J. Field Ornithol., 63(1):32-34

SITE FIDELITY OF MALE BLACK DUCKS TO A MOLTING AREA IN LABRADOR

TIMOTHY D. BOWMAN[1] AND PATRICK W. BROWN[2]
Department of Wildlife
240 Nutting Hall
University of Maine
Orono, Maine 04469 USA

Abstract.—The site fidelity of male Black Ducks (*Anas rubripes*) to a molting area in northern Labrador was studied. Twenty-nine male Black Ducks that were captured while molting were recaptured on the study area in another year, and three birds were recaptured in three consecutive years. Of those ducks recaptured, 52% were found on the same pond where they molted in a previous year. Based upon estimated rates of natural and hunting mortality, about 10% of the surviving ducks returned to the molting area the year after banding. As it is likely that many returning banded birds were not recaptured, the true rate of return is probably higher. High site fidelity may evolve if survival is enhanced by returning to the same molting area.

FIDELIDAD POR PARTE DE INDIVIDUOS MACHOS DE *ANAS RUBRIPES* A UN LUGAR UTILIZADO PARA MUDAR, EN LABRADOR

Sinopsis.—Se estudió la fidelidad por parte de individuos machos de *Anas rubripes* a una localidad utilizada para mudar en el norte de Labrador. Ventinueve machos que fueron capturados mientras mudaban, fueron recapturados un año más tarde en el área de estudio; tres aves fueron recapturadas consecutivamente en tres años. De los patos recapturados, 52% fueron capturados en la misma charca en donde habían mudado el año anterior. Basándose en estimados de la tasa de mortalidad natural y la causada por la cacería, se infiere, que cerca de un 10% de los sobrevivientes regresaron al área de muda un año después de haber sido anillados. La probabilidad de retorno, debe haber sido mayor dado el caso de que es poco probable que se hayan recapturado muchas de las aves que regresaron. La fidelidad a una localidad puede evolucionar si la sobrevivencia se incrementa al retornarse al lugar en donde se muda.

Many waterfowl species migrate to traditional areas where they congregate and spend the flightless period (Salomonsen 1968). This post-breeding migration to a molting area may terminate at a location beyond the normal breeding range. Males and non-breeding females are most commonly involved in these movements. Homing to breeding areas is well known for many waterfowl (Bellrose 1976), but homing to molting areas has been documented only for female Buffleheads (*Bucephala albeola*) (Erskine 1961), Canada Geese (*Branta canadensis*) (Sterling and Dzubin 1967), White-fronted Geese (*Anser albifrons*) (King and Hodges 1979), and Paradise Shelduck (*Tadorna variegata*) (Williams 1979). Few areas for molting are known for male Black Ducks (Barrow 1983, Bellrose 1976, P. Dupuis, pers. comm.). We studied the homing tendencies of male Black Ducks to a molting area in Labrador, based upon recaptures of previously banded birds.

[1] *Current address: U.S. Fish and Wildlife Service, P.O. Box 768, Cordova, Alaska 99574 USA.*
[2] *Current address: Department of Biology and Chemistry, Lake Superior State University, Sault Ste. Marie, Michigan 49783 USA.*

STUDY AREA

We conducted the study on the Okak Islands and mainland areas surrounding Okak Bay, Labrador (57°N, 62°W); the study area was about 100 km^2. The area is treeless tundra and has rugged mountains that rise to 600 m. Most of the freshwater wetlands where Black Ducks molted were <10 ha, <1 m deep, and within 2 km of saltwater. Where vegetation bordered ponds, willow (*Salix* spp.) predominated, but dwarf birch (*Betula glandulosa*) and sedges (*Carex* spp.) were common. Black Ducks, Canada Geese, American Green-winged Teal (*Anas crecca*), and Red-breasted Mergansers (*Mergus serrator*) used Okak Bay as a molting and staging area; other species occurred in fewer numbers. We found no evidence of Black Ducks breeding on the area.

METHODS

From late June to early August 1983–1986, we captured molting male Black Ducks by hand, using a retrieving dog, or by using a boat in saltwater areas and driving flocks ashore. We banded each Black Duck and recorded the capture site. We recaptured some previously banded ducks in subsequent years, and recorded locations of recapture sites on maps. For ducks captured on different ponds in subsequent years, we measured the minimum distance between ponds where they were captured.

