

SHORT NOTE

Cape gannet (*Sula capensis*) breeding at Cape Kidnappers, New Zealand

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The Cape gannet (*Sula capensis* Lichtenstein, 1823) breeds on the offshore islands of southern Africa (Rand 1959; Broekhuysen *et al.* 1961; Nelson 1978; Crawford *et al.* 1983; O'Brien 1990). Immature birds disperse north, reaching the equatorial seas off Angola and the Gulf of Guinea in the west and Mozambique in the east, returning to the breeding colonies in their third or fourth year. There is continuing debate as to whether the three gannets (*bassana*, *capensis*, *serrator*) should be treated as full species, allospecies or sub-species within either the genus *Sula* or *Morus* (Wodzicki & Stein 1958; Broekhuysen *et al.* 1961; Jarvis 1972; Nelson 1978; Sibley & Monroe 1990; Sibley & Ahlquist 1990; Marchant & Higgins 1990; Turbott 1990; del Hoyo *et al.* 1993; Dickinson 2003).

All gannet taxa are prone to vagrancy. The first record of *S. capensis* for Australasia was from Wedge Light in Port Phillip Bay, Victoria, Australia on 4 November 1980 (CJRR pers. obs., Venn 1982). This individual was subsequently seen with a chick, but the identity of the other parent was not recorded. Subsequent sightings through to 1996-97 included viable offspring pairing with other *S. serrator* at the site (CJRR pers. obs. 1981; Cameron 1981; Blakers *et al.* 1984; Marchant & Higgins 1990; Norman & Menkhurst 1995; Norman *et al.* 1998). Fisher & Cooper (n.d.) also noted the presence of Cape gannets at Lawrence Rocks, Victoria (four birds) in 1993 and seven (with two chicks) in 1994. Roux & Martinez (1987) reported the presence of *S. capensis* at Amsterdam and Saint Paul Islands from 1979 to 1985, while Lequette *et al.* (1995) recorded the presence or breeding of both *S. capensis* and *S. serrator* at Saint Paul Island between 1986 and 1992. Meanwhile *S. serrator* was recorded at Crozet (Stahl *et al.* 1984) and Marion Islands (Brown & Oatley 1982) and a first breeding record in South Africa on 25 January 1982 (Cassidy 1983). Subsequent records

of *S. serrator* in South Africa were summarised in Berruti (1988) and Dyer *et al.* (2001), while CJRR & BMS observed one *S. serrator* incubating an egg among the colony of *S. capensis* at Malgas Island on 13 August 1998. More recently *S. capensis* has been recorded on the Atlantic side of South America (Bergkamp 1995; Ramirez 1996) and off Peru (García-Godos 2002).

The Rare Birds Committee of the Ornithological Society of New Zealand (UBR 45/00, Medway 2001) verified the first New Zealand records of *S. capensis* as being observations by the authors from 21 December 1997 to 18 December 1999. Details of these and subsequent observations are presented here.

The first record for New Zealand was at 1400 h on 21 December 1997 during a ground census of the Plateau gannetry at Cape Kidnappers, Hawke's Bay. Both authors heard a strange low frequency gannet call different from the shriller calls of *S. serrator*. The bird making the call was located (by CJRR) holding territory with a *S. serrator* on an empty nest within the nesting colony (area 1B3). Various diagnostic features indicated that this was a Cape gannet and photographs were taken of the bird in situ (Fig. 1A).

The initial identification was based on

- (a) a distinctively slower 'urrrrrgh urrrrrgh urrrrrgh' call when landing with a markedly lower frequency than the surrounding *serrator* calls;
- (b) the notably long bare skinned gular stripe down front of the neck from the base of the bill being at least twice as long as that in *serrator* (Fig. 1B);
- (c) head plumage (Fig. 1B) was paler and more lemon in tone than the rich gold of the surrounding *serrator*;
- (d) the noticeably broader and yellower lines down the toes and slightly yellower webs of the feet than the probable female *serrator* at the site (Figs. 1A,B);
- (e) the bird stood taller at the nest probably indicating greater size and a longer neck (Fig. 1B);
- (f) segments of the *capensis* call were more laboured and slowly uttered during the 'solo bow', while the head flagging component of the 'solo bow' was slower than with *serrator*.

