

# Waiau Uwha River Bird Survey Summary 2022



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

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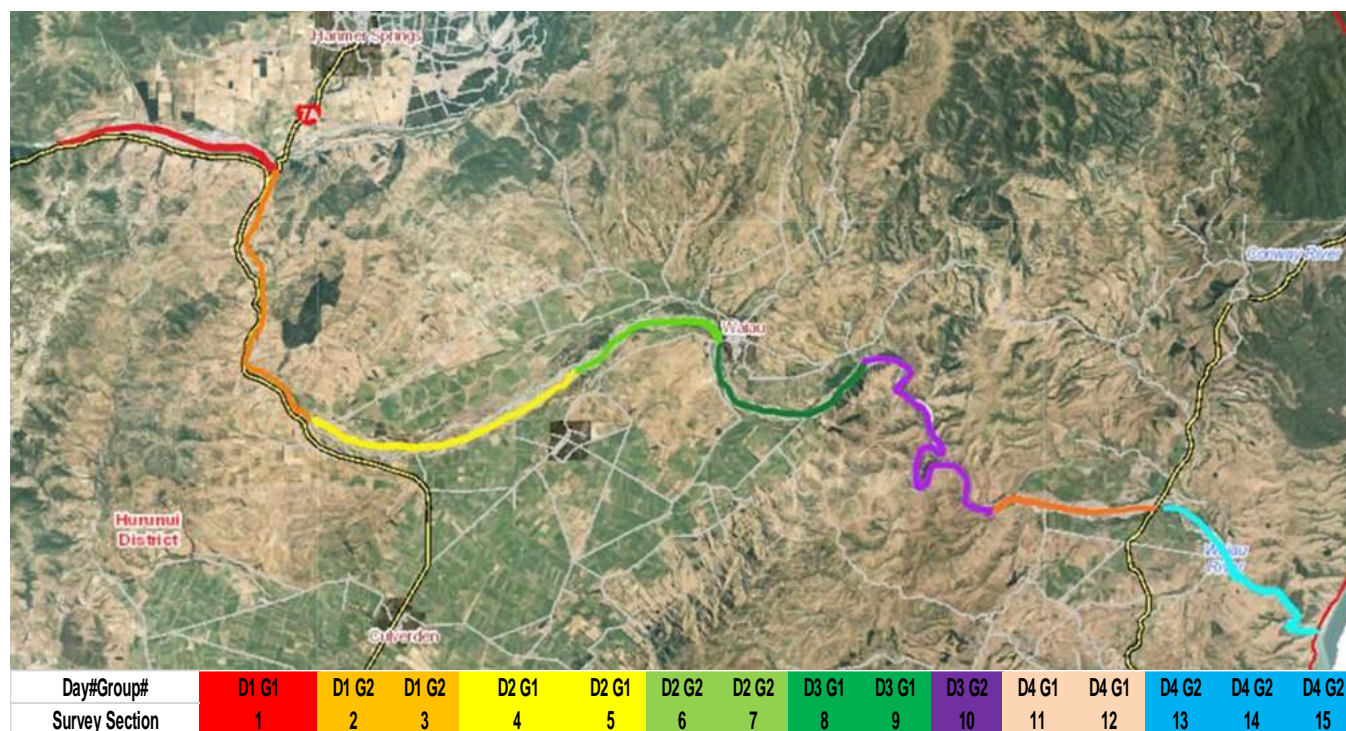
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## The 2022 Waiau Uwha Bird Survey

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 albobristatus*) and black-billed 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.

