

Ageing criteria for the Black-browed Albatross

Abstract The basics of moult, wear, plumage and bill colour are described and illustrated for the Black-browed Albatross *Thalassarche melanophris*. Ageing criteria are presented for birds up to six years old, after which the majority cannot be aged accurately.

The Black-browed Albatross *Thalassarche melanophris* may be aged by analysing three main characteristics: moult (including the effects of wear), plumage and bill colour. Despite some variation, these characteristics should, in combination, allow most immatures to be aged, assuming good views and/or reasonable photographs. The separation of immature Black-browed from other immature albatrosses will be covered in depth in Flood & Fisher (in press), from which the illustrations here are taken.

Moult and wear

The Black-browed Albatross moults in cycles. The adults follow an annual cycle, related to breeding activity, while immatures synchronise the timing of their moult cycles with adults by about the fifth cycle; before that they follow an annual cycle only approximately.

The first moult cycle involves a complete moult in the nest, producing juvenile plumage. There may be limited head and body moult subsequently but in the first nine months after fledging virtually all feathers are of the same generation, and appear uniform. The second cycle, and all subsequent cycles, involves moult of head, body and tail feathers. Following the second moult, fresh head, body and tail feathers contrast with the browner (worn and bleached) upperwings. The third cycle, and all subsequent cycles, involves wing moult. The pattern of primary moult in P5–P10 (primaries numbered descendantly, i.e. P10 is the outermost) is critical for ageing. The third, fifth and seventh moults include the renewal of P8–P10 (phase 1 primary moult), but not P5–P7, which are replaced in the fourth and sixth moults (phase 2 primary moult). Hence, from the third moult onwards, moult contrast is evident between P5–P7 and P8–P10. Note, however, that outer primaries abrade more quickly than inner primaries of the

