

The Status of Trumpeter Swans *Cygnus buccinator* wintering on Vancouver Island, British Columbia, Canada in 1989.

R.W. MCKELVEY, R.G. DAVIES and K. MORRISSON

A large portion of the Trumpeter Swans *Cygnus c. buccinator* breeding in Alaska are believed to winter in British Columbia, primarily along the coast (Anon. 1986). One of the most important wintering areas is Vancouver Island (Fig. 1). Surveys of swans on Vancouver Island have been made periodically over the last 20 years. Some of these surveys have been reported in the literature (Smith & Blood 1971, McKelvey 1979) while others have remained unpublished or have appeared as conference proceedings (Davies 1987a). No comprehensive surveys were made between 1981 and 1988, although localized surveys on the east coast of Vancouver Island were carried out. In February 1989, we were able to conduct a complete aerial survey, and here present the results together with recent unpublished records of population size, proportion of cygnets, locations of major concentrations, and population trends throughout the island.



Figure 1. Location of Vancouver Is., Canada

Methods

The 1989 survey was conducted 6-8 February, using a float-equipped Cessna 185. The route followed those used previously, (McKelvey 1979), and all estuarine and freshwater habitats

thought to be ice-free were visited. Surveys in the past have been attempted generally when cold, high pressure systems were positioned over southwestern British Columbia. The 1989 survey fitted that pattern, with temperatures the preceeding week reaching record lows. The mean monthly temperature for February was 0.4 °C, 3.6 °C below normal (Atmos. Env. Ser. unpubl. data). That resulted in almost all interior areas being frozen, as well as parts of many of the inlets, particularly on the west coast.

Throughout the survey observations were made by two observers seated on the same side of the aircraft. Swans were counted by both observers. Flocks were circled until a consensus on the number of birds present was reached. In situations where the numbers were too large to count, oblique photographs recorded the numbers.

Results and Discussion

Population Size

A total of 2,864 swans was sighted during this survey (Table 1). This represents an increase of 170% since 1981 (Davies 1987b) and 243% since 1978 (McKelvey 1979). At least 105 Mute Swans *Cygnus olor* were seen near southern Vancouver Island, where a feral population has existed for some time (Davies 1981b). We believe we observed most of the Mute Swan population present. Our estimate for the total native swan population was therefore 2,759 birds. Tundra Swans *C. c. columbianus* also winter on southern Vancouver Island, although no recent ground estimates of their abundance exist. McKelvey (1979) applied an estimate of 2% for all of Vancouver Island in 1978. Using that figure we would have expected about 55 of the native swans to have been Tundra Swans. There are no indications that western North American Tundra Swan populations are increasing as rapidly as are Trumpeter Swans, at

