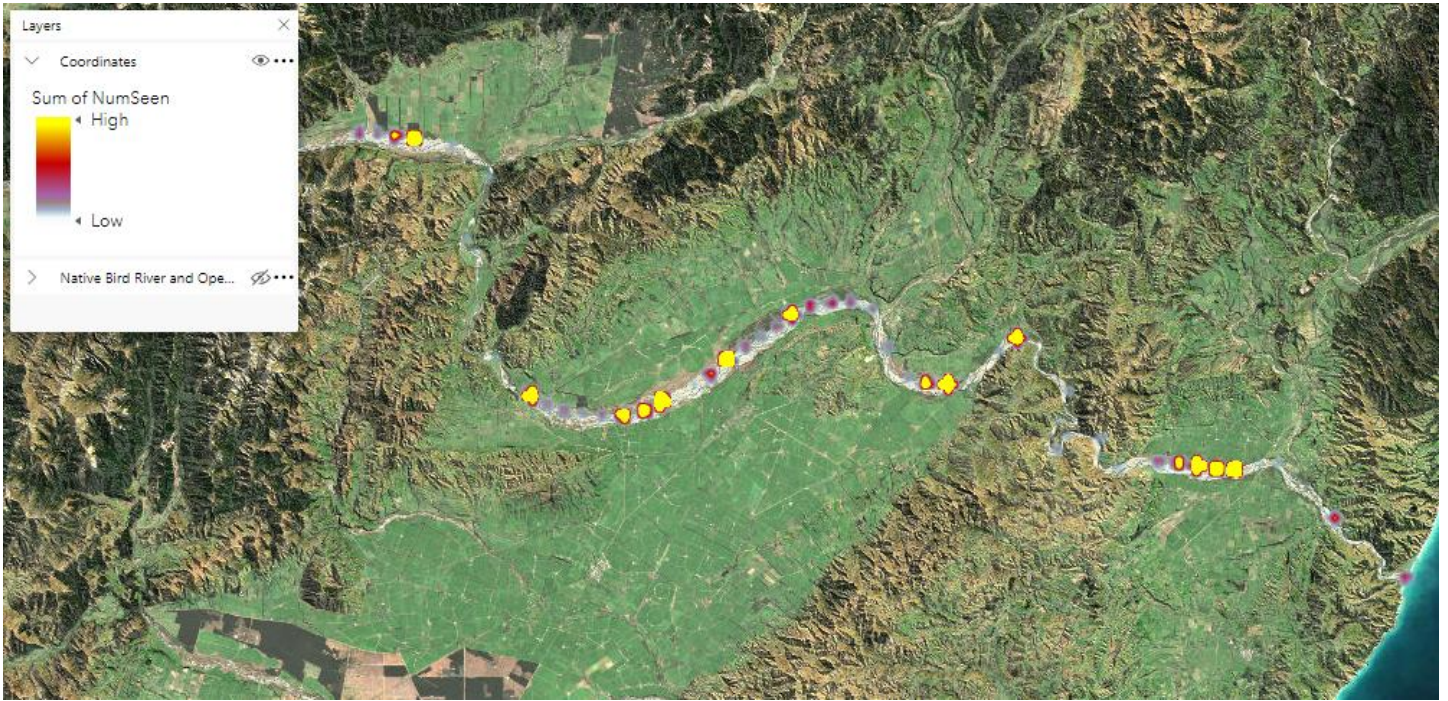
South Island pied oystercatcher (SIPO)– *Haematopus finschi* (At Risk – Declining; Population estimate 112,000)

A total of 127 SIPO were observed on the river this year which is the only river bird species (excluding gulls) with a higher count compared to the 2022 estimate. However, the number of birds recorded is still lower than the pre-2023 estimate (n=157).

