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## **ADDENDUM to Makarora Braided River Bird Survey**

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**Lower Wilkin Confluence to Makarora River Delta**



November 2017

**ILLUMINATE ECOLOGY**

ASPIRING BIODIVERSITY TRUST - OTAGO REGIONAL COUNCIL

## Summary

Following the original Makarora braided river bird walkover survey undertaken during October 2017, the Lower Wilkin Confluence to Makarora River Delta was surveyed during the 18 November 2017. A follow up investigation of the Makarora Delta periphery was undertaken during 23 November via kayak.

Two large Southern black-backed gull (*Larus dominicanus*) breeding colonies were recorded with numerous chicks of various age ranges.

A small black-fronted tern (*Chlidonias albobristatus*) nest site was observed and two pairs of wrybill (*Anarhynchus frontalis*), one with a chick was noted at the mouth of the Makarora Delta. Banded dotterel (*Charadrius bicinctus*) with chicks and South Island pied oystercatcher (*Haematopus finschi*) were present. A small number of black-billed gulls (*Larus bulleri*) were recorded foraging, but no nest sites recorded in this stretch of the river.

Other avifauna recorded included; white-faced heron (*Egretta novaehollandiae*), a colony of black shag (*Phalacrocorax carbo*), three pairs of pied stilt (*Himantopus himantopus*), (one hybrid), black swans (*Cygnus atratus*) with cygnets and paradise shelducks (*Tadorna variegata*).

Recreational pressure from vehicles and tourists was more apparent during this survey visit in relation to the southern river access point. Cattle again were evident within the braided river environment close to nesting colonies of vulnerable braided river birds.

**This survey highlights further accumulative pressures from native avian predators and recreational river users on endangered braided river birds; wrybill, black-fronted tern, black-billed gull, banded dotterel and South Island pied oystercatcher. Principally, in relation to an increase in Southern black-backed gull numbers and the time of year in relation to tourism and recreation.**

## Recommendations

- As per original survey report, with emphasis on the design and feasibility of a black-backed gull population control programme. Further research into the ecology of this species is also required to help facilitate appropriate management.
- Installation of interpretation signage to be installed at river entrance points before nesting locations of braided river birds. To help visitors understand and look out for potential signs of nesting birds whilst appreciating the braided river environment and its wildlife. The use of portable signs during the breeding season could be an option.
- Where possible cattle should have restricted access to the braided river environment particularly during the braided river bird nesting season. This would help with fledgling success particularly in relation to black-fronted tern, a species prone to abandon nest sites following disturbance.
- As part of a comprehensive braided river invasive mammal trapping regime, traps within this section would be difficult to access on foot and would be confined to raised

peripheral habitat rather than situated within the main channel. Trapping effort at the western edge of the delta would be desirable in relation to wrybill and banded dotterel.

- An updated invasive weed control management plan should be compiled, and vegetation mapped, particularly in relation to crack willow (*Salix fragilis*), briar (*Rosa rubiginosa*), Russel lupin (*Lupinus polyphyllus*) and broom (*Cytisus scoparius*).

## Introduction

On the 18 November an extended braided river bird survey was undertaken from the Lower Wilkin confluence to the Makarora River delta. This survey data is additional to previous surveys undertaken during October 2017 which were limited to the length of the river extending from Boiler Flat (1,300,633 E 5,100,178 N) to the lower Wilkin confluence (1,295,809 E 5,090,431 N) as per historical surveys undertaken by the Department of Conservation.

The survey start point (Fig 9) was accessed following a river crossing at the base of the Wilkin River and finished at the Makarora Delta (1294230 E 5085070 N) covering a distance of 6.8 km and 8 river crossings. Conditions were fine and dry with a light easterly wind. Survey method as per original survey report however only two surveyors on this occasion; Rachel Hufton and Anthony Coote. A follow up investigation of the Makarora Delta periphery (particularly the wetland area not previously accessible) to Rainbow Creek was undertaken during 23 November via kayak.