When the bird was caught it was noted that

- (a) the eye (Fig. 1H) had a more pronounced and cleanly edged blue eye ring giving a larger blacker 'face' than *serrator* where the eye ring (Fig. 1F) diffuses into the surrounding 'face';
- (b) the iris (Fig. 1H) was a solid silvery-white, that with the eye ring made the eye more prominent than the diffuse grey of the *serrator* eye (Fig. 1F).
- (c) the tail was fully black, in contrast to the standard adult *serrator* pattern of 4 white - 4 black - 4 white;

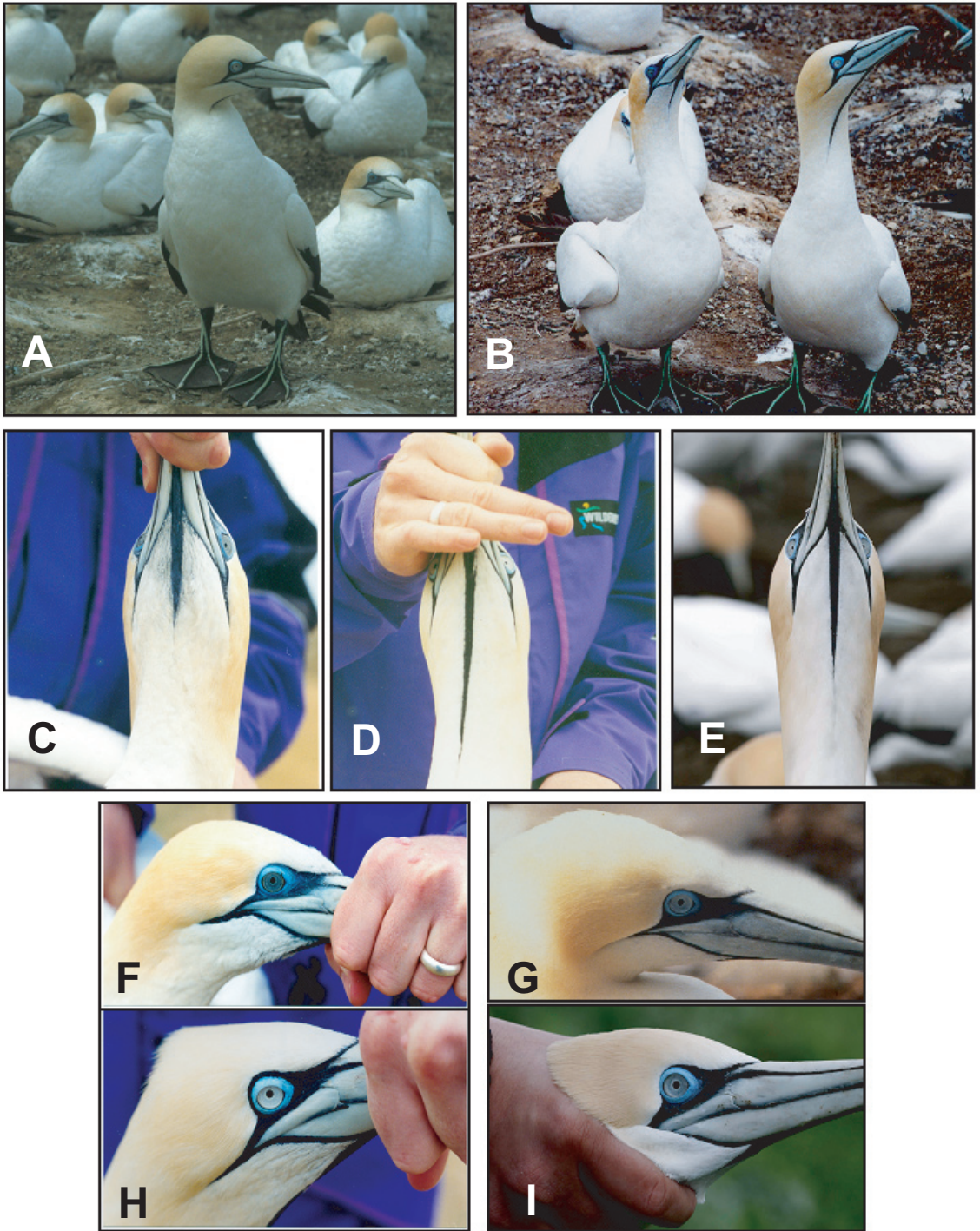


Figure 1 (A). First sighting of *Sula capensis* in New Zealand at Cape Kidnappers; (B). *S. capensis* (right) and *S. serratror* (left) at Plateau gannetry nest 1997; (C). Gular stripe in *S. serratror*; (D). Gular stripe in *S. capensis*; (E). Gular stripe in hybrid *capensis* x *serratror* during fourth year; (F). Facial parts of adult *S. serratror*; (G). Facial parts of adult *S. bassana*; (H). Facial parts of adult *S. capensis* at Plateau gannetry, Cape Kidnappers; (I). Facial parts of fourth year hybrid *capensis* x *serratror* at Cape Kidnappers. (Photographers: CJRR [A,B,C,D,E,H]; BMS [E,I]; G. Chapdelame at L'Île Bonaventure [G]).

