

## SHORT NOTE

## Northward expansion of the non-breeding range of Otago shag (*Leucocarbo chalconotus*) along the Canterbury coast towards Banks Peninsula, eastern South Island, New Zealand

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The Otago shag (*Leucocarbo chalconotus*) is a recently recognised species, being one of two taxa split from Stewart Island shag – the other taxon receiving the name, Foveaux shag (*Leucocarbo stewarti*) (Rawlence *et al.* 2016). The Otago shag population numbers <2,500 individuals and is resident along the coastlines of Otago – north and south of Otago Peninsula (Chamberlain 2016). Since the 1980s the species has become much more abundant along the North Otago coast with a northward spread of roosting locations (Lalas & Perriman 2009; McKinlay 2013; Rawlence *et al.* 2016). A large, fast-growing colony, established in 2014 on a derelict wharf at Oamaru Harbour (45°06'S, 170°58'E), marks the northern-most breeding site to date (Forest & Bird 2015; MacLean 2017). In 2019 this colony comprised *c.* 650 nests and had become the single largest breeding site for the species, supporting

over 40% of the entire population (C. Lalas per MacLean 2019). Correspondingly, numbers of birds roosting 25 km further north at the Waitaki River-mouth in South Canterbury (44°55'S, 171°09'E) have increased substantially (MacLean 2019). At this locality, Crossland (2012) reported counts of up to 30 in 2007, but more recently higher counts have included 283 on 5 May 2018 (Loh 2018), 43 birds on 9 January 2019 (Alexander 2019), and 120 birds on 25 April 2019 (Rowe 2019). Some of these birds feed in South Canterbury coastal waters from the Waitaki River-mouth northwards to the sea off Lake Ki-Wainono (Crossland 2012).

Crossland (2012) reported the presence of Otago shags along the Canterbury coastline and suggested that Timaru Harbour (44°23'S, 171°16'E) was a likely future roosting site, but up to that date, the species' presence there was unconfirmed. The first verified record for the Timaru area was of one bronze morph bird observed by the author and P. Crutchley on 1 August 2014. This bird was flying along the breaker line off Washdyke Lagoon (44°22'S, 171°15'E) and heading toward Timaru Harbour, 2.5 km south.



**Figure 1.** A) Bronze morph Otago shag roosting with spotted shags at Timaru Harbour, 8 August 2020; B) Pied and bronze morph Otago shags, Ashburton River-mouth, 14 September 2018; C) Two juvenile bronze morph Otago shags displaying mutual head-lowering behaviour. Note the wider separation between them and surrounding spotted shags as compared to the distances maintained amongst spotted shags. Ashburton River-mouth, 22 June 2018; D) An immature bronze morph Otago shag apparently feeding another. Ashburton River-mouth, 21 July 2018.

This record was accepted by the OSNZ Records Appraisal Committee (UBR 2014/53). The second record was of two pied morph birds seen at Patiti Point, Timaru, on 30 September 2016 (P. Field *pers. comm.*). Subsequent records include two bronze morph birds roosting among spotted shags on the outer northern rock mole, Timaru Harbour, on 21 July 2018; one bronze morph within Timaru Harbour on 21 April 2019; one pied morph at Washdyke Lagoon on 9 September 2019 (Thomas 2019); one pied morph at the same location on 30 November 2019 (Smith & Carnahan 2019); and three birds (two adult bronze morph, one adult pied morph) in Timaru Harbour on 8 August 2020 (Fig. 1A).

Since November 2016 I have monitored the large shag roost at the Ashburton River-mouth (44°03'S, 171°48'E), which is located c. 145 km (following the coastline) north-east of Oamaru Harbour; 59 km north-east of Timaru Harbour; and 78 km south-west of Banks Peninsula. Counts were conducted

once per month as part of a wider wildlife monitoring programme at this site commissioned by Environment Canterbury (Crossland 2018, 2019, 2020; Bell & Harborne 2019). All counts are undertaken in the late afternoon once flocks had returned from feeding grounds in the Canterbury Bight and were settled for the night. Observations lasted from 90 minutes prior to sunset to 30 minutes after. The principle species occurring is spotted shag (*Stictocarbo punctatus*) with autumn-winter peaks numbering 6,000–9,000 birds (Crossland 2019; 2020), but other shag species have been observed as well, including Otago shags. None were recorded between November 2016 and mid March 2018 but one bird, a juvenile bronze morph, was located amongst 7,180 spotted shags on 26 March 2018 (Table 1), which was the first record for the Ashburton River-mouth (Crossland 2018). Otago shags were recorded for five consecutive autumn-winter months (March to July) in 2018, with a maximum count of nine on 22 June 2018. Birds were

**Table 1.** Monthly count totals of Otago Shag at the Ashburton River-mouth, South Island, New Zealand, night roost, November 2016 – October 2020.