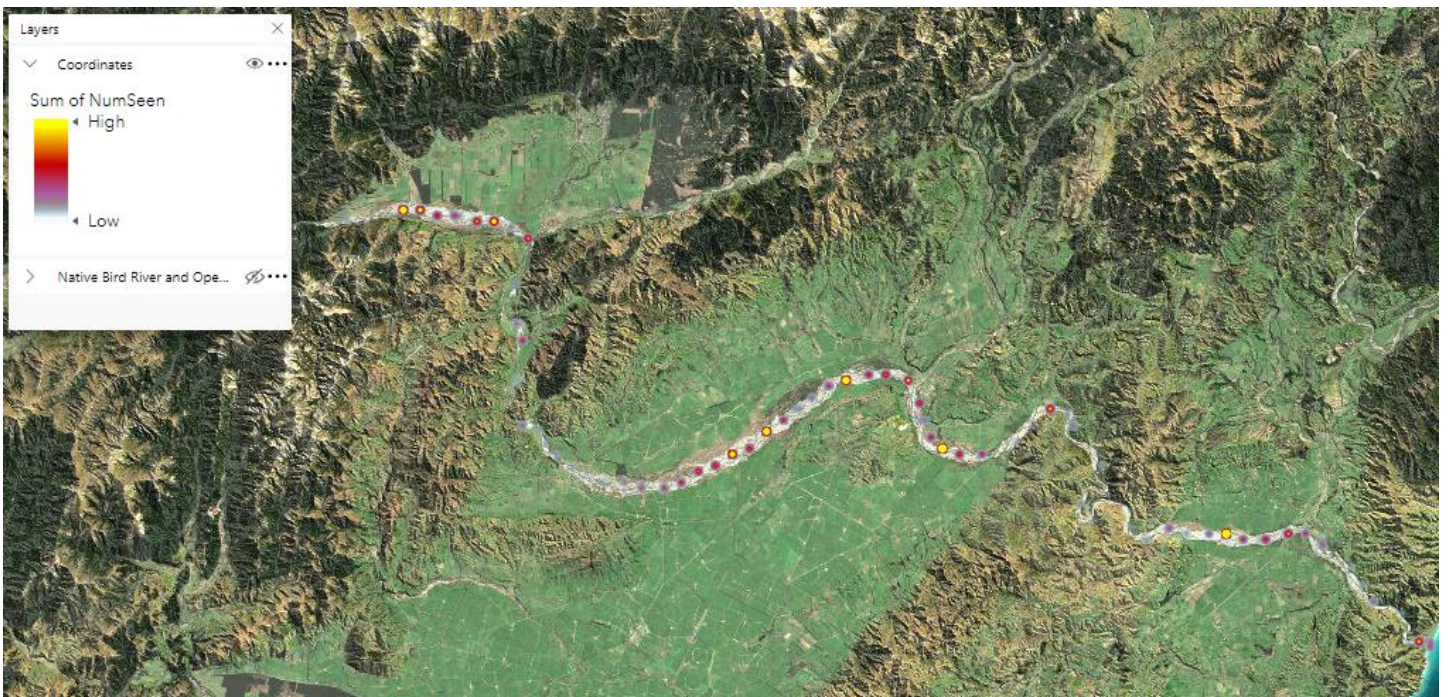


**Figure 4:** Bird species counts over survey years 2008, 2009, 2010, 2016, 2017, 2018, 2022, and 2023 on the Waiau Uwaha River. Moving average line includes all years.





**Figure 5:** Southern black-backed gull and black-billed gull hotspots along the Waiau Uwha River.



**Figure 6:** Banded dotterel, black-fronted dotterel, pied stilt, South Island pied oystercatcher and wrybill hotspots along the Waiau Uwha River.



**Table 1:** Number of colonies and minimum and maximum range of colony sizes for southern black-backed gulls, black-billed gulls and black-fronted terns across the survey period 2008, 2009, 2010, 2016, 2017, 2018 and 2022.

Species	2008	2009	2010	2016	2017	2018	2022	2023
Southern black-backed gull	12 (10-380)	12 (50-600)	16 (12-300)	12 (70-600)	16 (15-600)	9 (180-1800)	13 (8-800)	14 (24-1000)
Black-billed gull	4 (50-800)	1 (140)	2 (60-450)	1 (400)	1 (1000)	1 (95)	1 (60)	1 (600)
Black-fronted tern	7 (10-75)	10 (10-120)	5 (15-100)	7 (25-100)	5 (10-150)	12 (8-150)	7 (12-65)	3 (30-100)

**Table 2:** Survey days, number, experience, and effort across the survey years. Total surveyor days calculated as the number of total people on river per day multiplied by the number of survey days.

