RECOVERY PROGRAM FOR THE ENDANGERED ALEUTIAN CANADA GOOSE

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Abstract. Aleutian Canada geese once nested in the outer two-thirds of the Aleutian Islands in Alaska and in the Commander and Kuril Islands of the Soviet Union. Predation by arctic foxes introduced to these islands was primarily responsible for reducing this subspecies to a population of approximately 800 birds in 1975 which is known to breed on only a single, remote volcanic island (Buldir) near the western end of the Aleutians. The bird has now been officially designated as an endangered species. The program to restore the population to a safer level includes a study of the breeding birds on Buldir Island, removal of foxes from selected former nesting islands, propagation and release of captive-reared birds on these islands, and determination and study of migration and wintering areas.

INTRODUCTION

Aleutian Canada geese, Branta canadensis leucopareia, once bred from the central Kuril Islands to the Islands of Four Mountains in the eastern Aleutian Islands (Fig. 1) and wintered in northern Japan and in California (Bent 1912, Clark 1910, Delacour 1954, Jochelson 1933, Murie 1959, Snow 1897, Turner 1886). Arctic foxes (Alopex lagopus), introduced to most of these islands for fur farming purposes, eliminated the geese on all except Buldir, a 1700-ha. (4250-acre) volcanic island in the western Aleutians, which was too isolated and had too poor a harbor for the fox farmers to use. It is on Buldir that the last breeding pairs (200 estimated) of Aleutian Canada geese are known to survive.

In 1975 the Director of the U.S. Fish and Wildlife Service appointed a team of six biologists to develop and help implement a plan designed to restore to a safer population level the Aleutian Canada goose, which has been officially declared by the U.S. Secretary of the Interior to be an endangered species. The authors are privileged to be a part of that group, called a recovery team. Other members are Frank Kozlik, California Department of Fish and Game; Daniel Timm, Alaska Department of Fish and Game; and Philip Lehenbauer and Ray Erickson, U.S. Fish and Wildlife Service. The purpose of this paper is to summarize the recovery program.

