

Sea Duck Joint Venture
Annual Project Summary for Endorsed Projects
FY 2004 – (October 1, 2003 to Sept 30, 2004)

Project Title: No. 19

Breeding Ecology of White-winged Scoters on the Yukon Flats National Wildlife Refuge, Alaska

Principal Investigator(s):

David E. Safine and Mark S. Lindberg, Department of Biology and Wildlife and Institute of Arctic Biology, University of Alaska Fairbanks, Fairbanks, AK 99775, fsdes4@uaf.edu and m.lindberg@uaf.edu



Partners: USFWS, Yukon Flats National Wildlife Refuge; USFWS, SDJV; Department of Biology and Wildlife and Institute of Arctic Biology, University of Alaska Fairbanks; USGS, Alaska Cooperative Fish and Wildlife Research Unit

Project Description: Breeding bird surveys indicate a long-term decline in the numbers of White-winged Scoters breeding in Alaska. The highest density breeding areas occur in Northwest Canada and Northeast Alaska, with the largest breeding population in Alaska found on the Yukon Flats National Wildlife Refuge. Little is known about the reproductive life history and breeding habitat of White-winged Scoters on their primary breeding grounds. We are using VHF transmitters to mark females and locate nests of scoters at the Scoter Lake Complex, Yukon Flats NWR. We are using surveys and auxiliary markers to study brood rearing ecology of White-winged Scoters throughout the Yukon Flats NWR. To address questions of nest habitat selection, we are measuring habitat variables at nest sites as well as random sites in the study area.

Objectives: We will estimate nest survival, brood survival, and adult female summer survival of White-winged Scoters in their principle breeding range. In addition, we will characterize the nest habitats selected by females. This study will provide critical management information on the population dynamics and habitat requirements of White-winged Scoter in their primary breeding range.

Preliminary Results: During early June 2004, we captured and marked 38 paired females and a total of 88 scoters via mist nets. We took blood samples from females to be analyzed for plasma yolk precursors to further investigate questions of breeding probability in scoters. Radio marked females (n=35) were tracked extensively to monitor nesting attempts and survival from early June to late-August. We located the nests of

radio marked females (n=10), and one additional radio marked hen was found dead in nesting habitat. While nest searching for unmarked females, we located additional scoter and other duck species' nests (n=11 and 46 respectively). All active nests were monitored at three to seven day intervals until fate was determined. Apparent scoter nest survival and adult female summer survival were 36% and 80% respectively. In 2004, we once again observed high female mortality during nesting.

Of the nest that we monitored, five hatched, and three females and broods were marked at those nests. Each brood was given a unique color code on their cheek patches. To boost sample size for duckling survival we captured and marked six broods once they arrived on the lake. We marked a total of 31 ducklings and seven brood females. We also monitored duckling survival in six broods whose hens were previously nasal marked in 2003. Broods were resighted every three days until 14 days old, then once a week until at least 30 days of age. Apparent duckling survival to 30 days for 2004 marked ducklings was 32%.

We measured seven nest habitat parameters at all 2004 scoter nests (n=19) and random points within the study area (n=76) (Table 1). We will investigate nest habitat at two scales, study area and habitat type. We will compare use versus availability of habitat types as well as characteristics of nests and random points within each habitat type.



Fig 1. Flagging shows White-winged scoter nest site.

Table 1. Habitat characteristics of nests and random points.

Habitat Type	Nests (2002 – 2004) n =	Random points n =	Nest distance to water (m) ± SE	Random point distance to water (m) ± SE
Coniferous forest	40% n = 16	43% n = 26	107 ± 9	240 ± 8
Mixed forest	33% n = 13	28% n = 17	176 ± 11	160 ± 8
Deciduous forest	5% n = 2	7% n = 4	159 ± 39	182 ± 43
Tall scrub	10% n = 4	10% n = 6	243 ± 82	270 ± 47
Dwarf tree scrub	13% n = 5	2% n = 1	84 ± 17	104
Graminoid herbaceous	0 % n = 0	11% n = 7	N/A	240 ± 60

Project Status: The 2004 field season was one of the hottest and driest summers on record for interior Alaska, creating perfect conditions for wildfires. Fairbanks, Alaska, our logistical hub, experienced 42 days of smoke restricted visibility this season, which greatly diminished our air support. Telemetry, resupply, and personnel flight were affected. Despite the challenging field conditions, we were able to double our previous sample size of nests, hens, and ducklings for survival estimates and the nest habitat component.

This was the final field season for the project, and all data will be analyzed and submitted for publication by May 2005.