

FIRST OCCURRENCE OF PACIFIC COMMON EIDER (*Somateria mollissima v-nigrum*) IN NEW YORK STATE

Dominic F. Sherony

51 Lambeth Loop, Fairport, NY
dsherony@live.com

Kenneth P. Able

Department of Biological Sciences,
University of Albany, Albany, New York 12222
Current address: Bob's Creek Ranch,
535-000 Little Valley Road, McArthur, California 96056
kennethpable@gmail.com

A female Common Eider (*Somateria mollissima*) present at Irondequoit Bay Outlet, Monroe County, New York from 13 November to 2 December 2005 was seen and photographed by many observers. Because this species is very rare away from the immediate coast in New York State (Levine 1998), documentation was submitted to the New York State Avian Records Committee, and the record accepted at the species level, but without any conclusion regarding its subspecific identity (NYSARC 2008). More recent work has determined that this bird was a first-year Pacific Common Eider (*S. m. v-nigrum*), the first of this taxon documented in New York State.

First recorded on 13 November 2005, this eider frequently fed near the rocky jetty and was cooperative for photos. It did not associate with the local Mallards, and there were no bands on the legs. It appeared to be a molting hatching-year bird because it retained some juvenile feathers in combination with barred, formative, flank-feathers. The bill was long and sloping and pale at the tip. The bill processes (the lobe portions of the bill that extend towards the eye) were elongated, narrow and ending in a sharp point. Its plumage was dark brown with pale edges to the feathers (some of the back feathers showed rufous edges) and the head showed a dark area beneath the eye and a pale supercilium. Figure 1 shows most of these features.

This bird's identity as a locally rare Common Eider was fairly straightforward, as its bill shape and color and overall size readily ruled out King Eider (*S. spectabilis*), which occurs much more regularly in upstate New York (Levine 1998). Given the paucity of records of Common Eider from the Great Lakes region of North America, this bird's geographic origin is a question of considerable interest.



Figure 1. Pacific Common Eider (*Somateria mollissima v-nigrum*), Irondequoit Bay Outlet, 13 November 2005, © Dominic Sherony.

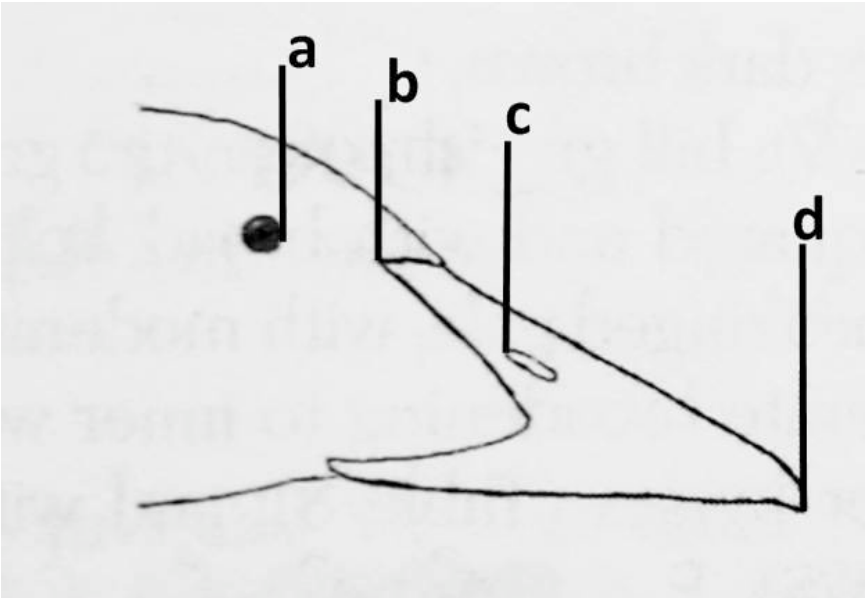


Figure 2. Bill characteristics of eiders, genus *Somateria*. a – rostral edge of eye, b – tip of the process, c – proximal end of naris opening, d – bill tip. Distances: b-d: bill length, c-d: nostril extension, a-b: eye to frontal process. Illustration from Pyle (2008), © Siobhan Ruck.

Subspecies of Common Eider (*Somateria mollissima*)

Gaudie et al. (2000) and Able et al. (2014) give a description of the subspecies of Common Eider. Common Eider races are separated into six or seven subspecies depending on the author. They fall into four natural groups based on morphology and range: *S. m. v-nigrum* (Pacific Eider), *S. m. sedentaria* (Hudson Bay Eider), *S. m. dresseri* (Atlantic Eider), and finally *S. m. borealis* (Northern Eider). Also associated with *S. m. borealis* are two additional races: *mollissima* (Eurasia), and *faeroeensis* (Faeroe Islands). In their descriptions of the subspecies of *S. mollissima*, Gaudie et al. (2000) state that some authors consider *islandica* as a seventh subspecies but it is generally included in *S. m. borealis*. They also state that intergrades between *dresseri* and *borealis* are well known but intergrades between *borealis* and *v-nigrum* are not known. The Pacific Eider breeds from the Northwest Territories in Canada west into Siberia, whereas the Northern Eider breeds from Ellesmere Island, south and east (Able et al. 2014); thus, these subspecies do not overlap in breeding range.