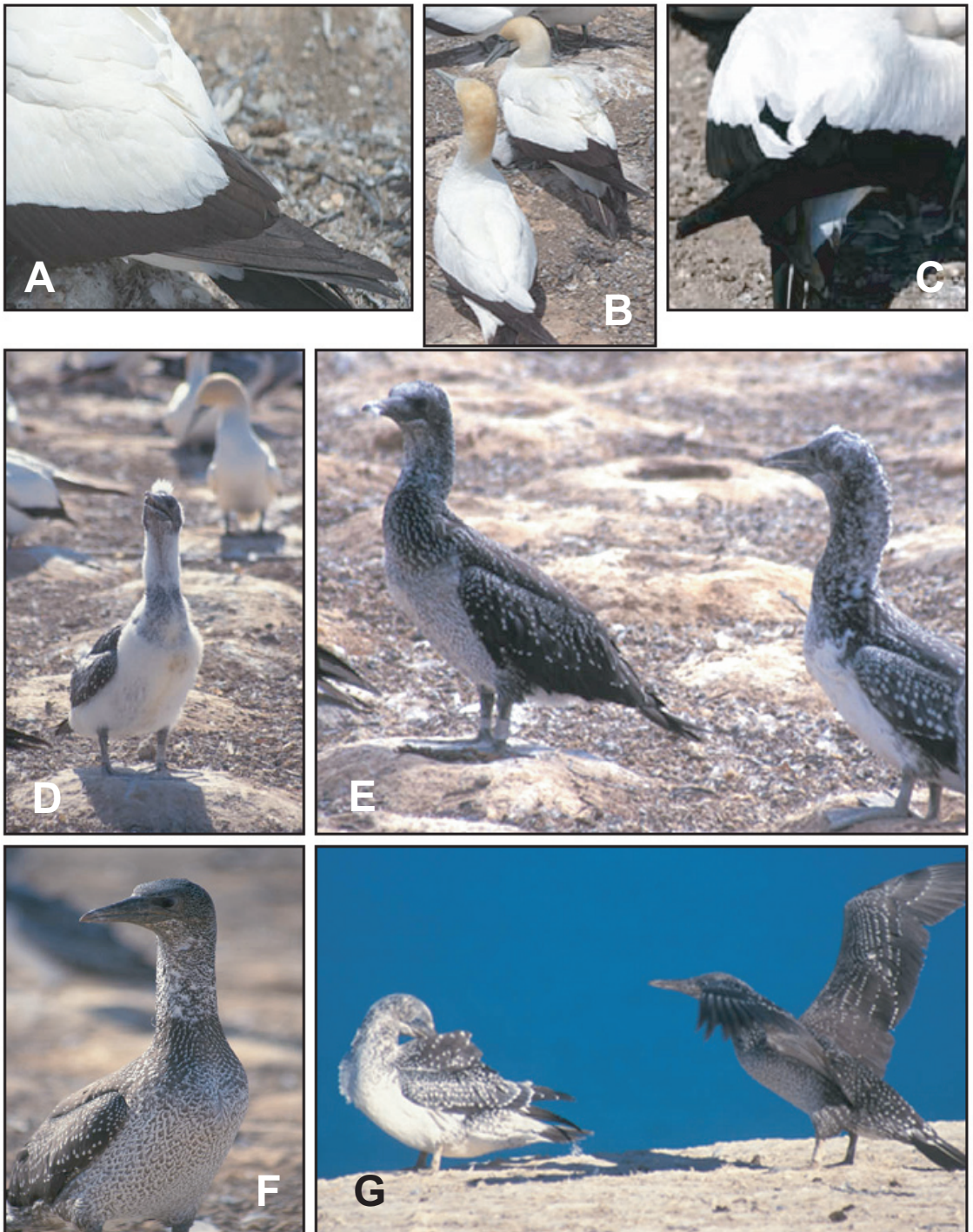


Figure 2 (A). Black inner secondaries in adult *S. capensis*; (B) Comparison of inner secondaries between *S. capensis* (upper bird) and *S. serrator* (lower); (C). Inner secondaries of fourth year *capensis* x *serrator* hybrid; (D). Hybrid chick D10 aged c. 66 days; (E). Hybrid chick D10 (left) and *S. serrator* chick (right) at c. 76 days and c. 72 days, resp.; (F). Hybrid chick D10 aged c. 94 days showing patterned underparts; (G). Comparison of pre-fledglings *S. serrator* (left) and hybrid D10 aged c. 99 days (right). (Photographers: CJRR [A,B]; BMS [C-G]).

- (d) the *capensis* had no white feathers above the alula which is common to all adult *serrator*;
- (e) all the secondaries were black (Fig. 2A, 2B upper bird), unlike *serrator* where the inner three secondaries (Fig. 2B lower bird) are white in adults (CJRR unpubl. data);
- (f) the combination of foot colour and 'head flagging behaviour' outside the 'solo bow' indicated the bird was probably a male resident at that site ('head-shake' in Nelson (1978)).

At 1620 h on 20 December 1998, again during the annual census of the gannetry, the Cape gannet was found at the same nest site, sitting on a two week-old chick that was not obviously different from similarly-aged *S. serrator* chicks. The Cape