Research and conservation overseas

Observations on the biology of the Spectacled Eider

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Probably no species of North American waterfowl is more poorly known than the Spectacled Eider (*Somateria fischeri* (Brandt)), whose range in North America is limited to the western and northern coasts of Alaska. Even along these coasts the species is evidently common as a breeding bird only in the region around Barrow and between the mouths of the Yukon and Kuskokwim Rivers. In the latter area it occurs as a nesting species from the coastline to perhaps as far as 10 or 15 miles inland throughout the lowland grass and sedge tundra, especially where the tundra is dissected by tidal channels and rivers. Gabrielson and Lincoln (1959) have summarized what is known concerning the breeding and wintering distributions of this bird. Although it has been presumed that the Aleutian Islands comprise the winter range of this species in North America, no observations of it have been made there by Mr. Robert Jones, refuge manager of the Aleutian Islands National Wildlife Refuge (personal communication). Observations of the Spectacled Eider on the breeding grounds are also very few and consist primarily of those obtained by Conover (1926) and Brandt (1943), during their expedition to Hooper Bay in 1924. These authors collected a total of 27 birds, 37 eggs, and provided data on seven nests. Several of the birds, and apparently all of the nests and eggs, were taken at Igiak Bay, which is located just north of Hooper Bay. They first observed the species at Hooper Bay on 5th May, and noted that some of the migrating flocks appeared to arrive from the north. This caused Conover to conclude that the species might winter in the northern Bering Sea, but it would seem more probable to me that they might cross the Bering Strait and winter along the Siberian coastline. In 1924 the first eggs were found at Igiak Bay on 13th June, and young were first observed on 8th July.

In an attempt to observe and film the displays of this species for comparative purposes, and to collect eggs for subsequent hatching and rearing, an expedition was made in June 1963 to the Igiak Bay region by myself and Mr. Glen Smart. A chance meeting with Dr. Brina Kessel and two students from the University of Alaska resulted in the formation of a joint expedition, which proved to be of mutual benefit and enjoyment. Our time of arrival (7th June) was planned in the hope that we would be able to observe late stages of pair formation and obtain unincubated eggs. Unfortunately by this date nests were well under way, and we were able to find only partially incubated eggs, which are far less desirable for transporting than freshly laid eggs would have been. Observations on the displays and relationships of this species have been published elsewhere (Johnsgard, 1964), but many of our experiences and observations exclusive of the strictly behavioural ones seem worth recording here, especially since so little is known about the biology of the Spectacled Eider.

Abundance and composition of Spectacled Eider flocks

During the period from 7th to 14th June the Spectacled Eider was the most abundant breeding duck in the vicinity of our camp which was located at the base of the Askinuk Mountains about five miles directly east of Paimut (an Eskimo site referred to by Brandt as Bimut). Small flocks of Spectacled Eiders were commonly observed on the Kolomak River, a tidal river originating in the Askinuk Mountains and flowing into the Kokechik (or Kakechik) River at the eastern end of Igiak Bay. These flocks, of which the largest observed was 14 birds, consisted almost exclusively of adults. Only one of the males seen was in apparently immature plumage, thus presumably non-breeding males remained at sea off the coast. However, two of the three females collected were immature birds. Conover (1926) noted that except for one immature female, only fully adult birds were recorded by their party. Most of the females seen by me appeared to be paired and breeding birds, which spent most of their time at the nest, flying to the river only when disturbed or for copulation. Females in groups of twos and threes were sometimes

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seen and were judged to be either non-breeding immatures or birds that had lost their clutches. Common predators of the area included the Glaucous Gull (*Larus hyperboreus* (Gunnerus)), the Short-billed Common Gull (*Larus canus brachyrhynchus* (Richardson)) and three species of jaegers (*Stercorarius* spp.). Two nests apparently destroyed by predators were found, and it was a common sight to watch jaegers or gulls swoop down on an exposed nest only moments after a female was flushed from it. Probably for this reason females rarely leave their nests; we never found an untended clutch. The majority of the birds observed on the river were unpaired adult males, which congregated in small groups in search of females, immediately flying to any that came within sight. They would attempt to display to such females, but when these birds were already paired the possessive male usually prevented them from initiating any very active courtship. The most active periods of display occurred when these unpaired males located untended females which I believed to be non-breeders or unsuccessful nesters.