Bull (1974) reviewed the status of Common Eider in New York State and stated that *S. m. dresseri* is the subspecies expected in coastal areas, such as Long Island. A specimen of *S. m. borealis* was collected on Long Island, but the specimen is not in existence. A male *S. m. sedentaria* was collected on the Niagara River in 1936 (Beardslee and Mitchell 1965).

Although *S. m. v-nigrum*, the Pacific Common Eider, was previously unrecorded in New York, there have been a few records from the Midwest. The Michigan Rare Bird Committee has two records of female *S. m. v-nigrum*, one from Grand Marais, Alger Co., 29 June-1 July 2007 and a second from Grand Haven on 22 December 2014-22 March 2015. Furthermore, during the winter of 2014, a total of three female *v-nigrum* eiders were recorded in Minnesota (MOURC 2015): two were in Duluth from 10 November 2014-19 February 2015; and the other was at Silver Bay Marina 13-15 November 2014. This bird wandered into Wisconsin and was recorded there as well (MOURC 2015).

The overall features of the shape and dimensions of the head and bill are distinctive among the North American subspecies of Common Eider. Figure 2, reproduced with permission from Pyle (2008), illustrates some of the relevant head and bill characteristics used in this work.

METHODS

To identify the eider from Irondequoit Bay, we measured head and bill features from photographs and compared these to data from female eiders of known subspecies. We collected the latter by measuring two specimens of *S. m. borealis* and one specimen of *S. m. v-nigrum* at the Smithsonian Museum of Natural History on 26 November 2014, and by measuring photographs vetted by records committees or other authorities (for *S. m. borealis*, photos from J. Iron, R. Schain, M. Iliff, B. Naden, D. Beadle, and R. Heit; for *S. m. v-nigrum*, photos

from P. Svingen, S. Haas, Central Park Zoo, G. Chapin). Measurement of a-b, the eyes to frontal process, was difficult on specimens because of the damage to the eye socket, so this feature was not used. All measurements were normalized to ratios using the bill length as the denominator.

RESULTS

Age and sex: Based on the plumage and the presence of juvenile feathers on the sides, this is most likely a first year female Common Eider, but the sex is not completely certain. It is possible that the Irondequoit Bay bird could be a male but first year males in first basic tend to be darker (Gaudie et al. 2000).

Shape of the process: From the photographs of the Irondequoit Bay bird, identification is restricted to either *S. m. borealis* or *v-nigrum*, based on the shape of the frontal lobe of the bill (process). The frontal lobe is sharply pointed thus eliminating *S. m. dresseri* and *S. m. sedentaria*.

Ratio of bill length to nostril extension (c-d)/(b-d): Nostril extension is a useful measurement to separate Common Eider subspecies (Gaudie et al. 2000). The method used is described in Pyle (2008). In their paper, Able et al. (2014) show a relatively narrow range of nostril extension normalized by bill length for the four subspecies of Common Eider. Their data show an overlap between two subspecies: *v-nigrum* (0.41-0.47) and *borealis* (0.37-0.45). For this study, a vernier calipers was used to measure these properties on the specimens at the Smithsonian and on four of the photographs of the bird in question. The measurements for *v-nigrum* of two adults were 0.44 and 0.45 and the lone immature was 0.42. The measurements on specimens for *borealis* were 0.46 to 0.50 for three adults, higher than the range reported by Able et al. (2014).

Using photographs, this measured ratio for the Irondequoit bird was 0.48 (std = 0.01) from four photos. This seems to be slightly higher than the published upper limit (0.47), but it is closest to *v-nigrum* and within the range of error of the measurement. It is definitely beyond the range for *S. m. borealis* as published but our measurements of specimens at the Smithsonian confuse these results.

Distance from rostral edge of eye to tip of frontal process divided by total bill length (a-b)/(b-d): In studying the elongated head of *S. m. v-nigrum*, it was noticed that the distance from the rostral edge of the eye to the process (a-b) was shorter in *S. m. borealis* than in *v-nigrum*. Measurements on specimens taken in California and on photographs verified this feature. Subsequently, a collection of photographs was used to measure this ratio (a-b)/(b-d). These data show that there is no overlap in this measurement for these two subspecies, and that the

Irondequoit Bay Common Eider is in the range of *S. m. v-nigrum*. These results are shown in Table 1.

Table 1. Ratio of distance of eye to naris, normalized to bill length, for female Common Eiders, *S. m. borealis* and *v-nigrum*. (a-b)/(b-d) represents the distance from eye to frontal process divided by the bill length (Fig. 2.)

Sample	Number	(a-b)/(b-d)	Std Dev
<i>S. m. borealis</i>	7	0.22	0.022
<i>S. m. v-nigrum</i>	4	0.36	0.021
Irondequoit Bay eider	5*	0.40	0.076

*independent measurements of different photos.

