Progress Notes 36105995 **Canadian Wildlife Service**

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Disponible également en français

No. 158, March 1986

A survey of Trumpeter Swans in the South Nahanni River area, NWT

by K.J. McCormick[1]

Introduction

Scattered flocks of breeding Trumpeter Swans (*Cygnus buccinator*) occur in Alaska (King and Conant 1981), Yukon (McKelvey *et al.* 1983), British Columbia and Alberta (Brechtel 1982), Saskatchewan (Nieman and Isbister 1974), and Montana, Idaho, and Wyoming (Palmer 1976). These flocks are separated into the Pacific Coast and Rocky Mountain populations (Anon. 1984).

The Pacific Coast population breeds in interior and south-central Alaska, and winters primarily along the coasts of southern Alaska, British Columbia, Washington, and Oregon. Approximately 600–1000 birds winter in the central interior of British Columbia where open water occurs (R. McKelvey, CWS, pers. commun.). Some breeding birds from Yukon may also winter in central British Columbia (B. Turner, CWS, pers. commun.).

The Rocky Mountain population is comprised of a non-migratory "Tri-state" subpopulation (Montana, Idaho, and Wyoming) and a migratory "Interior" subpopulation. Both subpopulations winter in the same area — the headwaters of the Snake River in Idaho and the Yellowstone River in Wyoming. The Interior subpopulation includes a flock that nests in the Peace River area of Alberta and British Columbia, and another flock that nests in the Toobally Lakes area of southern Yukon. Additional breeding pairs, west of the Toobally Lakes, could belong to either the Pacific Coast or the Rocky Mountain populations.

Although the North American population is approximately 10 000 birds (Anon. 1984), the Trumpeter Swan is considered a rare breeding bird in Canada (MacKay 1978). The Canadian breeding population consists of about 50 pairs in southern Yukon, 43 pairs in the Peace River area of Alberta and British Columbia, several small pioneer flocks (10 pairs) in other parts of Alberta, 10 pairs in northern British Columbia, and one pair in Saskatchewan.

The Canadian Wildlife Service (CWS) has recently completed a compilation of key terrestrial habitat sites of migratory birds in the Northwest Territories (McCormick *et al.* 1984). Any site that supports at least 1% of a national migratory bird population is considered to be a key habitat site. Since some data are incomplete, the sites have been ranked with a view to updating the appropriate population information. The South Nahanni River area was a priority site because: (1) scattered observations (Cairns *et al.* 1978, Anon. 1980, Anon. 1983) indicate that Trumpeter Swans breed and moult in the area; (2) there is considerable potential habitat in the area; and (3) no specific survey of Trumpeter Swans has ever been conducted there. The purpose of this paper is to summarize the results of a recent survey of the area.

Study area

The South Nahanni River is in the southwest corner of the Northwest Territories, close to the Yukon border (Fig. 1). Nahanni National Park includes the lower reaches of the South Nahanni and Flat rivers, which originate near the Yukon border. Adjacent mountain peaks generally range from 1350 to 1850 m high, although the Ragged Range, to the northwest, rises to over 2750 m.

The mountains are largely composed of sedimentary rocks. The surficial materials were derived locally from the weathering of bedrock and were transported relatively short distances by glaciers, gravity, or running water. Fast-flowing creeks, prone to flash floods, have deposited much gravel and rock rubble along their channels, whereas well-sorted sand and gravel lie in the beds of rivers and larger creeks. Fine-grained sand and organic debris are found on the floodplains of the larger rivers, although gravel bars also occur locally.

The area has a continental climate with short, warm summers and long, cold winters. The average frost-free period at Tungsten (61°57′N, 128°15′W) is 42 days, whereas at Fort Simpson it is 79 days. By comparison, the average frost-free period at Grande Prairie, Alta. is 116 days (Atmospheric Environment Service 1982). Small watercourses begin to freeze as early as mid-September, and ice forms on the larger streams by October.