Year	Number of Survey Days	Total Number of surveyors	Surveyor experience (previous years' experience: High 5+; Moderate 3-4; Low 1-2; None 0)	Total surveyor-days (Measure of survey effort)
2023	4	36	High (25%); Moderate (9%); Low (36%); None (31%)	53
2022	4	32	High (35%); Moderate (6%); Low (31%); None (28%)	52
2018	4	28	High (21%); Moderate (21%); Low (25%); None (32%)	58
2017	4	26	High (19%); Moderate (12%); Low (12%); None (57%)	50
2016	4	27	High (15%); Moderate (22%); Low (7%); None (56%)	47
2010	4	20	Data not available	56
2009	7	19	Data not available	52
2008	6	14	Data not available	39

**Table 3:** Count of adult river bird species 2008, 2009, 2010, 2016, 2017, 2018, 2022 and 2023. Species are ordered by guild and then from the highest to lowest counts across all years.

*\*NR: Birds not recorded during the survey year. Exotic species denoted by the \* symbol in the species column, all other species are non-endemic or endemic.*

Species	2008	2009	2010	2016	2017	2018	2022	2023
<b>Gulls and terns</b>								
Southern black-backed gull	2108	2796	2245	4274	3377	7104	3942	4951
Black-billed gull	2035	307	734	577	1128	332	118	725
Black-fronted tern	520	823	629	664	462	935	462	343
White-fronted tern	66	80	42	16	23	17	13	2
Red-billed gull	17	4	28	10	0	20	4	0
Caspian tern	6	1	1	6	1	2	0	1
Skua	0	1	0	0	0	0	0	0

Total gulls and terns counted	4752	4012	3679	5547	4991	8410	4539	6022
<b>Waders</b>								
Banded dotterel	451	531	610	653	499	1152	555	368
Spur-winged plover	211	162	520	101	221	419	312	347
Pied stilt	93	235	73	249	13	672	190	60
SI pied oystercatcher	144	183	149	162	173	178	109	127
Wrybill	11	17	15	24	18	29	17	10
Variable oystercatcher	4	6	4	5	2	2	4	4
Black-fronted dotterel	0	0	0	2	3	8	15	19
Royal Spoonbill	0	1	0	0	0	0	5	1
Black stilt	0	0	0	0	0	4	0	0
Red Knot	0	0	0	0	0	2	0	0
Sharp tailed sandpiper	0	0	0	0	0	2	0	0
Total waders counted	914	1135	1371	1196	929	2468	1207	936
<b>Heron</b>								
White-faced heron	8	6	21	23	14	18	35	29
<b>Cormorants (shags)</b>								
Black cormorant	68	13	31	5	34	25	9	30
Pied cormorant	15	18	21	6	9	28	21	6
Little pied cormorant	5	1	1	1	0	0	0	0
Spotted cormorant	0	0	0	0	0	3	0	0
Cormorant species	NR	NR	NR	NR	NR	NR	NR	4
Total cormorants counted	88	32	53	12	43	56	30	40
<b>Waterfowl</b>								
Canada goose*	332	317	291	310	352	655	339	501
Duck species	137	68	63	0	0	0	180	23
Paradise shelduck	80	85	66	61	77	182	132	82
Mallard/Hybrid	0	50	72	71	106	503	8	101
Scaup	14	13	0	0	0	0	0	0
Grey duck	0	0	0	3	14	6	0	0
Black swan	1	8	0	7	0	0	0	0
Grey teal	0	0	0	0	0	0	0	3
Total waterfowl counted	564	541	492	452	549	1346	659	710
<b>Other</b>								
Australasian harrier	11	7	0	9	18	12	17	15

Kingfisher	6	3	0	7	5	16	46	51
NZ pipit	3	11	9	17	16	19	45	12
Total Other birds counted	20	21	9	33	39	47	106	78

