

## Waiau River Bird Survey Summary 2018

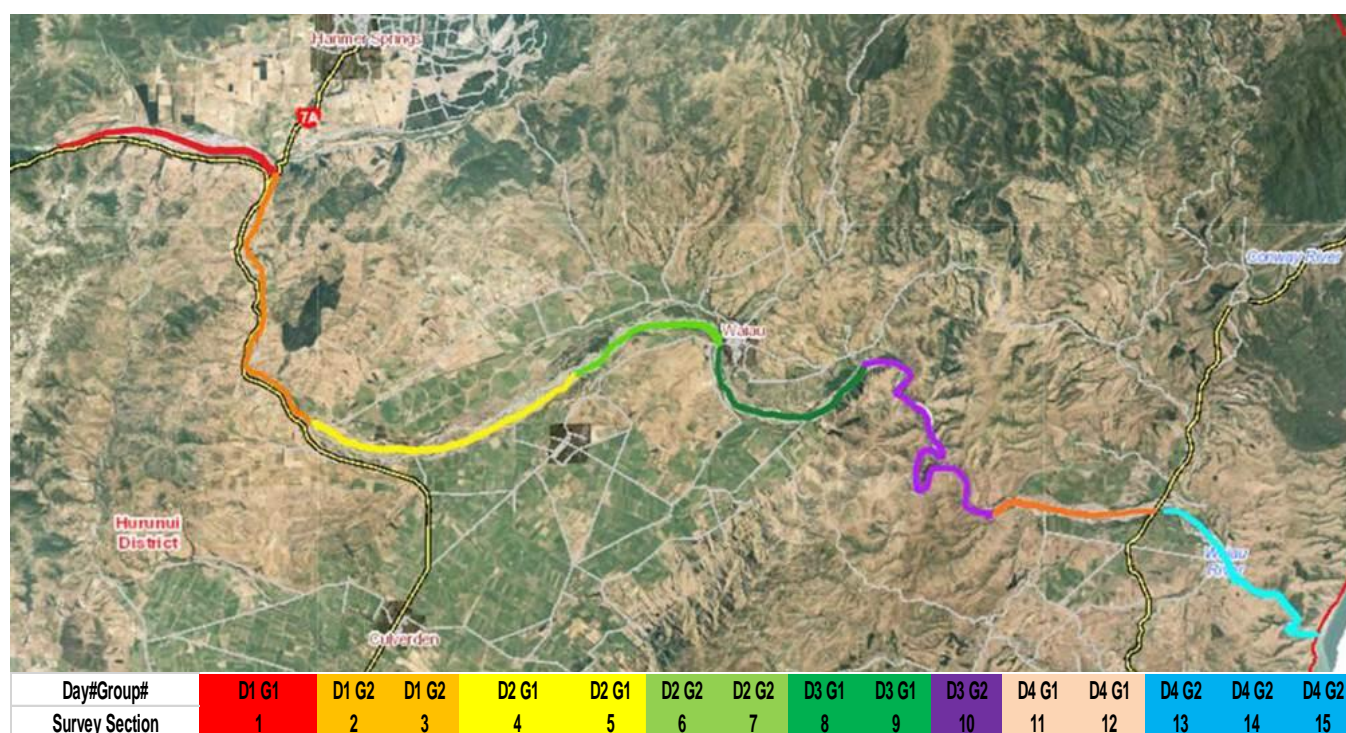


## The 2018 Waiau Uwha Bird Survey

The Waiau 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 (*Anarhynchus frontalis*) as well as internationally significant populations of black-fronted terns (*Chlidonias albobristatus*) and black-billed gulls (*Larus bulleri*), and a regionally significant population of banded dotterel (*Charadrius bicinctus*).

This is the seventh year of surveying. In 1975 the sections from Twin Bridges to Sandersons Road were covered (today's sections 4-8), and in 2008, 2009, 2010, 2016, 2017 and the recent 2018 survey covered the river from Waterfall Stream to the river mouth (15 sections). Typically, the braided river bird surveys are undertaken in three-year blocks, scheduled to repeat every five years. Next year however, Ecan's Hurunui-Waiau Zone team plan to repeat this survey for an additional three-year block to support outcome monitoring for Black-fronted tern and Black-billed gull.

