

## SHORT NOTE

Plumage changes of young, intermediate phase, variable oystercatchers (*Haematopus unicolor*) at Kaikoura, South Island, New Zealand

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The population of the polymorphic variable oystercatcher (*Haematopus unicolor*) has risen from ~2000 birds (1300 black phase; 400 intermediate phase; 300 pied phase) in the 1970s (Baker 1973a, 1985) to nearly 4000 birds in the early 1990s (Heather & Robertson 1996; Sagar *et al.* 1999; Marchant & Higgins 1993). A study of variable oystercatchers at the Kaikoura Peninsula (173E 42' E, 42E 26' S) was begun in 1999; the breeding success of this small population over 8 seasons was reported by Rowe (2008).

The pied phase of the variable oystercatcher is similar to the South Island pied oystercatcher (*H. finschii*; SIPO) but there is a smudgy border on the chest, the white tab forward of the folded wing may be non-existent or small, and the white wingbar and rump have smudgy borders (Marchant & Higgins 1993; Heather & Robertson 1996). These authors note there is a continuous colour gradient between the pied and black phases. Those birds that are most pied have the white plumage below the chest heavily mottled and smudged with black while those mostly black have indistinct white bars on the belly (Marchant & Higgins 1993). Baker (1973a) considered the pied phase to be those birds with an "absence of distinguishable black markings in the white areas of the breast and belly" and the

intermediate phase to be all birds that were not all black or pied.

The frequency of intermediate birds diminishes from north to south (Baker 1973a, 1975). Both pied and intermediate forms are found at the Kaikoura Peninsula. On 2 Jul 2005, I counted 48 variable oystercatchers along the shoreline between South Bay and Point Kean, 40 of the birds being the black phase. Further counts were made on 21 Aug 2005 (30 black birds and 7 pied and intermediate phase birds) and 24 Jun 2006 (31 black and 5 pied and intermediate phase birds).

From Feb 2007, unique colour band combinations were made available for use on variable oystercatchers at Kaikoura. Birds had 1 numbered stainless steel metal band applied above the left knee and 2 darvic colour bands were put on each lower leg. This enabled me to study plumage changes of individual birds over time. In this paper, I refer to birds by their metal band number.

In 2007-2008, I followed a pair nesting at "nest site 7." This site on the Kaikoura Peninsula was occupied by 1 fully black phase bird and 1 intermediate phase bird (Fig. 1). Both were unbanded but they were also present at the same nest site in 2008-09 and I assumed that both were the same birds. This intermediate bird was the only one I know to have bred in the area since my 1st visits in 1999-2000. One chick fledged in Dec 2007 and was banded K12072 and is shown in



Fig. 1. Unbanded intermediate phase variable oystercatcher from nest 7, Kaikoura, showing extent of white underbelly.

Fig. 2a at the downy stage. Two chicks fledged in Jan 2009; K12088 was of similar colouring to K12072 and K12087 had the colouring of a downy black phase chick (Fig. 3a). All 3 chicks left Kaikoura soon after fledging and were observed in Nelson. K12072 was seen at the Avon-Heathcote estuary, Christchurch, 1 has returned to Kaikoura (K12088), and the current whereabouts of the 3rd (K12087) is unknown. It is the changes in plumage colour in these birds that are described in this note.