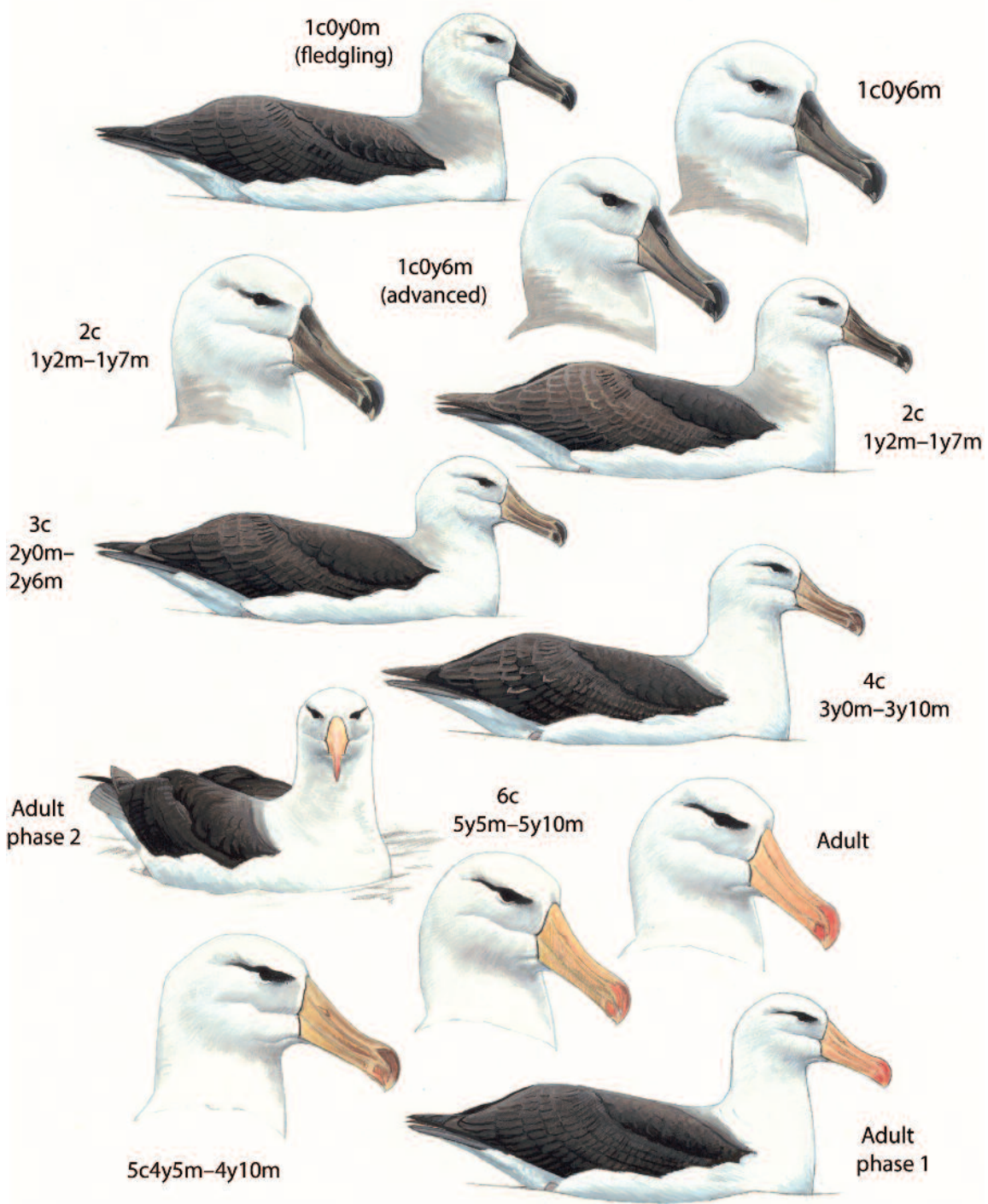
same generation and can potentially be mistaken for those of an older generation. There is some variation in primary moult (Prince & Rodwell 1994; P. Ryan *in litt.*), for example P7 may be moulted along with P8–P10, but the general pattern described holds good. Secondary moult is complex and less important in terms of ageing. Notably, however, in the fourth cycle the trailing edge of the secondaries is irregular, owing to large block(s) of the remaining, heavily worn, juvenile feathers. See also Howell (2010).

Moult studies of Black-browed Albatross have taken place in the southern hemisphere. The switching of moult timing may occur in birds that enter another hemisphere (Howell 2012). This is presumably unlikely with a recently arrived immature, but may happen in a stranded adult with an adapted northern-hemisphere life-cycle (for example birds taking up residence in a colony of Northern Gannets *Morus bassanus*).