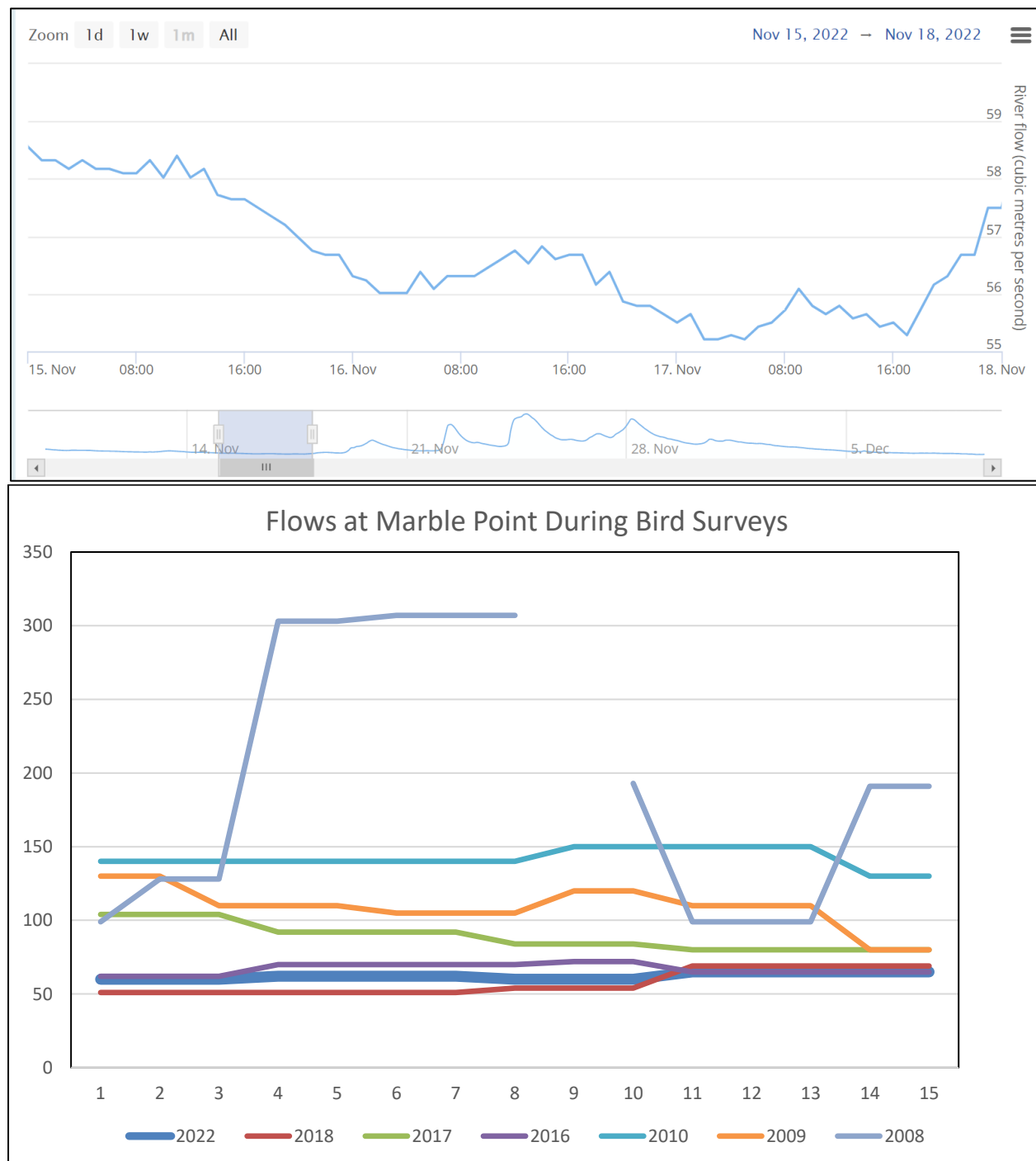
This was the eighth year of surveying the Waiau Uwha river birds. In 1975 the sections from Twin Bridges to Sandersons Road were covered (today's sections 4-8). The 2008, 2009, 2010, 2016, 2017, 2018 and recent 2022 survey covered the river from Waterfall Stream to the river mouth (Figure 1). As in 2018,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

As in other years, the 2022 survey ran over four days, from November 15<sup>th</sup> to the 18<sup>th</sup>. This was later than previous surveys which have largely occurred in October; a poor forecast and high flows reaching over 570 cumecs meant backup dates were utilised. Thirty-three 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 fine with a light breeze through to cloudy and at times showers. Days 1, 2 and 3 had warmer temperatures (22°C to 19°C), while day 4 saw temperatures drop to 16°C, and showers develop. While high river flows leading up to the survey would have displaced some nesting birds, flows were not bank-to-bank and dropped in the subsequent ten days prior to the survey. During the survey river flows were relatively low compared to previous years; recorded as 51-61 cumecs at the Marble Point gauge (Figure 2).



**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 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 first 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:** Upper Image: River flow data recorded at Marble Point during the survey (main graph area) with the longer pre- and post-survey flow context. The blue highlighted section shows the survey period. Lower image: Flows at Marble Point during bird 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 2022

### General observations

Counts (Table 2 & Table 3) are lower when compared to the most recent 2018 survey which had very high counts for most species and nearly doubled all previous counts. Generally, 2022 counts are closer to the average of previous survey years (Figure 3). All 2022 river bird counts are slightly lower than the average count over all surveys apart from the Southern black-backed gull. The lowest count compared to the average was the black-billed gull. Overall, this survey season looks to have returned closer to the average expected count after an 'outlier' survey in 2018.