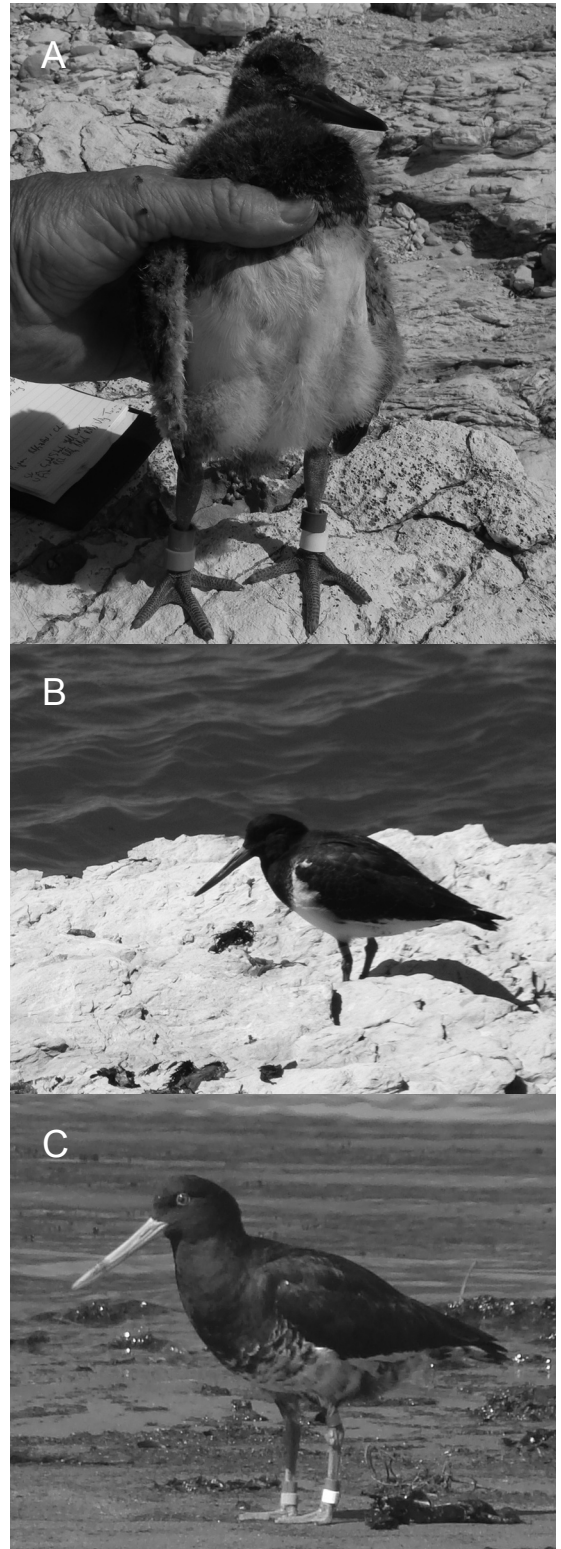
#### K12072

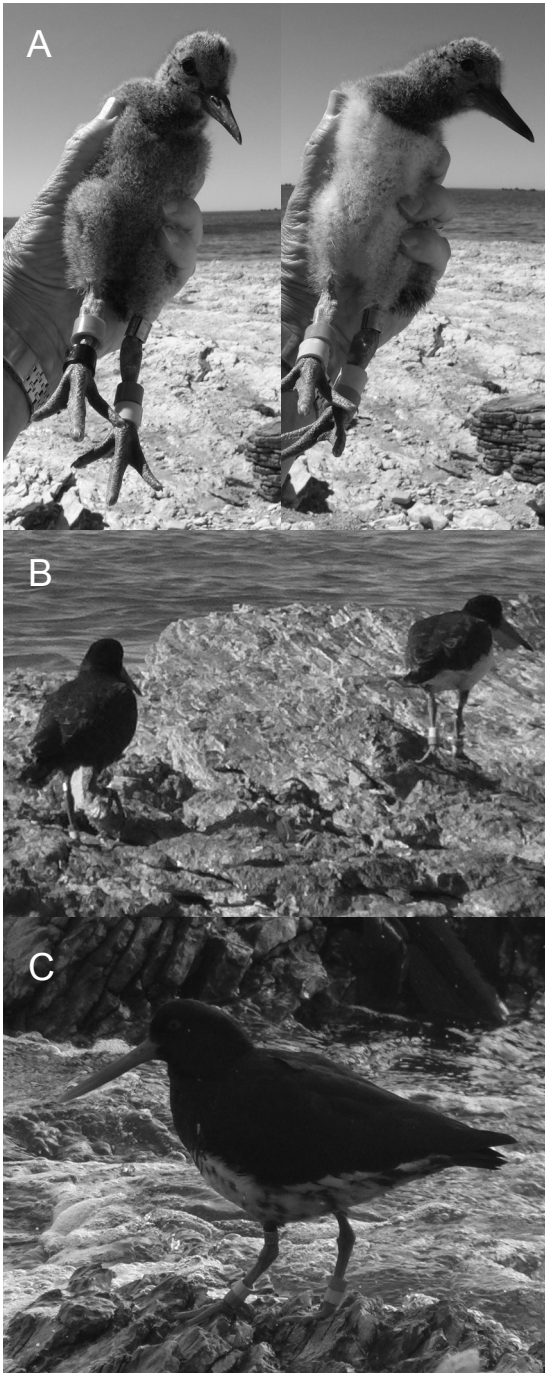
An offspring from a black  $\times$  intermediate pair, after fledging K12072 exhibited characteristics of pied phase variable oystercatchers being white underneath and it had a white tab extending in front of the wing (Fig. 2b). In Nelson, it was twice identified as a SIPO by different, experienced observers and reported to the Department of Conservation Banding Office as such. In the 1st instance the bird was about 3 months old and on the 2nd occasion it was ~21 months old. At 28 months it was reported as a variable oystercatcher (no comment as to amount of white plumage) at the Avon-Heathcote estuary where it was photographed 8 months later, then nearly 3 years old, in plumage that almost resembled its intermediate parent but with more white underneath – *c.f.* Fig. 2c with 2b.