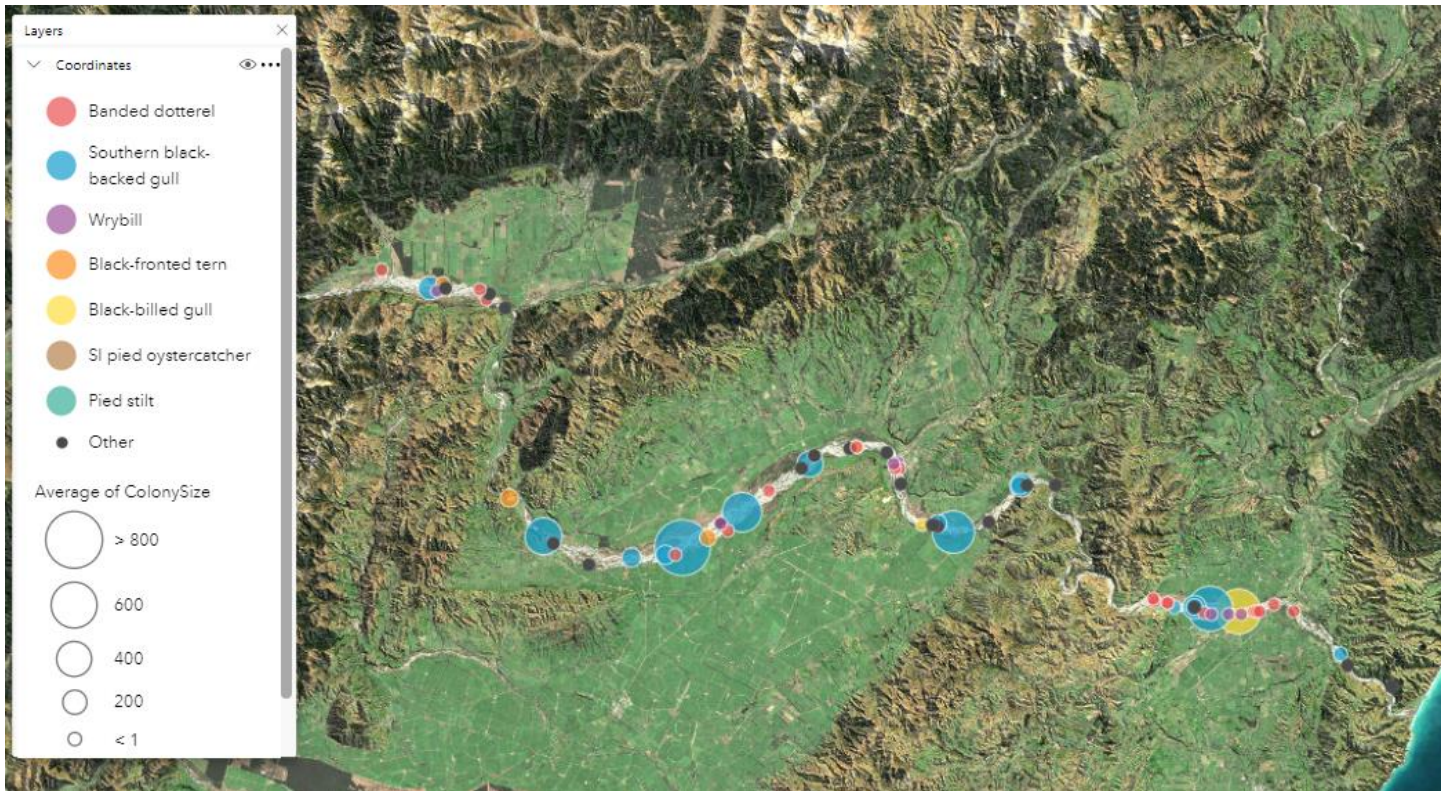
**Table 4:** Count of adult non-river bird species 2008, 2009, 2010, 2016, 2017, 2018 and 2022. Species are ordered by guild and then from the highest to lowest counts across all years.

*\*NR: Birds not recorded during the survey year. Exotic species denoted by the \* symbol in the species column, all other species are non-endemic or endemic.*