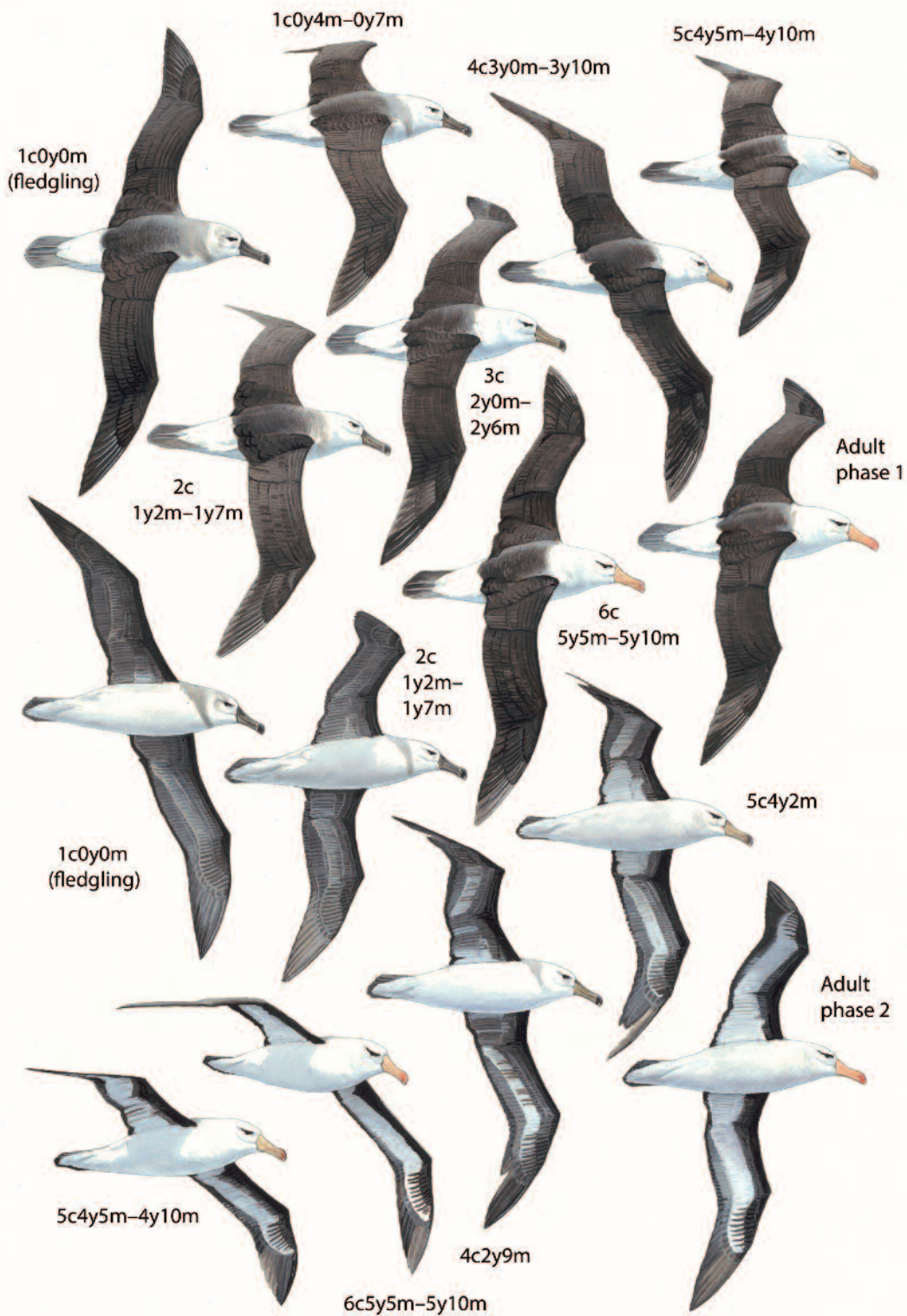
Plumage and bill colour

The general progression of plumage and bill colour (from juvenile to adult plumage, attained in most birds in the seventh cycle) is covered in field guides, but linked to ageing criteria in, for example, Prince & Rodwell (1994) and Bugoni & Furness (2009). The most helpful features are markings on the head and neck, the extent of white in the underwing-coverts, and bill colour and pattern. The head and neck progress from white with extensive smudgy markings and small dark eye patches, to white with distinct black eyebrows; the underwings develop from mainly dark, to having a large white central panel in the coverts; and the bill from dark olive-brown with blackish unguis (the plates that cover the bill tip) to rich orange-yellow with bright rosy unguis.

These features are less reliable for ageing than moult patterns. For example, on South Georgia, overlap in bill colour and pattern is



Figs. 1 & 2. Black-browed Albatrosses *Thalassarche melanophris* (John Gale).





Peter Ryan

161. Black-browed Albatross (2c1y6m), southeast Atlantic, 11th November 2007. Unique to the second cycle, note fresh blackish-grey back, scapulars and rectrices contrasting with bleached brownish juvenile upperwings, and frayed outer primary tips.



Kirk Zufelt

162. Black-browed Albatross (3c1y11m), southwest Atlantic, 23rd April 2012. This immature has fresh P8–P10 in strong contrast with juvenile P5–P7 and could be 3c or 5c. However, the strong rather than moderate moult contrast in the primaries, largely blackish unguis, and heavily fingered white median panel in the underwings age this bird as a young immature in its 3c.



