

Sea Duck Joint Venture
Annual Project Summary for Endorsed Projects
FY 06

Project Title: No 10. Breeding habitat of Barrow's Goldeneye in Eastern Canada

Principal Investigator(s):

Michel Robert, Canadian Wildlife Service, 1141 Route de l'église, Sainte-Foy, Quebec, G1V 5H5

Jean-Pierre L. Savard, Canadian Wildlife Service, 1141 Route de l'église, Sainte-Foy, Quebec, G1V 5H5

Bruno Drolet Canadian Wildlife Service, 1141 Route de l'église, Sainte-Foy, Quebec, G1V 5H5.

Partners: Canadian Wildlife Service; Hydro Québec; Fondation de la Faune du Québec; Pêches et Océans; University of Québec in Chicoutimi (UQAC).

Project Description: The Eastern population of Barrow's Goldeneye has been listed as of concern by COSEWIC, being estimated at about only 4-5,000 individuals. Until a few years ago nothing was known of this population. This project is part of a comprehensive effort to better understand the status of Barrow's Goldeneye in Eastern North America. A few years ago, satellite telemetry permitted the discovery of the breeding area of Barrow's Goldeneye in Eastern North America and thus provided the opportunity to learn more about their breeding ecology.

Objectives: Measure reproductive success, characterize habitat selected by pairs and broods, measure the efficiency of nest boxes as a management tool.

Preliminary Results: Reproductive success is low; lakes selected by pairs and broods are usually less than 10 ha; brood movements between lakes are frequent; both Common and Barrow's Goldeneyes breed on the study site which is at high elevation (over 500m). Common Goldeneyes breed also at low elevation, but not the Barrow's Goldeneye. Blood samples were collected this summer in Iceland to compare the genetics of the three known populations of Barrow's Goldeneyes (Iceland, Eastern North America, and Pacific coast). Barrow's Goldeneyes appear to prefer small lakes without fish.

Project Status:

2002: Study of brood ecology proved more difficult than expected due to numerous brood movements. Great strides have been made towards characterizing pair and brood habitats requirements. Research effort will be pursued next year.

2003: Nest box use was monitored and brood movements followed. Food was sampled in lakes used and unused by Barrow's Goldeneyes. Amphibians and invertebrates were sampled at three periods during the summer in 4 lakes with fish and in 4 fishless lakes. Analyses of blood samples have been initiated and will be completed in 2004.

2004: Nest boxes were resurveyed. The study is winding down. A manuscript on nest box use is being prepared. Genetic samples are still being analysed.

2005: Field work has been completed. Surveys of breeding pairs were conducted to develop a model on habitat selection by Barrow's Goldeneye. Work is progressing on three manuscripts, one on nest box used (first draft completed); one on impact of back pack harnesses on goldeneyes (submitted); and one on a habitat model for Barrow's Goldeneye (first draft completed). Results will be presented at the Sea Duck Symposium in Annapolis next November (2005).

2006: Field work on that project is completed. Little new data was collected in 2006.

Related publications:

Robert, M. and J.-P. L. Savard. (in press). The St. Lawrence River Estuary and Gulf: A stronghold for Barrow's Goldeneyes wintering in eastern North America. *Waterbirds*.

Savard, J.-P. L. and M. Robert (in press). Use of nest boxes by Barrow's Goldeneyes and other wildlife in eastern North America. *The Wilson Journal of Ornithology*

Robert, M., B. Drolet and J.-P. L. Savard. 2006. Effects of backpacked radio-transmitters on females Barrow's Goldeneyes. *Waterbirds* 29: 115-120.

Robert, M., R. Benoit, C. Marcotte, J.-P. L. Savard, D. Bordage, and D. Bourget. 2003 Le Garrot d'Islande dans l'estuaire du Saint-Laurent: calendrier de presence annuelle, repartition, abondance, âge-ratio et sex-ratio. Technical Report Series No. 398, Canadian Wildlife Service, Québec Region. 136pp.

Robert, M., Benoit, R. and Savard, J.-P. L. 2002. Relationship among breeding, molting, and wintering areas of male Barrow's Goldeneyes (*Bucephala islandica*) in eastern North America. *The Auk* 119: 676-684.

Benoit, R., Robert, M. Marcotte, C., Fitzgérald, G. and Savard, J.-P. L. 2001. Étude des déplacements du Garrot d'Islande dans l'est du Canada à l'aide de la télémétrie satellitaire. Technical Report Series No. 360, Canadian Wildlife Service, Québec region