#### K12088

This bird also exhibited pied characteristics (Fig. 3b) and was seen on consecutive days at Nelson, only 4 days (2 observers) and 5 days (3 observers) after

Fig. 2. (a) K12072 at Kaikoura on 12 Dec 2007 after banding; age 3-4 weeks. Note uniform white belly. (b) K12072 as a juvenile near nest site on 28 Jan 2008, aged ~10 weeks. Note clean white belly and white tab in front of folded wing. (c) K12072 at Avon-Heathcote estuary, Christchurch on 10 Nov 2010, age 3 years. Note change in colour: black extends down breast, less white on shoulder, and belly colour has converged towards “intermediate” parent. (Photo Kieran Rowe)





**Fig. 3.** (a) K12087 (left) and K12088 (right) after banding at Kaikoura on 31 Dec 2008; age ~3 weeks. Note similarity in colouring of K12088 to K12072 and “normal” colouring of K12087. (b) K12087 (left) and K12088 (right) after fledging. Note clean white belly on K12088. (c) K12088 at Kaikoura Peninsula on 13 Aug 2011. Note black amongst white in belly plumage.

been seen at Kaikoura. The 12 week old juvenile was described as a bird which “appears to a SIPO”. It was next seen back in Kaikoura at 12 months old where it may have stayed since. Fig. 3c was taken in Jul 2011 when the bird was 31 months; it had less white than when seen earlier but more than its intermediate parent.

Baker (1973b) considered the intermediate phase to be a “hybrid” of black and pied phases. He divided birds into 10 categories: pied, 8 phases of intermediate from very pied to very black, and black. He observed that, for Northland birds, black x intermediates only produced black (6 of 20) and intermediate (14 of 20) chicks but no pied chicks; of 14 intermediate chicks, 6 were near the pied end of the spectrum.

Of the 3 chicks from the black x intermediate pair at Kaikoura, 1 was obviously black and described as black when seen a few months later in Nelson. The other 2 downy chicks matched the pied phase in Baker (1973b); neither showed dark longitudinal or other markings in his intermediate photographs. K12072 and K12088, photographed as fledglings (Fig. 2b and Fig. 3b, respectively), show the characteristics of pied phase birds with some degree of white shoulder tabs, and when seen at Nelson at a few months old, both were identified as juvenile SIPO, again reminiscent of pied phase variable oystercatchers. When sighted next, K12072 at Christchurch and K12088 at Kaikoura, the plumage of both had changed towards a more typical intermediate phase bird (Figs. 2c and 3c, respectively), the white shoulder tabs had all but disappeared, but they still had more white on the belly than the intermediate parent. Baker (1973b) followed 12 intermediate chicks through their 2nd year with no noticeable change in plumage variability with age. This was obviously not the case with these birds. The older of the 2 birds had a lesser amount of white underneath and it will be interesting to follow these birds to observe further plumage changes.

There are a number of questions which these plumage changes pose. For example, is this variation in plumage colour for these 2 juvenile variable oystercatchers usual, is this change a South I phenomenon as it was not observed in Northland by Baker (1973b), and how frequently does a black x intermediate pair produce “pied chicks”? Given the reports of the birds I banded after they dispersed, it is also apparent that young variable oystercatchers may be misidentified as young SIPOS, a potential problem in population surveys. Finally, as my study was based on only a small sample of fledglings, further colour-banding is needed to better understand changes in plumage colours in young oystercatchers of all colour phases. The intermediate parent was replaced by another black bird in 2009-2010, the sample will not increase from this area in the near future.



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