Alan Collins

163. Black-browed Albatross (4c3y2m), southeast Indian Ocean, 20th July 2008. This immature bird has fresh P5–P7 in moderate contrast with P8–P10 and could be 4c or 6c. However, many heavily worn juvenile secondaries, vestiges of immaturity on the hindneck, greyish saddle over the base of the bill, and largely dark-grey unguis age this bird as a young immature in its 4c.

found among some birds with a one- (or exceptionally two-) year difference in age (Prince & Rodwell 1994), while evidence suggests faster progression of bill colour and pattern in young birds from the Falkland Islands than birds from South Georgia of a similar age (Bugoni & Furness 2009).

Recording age

We follow the convention that fledging occurs on 1st May, when a bird is given the age 0 years and 0 months old (Prince & Rodwell 1994). We record age in terms of which moult cycle the bird is in, and the bird's age since fledging in years and months. For example, the age of a bird in November of the first moult cycle is written 1c0y6m (c is cycle, y is years, m is months), September of the second moult cycle is written 2c1y4m, and so on. This adds greater precision and overcomes potential confusion, for example by showing how a bird in its third cycle can be in its second year since fledging (e.g.

3c1y8m in January of the third cycle).

Ageing criteria

The following criteria use the median results from ageing studies (Prince *et al.* 1993, Prince & Rodwell 1994, Bugoni & Furness 2009). Fresh remiges are blackish-grey but become increasingly browner and paler with age. Note that primaries and respective greater coverts moult at the same time. The bill is made up of a number of plates, but we refer simply to the main plates and to the unguis since these two parts of the bill are contrastingly coloured.

First cycle

Moult/wear Moult in the nest produces juvenile plumage. Birds fledge with uniformly fresh plumage, although rectrices for example may show some damage from the nest. Dark upperside feathers slowly bleach browner with age, but there is no moult contrast. Some birds may have limited head and

body moult that could be the start of a protracted second moult (Howell 2012). *Head and neck* Variable greyish on fledging, but typically whitish face, chin, and upper throat, smudgy mid-grey over the rest of the head and lower throat. This quickly fades leaving a white head, mid-grey hindneck shawl, and complete narrowish neck collar. Small dark eye patch, mainly in front of the eye. *Underwings* These typically look wholly dark in the field, but close views reveal blackish leading (marginal and some lesser coverts) and trailing edges (exposed remiges) with remaining coverts somewhat paler. *Bill* Dark brownish-olive with a blackish saddle over base, unguis blackish. Main plates largely dusky pinkish-yellow on advanced birds, similar to second cycle.

Second cycle

Moult/wear January–October. Moult of head,

body and rectrices should be evident by May/June. Upperwings juvenile, variably bleached browner, contrasting with fresh blackish-grey back, scapulars and rectrices, with outer primary tips heavily frayed. *Head and neck* Reduced grey hindneck shawl, neck collar may be broken at throat. Small dark eye patch mainly in front of eye. *Underwings* Little change from first cycle. *Bill* Dark olive-brown, dark-grey saddle over base, with some dusky pinkish-yellow on main plates. Unguis blackish, most with a pale tip. Some more like third cycle.

Third cycle

Moult/wear January–October. Moult of P8–P10 (Jan–Apr) gives strong contrast with juvenile P5–P7. Some inner secondaries moulted, thus contrasting with remaining juvenile secondaries. *Head and neck* Hindneck shawl and neck collar further reduced.



Alan Collins

164. Black-browed Albatross (6c5y2m), southeast Indian Ocean, 20th July 2008. Like the bird in plate 163, this immature bird has fresh P5–P7 in moderate contrast with P8–P10 and could be 4c or 6c. However, only two generations of secondaries, near-adult head and neck, orangey-yellow bill and rosy unguis with faint grey vestiges age this bird as an immature in its 6c.