As in other years the 2018 survey ran over four days from October 23<sup>rd</sup> to 26<sup>th</sup>. Thirty participants took part in the survey, covering just over 100KM of riverbed from the Waterfall Stream starting point, through the gorges to the river mouth (Figure 1). During the four days weather conditions varied from pleasantly warm and calm to times of bitterly cold rain. Day 1 and 2 had warmer temperatures, while Day 3 saw temperatures drop ten degrees from 26°C to 16°C, and showers develop. Fortunately, the heavier rain held off until surveyors reached the section's end marker. River flows were a stable 50 cumecs leading up to the survey and lower than previous years. A high of 80 cumecs was recorded overnight between Day 3 & 4 before dropping back to the 'base' 50 cumecs (Figure 2).



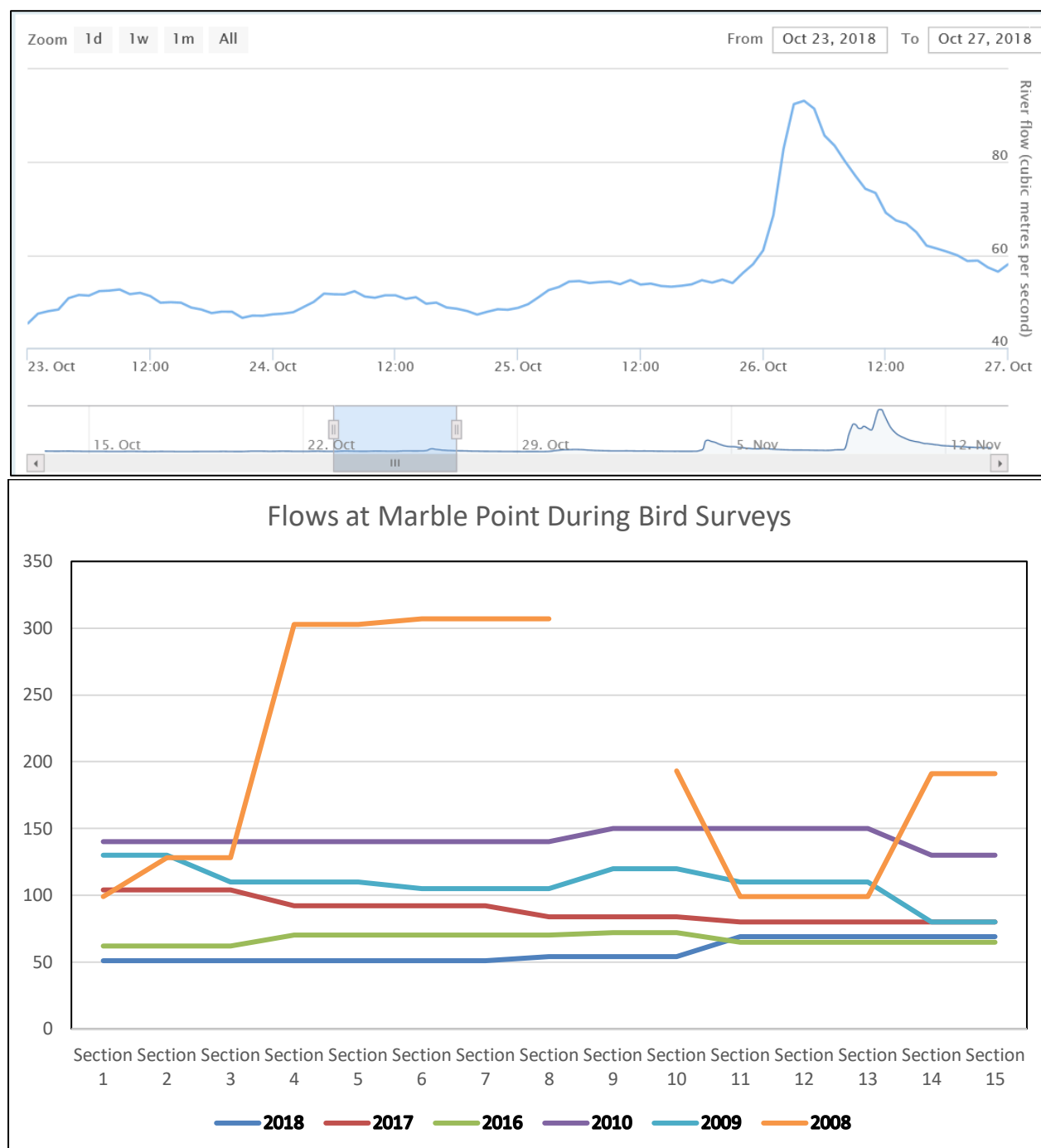
**Figure 1:** Map showing the sections of the river covered by the survey. The different colours denote a day's work by either Group. (E.g. Red and orange was Day One for Groups 1 and 2 respectively).