Year	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
2016–2017	0	0	0	0	0	0	0	0	0	0	0	0
2017–2018	0	0	0	0	1	3	5	9	3	0	3	0
2018–2019	1	0	0	0	1	1	2	2	0	0	0	0
2019–2020	0	0	0	1	1	1	3	1	4	2	0	0

seen again in September 2018 (3), November 2018 (1) and then 1–2 birds from March to June 2019. The following year, 1–4 birds were recorded each month between February and August 2020.

Otago shags observed at the Ashburton River-mouth have included a mix of adult and juvenile bronze morph and adult pied morph birds. Most have been individually photographed (Figs 1B–1D). Multiple records have been submitted and accepted by the Birds New Zealand Records Appraisal Committee (Miskelly *et al.* 2019), although the frequency of sightings and publication of this short note provide good reason to shift the reportable area further north along the Canterbury coast.

At the Ashburton River-mouth individual Otago shags typically fly in to roost 20–60 minutes prior to sunset and land on the edge of the large congregation of spotted shags. The roost is invariably facing the lagoon on the landward slope of a shingle barrier separating the river-mouth lagoon from the sea. Once landed, Otago shags usually preen and then typically move toward the middle part of the slope, half way between beach crest and water, which seems to be a favourite roosting position. They either settle for sleep or walk to meet others of the same species and roost together (Fig. 1B). A variety of display and other behaviours as described in Marchant & Higgins (1990) have been observed between birds, including mutual bowing and head-lowering, gargling, gaping, mutual preening, and occasional food begging behaviour by juveniles in the company of adult birds. Interactions with surrounding spotted shags are few but the larger Otago shags tend to dominate and push spotted shags aside as they move through the crowded roost. Typically, Otago shags maintain separation distances through pecking and lunging that are twice or more the distances kept by spotted shags among themselves (Fig. 1C).

Regular bird counts since 2000 at the Rakaia River-mouth (43°54'S, 172°12'E), 36 km NW of the Ashburton River-mouth, have failed to find any Otago shags (AC *unpubl. data*). The Rakaia has a sizeable lagoon (>50 ha) stretching 4.5 km behind narrow shingle spits, but <100 spotted shags and

<30 individuals of other shag species typically roost there. Either such a small congregation may not be a sufficient anchor to attract passing Otago shags or there are none feeding in adjacent coastal waters.

Crossland (2012) reported two sightings of bronze morph Otago (Stewart Island) shag well north of the species' recognised range in the vicinity of Banks Peninsula. The first sighting was at Ataahua Point, Lake Ellesmere (43°46'S, 172°38'E), on 26 May 2009, and at Kaitorete Spit (43°50'S, 172°36'E) on 13 December 2010. Subsequently, a third record came in the form of a beach wrecked bronzed morph found dead at Te Oka Bay (43°51'S, 172°47'E), south-western Banks Peninsula on 25 July 2015. This bird was identified as a juvenile and appeared to have been dead for several weeks (P. Langlands *pers. comm.* via Birding-NZ@yahoo.com post 25 July 2015).

Inshore seabird surveys of the entire coastline of Banks Peninsula conducted between 31 October – 1 November 2012, and 24 October – 5 November 2017 by Christchurch City Council and Department of Conservation included Otago shag as a target species but failed to find any (Crossland & Crutchley 2020). However, a repeat survey conducted between 23 October – 2 November 2020 located a single Otago shag roosting at Damons Bay, south-east of Akaroa Harbour on 29 October 2020. This bird, an adult pied morph, was the first confirmed record of a live Otago shag on the Banks Peninsula coast (Records Appraisal Committee UBR 2011/15). The dates of these surveys, timed to census the breeding colonies of spotted shags and other seabirds, were outside of the autumn-winter period when visiting Otago shags would most likely occur. In order to determine if the species is still merely a vagrant or has become a new, or hitherto undetected regular visitor to Banks Peninsula, more boat surveys and land-based observation should occur with a particular focus on the months March to September when the evidence from Timaru and the Ashburton River-mouth indicates the species is present in low numbers along the Canterbury Bight.

A summary of the current (2021) status of Otago shag in Canterbury is that it is present year-round

in the very southern part of the region with sizeable flocks roosting at the Waitaki River-mouth. Much smaller numbers range further north to Timaru Harbour and the Ashburton River-mouth in the post-breeding period where they occur in very low numbers between mainly March and September. There are currently just four records of stragglers in the Banks Peninsula/Lake Ellesmere area, but with the rapidly increasing breeding population at Oamaru Harbour and a growing trend for some birds to disperse northwards, it is predicted that Otago shag will likely extend its non-breeding range all the way from the Waitaki River-mouth to Banks Peninsula in the future, a coastline distance of c. 200 km.

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