HYBRIDIZATION OF CANADA GEESE WITH BLUE GEESE IN THE WILD

BY HARVEY K. NELSON

While carrying out hunter bag checks in the vicinity of Sand Lake National Wildlife Refuge, Columbia, South Dakota, during the 1950 waterfowl hunting season, the author examined two adult male geese which proved to be crosses between one of the smaller Canada Geese (possibly Richardson's Goose, *Branta canadensis hutchinsi*) and the Blue Goose, *Chen caerulescens*.

The hybrids were killed by hunters along the southeast boundary of the refuge on November 1 and 6, respectively. One was reported to have been shot from a flock of mixed Snow Geese (*Chen hyperborea*), Blue Geese, and Canada Geese, while the composition of the flock from which the second hybrid was killed could not be determined. The first bird was prepared as a study skin for the refuge collection (SLR No. 5). The second bird (MMNH No. 9763) was sent to the Minnesota Museum of Natural History, University of Minnesota, where Dr. W. J. Breckenridge and Dr. D. W. Warner of the museum verified the author's identification.

A third bird shot on November 8 was believed to be a Canada Blue goose hybrid, however the hunter would not release the bird for positive identification.

A fourth oddly colored goose with a white head and black and white neck was observed by the author at close range on several occasions from November 22 to December 5. The flight of the bird indicated that it had suffered a wing injury. This individual was with a group of approximately 400 Canada Geese together with a few crippled Blue and Snow geese. The bird closely resembled the two hybrids identified, and it is believed that the coloration was not a case of white spotting (Hanson, 1949), a condition which has been noted in Canada Geese at Sand Lake Refuge.

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As shown in Plate 10, the plumage of the lighter hybrid (MMNH 9763 center) is in general intermediate between that of Canada and Blue geese. The head and neck more closely resemble the Blue Goose. In shape and color, feathers of the back resemble the Canada slightly more closely. Feathers of the legs and lower abdomen are pure white. The breast and upper belly are lighter than in either of the "parent" species.

The other hybrid (SLR No. 5) is in general much darker than the museum specimen shown in the plate. Feathers of the head and neck are more streaked with black. Breast feathers are dark gray, more like the Canada Goose. Some white blotches appear in the lesser secondary coverts and marginal coverts and the secondaries are edged in white as in the Blue Goose. Feathers of the legs and lower abdomen are predominantly white, streaked with brownish-gray.

The scapulars and inner greater coverts of both hybrids are broad and rounded, not plume-like as in the Blue Goose. Rectrices are predominantly black as in the Canada Goose. The bills of both hybrids appeared dark with pink streaks when examined shortly after death. The "grinning patch," so prominent on sides of the mandibles of the Blue Goose, is barely evident in the hybrids, although the upper and lower mandibles do not appear to close fully as do those of the Canada Goose. Color of feet in general was intermediate between black as in the Canada Goose and pink as in the Blue Goose.

Weights of the hybrids (4 lbs. 15 oz. and 5 lbs. 7 oz.) are near the average weights of male Blue Geese (5 lbs. 5 oz.) or Richardson's Geese, *B. c. hutchinsi* (4 lbs. 4 oz.) and much less than average weights of Common Canada Geese, *B. c. canadensis*, which vary from 8 lbs. to 13 lbs. 8 oz. Average total length of 711.2 mm for the two hybrids is near that of 721.4 mm for the Blue Goose or 621.5 mm to 728.9 mm for Richardson's Goose, and much less than 944.9 mm for the Common Canada Goose.

Internal examination of one hybrid by Dr. Warner revealed that the bird was an adult male, the bursa being very small and shallow (12 by 3 mm) and testes well developed (about 12 by 5 mm).

In literature available, no records of Canada Goose–Blue Goose crosses were reported as having occurred in the wild. Waldo L. Schmitt of the Smithsonian Institution states that Dr. Herbert Friedmann informs him that there appear to be no legitimate records of wild Canada–Blue crosses (pers. corres.—March 15, 1951).

