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Status of Trumpeter Swans in the southern Mackenzie District, Northwest Territories, in 1987

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Introduction

The occurrence of breeding Trumpeter Swans (*Cygnus buccinator*) in the southern Mackenzie District, Northwest Territories, is a relatively recent phenomenon. The first bird was observed in 1970, but breeding was not recorded until 1977 (McCormick 1986). Subsequent studies have resulted in additional observations, primarily within Nahanni National Park Reserve, where Parks personnel have compiled records since 1977.

The Canadian Wildlife Service has undertaken surveys of Trumpeter Swans in the southern Mackenzie District since 1984. Progressively more extensive surveys (McCormick 1986; McCormick and Shandruk 1986, 1987) have yielded larger numbers of birds on each occasion, resulting from both the discovery of new breeding sites and the occupation of additional ponds at known breeding sites. Although Trumpeter Swans are now widely distributed in this region (McCormick and Shandruk 1987), most of them are concentrated in the area between the junction of the South Nahanni and Liard rivers and Camsell Bend (Fig. 1). Seventy-seven percent of the adults and 93% of the broods were observed in this area in 1986 (McCormick and Shandruk 1987).

In 1986, 20 adult Trumpeter Swans were marked with numbered collars within this area in an effort to delineate their migration route and wintering areas. We collared additional birds in 1987 and surveyed the entire area on two occasions. Here we report our 1987 observations and discuss the current status of Trumpeter Swans in the southern Mackenzie District.

Study area

The study area includes the floodplains that occur between the Nahanni and Camsell ranges and the Mackenzie Mountains to the west (Fig. 1) and extend eastward to the Mackenzie River in the vicinity of Camsell Bend. The northern and southern extremities of the study area are the Root River and Sawmill Mountain, respectively. River systems within the area that are used by swans include Liard River, South Nahanni River, Fishtrap Creek, Tetcela River, Ram River, Carlson Creek, and Root River.

Important Trumpeter Swan habitats adjacent to the above rivers include oxbow lakes, ponds, and pond complexes. Yohin Lake, Carlson Lake, and Mid Lake are also significant sites.

All wetlands are characterized by significant emergent vegetation along portions or all of their margins. Typical emergent species include cattail (*Typha latifolia*), bogrush (*Juncus* sp.), and horsetail (*Equisetum* sp.). The last species is a particularly common feature of sites where swans are observed. Waterlily (*Nuphar variegatum*) is a common species at many sites. Further site-specific details are included in papers by McCormick and Shandruk (1986, 1987).

Methods

All wetlands within the study area were surveyed on 28–29 July 1987, while we were catching and marking moulting adult swans. The survey was carried out in a Bell 206L helicopter at approximately 150 m agl and 100 km/h. Two observers (LJS and KJM) accompanied the pilot. Upon sighting one or more swans, we reduced flight altitude and speed to determine (1) number of adults present; (2) their collar numbers, if present; (3) breeding status of the birds; and (4) number of cygnets present. Data were recorded directly on 1:250 000 topographical maps of the study area.

The study area was surveyed again on 1 September 1987, while we were banding and collaring cygnets. The observers and survey methods were identical to those of the earlier survey.

Results and discussion

The results of the 1986 and 1987 surveys of the study area are both presented in Table 1, for comparison purposes. The 1986 survey yielded 65 adults (28 pairs) and 51 cygnets, in 13 broods. The 1987 survey revealed 78 adults (34 pairs) and 69 cygnets, in 19 broods. This represents an increase of 17% in the number of adults, 35% in the number of cygnets, and 46% in the number of broods.