The vegetation is characterized by boreal and alpine species, with the treeline occurring at approximately 1100–1200 m. White spruce (*Picea glauca*) and balsam poplar (*Populus balsamifera*) are the dominant species on valley bottoms, especially floodplains, where the shrub layer consists of alder (*Alnus incana*), squashberry (*Viburnum edule*), and wild rose (*Rosa acicularis*). Black spruce (*Picea mariana*) becomes predominant at higher altitudes, growing in association with white spruce, lodgepole pine (*Pinus contorta*), or jackpine (*P. banksiana*). This forest grades into open black-spruce and reindeer-lichen forest before reaching the treeline.

Methods

We undertook the survey of Nahanni National Park Reserve and the surrounding area on 14 and 15 June 1984. It was flown in a helicopter at 300–600 m above ground level and at an approximate speed of 160 km/h. Upon sighting one or more swans, flight altitude and speed were reduced to determine: (1) number of birds present, (2) breeding status of birds, (3) location of nests, and (4) number of cygnets or eggs present. We set down the helicopter for a closer examination of breeding sites.

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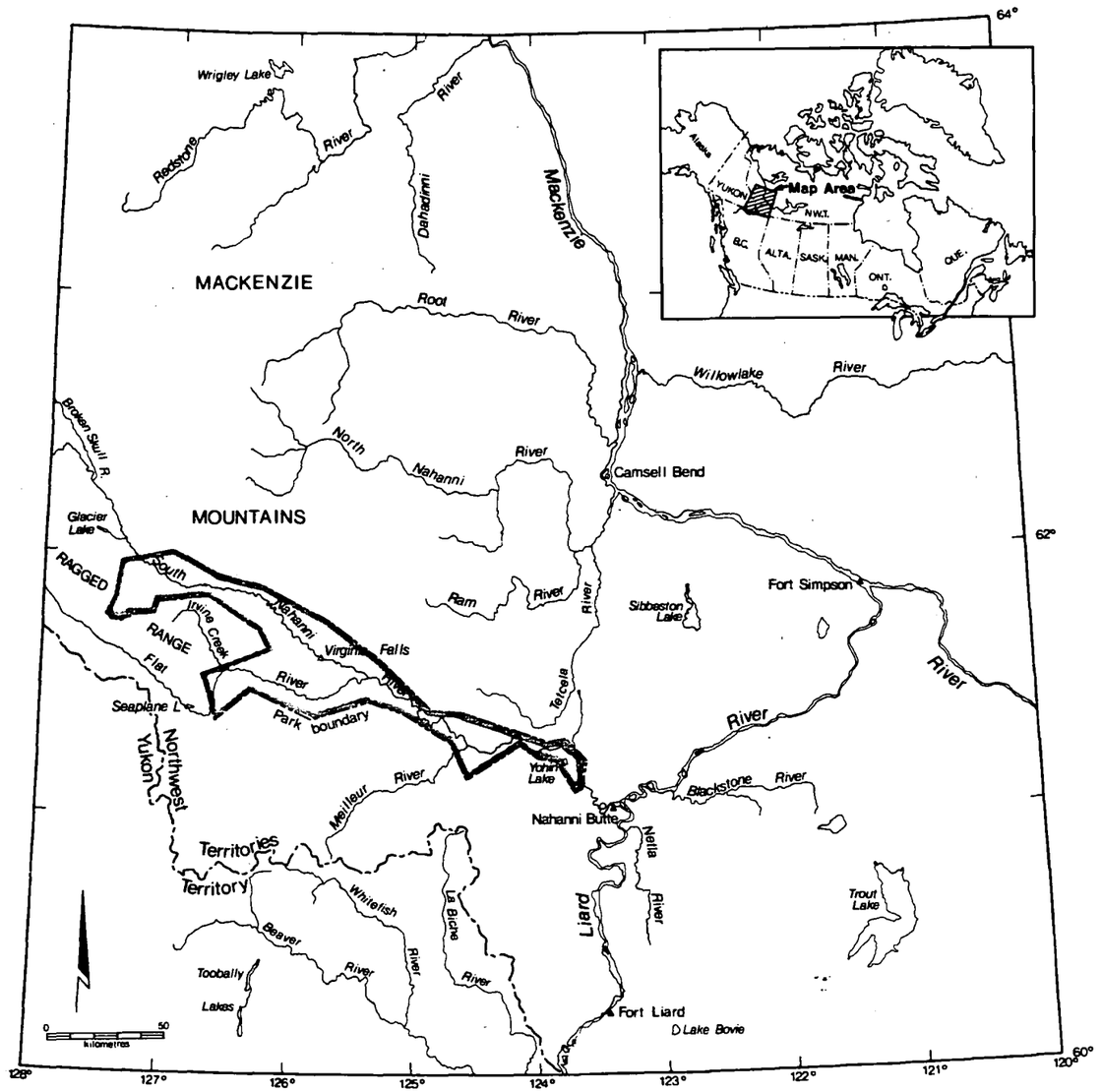
Figure 1
Location of the study area