Soper (The Blue Goose, Dept. of Interior, Ottawa, Canada, 1930) states that large numbers of Richardson's Geese associated with mixed companies of Snow and Blue geese at the Blue Goose breeding ground

at Bowman Bay, Baffin Island. Through personal correspondence (April 3, 1951) he states that he witnessed no interbreeding of Richardson's Geese with Blue Geese during his studies on the Blue Goose breeding grounds. His observations revealed that the scattered groups of Richardson's Geese in that area kept to themselves. Because the two species do come in close contact on portions of the breeding grounds, it is possible, however, that such a cross as reported could occur there.

One successful cross of a male Blue Goose and female Canada Goose, *Branta canadensis*, at the zoo in Red Lodge, Montana, in 1943 produced four young, of which one survived. The following year the male Blue Goose mated with another female Canada Goose and two young were reported to have survived (Davis, Auk, 62: 636, 1945). In both cases the juveniles more closely resembled the Canada Goose, but at about seven months of age the neck and ventral surface of the body became speckled with white. As adults the hybrids are said to have shown a combination of behavior and characteristics of both parents.

The fact that Blue Goose–Canada Goose crosses do occur in the wild is not surprising as more than 63 species of ducks from different parts of the world as well as geese and swans, have been listed as cross breeding in the wild state (Kortright, The ducks, geese and swans of N. Amer., Amer. Wildl. Inst., Wash. D. C., 1942). The frequency of such occurrences is of greater interest. Dr. Ernst Mayr (pers. corres., Feb., 1951) states that the identification of two such hybrids, each shot on a different location on different dates in one area during one season may indicate a much higher frequency of occurrence than expected.

Bag check figures for the 1950 waterfowl hunting season in the vicinity of Sand Lake Refuge show that 2508 geese of four species were examined by Fish and Wildlife Service personnel and South Dakota Game Technicians. Of this total, 1985 were Canada Geese (mainly Richardson's) and 72 were Blue Geese. Considering only the Canada Geese and Blue Geese checked, the occurrence of two hybrids gives an approximate frequency of 1 in 1029. If the third and fourth possibilities were also such hybrids, the frequency would be even greater. However, with these being the only such reported hybrids out of all the wild geese ever shot or observed closely, the suggested frequency ratio seems much too high. There is the possibility of course that similar hybrids have been shot, but plumage characteristics may have caused such birds to be identified as Blue Geese.

Since the two specimens obtained were adult males—birds in their

second year or older—the evidence indicates that the hybrids obtained, and one observed, were not of a family group even though killed in areas about two miles apart during a 6-day period.

It is also important to consider the fact that the hybrids obtained were associated with approximately 10,000 Snow and Blue geese and 35,000 Canada Geese (mostly *B. c. hutchinsi*).

The frequency of such crosses in the wild is difficult to determine without more knowledge of the breeding habits of the two species and the extent to which breeding ranges overlap, as well as more detailed examinations of a larger number of geese.

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BIRDS ON THE GULF OF MEXICO

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It was long assumed that birds seen over the Gulf of Mexico in spring were making a trans-Gulf migration. I tried to show (Williams, 1945, 1947, 1950b) that evidence indicates that the spring migrations normally pass around the Gulf of Mexico, not across it, and that large numbers of birds seen over the Gulf in spring have been driven there by adverse weather.

Bullis and Lincoln (1952) described a heavy concentration of land birds observed from the U. S. Fish and Wildlife Service's *M/V OREGON* 60 miles off the Louisiana coast, from 9 o'clock till dawn on the night of April 6–7, 1951. They stated (p. 37) "In the opinion of the authors the observations recorded here provide definite evidence of a heavy trans-Gulf migration between the Yucatán Peninsula and the coast of Louisiana."

These authors have omitted so many pertinent data that their observation deserves re-examination and re-interpretation.

1. Among other birds captured on the *OREGON* was a Vermilion Flycatcher, *Pyrocephalus rubinus*. This species breeds in the United States far to the west of where it was captured, and it would have no reason for making a trans-Gulf flight to Louisiana. A few scattered individuals, however, winter along the coasts of Texas and Louisiana. It would seem likely, therefore, that the individual captured on the *OREGON* came from north or west of its point of capture, and that it was not migrating across the Gulf.

2. Purple Martins (*Progne subis*), Tree Swallows (*Iridoprocne bicolor*), and another species of swallow were observed on or about the