Overall, counts for most species were high compared to other years. This year we have the team at Wildlife Management International (<http://www.wmil.co.nz/team>) monitoring colonies of gulls and terns on the Waiau Uwha and this, alongside the additional monitoring mentioned above, should allow us to determine whether our 2018 findings present an 'outlier' data point or a potentially positive trend.

Unfortunately, most of the observed nesting birds would have lost eggs and chicks shortly following the survey after heavy rains in the catchment headwaters resulted in a 750+cumec flow event. Given the timing, the birds were expected to re-nest, however such events underline the precarious position of these birds breeding on our dynamic braided river environments.

Survey data is shared with the local braided river bird advocacy group BRaid (<http://braid.org.nz/>) and the Department of Conservation, who collates all braided river bird count datasets. These datasets provide important information on the use of the river by the bird species, informing river management decisions, use and agency resourcing of conservation activities.

For the next month photographs shared by participants from the 2018 survey may be viewed (and added to) [here](#).



**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 2018, 17, 16 & 2008, 09, 10 surveys. Note that in 2008 adverse weather conditions resulted in survey sections being undertaken across non-consecutive days from mid-October to late November.



## Key observations from 2018

### General observations

Total bird numbers were almost double that of previous years. While the counts of colonial nesting gull and tern species can often fluctuate greatly between years due to the use of different rivers by the birds in any given year, the observed high numbers of Banded Dotterel (which typically return to the same breeding location), Canada geese, Spur-winged plover, Pied Stilt and Mallard ducks were notably higher than the past survey count averages (Figure 3 and Table 1 below). These high counts may be due to a number of factors including a higher surveyor effort than in other years (Figure 4), additional expert ornithologist support (notably WMIL staff) and the stable river conditions (flows) leading up to this year's survey (Figure 2). Nick Ledger notes that on the Ashley-Rakahuri weeds are known to strongly influence bird numbers, however that is on a foothills-fed river where clean shingle can be limited by weed invasion. On a much larger alpine fed river such as the Waiau the weed situation may not be so influential. When we observe such large increases as reported here, a key question is where do the 'extras' come from - and where were they last year? This is why the sharing of count information between the groups and agencies that undertake these river bird surveys is important to our understanding and any management actions aiming to conserve these species.

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.

### Species specific observations<sup>1</sup>

See Figure 5 for recorded yearly counts and Attachment 1 for 2018 distribution maps.

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

A total of 29 Wrybill were counted, the highest count recorded during this survey to date (pre-2018 average = 17). Wrybill were observed within eight of the fifteen survey sections, with highest counts within section 5 (n=6), 11 (n=10) and 12 (n=6).

*Tūturiwhatu - Banded Dotterel - Charadrius bicinctus* (Nationally Vulnerable; Population estimate: 50,000)

A total of 1,152 Banded Dotterel were counted, the highest count recorded during this survey to date (pre-2018 average = 549). Dotterel were observed in all survey sections apart from section 2 between the Hanmer Bridge and Twin Bridges, with the highest count made across section 8 (n=126) just below the Waiau Uwha township bridge.

