THE BRANT OF PRINCE PATRICK ISLAND, NORTHWEST TERRITORIES

BY CHARLES O. HANDLEY, JR.

THE systematic relationships of the small, black-headed geese of the genus *Branta* have long been a center of lively controversy. Opinion has varied as to whether they belonged to one species or two. Birds wintering in Europe are now believed to belong to a single species, *Branta bernicla* (Linnaeus), and two races of this species are considered valid—a dark-bellied one, *bernicla*, breeding in western Siberia and on islands north of the European mainland, and a light-bellied one, *hrota* (O. F. Müller), breeding in the eastern American arctic and on islands northwest of Europe (Witherby *et al.*, 1939: 215). *Hrota* winters extensively in the New World also, especially along the Atlantic coast. The distinctness of a third form, *nigricans*, breeding in eastern Siberia and the western American arctic, has never been denied. With it the problem has been one of degree of difference. Is it related to *B. bernicla* as a subspecies or as a species? G. N. Lawrence described it as a full species. For a long time it was regarded as such, but ornithologists who visited the western American arctic continued to report the presence of both *nigricans* and *hrota* there in summer. Series composed of breeding *and winter* specimens from various parts of North America could be arranged in such a way as to show almost complete intergradation between the two forms. This intergradation, which allegedly could "be traced over the circumpolar circle in northern Europe and Asia" (Taverner, 1926: 110) was accepted by taxonomists as evidence that the forms were not biologically isolated hence not specifically distinct. *Nigricans* was therefore reduced to subspecific rank in the 19th supplement to the third edition of the A.O.U. Check-List of North American Birds (1944. *Auk*, 61: 443).

The area throughout which the breeding ranges of *hrota* and *nigricans* are believed to overlap is extensive. Bent (1925: 238), on Taverner's authority, states that both forms have been taken on Melville Island, Northwest Territories. Taverner (1926: 110) states that "light and dark-bellied birds seem to meet in the islands of Franklin [i.e., the Arctic Archipelago] without interbreeding. . . ." Gavin (1947: 198) discovered separate nesting colonies of both *nigricans* and *hrota* in the Perry River district south of Queen Maud Gulf. Hanson, Scott and Queneau (1949: 226) also found both these forms at Perry River, but apparently only *nigricans* was nesting that season. The comments of Bird and Bird (1936: 606), Schiøler (1925: 497–523), and Jourdain (1936) suggest that the breeding ranges of *nigricans* and the nominate race overlap in western Siberia.

If *nigricans* and *hrota* do actually interbreed anywhere in the western American arctic, it is somewhat surprising (a) that no one has encountered mixed

pairs in that vast area; and (b) that there are so few *true* intermediates in museum collections. By 'true' intermediates I mean *breeding* specimens neither dark enough below for *nigricans* nor light enough below for *hrota, and collected in the area of overlap*. Numerous specimens have been preserved which are intermediate in a very broad sense. Most *B. b. bernicla* of the Old World are neither dark enough below for *nigricans* nor light enough below for *hrota*, yet obviously those far removed birds are not intermediates between *nigricans* and *hrota* in a genetic sense. Moffitt (1932: 308) says: "I know of no single specimen ever having been procured in America showing indications of interbreeding."

In the course of investigations on Prince Patrick Island, Northwest Territories, in 1949, I found both *nigricans* and *hrota* common as nesting birds. *Nigricans* was the more numerous. The two forms arrived almost simultaneously, giving no hint of any difference in migration routes. This was not surprising, perhaps, in view of the lateness of the arrival date. The first birds I saw appeared to be a pair. They came in on 12 June, a dreary, foggy day. They circled back and forth low over the snow-covered river delta, the coastal hills, and unbroken ice of the bays, searching for open water or a bare spot of land on which to alight. I could not identify them except as brant. On the 15th I saw four flocks. One flock, composed of four *nigricans*, grazed on a small spot of lush grass and moss tundra which had melted clear of snow. They were reluctant to fly as I approached and returned to the same spot after I had moved away. Other flocks, proclaiming their arrival with a musical honking and croaking, were migrating up icebound Crozier Channel. A flock of eleven came in low over the ice and lit at a meltwater pool on the beach near my camping spot. They rested, drank, bathed, preened, chased each other around with extended necks as though courting, gabbled continuously, and occasionally uttered soft honking notes. Most of these birds appeared to be *nigricans*, but two were quite light and may have been *hrota*, although I could not be sure. The first undoubted *hrota* I observed on 17 June. That day I collected a pair as they grazed on a muskeg island which had just emerged from the snow of a river delta. On subsequent days brant frequently visited this same area, but the two forms almost always kept separate from each other.

