

AN UPDATE OF THE MINNESOTA NONGAME PROGRAM'S
TRUMPETER SWAN RESTORATION PROJECT
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The Nongame Program of the Minnesota Department of Natural Resources, Section of Wildlife continued its efforts to restore trumpeter swans (Cygnus buccinator) to Minnesota in 1987. A flock of cygnets, subadults, and adults is being managed for release. The birds have been obtained from various sources (table 1).

Table 1

Year of Hatch	Source	Number
unknown	Hennepin Parks	2
1983	Brookfield Zoo	1
1984	Minnesota Zoo	2
1985	Minnesota Zoo	2
1985	George Knapp	1
1986	Minnesota Zoo	5
1986	Brookfield Zoo	4
1986	Alaska	34
1987	Minnesota Zoo	12
1987	Brookfield Zoo	5
1987	George Knapp	6
1987	Alaska	7
1987	Delta	5
Total captive swans		86

These swans are being held at several locations until release.

The program suffered a setback in June when a mink entered the duck house and killed 31 cygnets. It was determined that the duck house was no longer suitable for the program and a new facility is being readied for the 1988 season. The impact to the overall program was minimized with the acquisition of cygnets from other sources. The 1987 age class currently numbers 35 cygnets. The goal is to have 40 swans in each age class at the time of release.

The second of three planned egg collections in Alaska took place on June 9, 1987 at Minto Flats, west of Fairbanks. Carrol Henderson, nongame wildlife supervisor, Dave Ahlgren, DNR volunteer and Northwest Airlines employee, and Rod King, U. S. Fish and Wildlife Service pilot/biologist made the collection. The eggs were taken to the Carlos Avery Wildlife Office at Forest Lake, Minnesota and placed in incubators.

The eggs hatched during the period from June 16 to June 27, 1987. A hatch of 43 (86%) of the 50 eggs was achieved. This rate was identical to the hatch success of 1986.

The results of a study on the 6 eggs (1 egg was infertile) that failed to hatch in 1986 did not determine

any causes or solutions. Observed problems included bill and skull deformities and reversed embryo position in the egg. One embryo died fairly early in development and another died very near the time of hatching. The eggs were examined at the U. S. Fish and Wildlife Service Lab at Patauxent, Maryland. The primary area of concern was pesticide contamination.

No study of the 7 eggs that failed to hatch in 1987 is currently planned. No deformities or reversed positions were observed in 1987. One embryo died very early in development. Several embryos died within the final days of incubation. Two or three were heard to vocalize, but were already dead or near death when intervention occurred. The time table for intervention during the hatching process will be reexamined prior to the 1988 incubation period.

Data will continue to be collected on the incubation process in 1988. Very little intervention in 1986 and slightly more in 1987 resulted in identical successful hatch rates. More assistance may be given to slow hatching embryos in 1988 based on discussions with other incubators. It is hoped that assistance will save some of those embryos that vocalize, then fail to hatch, without disrupting any embryos that would hatch on their own.

A cooperative effort with the Raptor Research and Rehabilitation Program at the University of Minnesota was intensified in 1987. Hennepin County Parks and the Minnesota DNR worked with the Raptor Program to coordinate the collection of health and mortality data on trumpeter swans in Minnesota. The Minnesota Zoo flock will be included in the testing in 1988.

The opportunities to gather data from mortalities in Minnesota are limited, especially from free flying swans. Mortalities are channeled through Dr. Laurie Degernes, staff veterinarian, at the Raptor Program to maximize data collection. Lead poisoning and Aspergillosis are the current areas of concentration.

Captive swans are being examined and sampled periodically to determine normal blood parameters, monitor blood lead levels, Aspergillosis exposure, and parasite loads (Degernes 1987). The testing will hopefully lead to early detection of problems and methods of treatment that will increase survival. Opportunities for prevention may also be discovered.

The Minnesota DNR Chemistry Lab is in the preliminary stages of genetic testing on the flock. The objective is to determine genetic lines and the amount of genetic variation to guide in the project when obtaining swans and pairing them for release.

The highlight of 1987 was the first release of swans in northwestern Minnesota. On April 21, 100 pairs of swans were released in and around Tamarac National Wildlife Refuge in Becker County, Minnesota. The Minnesota Air National Guard provided air transport on a C-130 to move the swans from holding sites near Minneapolis to Fargo, North Dakota. The swans were then transferred to several vehicles and driven to their specific release sites. The swans being held at the Minnesota Zoo had been captured the day before and placed in holding facilities. The other half of the birds were captured at Hennepin Parks on April 21. The last pair was released at approximately 7:00 p.m.

The release sites were selected after a review of data gathered in a 1986 survey (Hines 1986). Some of the criteria included food and cover availability, lead shot deposition, physical hazards, human activity, and potential for nesting. Swans were released 1 pair to a site except for one very large site where 2 pairs were released.

Orange patagial wing tags with black numerals were used to identify individual birds in the field.

Over 200 people gathered to witness the release of a pair on Jim's Marsh, adjacent to Tamarac headquarters. The amount of interest by the public has remained high. Tamarac staff reported that visitor center use was up by 30% and they attributed the rise to the presence of the released swans.

The birds were released with clipped wing feathers giving them over 3 months to settle in and become acquainted with each other before regaining flight.

As of January 27, 1988, the known mortalities are a female hit by a car while walking across a road and a female found dead, cause undetermined. A third female is missing presumed dead by vandalism. This female was replaced by the release of a second female with the male. Both birds are clipped and will remain at the release site over winter. That particular release site is one of two emergency aeration and feeding sites established for birds reluctant to migrate.

A pair of swans were injured by gunshot in late October. They were captured and treated at the Raptor Center where each required the amputation of one wing. This pair is now at the Minnesota Zoo where it is hoped they will produce offspring for the program.

The latest problem was a male that was captured on the weekend of January 23 in western Iowa and is being treated for possible lead poisoning.

A pair was confirmed in mid - December to be on the Mississippi River at Monticello, Minnesota. This location is approximately 150 miles southeast of the release area. Three swans from the Hennepin Parks flock were confirmed at that location on the same day. This pair was still present at that location on January 20, 1988. Other sightings have included a group of 5 swans confirmed in Lyon County in northwest Iowa; unconfirmed sightings in east central

Missouri; and 3 swans unconfirmed in Mills County, southwestern Iowa on January 10, 1988.

As of January 27, 1988, 13 swans are presumed to be free-flying in Minnesota and areas to the south.

A cooperative effort to educate the public about swans continued in 1987. News releases to the media generated coverage on television, radio and in newspapers. A public service announcement showing the difference between swans and snow geese was filmed at the Minnesota Zoo. Signs at public lake access points informed recreational visitors of the possible presence of swans. Posters showing swans and snow geese were placed in the areas where hunting licenses were sold. A series of billboards were placed in the Minneapolis/St. Paul area, the release area, and points in between. A new color Nongame Program poster displayed a pen on the nest with cygnets. An effort was made to enlist the help of teachers in reaching younger outdoor users in the classroom. In 1986 a majority of the human related mortalities involved minors.

The publicity efforts of Hennepin Parks, the Minnesota Zoo, and the Raptor Program are gratefully acknowledged.

The efforts of the program in 1988 will begin with the release of 2 pairs of swans at Swan Lake in south-central Minnesota in early April. A release of up to 15 pairs is scheduled for mid-April in the northwestern Minnesota release area.

The collection of eggs at Minto Flats will take place in June.

Released birds will be monitored to determine movements, survival, and reproductive efforts.

Flock health data will be collected to improve treatment and survival.