**Fig 1:** View on approach to the Makarora Delta and Lake Wanaka.

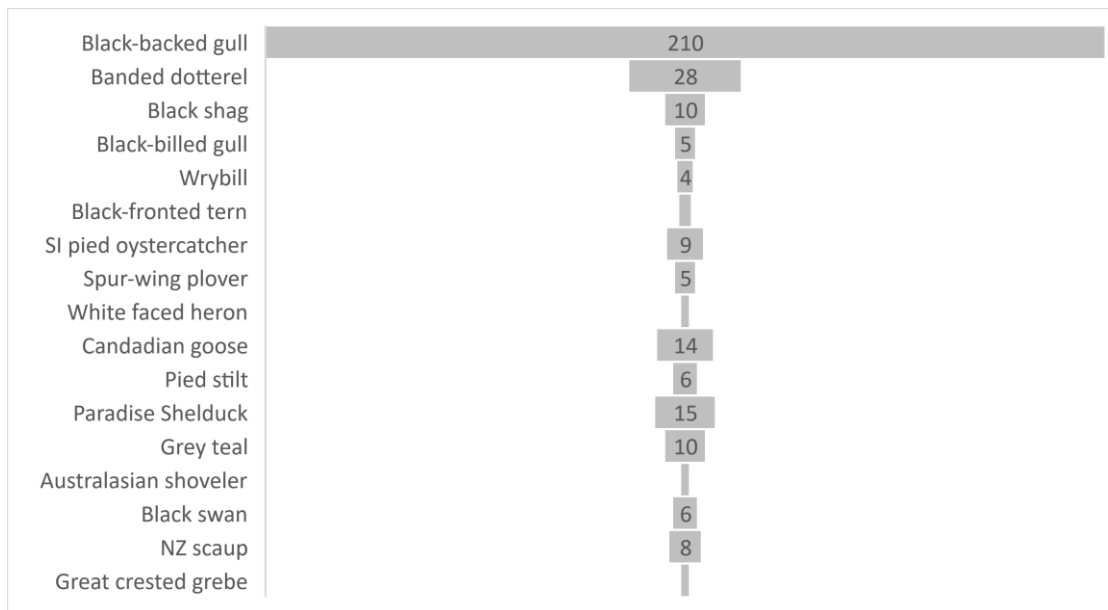


**Fig 2:** Makarora River looking north towards the Wilkin/Makarora confluence.

## Results

**Table 1:** Total bird survey counts for the Lower Wilkin Confluence to Makarora Delta 18 and 23 November 2017. Conditions overcast to start turning fine and dry with a moderate Southerly wind.

Bird species	Count (adult)	No. young	Comments
Southern black-backed gull <i>Larus dominicanus</i>	210	55 chicks	Two large nesting colonies identified, chicks frequently encountered
Banded dotterel <i>Charadrius bicinctus</i>	28	Chicks 5, fledgling 2	Consistently recorded, away from black-backed gull colonies.
Wrybill <i>Anarhynchus frontalis</i>	4	1 chick	Observed at delta, one chick (2w)
Black shag <i>Phalacrocorax carbo</i>	10	-	Colony near delta
Little pied shag <i>Phalacrocorax melanoleucos</i>	1	-	-
Black-billed gull <i>Larus bulleri</i>	5	-	Occasional observation
Black-fronted tern <i>Chlidonias albobristatus</i>	3	1-2 chick	Chick feeding observed at a single nest site
South Island pied oystercatcher <i>Haematopus finschi</i>	9	-	Occasional
Spur-wing plover <i>Vanellus miles</i>	5	-	-
White-faced heron <i>Egretta novaehollandiae</i>	2	-	-
Canadian goose <i>Branta canadensis</i>	14	9 gosling	Two families with chicks
Pied stilt <i>Himantopus himantopus</i>	6	-	One hybrid
Paradise shelduck <i>Tadorna variegata</i>	15	-	-
Grey teal <i>Anas gracilis</i>	10		Within wetland fringe
Australasian shoveler <i>Anas rhynchos</i>	2		Within wetland fringe
Black swan <i>Cygnus atratus</i>	6	4 cygnets	Delta
NZ scaup <i>Aythya novaeseelandiae</i>	8		Within wetland fringe
Australasian crested grebe <i>Podiceps cristatus</i>	2		Within wetland fringe
<b>Total count</b>	<b>339</b>	<b>78</b>	

**Fig 3:** Funnel chart for braided river/delta bird counts – Lower Wilkin Confluence to Makarora Delta.

### Braided river birds

All endemic braided river birds are present within this section of the Makarora but in lower numbers in comparison to the area above the Wilkin/ Makarora confluence. Breeding was evident for banded dotterel, wrybill and black-fronted tern during this walkover survey. Black-billed gulls were only recorded foraging and commuting, not nesting within this section of the river.

