

SHORT NOTE

A second albinistic spotted shag (*Stictocarbo punctatus*) in 116 years

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Albinistic colour aberrations are relatively rare in wild birds, although they have been reported in a wide range of species (Oliver 1955; Terres 1980; Everitt & Miskelly 2003). Albinism is defined as a total lack of both types of melanin (eumelanin and phaeomelanin) in feathers, eyes and skin and occurs as the result of an inherited absence of the enzyme tyrosinase in a bird's body (Fox & Vevers 1960). Albino birds are always completely white - in fact, they are colourless as the feathers have a complete lack of pigments. The eyes and skin always appear pinkish and this is caused by the underlying blood vessels being visible through colourless tissue (van Grouwe 2006). Albino birds have poor eyesight and are thought not to survive long in the wild (Terres 1980).

Leucism is caused by a genetic disorder which inhibits the deposition of both types of melanin in the feathers (van Grouwe 2006). The enzyme tyrosinase is present and the bird has normal colour cells but pigments are not transferred to all or part of a bird's feathers. Unaffected parts of the plumage, the eye, bill and skin are all normally coloured because the transfer of pigment to these is not blocked. Leucistic birds are frequently mislabelled as albinos or "partial-albinos". However, the normal eye and

skin colouration of such birds always indicates that they are not albinos.

Another colour aberration which results in white plumage is termed "ino" and occurs where phaeomelanin has almost completely disappeared and there is poor oxidation of eumelanin (van Grouwe 2006). The underlying plumage patterns remain visible but are very faint. The near absence of pigment results in the eyes being reddish and all normally dark feathering becomes very pale. As feathers age they become sun-bleached and birds with worn plumage may appear completely white. Ino birds have better eyesight and higher survival chances than albinos (Juares *et al.* 2011). According to van Grouwe (2006), "it can be stated with great certainty that any adult *white* bird with red eyes in nature is an ino, not an albino."

New Zealand ornithologists of the late 19th and early 20th centuries held a particular fascination with albinism and other types of abnormal colouration in birds. A number of specimens were collected and documented in the scientific literature of the day (*e.g.*, Buller 1878, 1890, 1891, 1892, 1894, 1896, 1898; Kirk 1887; Smith 1896; Hutton & Drummond 1904). Among these were several New Zealand cormorants and shags. Buller (1874) reported an albino black cormorant (*Phalacrocorax carbo*) collected from Sumner, Christchurch (Buller 1874), and later an albino spotted shag (*Stictocarbo punctatus*) from

Received 7 Aug 2011; accepted 3 Apr 2012

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Fig. 1. The roosting flock of spotted shag at Ashburton Rivermouth, 25 Mar 2007.

Kaikoura (Buller 1891; 1896). Falla (1932) reported an albino pied cormorant (*P. varius*) and Moisley (1960) published accounts of aberrantly plumaged little cormorants (*P. melanoleucos*) from Clevedon.

Buller's (1891) spotted shag seems to be the only example of albinistic plumage for this species reported in the literature. Marchant and Higgins (1990) state that Oliver (1955) described records of 2 albino spotted shags but this seems erroneous as he references only 1 bird and his account reads that, "A pure white bird is described by Buller from Kaikoura." Buller (1896) provided a detailed description of the Kaikoura bird:

"An albino of this species from Canterbury has the whole of the under-parts pure white; entire upper-surface very pale brown, the centre of each feather dark; varied on the hind-neck and on the right shoulder with grey, the feathers on the latter having darker margins; back, rump, and thighs, also wings and tail, very pale-brown, varied more or less with darker brown; on the left side the white on the neck and breast has an ashy shade, the broad white stripe from the back of the eye down the side of the neck being very conspicuous."

Although no mention is made of eye or bare part colouration, from this description and particularly the uneven distribution of brownish and ashy feathering, it is clear that Buller's bird was not an albino, but was more likely to be a leucistic specimen.

On 25 Mar 2007, I visited the Ashburton Rivermouth in mid-Canterbury to count the large roost of spotted shags that assemble on the shingle beach at dusk. This roost comprises birds that feed along the adjacent Canterbury Bight and the large



Figs. 2. Two views of an ino colour aberration in a spotted shag at Ashburton Rivermouth, 25 Mar 2007.

assembly of shags present by day can more than double during the late afternoon as hundreds arrive from the feeding grounds. At 15:15 h I made a count of 4000+ spotted shags and noticed a striking all-white bird amongst hundreds of grey winter-plumaged spotted shags (Fig. 1). A check through a telescope confirmed that it was an albinistic spotted shag.

A description of the bird was as follows: head, upper body, flanks and undersides - all white, with a very faint grey wash to crown, forehead, hindneck and thigh. Wings white above and below with a faint grey wash to upper wing coverts. Back and rump - white. Tail - pale buff. Legs, feet, bill, eye-ring and facial skin - pink. Eyes - reddish (Fig. 2). The overall whiteness of this bird, combined with pink skin and eye colour made it appear in the field to be a true albino. However, later study of photographs confirmed that areas which would normally appear dark grey were still in fact very faint grey, and normally black areas were pale buff. Thus, the bird should be classified as an ino

individual with sun-bleached plumage. Because the normally non-white areas were extremely pale and the demarcations between pure white and bleached white /grey/buff were indistinct, the age of the bird (whether a winter-plumaged adult or an immature) could not be determined.

The bright, white plumage of this ino spotted shag made it conspicuous amongst the ranks of its drab-grey congeners. The bird stood alone, toward the southern edge of the roosting flock, away from the densely packed northern and middle sectors. It was surrounded by other spotted shags (Fig. 2), but no bird stood closer than 1.5 m. Other shags stood much closer together. The bird was observed for 20 mins and for much of this time it stood with wings either partially or fully outstretched. Several times other spotted shags displayed aggressive behaviour by lunging toward the ino bird with head and neck, or by shuffling toward it and forcing it to move a few steps. However, this aggression was not sufficient to make the ino bird move more than 10 m over the period of observation and eventually it tucked its neck into its wing and went to sleep. During the time the bird was under observation it appeared to be largely separated from the main part of the roost.

Since this observation in Mar 2007 I have visited the Ashburton Rivermouth many times to count roosting spotted shags but have not re-sighted this ino bird. I have also checked other roost sites along the Canterbury Bight including the Rakaia Rivermouth, Rangitata Rivermouth, Opihi Rivermouth and Timaru Harbour, but have not relocated the bird, nor has it been reported by other observers. The fate of this ino spotted shag is unknown but the survival chances of an albinistic bird of any species are not potentially high (Terres 1980). Its bright white colouration is highly conspicuous and therefore likely to make it more visible to predators, both when roosting on land and when swimming under water. Its aberrant plumage and the intra-specific aggression of other spotted shags toward it probably also reduces its chances of securing a mate and being recruited in to the breeding population. The fact that this is only the 2nd albinistic spotted shag documented in 116 years indicates that white colour aberrations in this species are either extremely rare or that such individuals do not survive long enough to be seen by people.

ACKNOWLEDGEMENTS

My thanks to Scott Butcher, Kieran Tibble, an anonymous referee and the editor for comments and improvements on this manuscript.

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Keywords albinism; spotted shag; 2nd record; *Stictocarbo punctatus*