*Tarapirohe - Black-fronted Terns - Chlidonias albobriatus* (Nationally Endangered)

A total of 935 Tarapirohe were counted this year compared to 462 last year and a pre-2018 average count of 620 gulls. As with last year, a loosely associated colony of about 100 black-fronted terns was located along 4km of the river near the Shark's Tooth upstream of Twin Bridges (section 3 = orange on the map) and roughly 250 were observed a further 3-4km downstream (section 4). Other colonies were recorded within section 8 (n=c.80), 10 (n=c.50), 12 (n=c.50) and within the final river mouth section (n=c.25).

*Tarāpuka – Black-billed Gulls - Larus bulleri* (Nationally Critical)

Only 332 Tarāpuka gulls were counted on the river this year, with a single small colony of 60 birds recorded in section 6, near the salmon farm. Up to 2,035 of these birds have been counted in the past (2008 data), demonstrating the potential for high fluctuations in the counts of this colonial river nesting bird species within one river system and the importance to monitor such species across multiple rivers.

*Karoro – Southern Black-backed Gulls - Larus dominicanus* (Not Threatened)

Over 7,000 Karoro were counted on the river, over twice as many birds as last year and the pre-2018 average. The largest colony occurred in section 5 and comprised of over 1,800 birds.

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

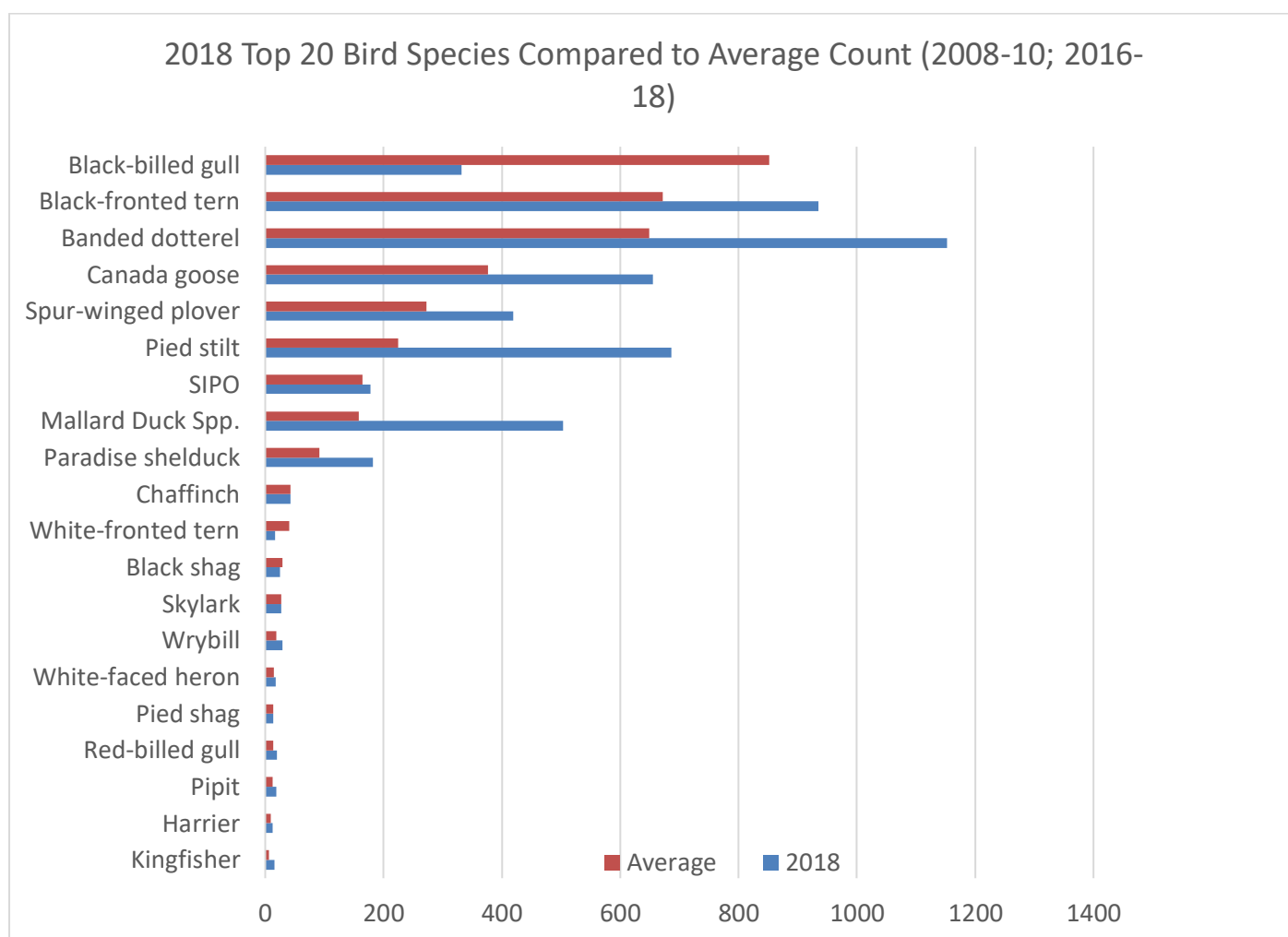
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<sup>1</sup> Population and Threat Status is from NZ Birds Online: <http://nzbirdsonline.org.nz/>