Results

We observed 18 adult Trumpeter Swans (seven pairs and four lone birds) (Fig. 2). One pair, on Yohin Lake, was accompanied by five cygnets, another pair (at 61°06′N, 126°32′W) had a clutch of five eggs, and a third (at 61°49′N, 126°45′W) had six eggs. The remaining pairs were apparently non-breeders. All individuals were observed along the South Nahanni River with the exception of a single bird at Seaplane Lake and a pair at Irvine Creek. We saw no swans along the Flat River, although the habitat appeared favourable in some areas.

Certain habitat features were common to most sites. Differences could be attributed to the altitude and its effects on climate. The western sites varied from approximately 600–800 m elevation. Sedge (*Carex* sp.) was the predominant emergent vegetation, although horsetail (*Equisetum* sp.) was also common. We recorded only two sightings (one included a bird with a broken wing) on water bodies that did not contain horsetail. Waterlily (*Nuphar variegatum*) was the only obvious emergent species.

The eastern sites (Yohin Lake and the nearby water body), at approximately 200 m elevation, supported a more diverse emergent vegetation. Horsetail was bordered by well developed stands of bogrush (*Juncus* sp.) and cattail (*Typha latifolia*); extensive sedge meadows occurred beyond these zones. Waterlily was also common.

Discussion

The South Nahanni River area was subject to intensive field study during the 1970s. (Scotter *et al.* 1971, Cairns *et al.* 1978, R. Wickstrom, CWS, pers. commun.). These studies involved numerous flights throughout the area, yet few birds were observed. As Trumpeter Swans are large, conspicuous birds, it is unlikely that they would go unnoticed. One bird was observed in 1970; breeding was not recorded until 1977. Subsequent studies have resulted in 48 observations in the southwest Northwest Territories (Fig. 3), mostly by Parks Canada personnel, who have compiled records since 1977. Thus it appears that the swan population has recently expanded in this area and, in light of the number of paired birds, may continue to increase.

With the exception of one brood in the vicinity of Glacier Lake, all previous breeding had been recorded on Yohin Lake, where two broods were recorded in 1979. The late date (16 October) does not preclude the possibility that one or both broods moved there after attaining flight. We discovered two new breeding locations during this survey. Because no previous surveys had been made, we cannot say how long those sites have been occupied.

The present swan population of this area represents about 2.5% of the breeding population and approximately 4% of the total Canadian population. There are apparently more Trumpeter Swans in the region than previously thought. Birds have been noted on the Netla River (B. Kozachenko, Parks Canada, pers. commun.) and in the Camsell Bend area (K. Davidge, NWT Department of Renewable Resources, pers. commun.). Three sightings were also made in the North Nahanni–Redstone River area in June 1984 (E. Neil, pers. commun.). We are planning further surveys to confirm these observations and clarify the status of Trumpeter Swans in the Northwest Territories.

