THE BREEDING BIOLOGY OF ROSS' GOOSE IN THE PERRY RIVER REGION, NORTHWEST TERRITORIES. By John Pemberton Ryder. *Canadian Wildlife Service Report Series, Number 3. Ottawa: Department of Indian Affairs and Northern Development, 1967. 11 x 8½ inches, 56 pages, illustrated. $0.75.*

This second of the new series of Canadian Wildlife Service publications continues to emphasize Canada's most vulnerable wildlife species and the factors which control their abundance. The tiny white Ross' goose, the subject of the present study, has been considered a relatively rare and possibly relict species deserving special management considerations.

The distribution of Ross' goose is limited during the breeding season, as far as we know, to very restricted areas near the Perry River in northeastern Mackenzie, where the present study was conducted, the west coast of Hudson Bay near the McConnell River, and the Boas River Delta of Southhampton Island. It winters in the interior valleys and along the coast further south in California. On its breeding gounds, it overlaps the range of the larger lesser snow goose. The author found no evidence of competition between these species in the Perry River area. Neither did he mention any instance of interbreeding between these similar-appearing species, although I recall at least 10 individuals which were considered to be "intermediates" reported away from the breeding grounds by other observers.

Mr. Ryder's study was carried out during the summers of 1963 and 1964 at Arlone Lake and Perry River, Northwest Territories. He found that reproductive activities of Ross' goose are organized quite efficiently to fit into the short period when freedom from snow and ice permit these birds to exist in the Arctic. Just as the tundra habitat was becoming free of snow, the geese arrived on the nesting grounds ready to lay their already fertilized eggs immediately. Islands in Arlone Lake were chosen for nesting. These are relatively safe, being free of mammalian predators, particularly arctic foxes, after the ice bridges have thawed. Highest density of nests was in edge areas of mixed dwarf birch, rock, and open mossy terrain.

Fertility of eggs was high and loss of eggs and goslings due to bird and mammal predators and other causes was low. Neither mortality of young nor lack of food was thought to be a limiting factor to the population of Ross' geese in the area studied.

After the goslings were able to travel, family groups dispersed over the tundra between the nesting area and the coast, although few actually reached the shore. The annual plumage molts of both adults and young must be timed so that flight feathers grow back soon enough to permit migration before freeze-up.

Southward-migrating Ross' geese concentrate in southern Saskatchewan. Counts there of young in family groups in 1964 by Alex Dzubin (averaging 2.72 per family) showed very little numerical difference from the 2.88 young per family group determined the same year by the author and Harry Lumsden before the geese left the Perry River breeding area. Counts made in January of that year and reported by John Lynch after the termination of the hunting season in California, on the other hand, showed a drop to 1.65 young per family group. The author discusses a number of complications in making reliable counts of young birds. Despite these complications (which result in imprecision), he feels that the data indicate that the greatest loss of first year birds, after they leave their nesting area, is on the southern leg of the migration from the Canadian prairies and on the wintering grounds in the United States. It appears to the reviewer that the total loss of annual production by midwinter, after the chief hazards to inexperienced young are past, was similar to that of other species of geese in years favourable for reproduction. Forty-seven per cent of the potential, in terms of eggs laid (3.6 per pair), would seem to give a fair margin of safety, all else being favourable to survival. Data presented in this paper would appear to indicate that about half of the potential annual production is lost on the breeding grounds and the other half in migration and on the wintering grounds.

Although predation was not a serious limiting factor in the present instance, there were indications that if most of the breeding colonies were not insular, this could be a serious cause of depletion. Furthermore, although the present studies were made under favourable weather conditions and production of Ross' geese seemed to be satisfactory, the author cautioned that in such an unstable ecosystem as the arctic tundra, late seasons or excessive predation could cause drastic annual drops in production of geese. Experience with other species of geese indicates that weather during the reproductive phase is probably the most important limiting factor to annual production of arctic nesting birds, and it is the average production over a number of years that is important in determining the status of the species. Thus, continued surveillance of this potentially vulnerable little waterfowl was wisely recommended.

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