This year notably more Poaka were observed on the Waiau Uwha river. The average pre-2018 count of 132 birds was greatly surpassed by the 2018 count of 687. These widespread birds of gregarious nature are known to form large dispersed groups and, as with the other river nesting birds on the river, following the breeding season will migrate towards more northerly coastal locations. These birds may have benefitted from increasing areas of irrigated pastures.

*Kakī - Black Stilt - Himantopus novaezelandiae* (Nationally Critical; Population estimate: 100)

A notable observation of at least two banded Black Stilts was made within section 13 just below the State Highway 1 Bridge. Being one of the world's rarest wading birds it was a treat for survey participants to observe these birds. It is almost certain that these birds would have come up from the populations known breeding area in the upper Waitaki River in the Mackenzie Basin. Anita Spencer has sent the band combinations to the DOC Twizel team so that the birds movements can be recorded.



**Figure 3:** Total 2018 adult bird counts of the most abundant species (top 20) on the Waiau Uwha river compared to the average survey count of previous surveys (2008-10; 2016-18).

| Year | Total surveyor-days<br>(measure of survey effort) |
|------|---|
| 2018 | 59  |
| 2017 | 50  |
| 2016 | 48  |
| 2010 | 56  |
| 2009 | 52  |
| 2008 | 39  |

**Figure 4:** Survey effort across years as an indicator of survey effort.

**Table 1:** Total adult bird counts of species 2008, 09, 10 and 2016, 17, 18. Species are ordered from the highest to lowest count average across all years.

