The final section of the Plan discusses restoration flocks, presenting current status, uses, problems, and management recommendations in a similar fashion to that done for the main population. Generally, the status of those flocks is very accurately known because of the management effort that has been expended on them. The Plan contents for restoration flocks are summarized in Table 2.

Table 2. A summary of the details pertaining to restoration flocks in the North American Management Plan for Trumpeter Swans.

Flock	Status	Use	Problems	Management guidelines
Turnbull NWR	1	Viewing	Had to be artificially maintained in winter; non-migratory.	Best used for restoration elsewhere.
Malheur NWR	67 over-wintered, 1979-1980	Viewing	Population productive but not expanding.	Use for viewing; reduce predation.
Ruby Lake NWR	40 in 1982	Local interest	Limited disturbance-free nesting areas.	Allow natural expansion, reduce disturbance.

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TRUMPETER SWAN SURVEYS AND STUDIES ON THE KENAI NATIONAL WILDLIFE REFUGE AND KENAI PENINSULA, ALASKA, 1957-1984

1986

Theodore N. Bailey, Edward E. Bangs and Mary F. Portner
Kenai NWR
Box 2139
Soldotna, AK

Trumpeter Swans nesting on the 7,972 km^2 Kenai National Wildlife Refuge and Kenai Peninsula have been censused three times annually during the past 28 years (1957-1984) by nesting and early and late brood aerial surveys. The number of annual nesting pairs has averaged 26.7, and early and late broods have averaged 4.03 and 3.45 cygnets/brood, respectively. No significant increase in the Peninsula nesting Trumpeter Swan population has occurred despite a two-fold increase in swan numbers throughout Alaska. Over 20 years of data have been collected and summarized on the use of traditional nesting lakes and nest sites on the Peninsula and related to levels of human use and development.

To better understand the factors influencing Trumpeter Swan population dynamics on the Refuge, 160 swans (31 adults, 128 cygnets, 1 unknown) have been neck-banded since 1966 including 126 since 1977. Resightings of collared swans suggest a coastal migration route with overwintering areas dependent on winter severity in British Columbia and northwestern Washington. Because of poor resighting success and to better monitor the fates of individual broods, 33 Trumpeters have been fitted with radio transmitters to date (1982=5; 1983=15; 1984=13). This includes 13 adults and 20 cygnets from 25 family groups.

Radio tracking has revealed unexpected and extensive movements of family groups on the Refuge prior to migration; periodic separation, mixing and rejoining of individuals within family groups and with other swans; disruption of family groups by man; mortality timing, causes, and rates; and the locations of specific migration stopover points. It has also revealed that brood surveys conducted as late as September failed to detect cygnet mortality prior to migration and that human activity on lakes used by broods has had long-term, significant impacts on swan movements, behavior, and perhaps mortality.

The results of these surveys and studies are currently being prepared for publication and were the basis for proposing regulations that prohibit aircraft from landing between 1 May and 30 August on lakes traditionally used by Trumpeter Swans on the Refuge. These and other regulations should provide the protection from human disturbance required by Trumpeter Swans nesting on the intensively used Kenai NWR.

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TRUMPETER SWAN MOVEMENTS FROM TANANA VALLEY, ALASKA

Rodney J. King
Wildlife Biologist
U. S. Fish and Wildlife Service
P. O. Box 74272
Fairbanks, AK 99707

Since 1982, 111 Trumpeter Swans (Cygnus buccinator) have been collared in the Tanana Valley. The two major areas of collaring have occurred at Minto Lakes (91 birds) and on and near Tetlin National Wildlife Refuge (20 birds). Of the 111 collars available for observation, there have been 24 collars positively identified (codes read by observer) outside of Alaska. Two birds (one adult female and one cygnet of her brood) have been observed more than once in different geographic locations. In addition to collaring, 18 transmitters (including three satellite transmitters) have been placed on Trumpeter Swans using various techniques (17 near Minto Lakes and one on Tetlin NWR). Nine birds with transmitters have been relocated outside their original breeding/natal area. Three of these birds have been relocated outside of Alaska. Significant progress has been made in identifying migration routes and wintering areas of Tanana Valley Trumpeter Swans. There have also been several voids discovered in the information about portions of the migration routes.

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NOTES ON THE STATUS OF TRUMPETER SWANS IN BRITISH COLUMBIA AND THE YUKON TERRITORY, AND ON GRAZING STUDIES AT COMOX HARBOUR, BRITISH COLUMBIA

R. W. McKelvey
Wildlife Biologist
Canadian Wildlife Service
P. O. Box 340
Delta, British Columbia V4K 3Y3

STATUS OF TRUMPETER SWANS IN BRITISH COLUMBIA AND THE YUKON TERRITORY

Trumpeter Swans breed in and migrate through the Yukon Territory and British Columbia and winter in considerable numbers along the British Columbia coast. The status of swans in the Yukon has been reviewed recently by McKelvey et al. (1983). Based on summer observations of Trumpeter Swans in the Yukon since about 1970, and extensive aerial surveys in 1978, 1979, and 1981, the Yukon population is estimated to number about 50 pairs. At least 32 pairs are found in the southeast corner of the Territory, near Toobally Lakes. Other sightings have come from as far west and north as Dawson City.

Based on sightings of swans collared near Toobally Lakes, the Yukon population appears to winter in the Tristate Region of Idaho, Montana, and Wyoming. Together with other nesting swans in northeastern British Columbia (discussed below), the Yukon population is probably part of the migratory Interior Canadian Subpopulation, (North American Management Plan for Trumpeter Swans, 1984), part of which is centered near Grande Prairie, Alberta.

Nesting of Trumpeter Swans occurs in British Columbia in the Dawson Creek - Fort St. John area near Fort Nelson and at two isolated spots near Terrace and Smithers. The birds in the Dawson Creek - Fort St. John area are part of the Grande Prairie flock, based on sightings of birds from Grande Prairie in that area (McKelvey 1981a). Those from the Fort Nelson area, although well removed from Grande Prairie, are also related to that flock, perhaps through pioneering efforts. Sightings were made in 1980 of swans which had been collared in Grande Prairie (unpublished data). The swans nesting near Terrace and Smithers are doing so within the winter range of the Pacific Coast Population, which breeds mainly in Alaska and winters along the British Columbia coast (McKelvey 1981b). It is not known if these birds migrate or not, but they need not move far to encounter other wintering concentrations.

KENAI NWR