Small dark eye patch with better defined (but short) eyebrow. *Underwings* Develop variable though notable whitish median panel with many blackish 'fingers' in both arms and hands. *Bill* Dusky pinkish-yellow, mid-grey saddle over base, smudgy greyish on main plates. Ungues blackish or dark grey, some with reddish hints, and a pale tip. Some more like second or fourth cycle.

Fourth cycle

Moult/wear December–October. Molt of P5–P7 (Dec–Apr; see Flood 2014) gives moderate contrast with third-cycle P8–P10. Primary shafts of P8–P10 bleached whitish. Secondary moult is variable within a general pattern but an irregular trailing edge to the arms is typical of this age and results from heavily worn juvenile secondaries. *Head and neck* Mainly white, dark eye patch larger and a dark eyebrow extends somewhat behind eye. *Underwings* As adult, but dark leading edge broader, and many more blackish fingers in the central panel, mainly in the hands. *Bill* Dusky orangey-yellowish, greyish saddle over base, some smudgy greyish on main plates. Ungues dark grey, but usually show some reddish and a pale tip. Some more like third or fifth cycle.

Fifth cycle

Moult/wear April–September. Molt P8–P10 (Apr–Aug/Sep) giving moderate contrast with fourth cycle P5–P7. Secondary moult not important to ageing from fifth cycle onwards. *Head and neck* As adult, but eye patch and eyebrow not as fully developed and neat. *Underwings* As adult, but more blackish fingers across central panel, mainly in the hands. *Bill* Orangey-yellow, vestiges of greyish saddle over base and greyish on main plates. Ungues reddish/rosy with grey vestiges and pale tip. Some more like fourth or sixth cycle.

Sixth cycle

Moult/wear April–September. Molt P5–P7 (Apr–Aug/Sep) giving moderate contrast

with fifth-cycle P8–P10. *Head and neck* Near adult. *Underwings* As adult, but may have more blackish fingers, mainly in the hands. *Bill* Orangey-yellow, with faint grey vestiges, unguis rosy with faint grey vestiges and pale tip. Some more like fifth or seventh cycle.

Seventh cycle

Moult/wear April–September. Molt P8–P10 (Apr–Aug/Sep) giving moderate contrast with sixth-cycle P5–P7. *Head and neck* White with neat and thick eyebrow in front of eye, meeting patch of dark smudgy feathers; eyebrow long and narrower behind eye. *Underwings* Thick dark leading and fairly thick trailing edge, dark wing-tips, large white central panel of larger coverts and axillaries. Blackish fingers extend into hand. *Bill* Rich orangey-yellow, unguis bright rosy with a pale tip. About 5% of birds in their sixth cycle and 1% of birds in their seventh cycle have faint grey vestiges on the bill (Prince & Rodwell 1994).

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References

- Bugoni, L., & Furness, R. 2009. Ageing immature Atlantic Yellow-nosed *Thalassarche chlororhynchos* and Black-browed *T. melanophris* albatrosses in wintering grounds using bill colour and moult. *Marine Ornithology* 37: 249–252.
- Flood, R. L. 2014. Black-browed Albatross *Thalassarche melanophris* primary moult timing in the fourth prebasic moult. *Seabird* 27: 98–103.
- & Fisher, E. A. In press. *Albatrosses and Fulmarine Petrels: Multimedia Identification Guide to North Atlantic Seabirds*. Scilly Pelagics, Scilly.
- Howell, S. N. G. 2010. Molt and ageing in Black-browed Albatrosses. *Brit. Birds* 103: 353–356.
- 2012. *Petrels, Albatrosses & Storm-petrels of North America*. Princeton University Press, Princeton and Oxford.
- Prince, P. A., & Rodwell, S. 1994. Ageing immature Black-browed and Grey-headed Albatrosses using moult, bill and plumage characteristics. *Emu* 94: 246–254.
- , —, Jones, M., & Rothery, P. 1993. Molt in Black-browed and Grey-headed Albatrosses. *Ibis* 13: 121–131.

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