As soon as the south and west slopes began to clear of snow, the brant commenced nesting. The tundra was more than eighty percent snow covered, and snowshoes were still necessary for travel, when on 22 June, on the gentle, well vegetated lower slopes of a mountain three miles inland, I located my first nests. These slopes were among the first vegetated areas to dry out sufficiently to allow nesting. I observed about a dozen pairs of brant scattered over several square miles, and found three nests. One of the nests contained four eggs, so it must have been started soon after 12 June. In addition to the nesting pairs, I saw several flocks of four to twenty individuals on the nesting area. These birds were so intent on grazing that I could not help believing that they had

just arrived. This was the first date on which I observed large numbers of brant. Pairs of typical *hrota* and pairs of typical *nigricans* both nested on these same slopes, with nests as little as two or three hundred yards apart. Other nests, less than a dozen in all, and scattered widely, I found on other well vegetated dry tundra in the vicinity, but I found no colonies. With the exception of two destroyed nests on rocks near the beach, all nests that I found were at least one mile inland.

Nesting habitat of Brant on Prince Patrick Island in mid-July. The bird is a Long-tailed Jaeger (*Stercorarius longicaudus*) at its nest. Note the snowbank; the bareness of the distant slopes; and the prevalence of grass in the foreground. Photograph by Charles O. Handley, Jr.

The summering population probably totalled fewer than one hundred individuals. A large number of these apparently did not attempt to nest. It is possible that the late thaw had much to do with this. The tundra was still seventy percent snow covered by 30 June. In general, the summering flocks did not mix, although they used the same tundra and the same ponds to a large extent.

All the nests which I found were destroyed by dogs or foxes (*Alopex*), although the fox population appeared to be not unusually high. Very few goslings

were found. The earliest of the season were located by S. D. MacDonald of the National Museum of Canada on a shore-lead on 23 July. I am not sure of the form to which these belonged because I did not see the parents. I found other broods, a total of five in all, on inland ponds on 29 July and 3 August. Three of these broods were *nigricans*. I am not sure that any of the young brant were able to fly by the time of the freeze-up the first week of September. The only one upon which I could keep a check was about three-fourths grown and partly fledged on 30 August.

The fall migration, which began about the first of August and continued to the end of the month, seemed to proceed in a leisurely manner. The birds apparently left the island a few at a time throughout this period, in flocks varying from four to thirty individuals. The last *nigricans* were observed on 30 August, the last *hrota* on the 31st. I was surprised on 14 August to encounter a flock of about four hundred individuals grazing in a flooded meadow along Crozier Channel. The only portion of the flock that I could see clearly appeared to be *nigricans*. Perhaps this flock was made up of birds which had summered farther to the northeastward on Prince Patrick, on the Bordens, or in Isachsen Land, all of which places are known to be inhabited by brant. I think there were few, if any, local birds in the flock.

In summary it may be stated that both the Black Brant, *nigricans*, and the American Brant or Light-bellied Brant, *hrota*, nested on Prince Patrick Island in 1949. Differences in arrival and departure dates of the two forms were slight and probably insignificant. The two forms nested in the same habitat, even on the same slopes more or less side by side, showing no ecological separation. Neither form nested in colonies. Non-breeding birds of both forms frequented the same ponds and tundra. I observed no mixed breeding pairs and only infrequently observed what I thought to be a mixed flock. Thirteen adults collected at random for the U. S. National Museum were all typical of one form or the other. Nine were *nigricans*, four were *hrota*, none was intermediate.

So-called intermediates between *nigricans* and *hrota* which have from time to time been taken in North America may not be true intermediates (i.e., intermediates in a genetic sense). They may be stray *Branta b. bernicla*. It would be hardly reasonable to suppose, however, that two such apparently closely related forms, nesting in intimate association as they did on Prince Patrick Island in 1949, would not occasionally interbreed. Since I did not actually observe any such interbreeding, and since the two forms appeared to be biologically isolated despite their geographical and physical proximity, they should, I believe, be considered specifically distinct.

Literature Cited

Bent, A. C.
1925 Life histories of North American wildfowl, Order Anseres (part). *U. S. Natl. Mus. Bull.* 130:237–258.

BIRD, C. G. and E. G. BIRD
1936 The forms of the brent goose (Branta bernicla L.). *Ibis*, 1936, pp. 605–608.
GAVIN, ANGUS
1947 Birds of Perry River district, Northwest Territories. *Wilson Bulletin*, 59:195–203.
HANSON, H. C., PETER SCOTT and PAUL QUENEAU
1949 1949 Perry River Expedition. (In: Waterfowl populations and breeding conditions, summer 1949, by W. F. Crissey et al.) Special Report: Wildlife No. 2, U. S. Fish and Wildlife Service and Dominion Wildlife Service, pp. 225–228.
JOURDAIN, F. C. R.
1936 The forms of the brent goose, Branta bernicla L. *Ibis*, 1936, pp. 202–203 and 829–831.
MOFFITT, JAMES
1932 Second annual Black Brant census in California. *Calif. Fish and Game*, 18:298–310.
SCHIØLER, E. L.
1925 Danmarks Fugle, Vol. 1. Indledning og Andefugle (Anseres).
TAVERNER, PERCY A.
1926 Birds of western Canada. *Canada Dept. Mines. Victoria Memorial Museum Bull.* 41:110.
WITHERBY, H. F., ET AL.
1939 The handbook of British birds, 3:210–215.

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