Acknowledgements

My thanks are extended to Arni Goodman, Bert Poston, Keith Yonge, and Rick McKelvey for their review of the manuscript. B. Kozachenko provided a summary of swan observations in the Nahanni National Park Reserve. Sue Stephenson typed the manuscript, and Susan Popowich drafted the figures.

The survey was a co-operative effort under the Parks Canada–Environmental Conservation Service Memorandum-of-Understanding (1980).

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Figure 2
Observations of Trumpeter Swans, June 1984

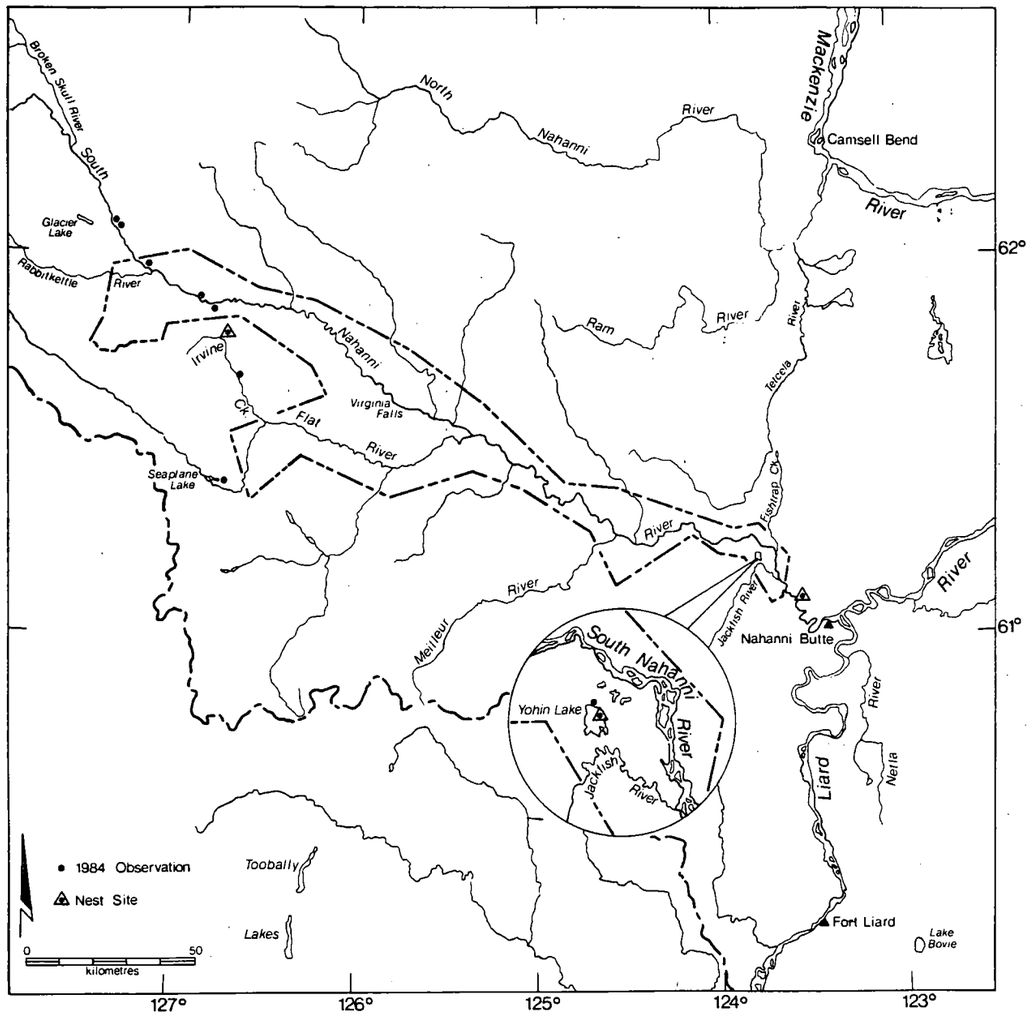

Figure 3
Observations of Trumpeter Swans in southern Mackenzie District, 1970–83