gannet was banded (M74726 [R] plus blue colour band [L]) and standard measurements taken – culmen 93.3 mm; skull width 46; tarsus 67; mid toe & claw 110.5; wing 493 (outer 1° new); tail 183. The tail was fully black but very worn with a mix of old (O) and new (N) feathers left to right OONOONOONO. The feet and tarsus were bulkier than those of equivalent *S. serrator*. The chick was taken by a black-backed gull (*Larus dominicanus*) three days later.

During the 1999-2000 breeding season the Cape gannet was regularly observed by BMS, and observed to be male by copulation. The mixed pair successfully raised a chick (hatched about 3 December 1999) to fledging (banded M77110 [R] and A10 [L]). The chick (Figs. 2D-2G) was much darker than an equivalent *S. serrator* at all ages where feathers were present and showed extensive markings across all of the undersides of the body (Figs. 2E-2G) unlike similarly-aged *S. serrator* chicks (Fig. 2G preening bird). Dyer (2001) remarks on a hybrid *capensis* x *serrator* chick in South Africa as having a gular stripe intermediate between the parental norms, but that the plumage was paler than *S. capensis* chicks. Our chick A10 seems to have followed a similar pattern, but the illustrations (Figs. 2D, 2F) are unclear. Chick A10 has not been resighted back at the colony.