Species	2008	2009	2010	2016	2017	2018	2022	2023
<b>Passerine</b>								
Passerine sp.	NR	NR	NR	NR	NR	NR	569	689
Chaffinch*	NR	NR	NR	NR	NR	43	276	236
Welcome swallow	1	0	0	6	1	13	139	132
Skylark*	NR	NR	NR	NR	NR	27	122	126
Blackbird*	NR	NR	NR	NR	NR	NR	45	115
Yellowhammer*	NR	NR	NR	NR	NR	NR	60	17
Fantail	NR	NR	NR	NR	NR	NR	33	42
Grey warbler	NR	NR	NR	NR	NR	NR	30	41
Silvereye	NR	NR	NR	NR	NR	NR	18	83
Rock pigeon*	0	0	0	4	0	5	19	63
Goldfinch*	NR	NR	NR	NR	NR	4	16	69
Sparrow*	NR	NR	NR	NR	NR	NR	14	21
Dunnock*	NR	NR	NR	NR	NR	1	8	23
Greenfinch*	NR	NR	NR	NR	NR	NR	8	23
Song thrush*	NR	NR	NR	NR	NR	NR	2	30
Bellbird	NR	NR	NR	NR	NR	NR	15	14
Magpie*	NR	NR	NR	NR	NR	NR	22	6
Redpoll*	NR	NR	NR	NR	NR	NR	5	22
Shining cuckoo	NR	NR	NR	NR	NR	NR	11	5
Starling*	NR	NR	NR	NR	NR	NR	3	4
Cirl bunting*	NR	NR	NR	NR	NR	NR	0	1
<b>Raptor</b>								
NZ Falcon	0	0	0	1	0	1	0	0
<b>Other</b>								
California quail*	0	0	0	7	0	3	18	24
Pukeko	1	0	0	0	0	0	0	0
Total non-river birds counted	2	0	0	18	1	97	1433	1786



**Attachment 1:** Distribution maps of river birds on the Waiau Uwha River in 2023



**Above:** Recorded locations of wrybill and all river bird breeding observations on the Waiau uwha during the 2023 bird survey. Other birds include Canada geese and paradise shelduck.