**Fig 4:** Wrybill chick recorded at Makarora Delta November 2017 (2-3 weeks).

Black-backed gull was by far the most dominate species present within this stretch of the river. Two large colonies were observed, and black-backed gull chicks were recorded frequently. Nesting adults of this species were also recorded within both locations (Fig 5, Fig 9).





**Fig 5:** Raised grassy area; the main location of the black-backed gull nesting colony (in front of pine trees).

### **Wetland**

Part of the Makarora delta located to the east has become a wetland dominated by encroaching crack willow. This is where most waterfowl species were recorded including; grey teal, New Zealand scaup, Australasian shoveler, black swan, paradise shelduck and a pair of great crested grebe's.

### **Other avifauna**

Bellbird, grey warbler, tom tit, welcome swallow, skylark, blackbird, chaffinch and shining cuckoo were recorded either passing through the braided river habitat or calling from peripheral vegetation.

### **Lagamorphs**

Four hares were recorded transversing through the braided river habitat. A higher count of hare was recorded upstream of the Wilkin/ Makarora confluence during October bird counts.

### **Flora**

Overall, the existing braided river environment of the Makarora is generally clear of invasive weed species. Grey cushion plants and associated species native to this environment occurred frequently during the walkover survey. Species present include mat daisy (*raoulia hookeri*), *muehelnbeckia axilaris*, *Epilobium melanocaulon*, and *colobanthus apetalus*.



**Fig 6:** *Raoulia hookeri* with *Muehelnbeckia axilaris* (left) and *Epilobium melanocaulon* (right). Makarora River November 2017.

However, a small area of invasive broom was observed and occasional crack willow seedlings. A belt of crack willow is present at either side of the mouth of the delta predominately to the east but also to the west of the Makarora River. Occasional sweet briar (Fig 8) was noted flowering within the braid plain and Russell lupin was noted on the approach to the Delta from the main highway.



**Fig 7:** Note extent of crack willow spreading across the flood plain from east to west. Image taken looking up river towards Makarora from the river delta.



**Fig 8:** Briar an invasive weed flowering within the braided river environment at Makarora Delta.

### **Livestock**

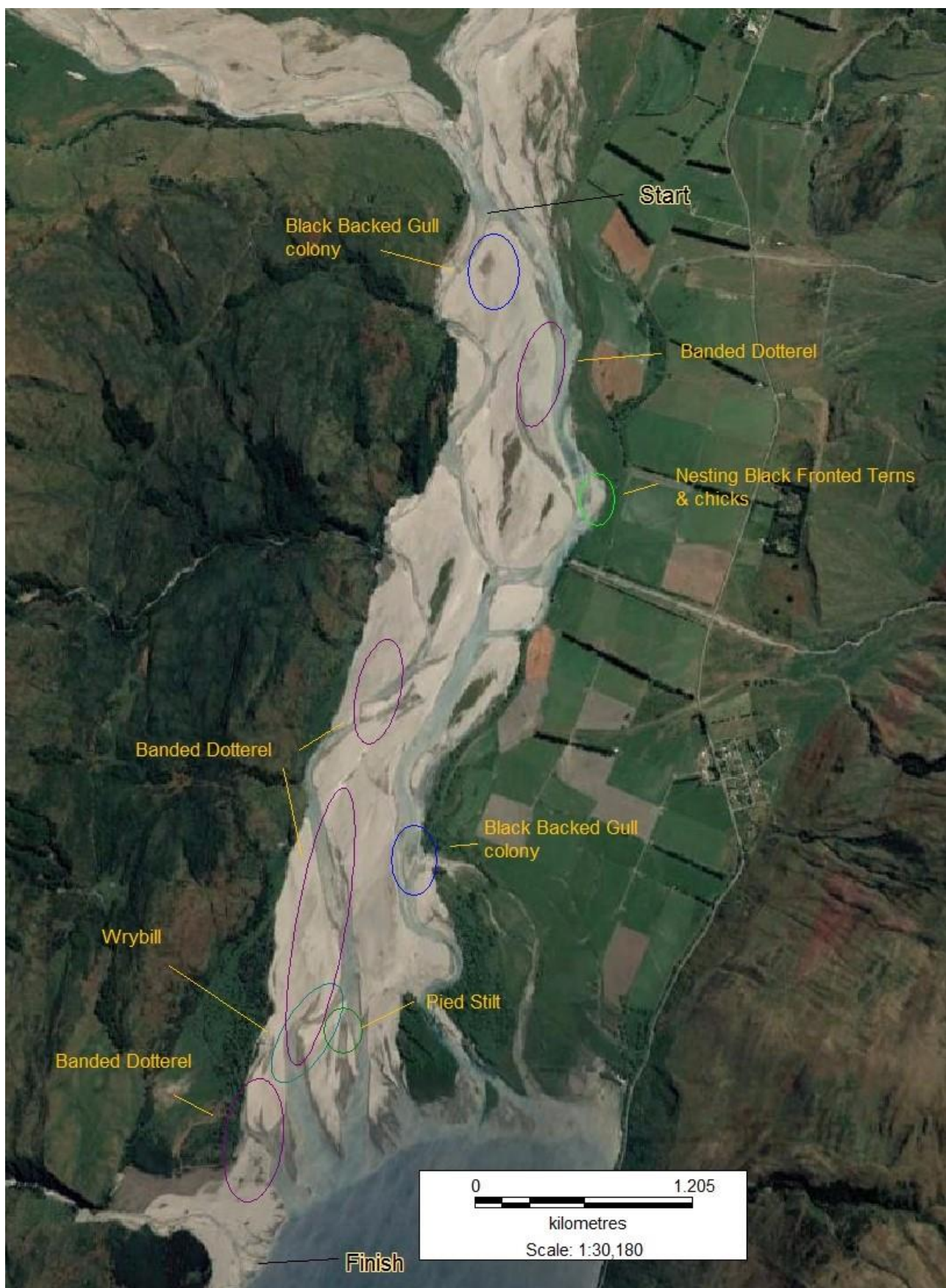
Evidence of cattle freely accessing this part of the river was observed. A herd of cattle with calves was noted at the Wilkin Road access point to the river. The cattle have free access to roam on the braided river plain, close to nesting colonies of rare and endangered braided river birds.