The counts of colonial nesting gull species can often fluctuate greatly between years due to the use of different rivers by the birds in any given year. For example, on the Waiau Uwha counts of black-billed gull have fluctuated by up to 1700 birds between survey seasons.

Any number 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>, include recent river conditions leading up to a survey (i.e., flows), survey conditions, and surveyor effort (Table 1) and expertise. 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 Southern black-backed gull counts, however these sections were also favoured by banded dotterel and black-fronted terns. Generally, these areas offer wider, clearer and a more braided floodplain environment than other areas which are features known to favour braided river birds.

This year 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 yellowhammer. Native passerine species observed included South Island fantail, grey warbler, bellbird, silvereye and shining cuckoo.

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

See Figure 4 for recorded yearly counts and Attachment 1 for 2022 distribution maps.

Ngutuparore – Wrybill - *Anarhynchus frontalis* (Threatened - Nationally Increasing; Population estimate: 5,000-5,500). A total of 17 wrybill were counted, down from the 2018 high of 29 (pre-2022 average = 19). Wrybill were observed within six of the fifteen survey sections, with highest counts within section 5 (n=3) and 11 (n=7).

Tūturiwhatu - Banded Dotterel - *Charadrius bicinctus* (At Risk - Declining; Population estimate: 50,000) A total of 554 banded dotterel were counted, which has dropped from the highest count in 2018 of 1128 birds (pre-2022 average = 649). Banded dotterels were observed in seventy-two of the eighty-nine kilometres surveyed. The highest count of dotterels was made in section 1 (n=79) from Waterfall Stream to Waiau Ferry Bridge.

Tarapirohe - Black-fronted Terns - *Chlidonias albastriatus* (Nationally Endangered; Population estimate 5-10,000). A total of 461 tarapirohe were counted this year compared to 935 in 2018 and a pre-2022 average count of 672 terns. There were 11 colonies of this tern along the full stretch of the river (sections 1,2,3,4, 10 and 14). Sizes of these colonies were smaller than the 2018 high of 250 with the largest colony counted of 44 adults. A regional, priority project aims to improve the breeding success of black-fronted terns on the Waiau uwha.

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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.

<sup>5</sup> Population and Threat Status is from NZ Birds Online: <http://nzbirdsonline.org.nz/>

Tarāpuka – Black-billed Gulls - *Larus bulleri* (At Risk – Declining; Population estimate >100,000)

