

Dear Joseph Morlan

I am sorry it took a long time, which I needed.

My principle is that one *Anser fabalis* which appears outside of its general distribution range should not carry any subspecies name attached. However, purely for a morphological argument, I would accept this Salton-Sea Bean Goose as a small *Anser fabalis* subsp. *middendorffii*.

This is only under provision that it is of wild origin, and that the accompanying *Anser albifrons* belongs to the subspecies *frontalis* of wild origin.

My reasons are as follows;

Facial characters

It is apparent that this bird does not belong to *A. f. serrirostris*, as, in its 'field' or 'in-situ' appearance calculated from the photographs (the range shows variation caused by the angle in various pictures), the parameters of facial characters tell otherwise.

(1) It lacks the characteristic bulge of lower mandible; at the end of nostril, the ratio between the thickest part of lower mandible in side view / total thickness of both mandible is 0.20 – 0.22. (Just OK for *A.f. serrirostris*, but usually 0.22 - over 0.25, cannot recall maximum.)

(2) The ratio between the bill height at the base (both upper + lower) / the skull height is 0.68 – 0.75. (In *A.f. serrirostris* the value is 0.65 or lower.)

(3) The ratio between the upper bill length in side view / the skull length in side view is some 1.18 – 1.25. (In *A.f. serrirostris* it is 1.00 or lower.)

(4) The ratio between upper bill length in side view / the upper bill depth at base in side view is 2.00 – 2.40. (In *A.f. serrirostris* it is 1.85 or lower.)

This combination matches only those of *A. f. middendorffii*, so far as I know of from living individuals.

These ratio are calculated from the side view in the field, and not of the usual biological measurement, e.g. 'bill length', 'skull height', and so on.

The combination (2)-(4) gives the *middendorffii* its characteristic stream-line forehead, not found in *A.f. fabalis*, its Taiga counterpart in the western Palaearctic. Some large male *A.f. fabalis* do resemble *A.f. middendorffii*, as in the "Falkirk bird" referred to on the website of CA bird. However, they never, ever have total combination of these field characters. Namely, the typical *A.f. fabalis* has characteristic drop in its forehead, as their bill is comparatively thinner at base.

It is rather a large *A.f. rossicus* male which resembles *middendorffii* in its shape of a streamlined forehead. I have seen some individuals of *A.f. rossicus* in Pannonian population showing similar characters in the field. Several skins, preserved and marked as both Scandinavian and Eastern European origins and of unknown subspecies, in the relevant collections in Europe, also shows similar character combination. One of them was an authentic material of so

called *A.f. johansennii*, in Budapest, the epithet which I do not believe exists as a living population. However, judging from the skins only, in these individuals, the value for (3) tends to be 0.65 – 0.90 rarely 1.00, and that for (4) lower than 1.85.

Size of the bird

Only one concern about this bird being *A.f. middendorffii* is its small size. For the subspecies, this bird is undersized, being only slightly larger than *A. albifrons frontalis* in the background. But considering that it is a female whereas the *A. albifrons* is a male (I regret I have no way to explain why, but from its posture, comparatively short neck compared to body length and round lower belly, I am certain, and so am I for the White-fronted), its size appears just acceptable.

From its behaviour

The fact that it is with *A. albifrons* subsp. *frontalis* would mean, provided that they also are of wild origins. So it is illogical to assume that this individual originated from Scandinavia, and this excludes the possibility of it being an *A.f. fabalis* of unusual facial structure.

Finally, I add a couple of irrelevant notes regarding distinction between *A.f. serrirostris* and *A.f. middendorffii*, which may be of interest for the contributor(s) of the Salton bird web page. Please convey if you think appropriate.

Among the facial character (ratio) described as above, the combination of (1) and (2) would *A.f. serrirostris* a characteristic drop in its forehead, and the bill would give an impression that it were curved 'round' underneath (like an Avocet although less exaggerated).

Their calls and tone of the voice are completely different; the voice is much deeper and with shorter syllables in *A.f. middendorffii*'s than that of *A.f. serrirostris*, to the extent never heard from any other subspecies of Bean Geese. The voice of *A.f. serrirostris* is also deeper than those of two western subspecies, but the syllables are similar. It appears as if *A.f. serrirostris* and *A.f. middendorffii* speak in different languages. A short call from one single bird may not be enough for distinction, but if heard from several individuals, it would be impossible to make a mistake about their subspecies.

--Mariko Parslow