Nesting and Territoriality

Unlike the Common Eider, which is definitely a colonial nester, our observations on the Spectacled Eider suggest that nests tend to be slightly clustered. Of 13 nests which I observed, the closest distance between any two nests was 12 ft. Three of the nests were to my knowledge distinctly isolated from all others, and of the other ten nests the average distance between nearest known nests was somewhat over 50 ft. This certainly indicates a certain degree of nest 'clumping' or incipient colonialism. Around one tundra pond of less than an acre three nests were found, while two other small ponds each had a pair of nests. Only one nest was found that was distinctly placed away from water; it was about 60 ft from the nearest pond. The average distance from water of the remaining nests was 3·3 ft, and some were within a foot of the water's edge. One nest that had recently been destroyed and abandoned was found on a small island (three by four ft), while nearly all others were situated on the periphery of tundra ponds. All of the nests were built in fairly high grass of the past season; not until incubation was well under way was the newly growing grass high enough to afford any significant cover.

Eleven observed clutches ranged from three to six eggs in number, averaging 4·25 eggs. Brandt (1943) observed clutches containing as many as seven eggs, and judged that the eggs were laid every other day. The measurements of 12 eggs averaged 69 by 43·7 mm., the extremes being 66 and 71 mm. by 43 and 45 mm. The weights of 11 eggs which failed to hatch ranged from 57·5 to 65·5 g. and averaged 60·25 g. Since we did not arrive before the onset of incubation we were not able to definitely establish the incubation period of any eggs, but of the eggs brought back one hatched on 28th June and the others on 6th July, indicating a possible minimum incubation period of 22 days. In all likelihood it is closer to the 28 days that has been reported for Common and King Eiders. Brandt (1943) estimated that 10th June might represent the date of maximum nest initiation in the Igiak Bay area, but our experience would indicate that in 1963 most laying began at least two weeks before this date.

No signs of overt hostility were observed between pairs sharing nesting ponds. Frequently a pair would swim within a foot or two of another pair that was sitting by the water's edge, without causing any disturbance. There was thus no indication of a defended area, or territory. At various times males were seen to be accompanied by two or even three females, perhaps birds that had lost their clutches but were still attracted to their general nesting area. When we left in mid-June, most of the males appeared to be still attending their mates (who were a week or more into incubation by then). In the Chevak area not far away, Robert Elgas (*in litt.*) observed that male Spectacled Eiders were common in 1962 until about 21st June when they suddenly disappeared and presumably went to sea to moult.

Appearance and General Behaviour

Since so few persons have observed this species in life, a few comments of a general nature might be in order. One of the most striking and unexpected features of the birds was the bright reddish orange colour of the male's bill, particularly near the base. This is far brighter than is indicated in published paintings. Secondly, the greenish to greenish-gold hood behind the eyes is not smooth and neatly 'trimmed' as in the King Eider, but rather is distinctly 'shaggy'. However, contrary to what Brandt (1943) states, it is not raised during display. Lastly, the black underpart colour of the male is not the rich jet black that occurs in Common and King Eiders, but is of a slightly greyish or silvery cast, exactly as shown in Kortright (1942). In addition, the pale bluish iris of the male is very different from the very dark iris colour found in the males of the other eiders. The appearance of the female is extremely similar to that of the Common Eider, except for the curious pale 'spectacles' that contrast strongly with the

dark brown feathers immediately in front of this area. In fact, we found that birds on nests were most readily found by looking for this conspicuous brown patch that destroyed their otherwise almost perfect concealing coloration.

I observed the birds feeding on the Kolomak River at various times, diving under water in a somewhat awkward fashion. They opened their wings as they submerged, in the same manner as do Common and King Eiders. Spectacled Eiders appear to be remarkably silent birds, for although I observed them as closely as 30 yards away on various occasions, the only calls heard were inciting notes from the females. These calls were much like the corresponding calls of female Common and King Eiders. Again, on one occasion some male Pacific Eiders were displaying in the company of a flock of Spectacled Eiders, and although I could hear the formers' cooing calls very plainly, nothing was heard from the latter[1]. Pre-flight movements consist of lateral head-shakes in an alert, stretched-neck posture.

The photographs of adults accompanying this article (at pp. 170-171) illustrate the general appearance of the birds. The only previously published photographs of living Spectacled Eiders are those by Allen (1951), which were also taken at Igiak Bay.