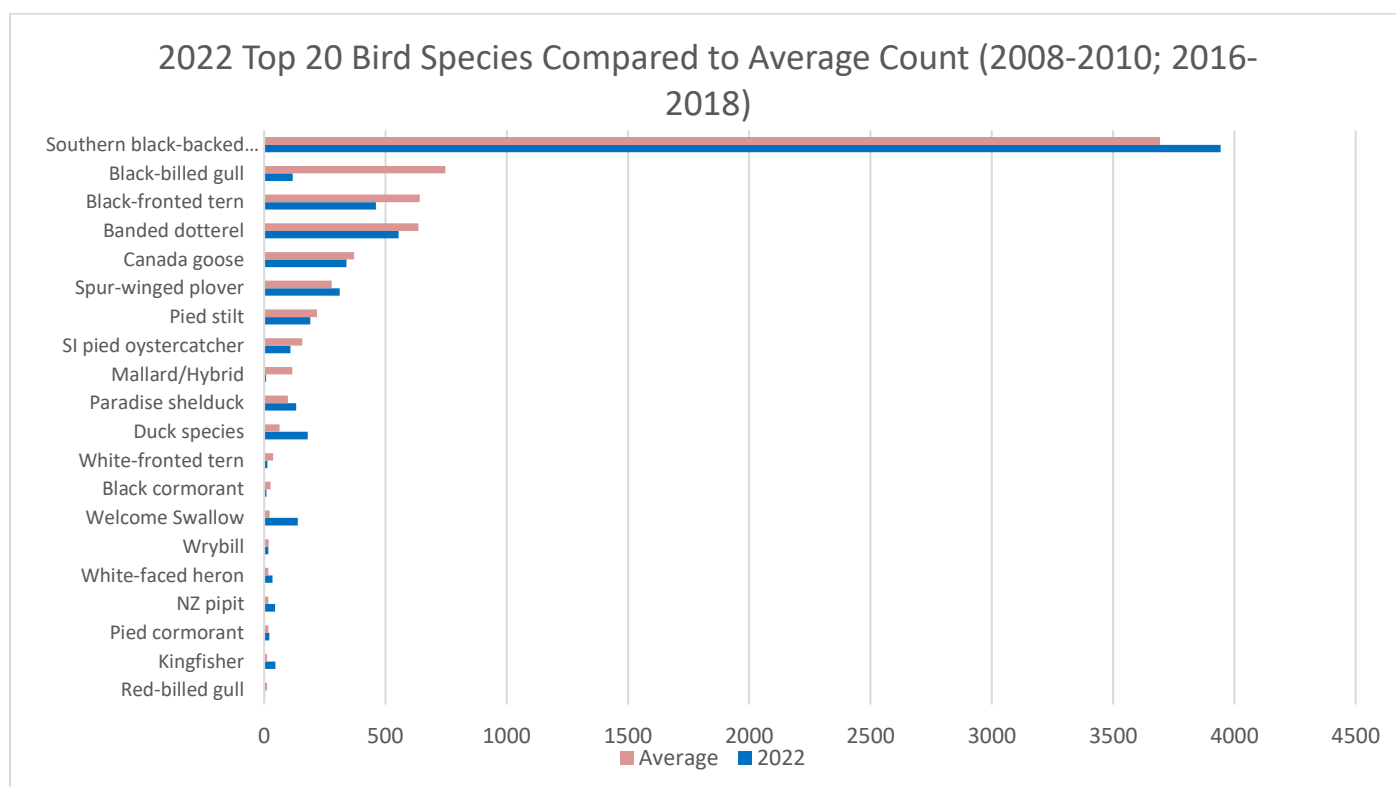
Only 118 Tarāpuka gulls were counted on the river this year, with a small colony of 60 birds recorded in section 10. Up to 2,035 of these birds have been counted in previous surveys. The highly fluctuating count of this colonial nesting species within one river system highlights the importance to monitor such species across multiple rivers. After the survey, a regional aerial count of black-billed gull was undertaken. This work found a total of thirteen colonies of black-billed gull on the Cass, Ahuriri, Waitaki, Opihi, Waimakariri, Ashley Rakahuri, Waipara, Hurunui and Charwell. Counts are yet to be collated, however overall numbers within the surveyed riverine habitats appear lower than previous regional counts. Black-billed gull are known to breed off-river, and this may explain the lower counts. Use of non-riverine habitat by black-billed gull this season was observed with a colony of over 2000 birds breeding at a retention basin in Belfast, Christchurch.

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

Just under 4000 Karoro were counted on the river, down several thousand from the record high 7000 in the 2018 survey. The largest colony occurred in section 5 and comprised an estimated 800 birds.

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

Compared to 2018 notably fewer poaka were recorded and the count of 191 adult birds is below the average count of 223 birds. The numbers of Poaka fluctuate from year to year from only a dozen to several hundred.



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

**Table 1:** Survey effort across years as an indicator of survey effort.

Year	Number of Survey Days	Total surveyor-days (Measure of survey effort)
2022	4	52
2018	4	59
2017	4	50
2016	4	48
2010	4	56
2009	7	52
2008	6	39