We used an annual survival rate of 0.69 (Blandin 1982) for adult male Black Ducks from the Labrador-Eastern Quebec reference area, to estimate the number that survived 1 yr, and then we calculated the proportion recaptured of the estimated number of ducks surviving that year. The number and intensity of searches varied among ponds each year, and was not quantified, therefore we did not adjust capture rates to trapping effort.

RESULTS AND DISCUSSION

From 1983 to 1985, we banded and released 277 molting male Black Ducks, and also recaptured and released 43 molting male Black Ducks that were banded elsewhere in previous years. Only five molting female Black Ducks were captured during these years and none was recaptured. During the summers of 1984–1986, we recaptured 29 male Black Ducks (two were captured in three consecutive years and each was captured on the same pond in two of the three years). Although we searched wetlands separated by as much as 15 km, the average distance between capture sites for molting Black Ducks caught in more than 1 year was 1.9 km. Of those recaptured, 52% molted on the same pond where they molted in a previous year, and 71% molted within 2 km of their original molting site. Although some of this apparent high fidelity to specific ponds may be attributed to more intensive search effort at certain wetlands, we believe the high fidelity to the same pond represents a remarkable degree of homing by male black ducks. More than 400 Black Ducks were banded at other distant molting areas in Labrador, but none of those was recap-

tured at Okak Bay in subsequent years. Likewise, no ducks banded while molting in Okak Bay have been recaptured molting elsewhere. This suggests little annual movement among molting areas.

It was impossible to estimate directly the proportion of male Black Ducks that returned to molt on the study area because of differences in the number and intensity of searches in different years. After adjusting figures for annual survival (Blandin 1982), recapture rates were 9.5% for one yr after banding, 9.2% for 2 yr, and 0% for 3 yr. Several Black Ducks that were banded as molters were recaptured in subsequent years in baited traps, after they had completed the wing molt. Some of these birds probably molted near Okak Bay, but either were not recaptured or were outside the actual study area. When we include these ducks in estimates of the proportion that returned to molt, the recapture rates were slightly higher: 9.6% for 1 yr after banding, 10.1% for 2 yr, and 3.3% for 3 yr. These recapture rates represent the minimum proportion of ducks that returned to molt on the study area because we undoubtedly did not recapture all banded molting Black Ducks that returned. High site fidelity may evolve if there are survival advantages associated with returning to the same area to molt (Bowman and Longcore 1989). Factors that may lead to high survival include few predators, low human disturbance, and abundant food and cover. All of these factors seemed present on our study area.

LITERATURE CITED

BARROW, W. R. 1983. Dog banding molting waterfowl in Labrador, 4–15 July, 1982. Data File 125.41 CWS-AR Barrow 1983. Can. Wildl. Serv., Sackville, New Brunswick, Canada.

BELLROSE, F. C. 1976. Ducks, geese and swans of North America. Stackpole Books. Harrisburg, Pennsylvania. 540 pp.

BLANDIN, W. W. 1982. Population characteristics and simulation modelling of Black Ducks. Ph.D. thesis. Clark Univ., Worcester, Massachusetts.

BOWMAN, T. D., AND J. R. LONGCORE. 1989. Survival and movements of molting male black ducks in Labrador. J. Wildl. Manage. 53:1057–1061.

ERSKINE, A. J. 1961. Nest-site tenacity and homing in the Bufflehead. Auk 78:389–396.

KING, J. G., AND J. I. HODGES. 1979. A preliminary analysis of goose banding on Alaska's Arctic Slope. Pp. 176–188, *in* R. L. Jarvis and J. C. Bartonek, eds. Management and biology of Pacific Flyway geese. Oregon State Univ. Book Stores, Inc. Corvallis, Oregon.

SALOMONSEN, F. 1968. The molt migration. Wildfowl 19:5–24.

STERLING, T., AND A. DZUBIN. 1967. Canada Goose molt migrations to the Northwest Territories. Trans. N. Am. Wildl. Conf. 32:355–373.

WILLIAMS, M. 1979. The moult gatherings of Paradise Shelduck in the Gisborne-East District. Notornis 26:369–390.

Received 3 July 1990; accepted 25 May 1991.