Rearing of the Young

Of the eider eggs that were brought back from Alaska, only four hatched. The others probably became chilled for too long a period at a critical time in the development, probably after about a week of incubation. Downy Spectacled Eiders have been reared in captivity only once before, by Jack Kiracofe, who brought back 35 ducklings from Chevak, Alaska, in 1962. None, however, had been artificially incubated and reared before. Few Spectacled Eider duckling skins are present in collections, and the published illustrations all have certain shortcomings. The painting by Shortt in Kortright (1942) is particularly poor; the head pattern is entirely inaccurate and lacks any suggestion of 'spectacles'. The plate in Delacour (1959) by Peter Scott is also misleading; instead of being uniformly pale, the spectacle area should be almost the same tone of brown as the back and crown, being outlined in front, behind and below with buffy feathers. The photographs that accompany this article illustrate the extraordinarily grotesque head markings of the downy Spectacled Eider. Except for the head, the bird is a uniform pale brown above with pale grey underparts. The iris is dark brown, the bill is slate grey with a pinkish nail, and the feet are olive grey. The average weight of the four ducklings between 24 and 36 hours after hatching was 46 g., and the extremes were 44 and 49 g.

The young ducklings began to eat well almost immediately, and together with other ducklings of various species were fed boiled eggs and hamburger, Ralston game bird starter mix, and a high protein pellet preparation (Ralston Purina 'Trout Chow'). In addition, fresh green oats were available.

In their behaviour the ducklings were very reminiscent of Common Eider ducklings. Like ducklings of that species, they would frequently lift the bill in a manner much like the chin-lifting display of adult female eiders. Fairly loud cheeping notes, usually uttered in rapid series, were heard from the first day. The first indication of juvenal feathering appeared around the scapulars after 17 days, and the wing feathers first began to break through their sheaths after 21 days. Unfortunately, three of the four ducklings died at ages between 10 and 24 days, apparently as a result of an eye infection. The remaining bird, a female, was raised successfully.

Other species of Anatidae

Surprisingly, other species of eiders were uncommon or rare. We observed a few Pacific Eiders (*Somateria mollissima v-nigra* G. R. Gray) on the Kolomak River, and learned that they were much more common at the head of Igiak Bay near Cape Romanzof. We found only a single Pacific Eider nest. We located no nests of Steller's Eider (*Polysticta stelleri* Pallas), and observed only a single pair of this species. Apparently the Steller's Eider is now far more rare at Igiak Bay then it was during Brandt's expedition, since a young Eskimo from Paimut did not recognise coloured illustrations of Steller's Eiders. Other ducks that we found and determined to be nesting in the area were the following, listed in order of decreasing estimated abundance: Old Squaw (*Clangula hyemalis* (L.)), Pintail (*Anas acuta* L.), Green-winged Teal (*Anas crecca carolinensis* Gmelin), and Greater Scaup (*Aythya marila mariloides* (Vigors)). Whistling Swans (*Cygnus c. columbianus* (Ord)) were present in considerable numbers and nest throughout the region; eight eggs were collected between Igiak Bay and Bethel and were subsequently hatched and reared. Four species of geese nest at Igiak Bay. On the basis of nests found, the White-fronted Goose (*Anser albifrons frontalis* Baird) was the

[1] I have since heard captive males in Jack Kiracofe's collection utter a very faint 'hoo-hoo' during their 'head-forward-rearing' display. This is very similar to, but much weaker than, the call uttered by Common Eiders during 'Cooing movement 3'.

most abundant breeder. The Emperor Goose (*Anser canagicus* (Sewastianow)) was present in much larger numbers, but somewhat fewer nests of it were found. Cackling Geese (*Branta canadensis minima* Ridgway) were abundant and several nests were located. A single pair of a distinctly larger Canada Goose judged to be Taverner's Canada Goose (*B. c. taverneri* Delacour) was found nesting as well. Brandt likewise found a single nest of a 'Lesser' Canada Goose in the Igiak Bay region and believed that the form should be regarded as a species distinct from the Cackling Goose. Several of the Cackling Geese of this area were observed to possess a white band at the base of the black neck, a feature characteristic of the very rare Aleutian Goose (*B. c. leucopareia* (Brandt)) but which is of irregular occurrence in the Cackling Goose. Several small flocks of Black-bellied Brant (*Branta bernicla orientalis* Tougarinov) were observed, and one definite nest of this species was found. This possibly represents the first nesting record for Igiak Bay, for although the Brant is now an extremely abundant nester in the Hazen Bay area not far south of Hooper Bay, Brandt and Conover found no indication of nesting in 1924, and were unaware of a nesting ground to the south of Hooper Bay. We left the area too early to determine whether the Black Scoter (*Melanitta nigra americana* (Swainson)) nested there, but only a single male was observed during our stay.

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