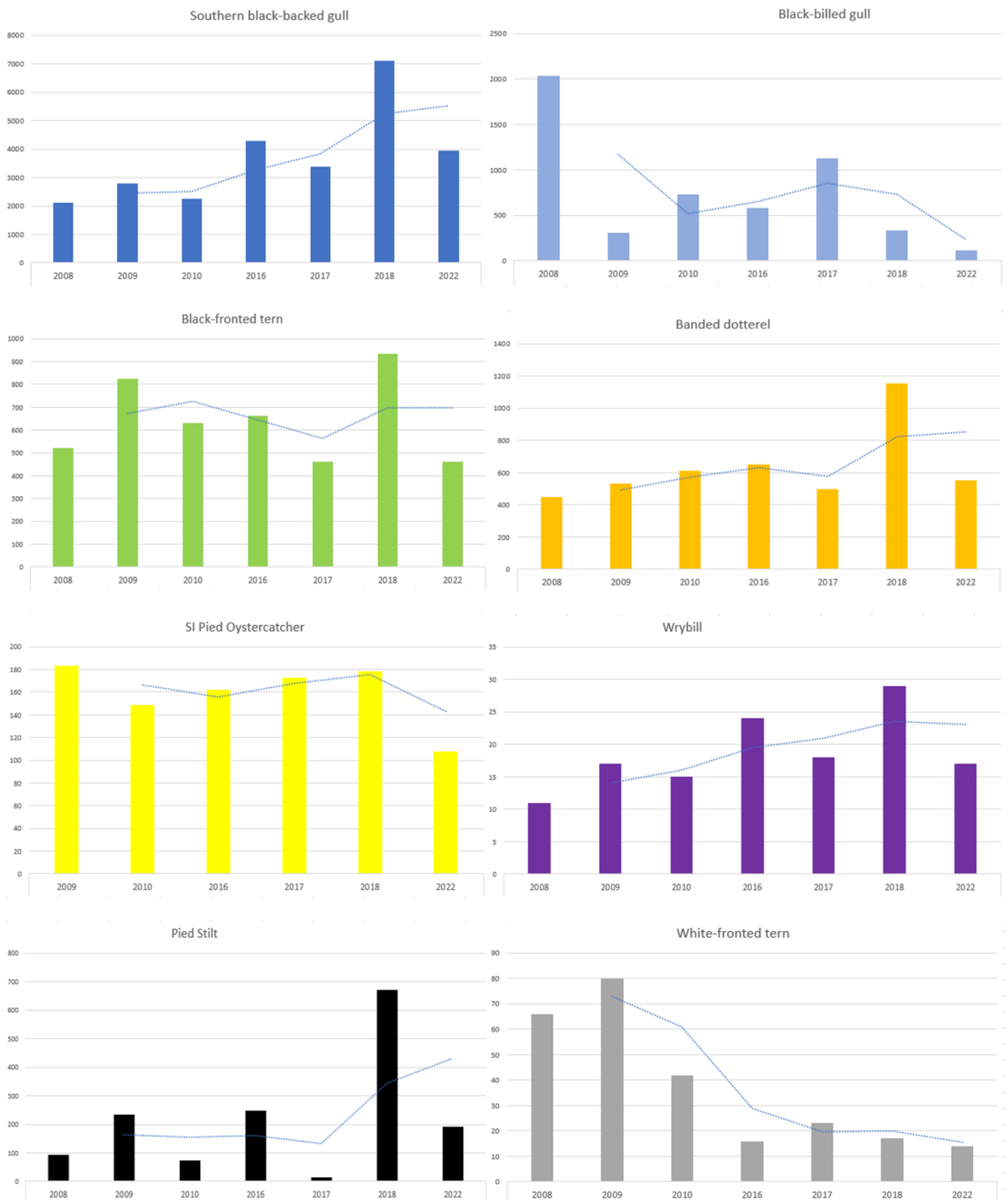
**Table 2:** Count of adult river bird species 2008, 2009, 2010, 2016, 2017, 2018 and 2022. Species are ordered by guild and then from the highest to lowest counts across all years.

Species	2008	2009	2010	2016	2017	2018	2022
<b>Gulls and terns</b>							
Southern black-backed gull	2108	2796	2245	4274	3377	7104	3943
Black-billed gull	2035	307	734	577	1128	332	118
Black-fronted tern	520	823	629	664	462	935	461
White-fronted tern	66	80	42	16	23	17	14
Red-billed gull	17	4	28	10	0	20	4
Caspian tern	6	1	1	6	1	2	0
Skua	0	1	0	0	0	0	0
Total gulls and terns counted	4752	4012	3679	5547	4991	8410	4540
<b>Waders</b>							
Banded dotterel	451	531	610	653	499	1152	555
Spur-winged plover	211	162	520	101	221	419	312
Pied stilt	93	235	73	249	13	672	190
SI pied oystercatcher	144	183	149	162	173	178	109
Wrybill	11	17	15	24	18	29	17
Variable oystercatcher	4	6	4	5	2	2	4
Black-fronted dotterel	0	0	0	2	3	8	15
Royal Spoonbill	0	1	0	0	0	0	5
Black stilt	0	0	0	0	0	4	0
Red Knot	0	0	0	0	0	2	0
Sharp tailed sandpiper	0	0	0	0	0	2	0
Total waders counted	914	1135	1371	1196	929	2468	1207
<b>Heron</b>							
White-faced heron	8	6	21	23	14	18	35
<b>Cormorants (shags)</b>							
Black cormorant	68	13	31	5	34	25	9
Pied cormorant	15	18	21	6	9	28	21
Little pied cormorant	5	1	1	1	0	0	0
Spotted cormorant	0	0	0	0	0	3	0
Total cormorants counted	88	32	53	12	43	56	30
<b>Waterfowl</b>							
Canada goose	332	317	291	310	352	655	339
Duck species	137	68	63	0	0	0	180
Paradise shelduck	80	85	66	61	77	182	132
Mallard/Hybrid	0	50	72	71	106	503	8
Scaup	14	13	0	0	0	0	0
Grey duck	0	0	0	3	14	6	0
Black swan	1	8	0	7	0	0	0
Total waterfowl counted	564	541	492	452	549	1346	659
<b>Other</b>							
Australasian harrier	11	7	0	9	18	12	17
Kingfisher	6	3	0	7	5	16	46
NZ pipit	3	11	9	17	16	19	45
Pukeko	1	0	0	0	0	0	0