Malar feathering: The shape of the malar feathering varies among the subspecies. In photos of the Rochester bird, the feathered area is quite broad and rounded at the distal end as shown in Figure 3. This is very characteristic of *v-nigrum*. *S. m. borealis* can also show some rounding to this feathering, but it is generally tapering toward the distal end. M. Iliff (2016) has commented on the malar feathering of the Irondequoit Bay bird: “I also feel that the shape of the distal end of the ‘malar feathering’ is highly distinctive for *v-nigrum* and your bird is classic in this regard. The cautions are warranted, but I believe this is diagnostic in the more extreme cases and I feel your bird falls in that category.” The shape of the malar feathering for the two species is compared in Figure 3.

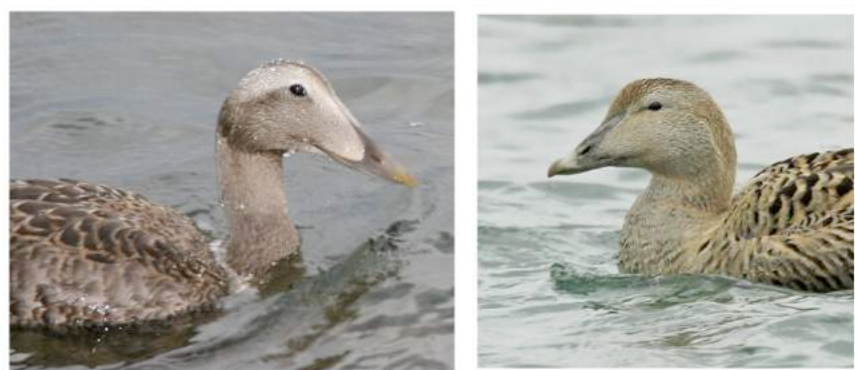


Figure 3. Comparison of malar feathering of the female Pacific Common Eider *S. m. v-nigrum* at Irondequoit Bay (left) and an example of Northern Common Eider *S. m. borealis* on right (© R. Schain).

Malar feathering with respect to the distal terminus of the naris: Able et al. (2014) also used the extension of the malar feathering on the bill past the distal

end of the naris, as measured by a vertical line from the distal position of the naris. Using photographs of the bird in question and comparing them with specimens, this was indeterminate for separating *S. m. borealis* and *S. m. v-nigrum*.

Head shape: McLaughlin (2014) used head shape as an important feature to separate *borealis* and *v-nigrum*. In his words: “In *borealis*, the forehead is quite clearly discrete from the top of the bill, that is to say, two separately visible units, forehead and bill, are readily discernible and positioned in an obtuse angle in relation to one another. This contributes to a decidedly round-headed gestalt that is present in this subspecies. The other three subspecies have more of a straight line confluence of the bill and forehead, imparting a wedge-shaped effect to the head, with *v-nigrum* perhaps being the most obvious in this respect.” This is best shown in two figures from his paper, reproduced here with permission as Figure 4. Using this criterion, the Irondequoit Bay eider resembles *v-nigrum*, as shown in Figure 3. Although we are uncertain of how much variation can appear in this angle in a single bird due to variation in age, sex, molt, or posture, head shape appears to differ consistently between these subspecies.

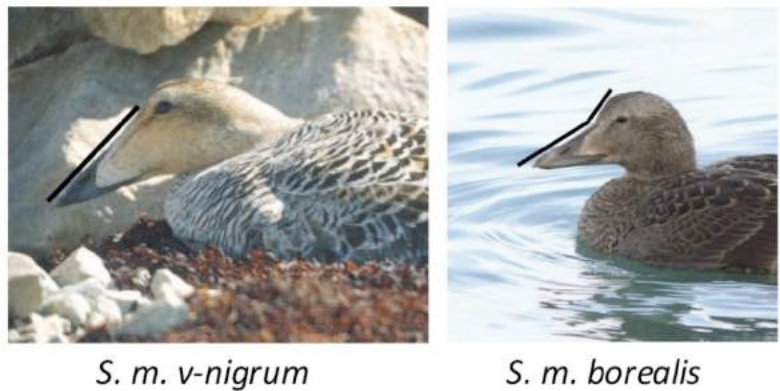


Figure 4. Comparison of head shape (angle between forehead and bill) between two subspecies of Common Eider, *S. m. v-nigrum* and *S. m. borealis*. From McLaughlin (2014).

DISCUSSION

The evidence suggests that this Irondequoit Bay eider was a Pacific Common Eider, *S. m. v-nigrum*. The shape of the bill process reduces the possible number of subspecies to only two, *S. m. borealis* and *S. m. v-nigrum*. Distance from rostral edge of eye to tip of frontal process divided by distance from process to bill tip and the shape of the malar feathering are both diagnostic for *v-nigrum*. The ratio of bill length to nostril extension and the head shape are supportive but not conclusive by themselves. And other possible measurements on the face and bill from the photographs were inconclusive for a variety of different reasons.

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