### **Recreation and tourism**

The onset of summer and the tourist season was particularly evident during this survey visit. Vehicle tracks were frequently observed within the braided river habitat off Wilkin Road and vehicles and trailers were also noted driving across the river. Many tourists were also noted walking and fishing within this area, again in close proximity to nesting endangered braided river birds.



**Fig 9:** Survey plan of bird species locations recorded during walkover survey (18 November 2017).



## Discussion

The results of this survey highlight the value of including the full length of the Makarora River to appropriately ascertain the full ecological situation for braided river birds within this environment.

Results highlight the apparent pressure from Southern black-backed gull on endangered braided river birds. Two additional large colonies of breeding Southern black-backed gull were identified with many chicks observed running about in various directions. This adds to previous breeding colonies identified upstream during October which were not affected by earlier flash flooding unlike the nest sites of black-billed gull and black-fronted tern. This species is the predominate and most successful breeding bird species recorded during the 2017 braided river bird surveys. It is known to consume endemic braided river birds, their eggs and chicks (OSNZ). Again, species such as banded dotterel and black-fronted tern were observed fending off the advances of hawking black-backed gulls looking for food to feed their chicks.



**Fig 10:** Black-backed gull chick, Makarora Nov 2017.

Wrybill were located furthest away from black-backed gull colonies being situated on raised gravels towards the edge of the river delta. Black-fronted tern and black-billed gull were recorded in low numbers here, with their main nesting colonies located upstream. Banded dotterel and South Island pied oystercatcher were present but in lower counts than compared to counts made upstream. Few chicks were recorded for these species for this time of year within this stretch of the river. This may be attributed to predation either from invasive mammalian species or native avian predators. A colony of ten black shag were observed at the river delta along with six pied stilts, one a hybrid black/pied stilt. This is the fourth pair of stilts recorded on the Makarora during 2017.

Anthropogenic influences from tourism and recreation were more noticeable during this survey visit. Interpretation signage should be installed in areas where nesting braided river birds are present to help raise awareness and promote fledgling survival. The potential implications of invasive weeds such as willow was recognised at the Makarora delta where the braided river habitat had changed to willow carr. The encroachment of the wetland habitat should be monitored and managed to minimise future loss of braided river bird habitat and potentially the threatened bird species dependent upon it.