**Banded dotterel**

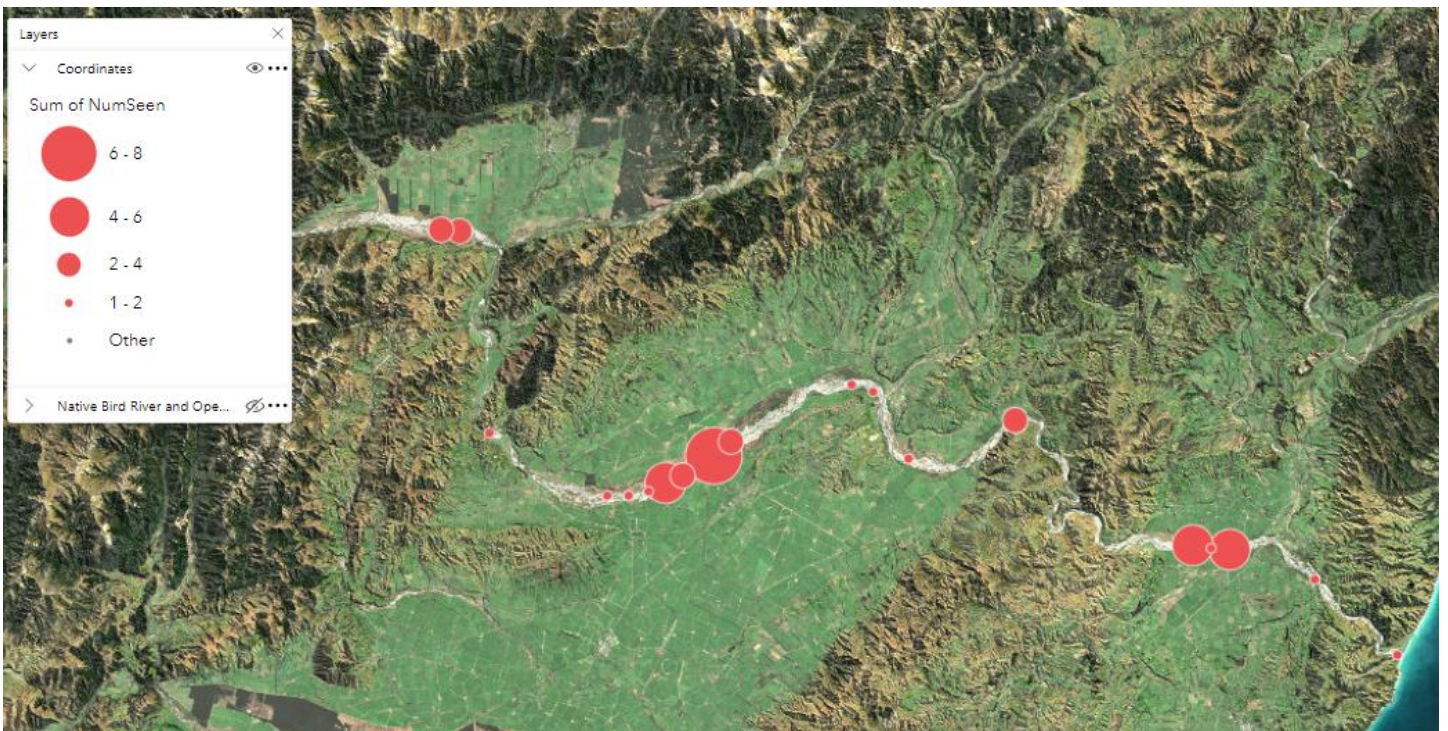




## Wrybill



## Pied stilt





### South Island pied oyster catcher (SIPO)

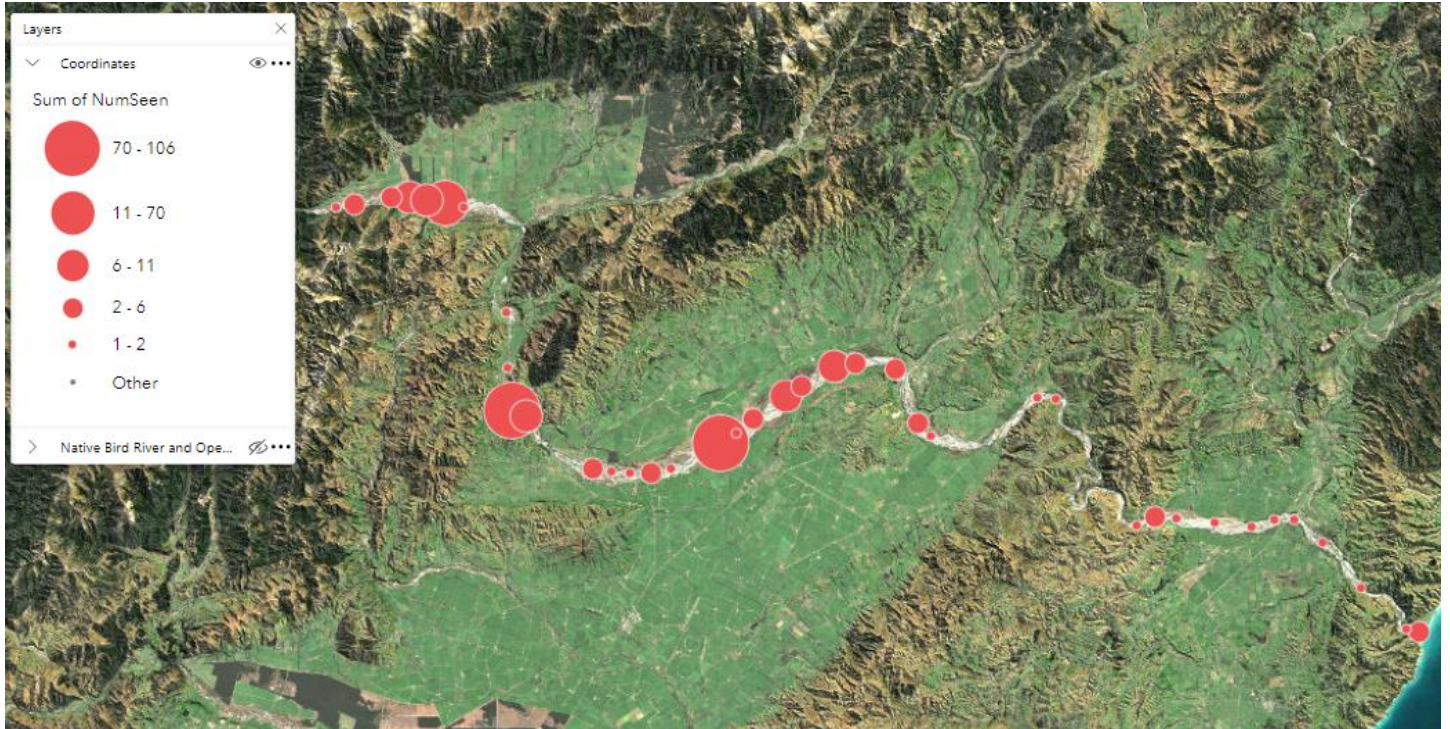


### Black-billed gull - Tarāpuka





## Black-fronted tern



## Southern black-backed gull – Karoro





# Black-fronted dotterel

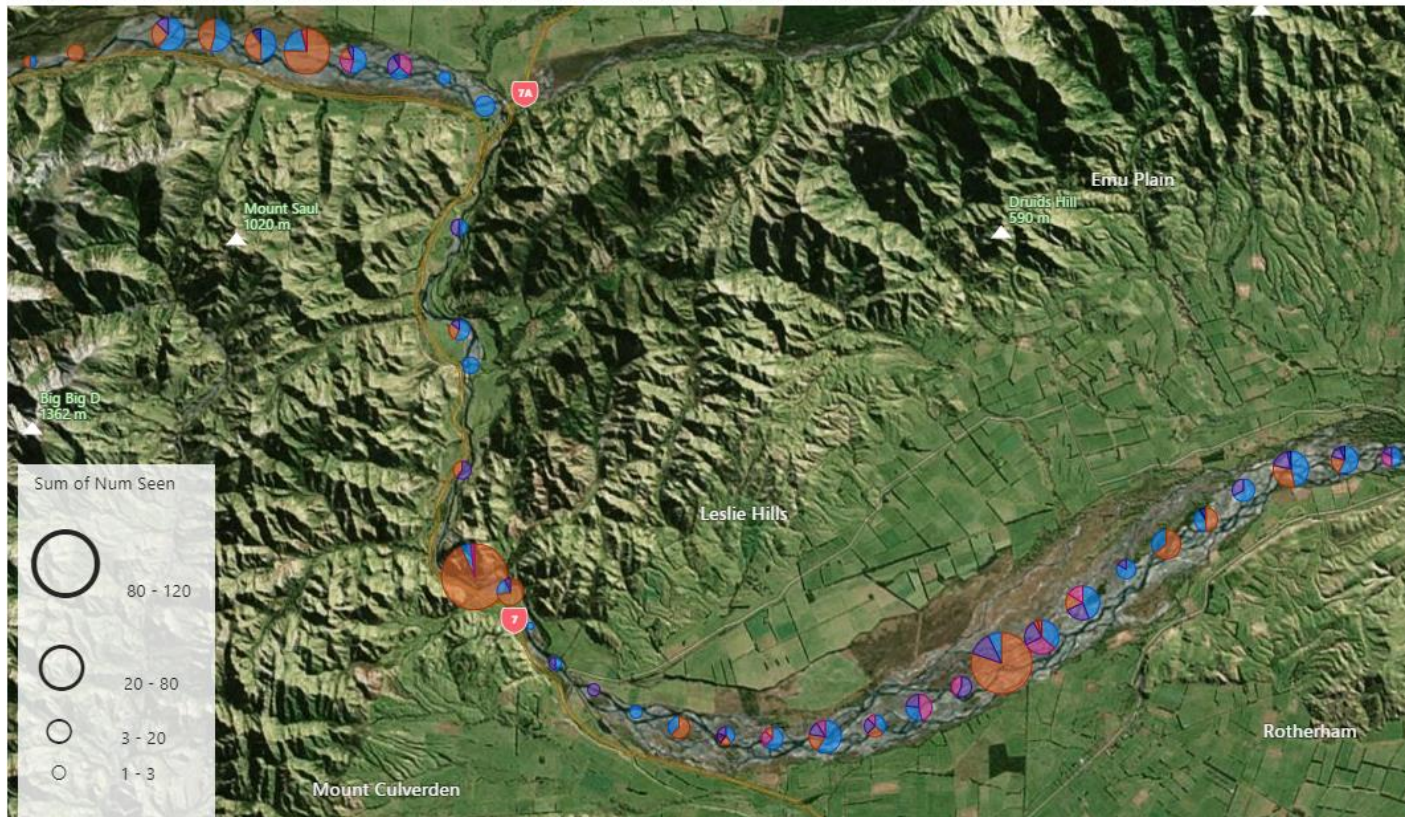




Below: Counts of threatened river birds observed during the 2023 bird survey by KM sections.

**KM sections 1-45.**

**Species** ● Banded dotterel ● Black-fronted dotterel ● Black-fronted tern ● Caspian tern ● Pied stilt ● SI pied oystercatcher ● White-fronted tern ● Wrybill



**KM sections 46-89.**

**Species** ● Banded dotterel ● Black-fronted dotterel ● Black-fronted tern ● Caspian tern ● Pied stilt ● SI pied oystercatcher ● White-fronted tern ● Wrybill