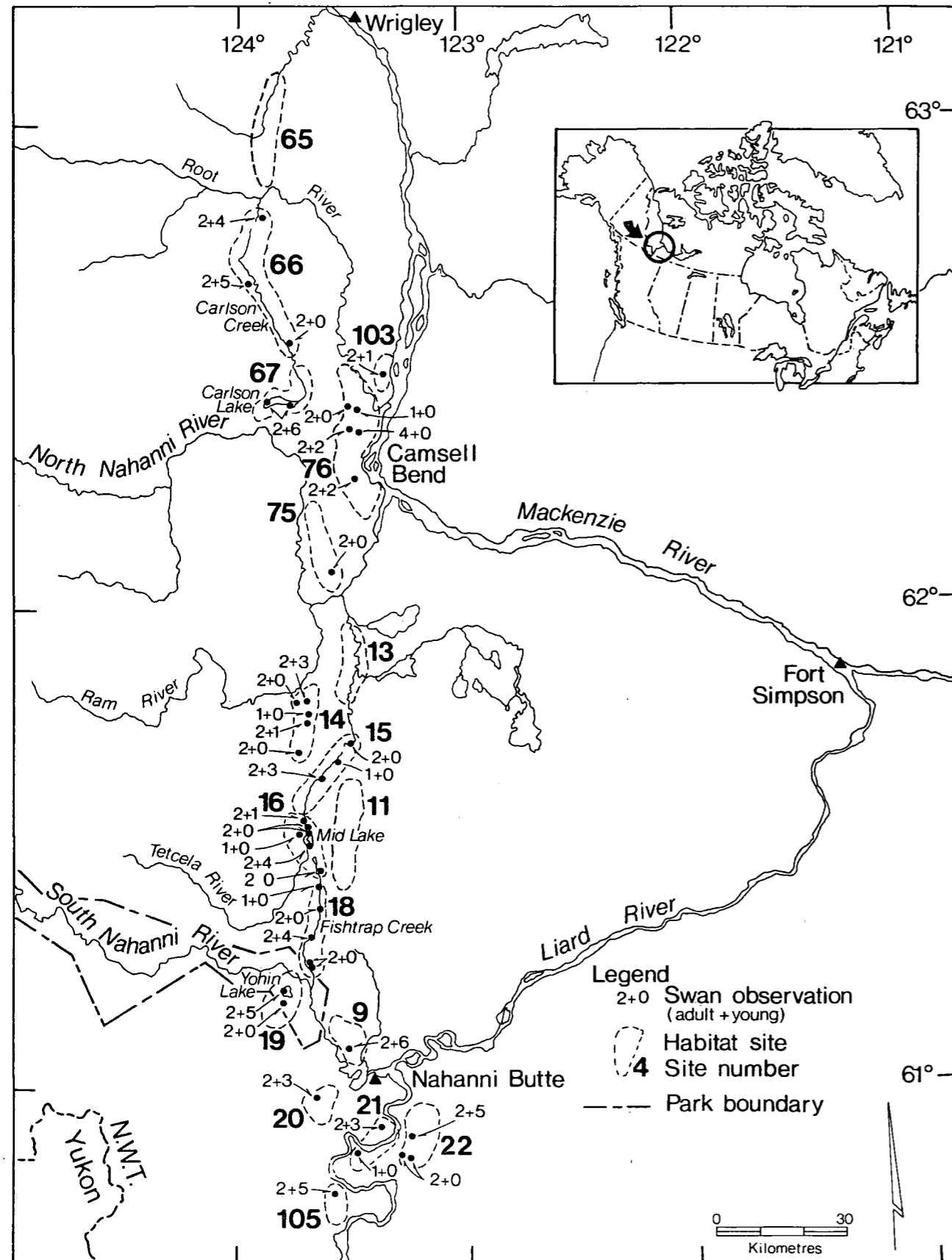
The 1987 results represent a composite of two surveys (28–29 July and 1 September). A brood was observed at Site 67 during the July survey and again during the September survey, when an additional brood was observed. Many of the non-breeding birds were not encountered during the September survey (Table 1): presumably they had abandoned the area after completing their moult. As well, several broods seen in July were not observed during the September survey (Table 1). Intensive surveys at these sites in September failed to reveal either the young or the adults. However, at Site 105, a brood was discovered minus adults. The adult swans may be conditioned to the sound of the helicopter and may take cover among the dense vegetation upon its approach, as has been reported from Red Rock Lakes (R. Gale, pers. commun.). Accordingly, we have assumed that the adults were present at site 105 but not observed.

The average brood size was 3.92 ± 1.71 in 1986 and 3.63 ± 1.71 in 1987: the difference was not statistically significant. Six new breeding locations were documented during the 1987 survey, suggesting that several pairs were breeding for the first time: the average brood size at these locations was 3.5 ± 1.38 cygnets. There was also a decline at the six breeding sites where birds were collared in 1986 (Table 1).

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Figure 1
Location of 1987 NWT Trumpeter Swan study area



The mean brood size at these sites was 5.17 ± 0.95 cygnets in 1986, but only 3.4 ± 1.67 cygnets in 1987. One 1986 non-breeding pair (No. 19 and mate, Site 14) was not discovered in 1987.

Twenty adult swans were collared in 1986. Sixteen of these swans were observed during the 1987 survey. Swan No. 23 (Site 15) was found dead on 23 January 1987 at Key Pittman Wildlife Area, Alamo, Nevada (T. Redderer, pers. commun.). Its mate (No. 30) was not observed during this survey. Similarly, No. 19 (above) and No. 29 (Site 16), each a member of a nonbreeding pair in 1986, were not located in 1987. It is possible that the birds were present but not observed (KJM and LJS, unpubl. results). All the swans, except No. 20, were observed on the ponds where they were originally collared. In 1986, bird No. 20 was collared as part of a nonbreeding pair in Site 16. In July 1987, it was found with a brood of three cygnets at Site 14, approximately 27 km to the north.

