HABITAT PREFERENCES OF TUNDRA SWANS ON THEIR BREEDING GROUNDS IN NORTHERN ALASKA

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ABSTRACT

The Colville River Delta supports one of northern Alaska's most dense concentrations of breeding Tundra Swans (Cygnus columbianus columbianus). The need to understand the relative importance of the Delta's various habitats to wildlife has been elevated by the discovery of oil on the Delta and the risks of subsequent development. The purposes of this study were 1) to investigate Tundra Swan use of terrestrial habitats along lake perimeters, 2) to assess the use of lakes in relation to lake size, type (discrete, tapped or drained), and availability of good perimeter habitat, 3) to examine use of lakes and river channels in relation to the availability of sheathed pondweed (Potamogeton vaginatus) and 4) to quantify Tundra Swan diet.

Analyses were based on extensive aerial surveys, which covered the entire Delta, and intensive aerial surveys, which were flown at a lower altitude and which covered about one-third of the Delta. Extensive surveys were flown twice each summer, 1982-89, by the Alaska Department of Fish and Game. Intensive surveys, which were flown as a part of my dissertation project, were flown on the same day as extensive surveys in 1987-89. We used a habitat classification scheme based on one developed by C. Markon. Feces were collected during 1987-90 field seasons and pondweed was sampled during 1989.

Swan densities were substantially higher in five of the nine lake perimeter habitats than in the others. The five most preferred lake perimeter habitats included three of four polygonal pond habitats, one of three wet meadow habitats and only one of six upland habitats. Lakes with larger proportions of the five good perimeter habitats had more swan sightings on and within 150 m of the lake. Swan sightings per lake also increased with lake size and were higher on tapped lakes (i.e., those connected to river channels) and partially-drained lakes (i.e., those having some open water and >30% of their basin comprised of wet meadows) than discrete lakes.

Sheathed pondweed, which occurred only in tapped lakes and river channels, was an important component of Tundra Swan habitat use. Sites in tapped lakes and river channels that were often used by swans were significantly more likely to have sheathed pondweed than were unused sites (pondweed present in 90% of used vs. 17% of unused sites in tapped lakes, and in 58% of used vs. 19% of unused sites in river channels). Microhistological analyses of fecal samples indicated that sedges (Carex spp.), sheathed pondweed and algae (Nostoc sp.) were the major components of Tundra Swan diet.

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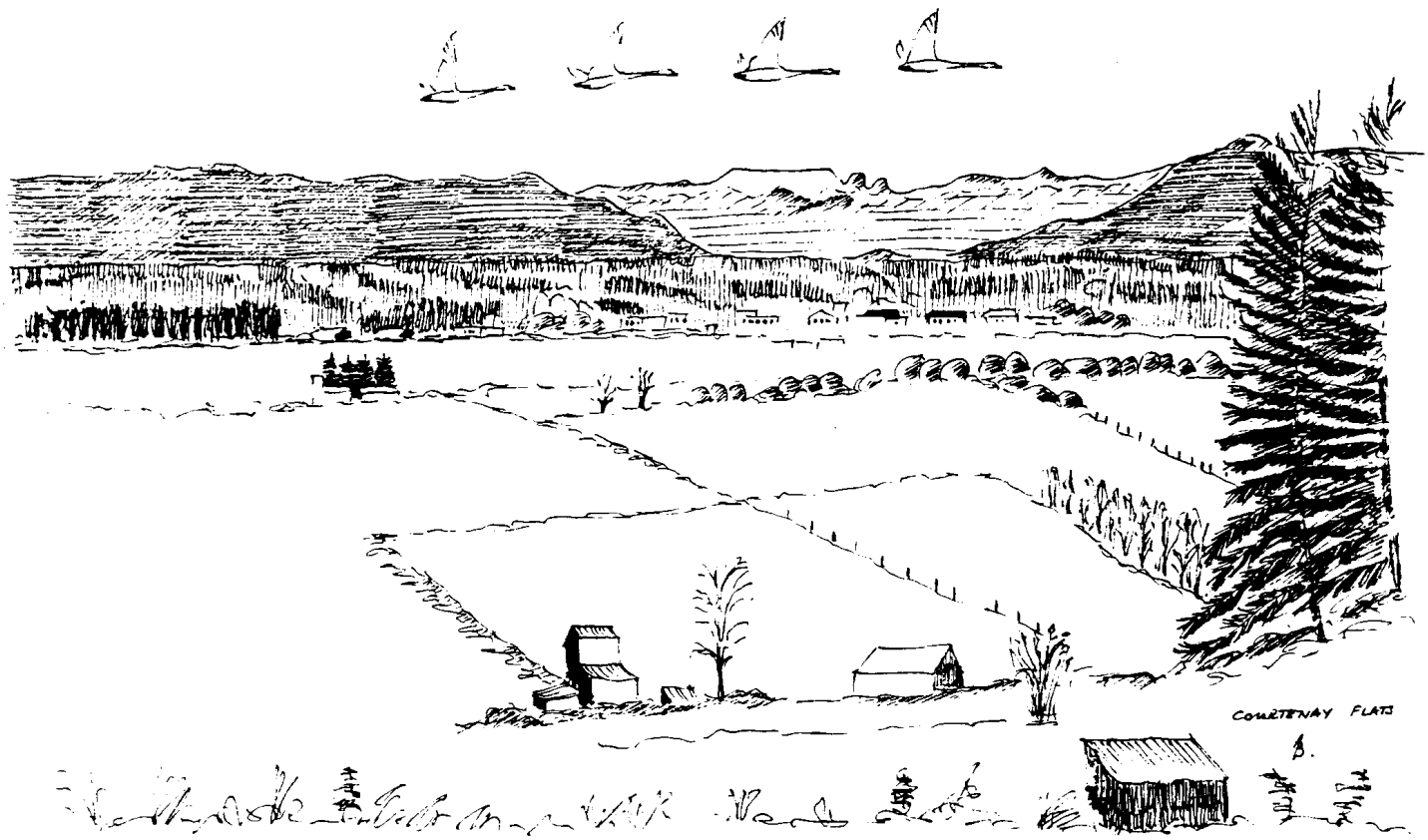

3-6 February 1993
Courtenay, British Columbia

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