| <b>Species</b>                        | <b>2008</b>  | <b>2009</b>  | <b>2010</b>  | <b>2016</b>  | <b>2017</b>  | <b>2018</b>   |
|---------------------------------------|--------------|--------------|--------------|--------------|--------------|---------------|
| Southern black-backed gull            | 2108         | 2796         | 2245         | 4274         | 3377         | 7104          |
| Black-billed gull                     | 2035         | 307          | 734          | 577          | 1128         | 332           |
| Black-fronted tern                    | 520          | 823          | 629          | 664          | 462          | 935           |
| Banded dotterel                       | 451          | 531          | 610          | 653          | 499          | 1152          |
| Canada goose                          | 332          | 317          | 291          | 310          | 352          | 655           |
| Spur-winged plover                    | 211          | 162          | 520          | 101          | 221          | 419           |
| Pied stilt                            | 93           | 235          | 73           | 249          | 13           | 687           |
| SIPO                                  | 144          | 183          | 149          | 162          | 173          | 178           |
| Mallard Duck Spp.                     | 137          | 71           | 63           | 71           | 106          | 503           |
| Paradise shelduck                     | 80           | 85           | 66           | 61           | 77           | 182           |
| Chaffinch                             | NR           | NR           | NR           | NR           | NR           | 43            |
| White-fronted tern                    | 66           | 80           | 42           | 16           | 23           | 17            |
| Black shag                            | 68           | 13           | 31           | 5            | 34           | 25            |
| Skylark                               | NR           | NR           | NR           | NR           | NR           | 27            |
| Wrybill                               | 11           | 17           | 15           | 24           | 18           | 29            |
| White-faced heron                     | 8            | 6            | 21           | 23           | 14           | 18            |
| Pied shag                             | 15           | 18           | 21           | 6            | 9            | 13            |
| Red-billed gull                       | 17           | 4            | 28           | 10           | 0            | 20            |
| Pipit                                 | 3            | 11           | 9            | 17           | 16           | 19            |
| Harrier                               | 11           | 7            | 0            | 9            | 18           | 12            |
| Kingfisher                            | 6            | 3            | 0            | 7            | 5            | 16            |
| Scaup                                 | 14           | 13           | 0            | 0            | 0            | 0             |
| Goldfinch                             | NR           | NR           | NR           | NR           | NR           | 4             |
| Grey duck                             | 0            | 0            | 0            | 3            | 14           | 6             |
| Variable oystercatcher                | 4            | 6            | 4            | 5            | 2            | 2             |
| Welcome swallow                       | 1            | 0            | 0            | 6            | 1            | 13            |
| Caspian Tern                          | 6            | 1            | 1            | 6            | 1            | 2             |
| Black swan                            | 1            | 8            | 0            | 6            | 0            | 0             |
| Black-fronted dotterel                | 0            | 0            | 0            | 2            | 3            | 8             |
| Sharp tailed sandpiper                | NR           | NR           | NR           | NR           | NR           | 2             |
| Red Knot                              | NR           | NR           | NR           | NR           | NR           | 2             |
| Quail                                 | 0            | 0            | 0            | 7            | 0            | 3             |
| Feral pigeon                          | 0            | 0            | 0            | 4            | 0            | 5             |
| Little shag                           | 5            | 1            | 1            | 1            | 0            | 0             |
| Dunnock                               | NR           | NR           | NR           | NR           | NR           | 1             |
| Black Stilt                           | 0            | 0            | 0            | 0            | 0            | 2-4           |
| Spotted shag                          | 0            | 0            | 0            | 0            | 0            | 3             |
| Falcon                                | 0            | 0            | 0            | 1            | 0            | 1             |
| Pukeko                                | 1            | 0            | 0            | 0            | 0            | 0             |
| Black swan                            | 0            | 0            | 0            | 1            | 0            | 0             |
| Royal spoonbill                       | 0            | 1            | 0            | 0            | 0            | 0             |
| Skua                                  | 0            | 1            | 0            | 0            | 0            | 0             |
| <b>Total survey all species count</b> | <b>6,348</b> | <b>5,700</b> | <b>5,553</b> | <b>7,281</b> | <b>6,566</b> | <b>12,442</b> |

**Figure 5:** Bird species counts over survey years 2008, 09 & 10 and 2016, 17 & 18 on the Waiau Uwha River. Average count shown includes all years.





## Attachment 1: Distribution maps of bird species on the Waiau Uwha River in 2018



**Above:** Recorded locations of all Wrybill and bird colonies or nests on the Waiau uwha during the 2018 bird survey. Black Stilt are also included as a point of interest. (Abbreviated bird names: BFT = Black-fronted Tern; SBBG = Southern Black-backed Gull; BBG = Tarāpuka, Black-billed Gull).