**Table 3:** 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 were not recorded during these survey years.

Species	2008	2009	2010	2016	2017	2018	2022
<b>Passerine</b>							
Passerine sp.	NR	NR	NR	NR	NR	NR	569
Chaffinch	NR	NR	NR	NR	NR	43	276
Welcome swallow	1	0	0	6	1	13	139
Skylark	NR	NR	NR	NR	NR	27	122
Yellowhammer	NR	NR	NR	NR	NR	NR	60
Blackbird	NR	NR	NR	NR	NR	NR	45
Fantail	NR	NR	NR	NR	NR	NR	33
Bellbird	NR	NR	NR	NR	NR	NR	15
Grey warbler	NR	NR	NR	NR	NR	NR	30
Rock pigeon	0	0	0	4	0	5	19
Goldfinch	NR	NR	NR	NR	NR	4	16
Magpie	NR	NR	NR	NR	NR	NR	22
Silvereye	NR	NR	NR	NR	NR	NR	18
Sparrow	NR	NR	NR	NR	NR	NR	14
Shining cuckoo	NR	NR	NR	NR	NR	NR	11
Dunnock	NR	NR	NR	NR	NR	1	8
Greenfinch	NR	NR	NR	NR	NR	NR	8
Redpoll	NR	NR	NR	NR	NR	NR	5
Starling	NR	NR	NR	NR	NR	NR	3
Song thrush	NR	NR	NR	NR	NR	NR	2
<b>Raptor</b>							
NZ Falcon	0	0	0	1	0	1	0
<b>Other</b>							
California quail	0	0	0	7	0	3	18
Total number counted	22	21	9	51	40	144	1541

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





## Attachment 1: Distribution maps of bird species on the Waiau Uwha River in 2022



**Above:** Recorded locations of wrybill, black-fronted dotterel and any river bird breeding observations on the Waiau uwaha during the 2022 bird survey.