In 1986, a male (No. 24) was collared in association with a female (No. 27) at Site 16. No. 27 was seen alone near Coeur d'Alene, Idaho, on 27 November 1986, and No. 24 was observed on 29 December 1986 with a flock of swans near Driggs, Idaho, about 550 km southeast of Coeur d'Alene. In July 1987, No. 27 was observed alone at Site 15, whereas No. 24 was seen again at Site 16, in association with another swan. It is possible that Nos. 24 and 27 were brood mates rather than paired birds when first encountered. If such occurrences are common, we may be overestimating the numbers of paired birds. Further observations on collared known-age birds should clarify this issue.

A female white-phase cygnet was discovered at Site 66 during the July 1987 survey. Although white-phase birds constitute approximately 1% of the cygnets in the Tri-State area of Montana, Idaho, and Wyoming (R. Gale, pers. commun.), this is the first observation reported from the Northwest Territories. The adult pair (No. 65 and mate) merits further observation to determine if additional white-phase cygnets are produced.

Thirty-five adults were collared in July 1987, whereas 43 cygnets and two adults were collared in September 1987. Details on the collared adults are summarized in Table 1.

Conclusions

The southern Mackenzie District flock is continuing to expand at a significant rate. Similar concentrations of breeding birds are not encountered in other parts of the range of the interior Canada subpopulation. Earlier surveys suggested that there was plenty of unoccupied habitat available in the southern Mackenzie District. This premise is reinforced by the repeated, incidental observations of swans in previously unoccupied parts of the southern Mackenzie District. Continued expansion of the flock is expected, subject to favourable conditions on the wintering areas.

Acknowledgements

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Table 1
Observations of Trumpeter Swans in the Nahanni Butte - Camsell Bend area 1986 and 1987 (site numbers refer to areas shown in Fig. 1)

Site No.	1986				1987			
	Collar No.		No. of adults	No. of young	Collar No.		No. of adults	No. of young
	M	F			M	F		
9			2	0	49	40	2	6
10			1	0				
14					39	33	2	0
14	- ^a	19	2	5				
14	17	22	2	5	17	22	2	1 ^d
14		26	1	0	66	26	2	0 ^d
14			1	0				
14						55	1	0 ^d
14			2	0				
14					34	20 ^b	2	3 ^d
15	15	14	2	5	15	14	2	3
15	23	30	2	0				
15						27	1	0
15					57	47	2	0
16					-	37	2	0
16					-	51	2	4
16	24	27	2	0	56 ^c	-	2	0
16			1	0				
16			2	0	42		1	0
16			2	0				
16	-	20	2	0				
16	29	-	2	0				
16					31	62	2	0
16					45	46	2	1
18			2	0				
18					44	53	2	0 ^d
18			2	2				
18					48	54	2	4
18			2	4				
18					34	41	2	0 ^d
18					52	36	2	0
18						50	1	0
19			2	0			2	0
19			1	0				
19			2	5			2	5
20			2	2	38	30	2	3
21			2	0			1	0
21	25	21	2	4	25	21	2	3 ^d
22	16	13	2	7	16	13	2	5 ^d
22	18	11	2	0	18	11	2	0
22			2	0	32	-	2	0
66			2	0	68	61	2	0
66					64	67	2	5 ^d
66					-	65	2	4 ^d

(continued)

Table 1 (concluded)
Observations of Trumpeter Swans in the Nahanni Butte - Camsell Bend area 1986 and 1987 (site numbers refer to areas shown in Fig. 1)

Site No.	1986				1987			
	Collar No.		No. of adults	No. of young	Collar No.		No. of adults	No. of young
	M	F			M	F		
67			2	0	31	43	2	6 ^d
67			2	4			2	6 ^d
75			3	0				
75					35	59	2	0
75			1	0				
76							1	0 ^d
76							2	0 ^d
76			2	2			2	2 ^d
76							4	0
76			2	0			2	2 ^d
103			2	1	-	63	2	1 ^d
105	12	28	2	5	12	28	2	5 ^d
Total			65 (28 pairs)	51 (13 broods)			78 (34 pairs)	69 (19 broods)

^a Indicates that mate was present but not collared.

^b This bird was collared in 1986 as part of a nonbreeding pair at Site 16.

^c This bird was collared as No. 24 in 1986. Collar No. 56 is a replacement for collar No. 24, which was lost.

^d Numbers confirmed on the 1 September 1987 survey.

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