### Banded Dotterel

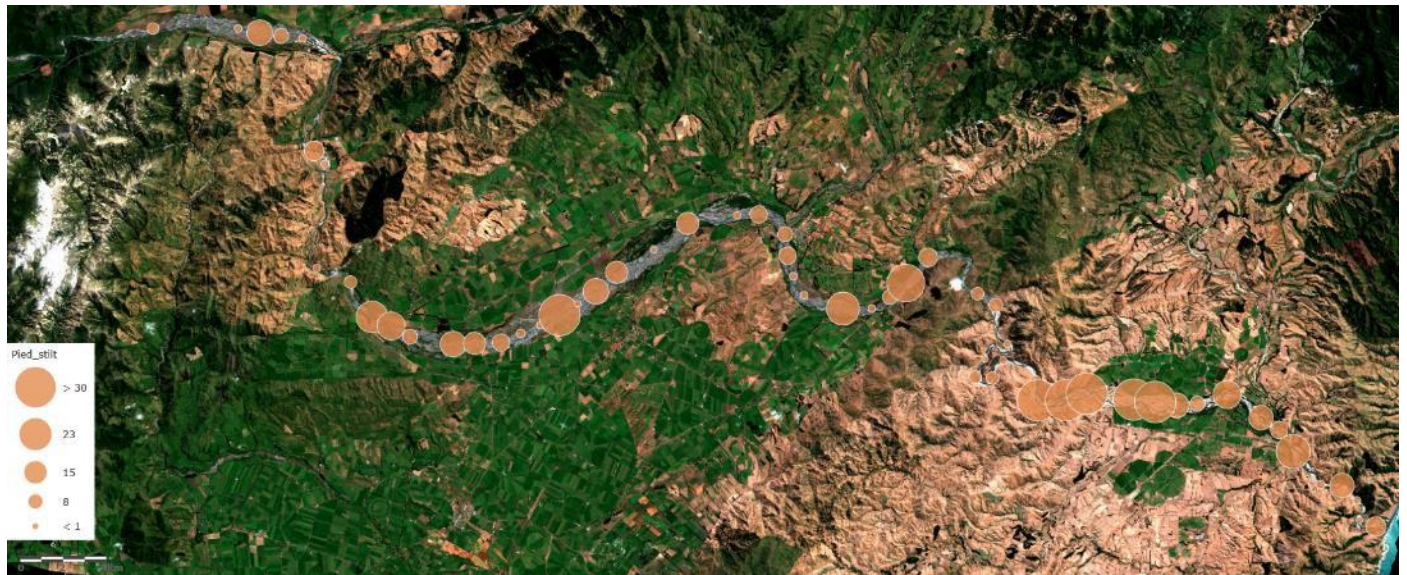


### Wrybill





## Pied Stilt



## White-fronted Tern

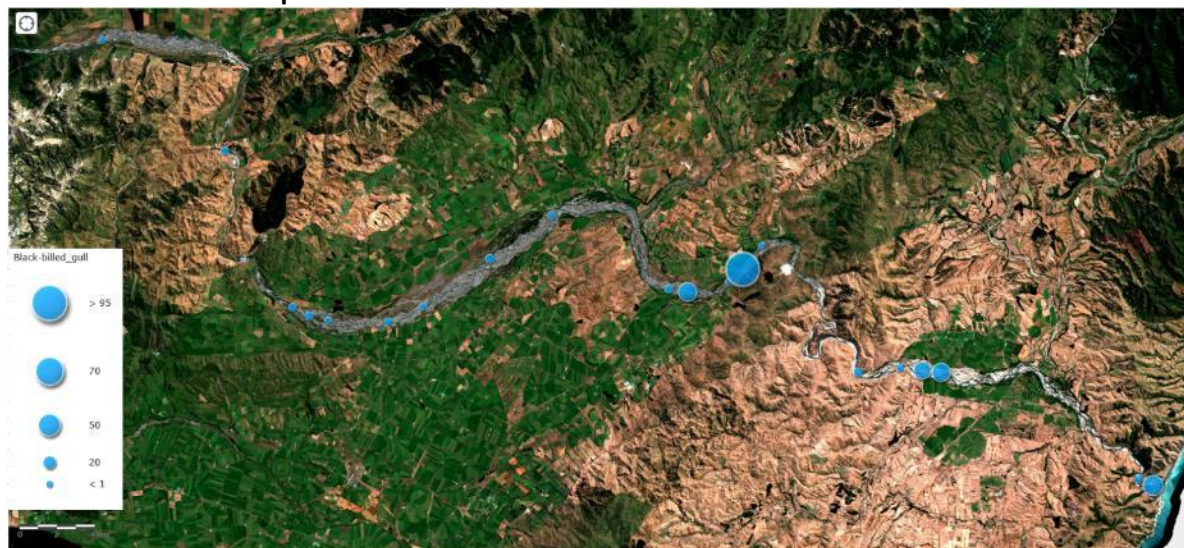


## South Island Pied Oyster Catcher (SIPO)





## Black-billed Gull - Tarāpuka



## Black-fronted Tern