### Banded dotterel





## Wrybill



## Pied stilt

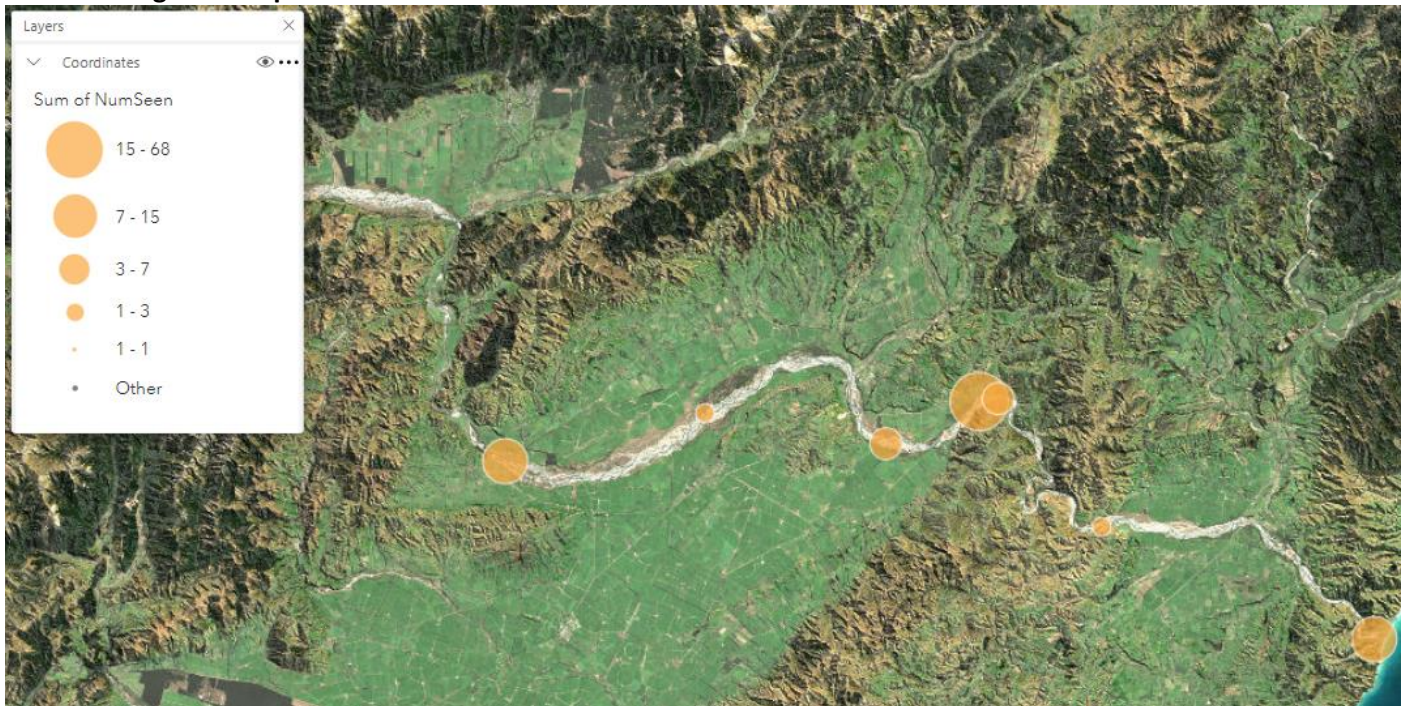


## South Island pied oyster catcher (SIPO)

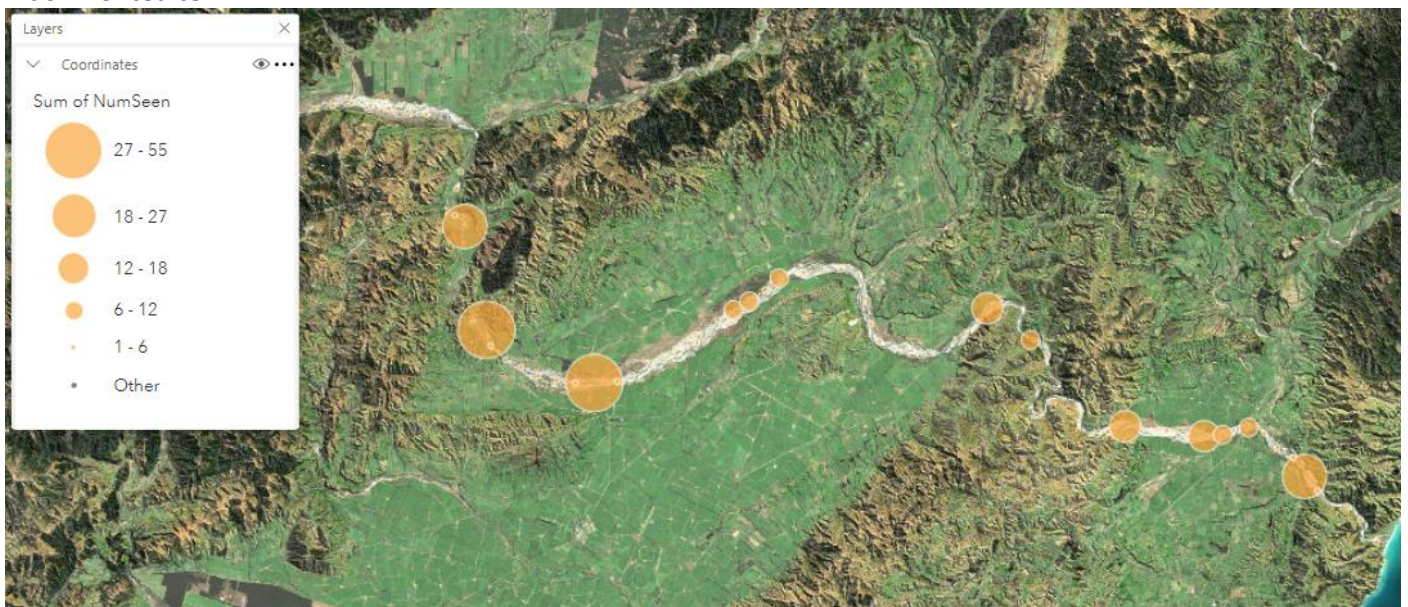




## Black-billed gull - Tarāpuka



## Black-fronted