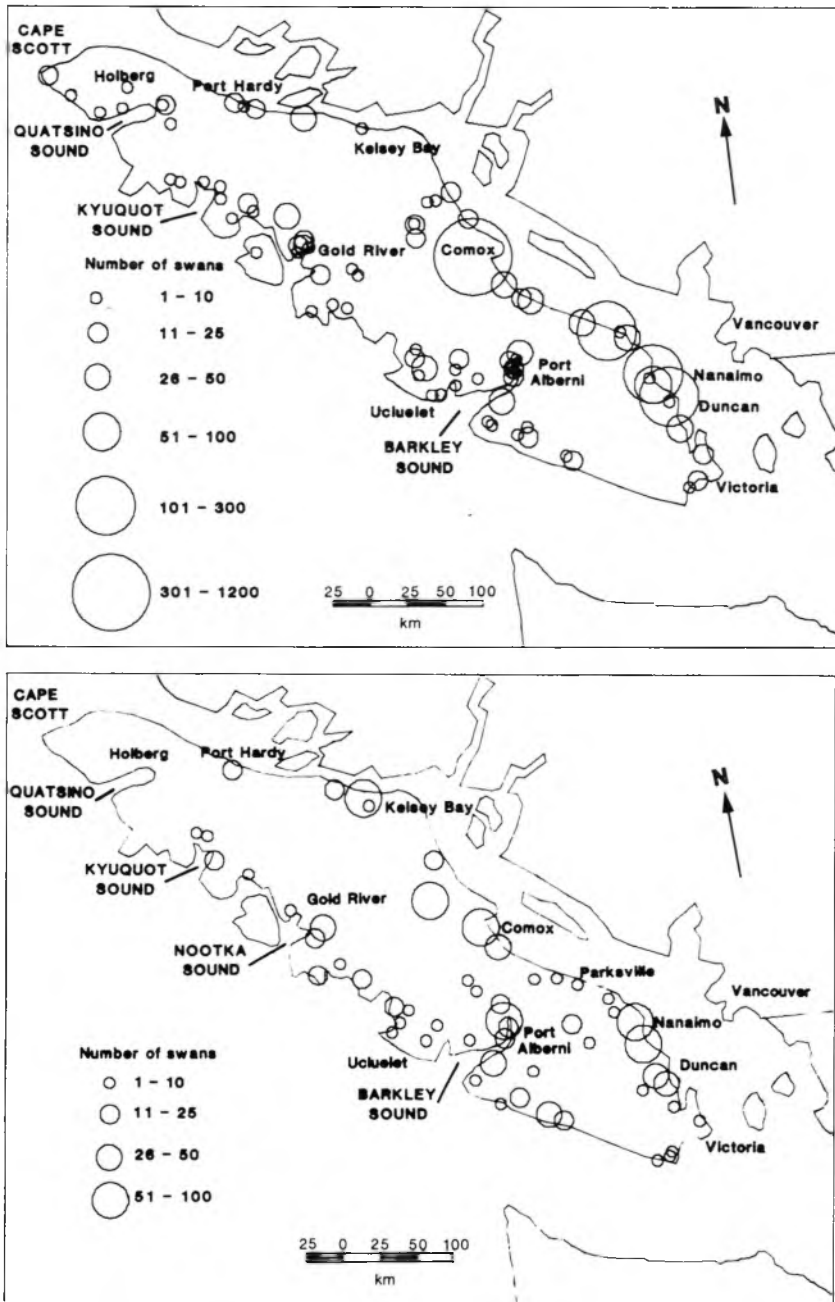


Fig. 1. Locations of concentrations of Trumpeter Swans wintering on Vancouver Island in (A) 1977-78 (B) 1988-89.

Table 1. Numbers of Trumpeter Swans wintering on Vancouver Island as revealed by aerial surveys since 1970.

	1970-71	1972-73	1977-78	1980-81	1988-89
Nanaimo-Victoria	62	52	274	60	742
Juan de Fuca				122	53
Barkley Sound	90	36	139	121	48
Alberni Inlet	128	220	109	139	114
Ucluelet-Quatsino	308	234	193	227	231
Port Hardy	107	100	50	92	81
Kelsey Bay	140	149	114	131	47
Comox-Nanaimo	112	115	298	793	1548
Total	947	906	1177	1685	2864

least on Vancouver Island, so that estimate may be high. In any event we believe there were at least 2700 Trumpeter Swans present in 1989.

Table 2. Total number of Trumpeter Swan cygnets estimated and counted during the February 1989 swan survey on Vancouver Island.

	adults	cygnets	total	% cygnets
Comox-Little Qualicum River (estimated) ¹	1139	269	1408	19.1
Nanaimo and Cowichan rivers estuaries (estimated)	423	89	512	17.4
Rest of the Island (counted) ²	717	122	839	14.5
Total	2279	480	2759	17.4

¹Estimated by applying average percentages seen on ground counts to photo counts where cygnets could not be differentiated.

²Areas where cygnets were actually counted.

Cygnets

It was not possible to determine the proportion of cygnets seen over the whole survey, because cygnets could not be identified from the photographs of the large flocks. However, in areas where swans could be counted individually from the air the proportion of cygnets was 14.5% (Table 2). This included most of the island except for the area between the Comox Valley and the Little Qualicum River estuary, the Nanaimo River estuary and the Cowichan River estuary. Ground counts in those areas in January 1989 found that cygnets accounted for between 15.8% - 19.6% of the swans present (Table 3). Applying an average percentage to the portions of the aerial survey in which we could not identify cygnets, and combining with

Table 3. Number of cygnets and adult plumaged Trumpeter Swans seen on ground counts of east Vancouver Island, January 1989.

	adults	cygnets	total	% cygnets
Comox-Nanaimo 4 January	962	234	1196	19.6
Comox-Nanaimo 27 January	717	163	880	18.5
Nanaimo-Cowichan 5 January	373	70	443	15.8
Nanaimo-Cowichan 26 January	429	99	528	18.8

the rest of the count, yielded a total estimate of 17.4% cygnets (Table 2).

Population trends and major concentrations

The Alaska breeding population of Trumpeter Swans was estimated at 4,170 birds in 1975, and 7,696 in 1980 (King & Conant 1981). In 1985 it was estimated at 9,459 birds (Anon. 1986), a 126.8% increase in 15 years or 8.4% per year. At approximately the same time the Vancouver Island wintering population has grown at a rate of about 20.2% per year, from 1,177 in 1978 to 2,864 in 1989.

Large concentrations were seen at the Nanaimo River estuary (295), Ladysmith Harbour (83), the Cowichan River estuary (203, excluding Mute Swans), Comox Harbour and vicinity (1,102), and the Little Qualicum River estuary (135). The trends noted in previous surveys (McKelvey 1979; and Table 1) continue. Comox Valley has a population now more than five times that seen in 1978. Similarly the area from Nanaimo and south has nearly three times the swans. Barkley Sound and the Kelsey Bay area have generally fewer birds while the other areas remain about the same.

The increases on the east coast of Vancouver Island cannot be accounted for solely by decreases elsewhere on the island. Some of the increase must be due to relocation, perhaps from the mainland. Swan populations have increased in other parts of southern British Columbia (McKelvey, unpubl. data) so relocations would have to have been from farther north. The only alternative explanation is that increases in the Alaska population are not range-wide, but are in areas producing birds that winter on southeast Vancouver Island and adjacent localities.

Problems predicted in 1978 with increasing populations in agricultural areas (McKelvey 1979) have materialized. Some farmers have reported that fields being used by swans have become overgrazed, but generally those situations are still controllable with scaring and harassing tactics. It seems unlikely, however, that continued increases can be tolerated indefinitely. As yet no refuges have been provided for wintering swans. Actions to provide alternative habitat and to reduce the use of agricultural areas will be required if current population trends continue.

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- R.W. McKelvey, Canadian Wildlife Service, Box 340, Delta, British Columbia, Canada, V4K3Y3
R.G. Davies, British Columbia Ministry of Environment, 2569 Kenworth Rd., Nanaimo, British Columbia, Canada, V9T4P7
K. Morrisson, British Columbia Ministry of Environment, 2569 Kenworth Rd., Nanaimo, British Columbia, Canada, V9T4P7