

Forty-nine out of 64 banded young (77%) found dead in marshes after fledging were below the mean fledging mass of young that year ($\chi^2 = 15.5$, $df = 1$, $P < 0.001$). I assumed that these young starved because there was no sign of physical damage by predators and their stomachs contained little or no food. Thus, young fledged at a greater mass have a higher probability of survivorship than lighter birds.

Finally, Cash and Johnson suggest from the results in Patterson et al. (1980) that nesting success in Yellow-headed Blackbirds may be influenced to a greater extent by nest guarding than by male feeding. In evaluating this hypothesis, it is important to note that Patterson et al.'s results were suggestive but not statistically significant. Thus, there is no quantitative evidence that male feeding or nest guarding reduces the probability of nest predation in Yellow-heads. In contrast, the relationship between male feeding rate, fledging success, and fledging mass are statistically significant. I conclude that male feeding in Yellow-heads is an important component of their parental investment in young.

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Half a Million Eiders off Cape Cod: Compounded Errors or Changed Populations?

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The Christmas Bird Counts (CBCs) at Monomoy, Massachusetts, in 1946–1951 reported Common Eider (*Somateria mollissima*) numbers increasing from 100,000 to 500,000 birds (Bailey 1955). Those figures have been widely quoted (e.g. Bellrose 1976; although Palmer 1976 was sceptical), but they appear implausible in relation to recent data from other sources. A fresh look at the Monomoy estimates, with other eider population and distributional data (not available in 1946–1951), is warranted.

Only the southern (*dresseri*) race of Common Eiders winters in Massachusetts; the northern race (*borealis*) comprises a small percentage of the wintering birds south of Newfoundland (Bailey 1955, Mendall 1968). Some *dresseri* birds that breed in southern Labrador winter off Newfoundland and along the north shore of the Gulf of St. Lawrence (Gulf north shore). Eiders that winter farther south come largely from those breeding in the Maritimes, New England, and in the St. Lawrence estuary (Reed and Erskine 1986). Few now breed on the island of Newfoundland or on the Gulf north shore. The known breeding populations

of the three southern regions—with their offspring and nonbreeding adults and subadults minus the annual hunting kill in these areas—could give rise only to ca. 200,000 wintering birds (Reed and Erskine 1986). Recent Midwinter Waterfowl Inventory (MWI) counts (USDI 1984) revealed similar numbers, mainly in Massachusetts and Maine, but these counts varied greatly between years and areas.

The counts in the Monomoy area in 1946–1951 might not be anomalous. The distribution patterns of eiders then and now might differ. The overall populations might have changed. The extrapolation from breeding pairs to winter populations might be at fault. Failing other explanations, however, I suggest that the 1946–1951 CBC observers overestimated the eider flocks.

The specimen records of *borealis* eiders in Massachusetts (Bailey 1955) gave no suggestion that northern birds ever came that far south in numbers. Likewise, I have no indication that severe ice conditions occurred on more northern wintering areas in 1946–1951 to force *borealis* eiders—or, still less probably, *sedentaria* eiders from Hudson Bay—to winter farther south. The breeding populations of *dresseri* eiders in Newfoundland, on the Gulf north shore, and in Labrador south of latitude 53°N were only remnants of primeval numbers by 1950 and have since decreased

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due to hunting and continued disturbance of breeding colonies. Those stocks were greatly reduced by 1950 and could not have provided two or three times as many wintering eiders in Massachusetts as now occur. There seems no reason to believe that eiders wintered farther south in larger numbers around 1950 than at present.

In fact, the MWI counts in New England have increased severalfold since the 1950s, but the great variation indicates that only very broad trends may be detected from this source. Breeding eiders in each of the three southern breeding regions also are thought to have increased since 1950. Thus, winter numbers derived from MWI counts (including the eiders wintering in Massachusetts) would be expected to have increased rather than to have decreased since 1950.

Counting of eider nests in colonies is straightforward and fairly precise, but the proportions of local adults breeding vary between years (Coulson 1984). Duckling survival is low but variable. The age of first breeding and size of the subadult cohort probably varies. Few of the required parameters have been established precisely for the eider stocks involved. Thus, the extrapolation from breeding pairs to winter numbers is not precise, despite the detail in the published population model (Reed and Erskine 1986). I suggest that imprecision in extrapolation from breeding pairs to the winter population could not cover discrepancies of the order noted: CBCs (500,000) vs. estimates from breeding stocks (not over 200,000 birds).

Finally, the observers on the Monomoy CBCs, although careful and knowledgeable, may have consistently overestimated the eider numbers. Most people who have tried to estimate large flocks of eiders have had difficulties, even in groups of <10,000 birds (cf. Gillespie and Learning 1974). After the first counts at Monomoy, subsequent estimates may have become inflated. An initial overestimate may have been carried forward and expanded in subsequent years, but this can neither be proved nor disproved.

Oil spilled from tankers off Massachusetts in February 1952 was alleged to have decimated eider numbers off Monomoy (Griscom and Snyder 1955), because such large numbers were not reported there after 1951. However, estimates of similar order (ca. 200,000 birds), involving different observers, were reported on the Nantucket CBC in 1955 (Anon. 1956). Similar estimates were made on the Tuckernuck Islands CBC in 1984, when an additional 115,000 eiders were reported on 10 other CBCs in eastern Massachusetts (Anon. 1985). The latter counts involved different dates, and some of those birds might have been included also on the Tuckernuck Islands CBC.

The Tuckernuck Islands estimate was from the air, whereas the earlier Monomoy counts were from a boat and the other counts were from land. Aerial counts allow nearly simultaneous coverage of large

areas, which minimizes duplication, but rapidly moving aircraft provide little possibility of checking uncertain or incomplete counts. These considerations should tend to make aerial counts lower than those from the ground or sea, unless the consciousness of having to "get it right the first time" leads to hasty overestimates from the air. It seems unlikely that different survey methods were responsible for the lower recent estimates.

If the numbers of Common Eiders reported on the Massachusetts CBCs cannot be derived plausibly from the stocks now known to winter south of Newfoundland, they should be used only with extreme caution, unless new evidence emerges to validate them. Counting large groups of birds is not easy, and it is much easier to make a mistake than to correct it subsequently.

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