tern



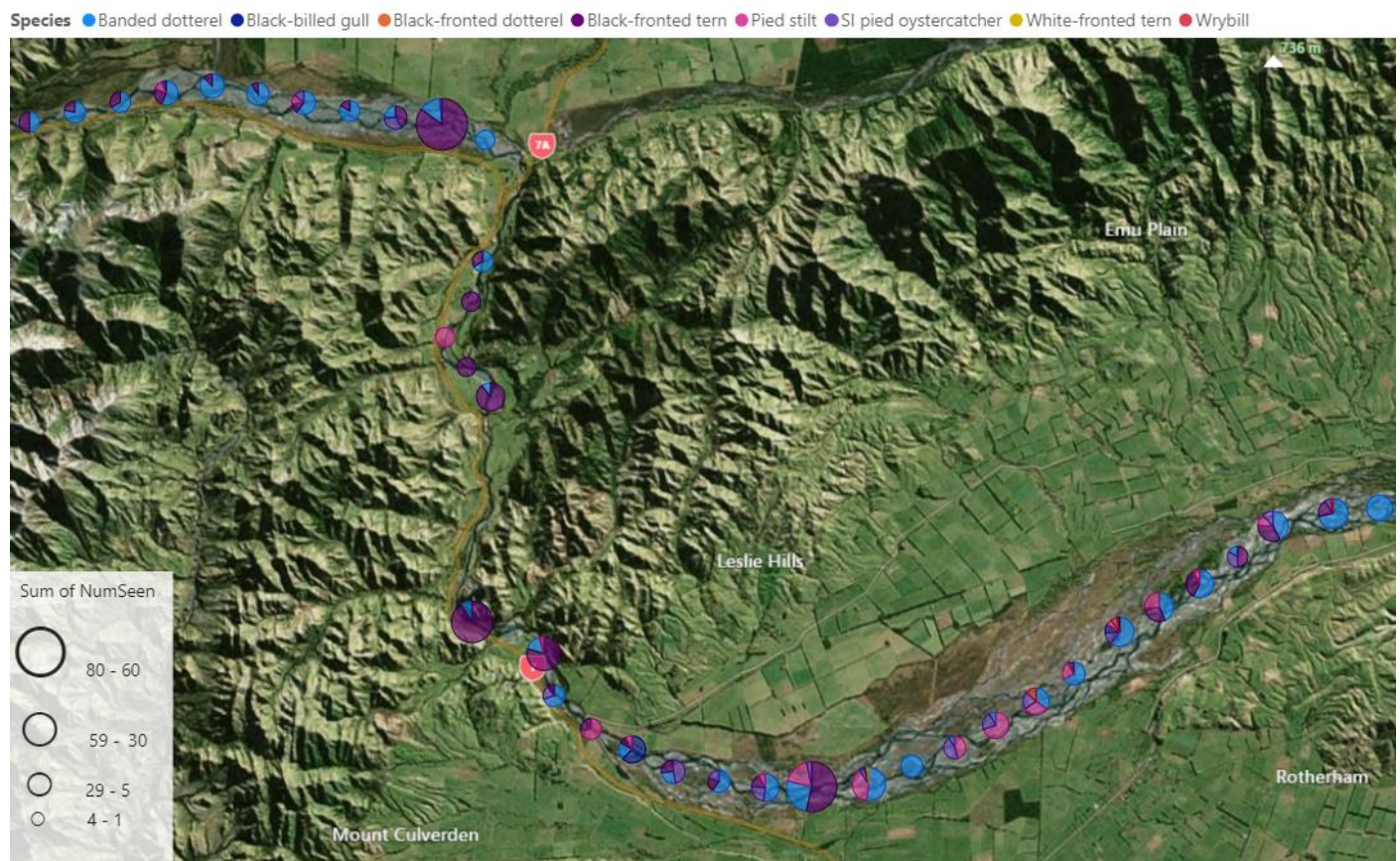
## Southern black-backed gull – Karoro





**Below:** Counts of threatened river birds observed during the 2022 bird survey by KM sections.

KM sections 1-45.



KM sections 46-89.