During the 2000-01 breeding season the Cape gannet attended the nest site and copulated with a *S. serrator*, but did not seem to have a proper pair bond. No egg was seen at the nest site. In the following breeding season it successfully fledged a hybrid chick (banded at 51 days old on 23 January 2002 as M77260 [R] and B60 [L]). The chick was last seen on 3 March 2002, but its fledging date was unknown.

The bird was seen again, occupying an empty nest on 21 December 2002, but was not observed during census visits in December 2003 and 2004. It was seen again occupying its usual nest site on 15 September 2005, early in the breeding season before egg-laying commenced, but no mate was present at that time.

The hybrid chick (B60) from the 2001-02 season was first seen back at the Plateau gannetry by BMS on 2 September 2005. The bird was occupying an empty nest site with a small amount of nesting material on the edge of the gannetry (Lighthouse end) by the visitor guide chain some 30 m NW of its natal site. The bird appeared to be occupying the site in a male manner with 'solo bowing' and 'head flagging' to attract a female. Its 'solo bow' was more exaggerated than that of a *S. serrator*, with the neck being longer and more snakelike, and the head flick more exaggerated, similar to that of *S. capensis*. The call was shorter than that of its parent, who was still present at the gannetry, but with the similar deep timbre.

Morphological differences of the hybrid from its parents were:

- (a) The head colour was lemon yellow similar to *capensis*, but paler than the golden yellow of *serrator*;
- (b) the facial skin about the eye (Fig. 1I) was narrower than *capensis* (especially behind the eye, Fig. 1H), but more prominent than in *serrator* (Fig. 1F);
- (c) the hybrid iris (Fig. 1I) was intermediate between *capensis* (Fig. 1H) and *serrator* (Fig. 1F), and similar in colour to *bassana* (Fig. 1G);
- (d) the skin about the base of the hybrid bill (Fig. 1I) was darker than *serrator* (Fig. 1F), while the length of the gular stripe (Fig. 1E) was intermediate between *serrator* (Fig. 1C) and *capensis* (Fig. 1D);
- (e) there was a distinct fold in the feathers at the lower end of the gular stripe (Fig. 1E) which was not present in either *serrator* or *capensis*, but is equivalent in length to the extension of the gular stripe seen in *capensis*. This could be a feature of its young age, and further observation is needed to see whether the gular stripe develops further;
- (f) like *capensis*, the hybrid stood slightly taller than *serrator*, with a longer more snake-like neck when extended;
- (g) the hybrid's tail feathers from left to right were (W = white, B = black, V = variegated) WWBBBBBBBBVWW;
- (h) the hybrid's last three secondaries closest to the body (Fig. 2C) were mainly white but included at least one variegated feather, which is similar to *serrator* at 3-4 years of age (CJRR unpubl. data).

The hybrid was captured on 15 September 2005 after a *S. serrator* visited the nest and copulation attempted by the hybrid as a male, but not completed. Measurements were: culmen 87.3 mm; head length (base of skull to tip of bill) 100; skull width 49; bill depth at base 31.8; bill width at base 26.8; wing 488; tail 222; weight 2280 gms.

The weight was lighter than the range of weights of five *S. serrator* weighed on the same day (2420 - 2860 gms). At 1200 h on 23 October 2005 the hybrid (in the latter part of its fourth year) was observed incubating an egg at the site where it was previously captured in September.

Records of pelagic seabirds seen visiting outside what may be considered their core range are increasing. Some of these immigrants, as in the case of the *capensis* and *serrator* gannets (in spite of some distinct morphological and vocal differences) have found that successful mating and breeding is possible where their breeding chronology (August-May) is similarly timed. The successful return to the Cape Kidnappers gannetry of a known hybrid will further challenge the taxonomic purists who already have difficulty with the structuring of the gannets into species and sub-species and genera. The further progression of the known hybrid towards possible breeding status will be watched with interest, while DNA analysis of the bloods from the relevant taxa and the hybrid may provide a better insight into their evolution. The demonstrated vocal and morphological differences between *S. serrator* and *S. capensis* should encourage careful observation at colonial sites for both taxa in the future.

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