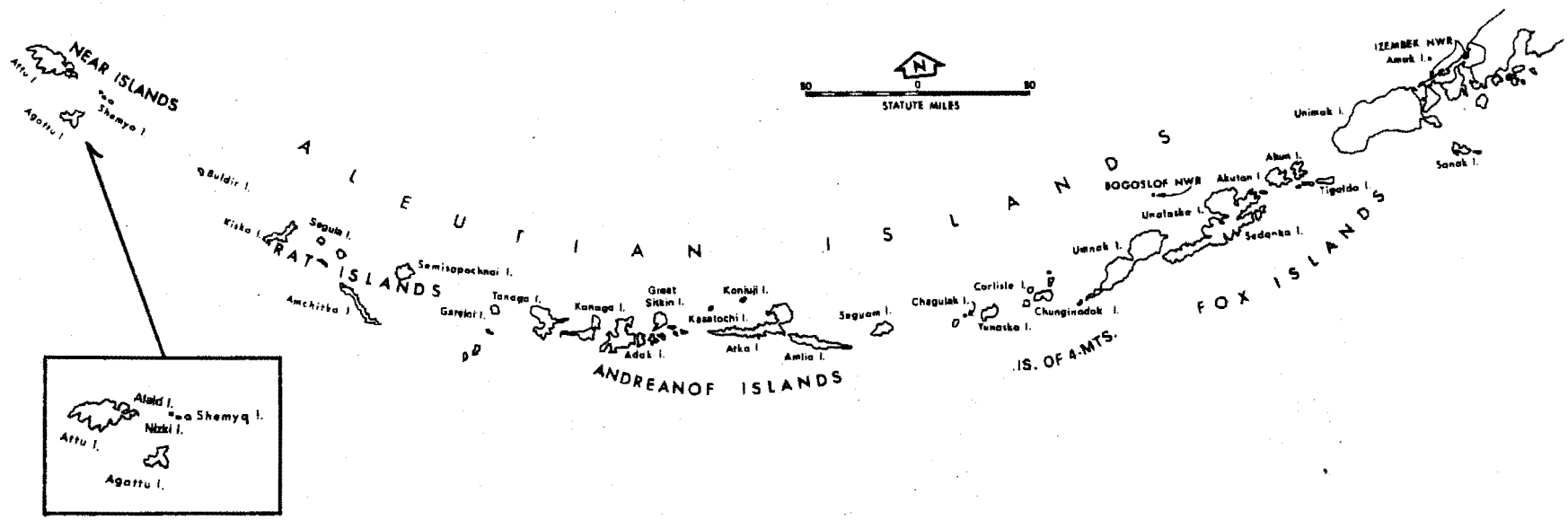

Figure 1. Aleutian Islands

PREVIOUS HISTORY

The Russians instituted the practice of introducing foxes in the Aleutians and Kurils in the early 1800's (Robert D. Jones, Jr., pers. comm.). By the 1890's only a few Aleutian geese were observed nesting in the Kurils on two small fox-free islands in the middle of the island chain (Snow 1897). Geese were never common in the Commanders because foxes are native there. The last birds recorded on these islands was in 1914 (Johansen 1961). About this time fur farming began to expand from a very low level in the Aleutians. Between 1910 and 1930 nearly every island was stocked with arctic foxes, and in the mid 1930's Olaus Murie (1936, 1937) was sent to the Aleutian Islands to investigate the effects of foxes on nesting birds. Dr. Murie (1959) found geese on only a few of the western Aleutian Islands, where Dr. Austin Clark (1910) had found geese "breeding by thousands" only 30 years earlier. World War II and reduced fur prices brought fur farming to an end in the Aleutians, but the foxes remained.

The first actions designed to benefit the geese were taken in the late 1940's when Robert D. Jones, Jr., was assigned as the first resident manager of the Aleutian Islands National Wildlife Refuge. During the next 20 years, Jones and his assistants eliminated all foxes from Amchitka Island in the central Aleutians and significantly reduced the population on Agattu Island in the western Aleutians. Jones (1963) also determined in 1962 that a remnant breeding population of geese still remained on Buldir Island, and he captured goslings there. These were used to start a captive flock which would provide birds to reintroduce on fox-free islands and help reestablish the population.

The first release of captive birds involving 75 flight-capable, 1-, 2- and 3-year-old geese was made in 1971 at Amchitka (Ray Erickson pers. comm.). A few of the birds were killed by bald eagles (Haliaeetus leucocephalus), but most apparently left the island shortly after release. Unfortunately, the birds were never seen again.

THE RECOVERY PROGRAM

In 1974 the situation was essentially as follows: Amchitka Island was fox-free, Agattu Island was believed to be, and the stock of geese at Patuxent was building up again after the 1971 release; however, very little was known about the existing wild geese at Buldir. For example, the population was of unknown size and its migration route and wintering area were still largely mysteries. That year the formal recovery program was initiated. It is based on a draft recovery plan which will be refined and submitted soon for formal approval. The plan has four main parts:

1) Prepare habitat for goose reintroductions
2) Produce adequate release stock in captivity
3) Acclimatize and release the birds, and monitor the results
4) Study and protect the wild birds.

Habitat Preparation

The first part of the recovery program, habitat preparation, involves eliminating introduced foxes.

In past control efforts, Compound 1080 and strychnine were used because there are no native land mammals on the islands where work was conducted. Baits were kept small to prevent bald eagles, common ravens (Corvus corax), and glaucous-winged gulls (Larus glaucescens) from detecting them. If any gulls were killed during the programs, their populations were not noticeably reduced. Raven and eagle populations at Amchitka were reduced, at least temporarily, however (Kenyon 1961).

Figure 2. Locations of recoveries or sightings of banded Aleutian Canada geese and of closed areas.

In 1972, Executive Order 11643 was issued forbidding the use of chemical toxicants for predator control on federal lands. As a result the fox removal program in the Aleutians has continued since then using guns and traps. Fox removal is planned on selected islands only.

The recovery team feels that if 50 breeding pairs of geese can be successfully reintroduced at two stations other than Buldir, the race could reasonably be upgraded to threatened instead of endangered; and successful reestablishment at a third station should be sufficient to remove the bird from the threatened list. The fox removal program is guided by this goal.

The three stations selected for fox removal and subsequent goose reintroduction are separated to reduce the danger of local disasters such as earthquakes and tidal waves. They are Agattu Island - 22,000 ha. (55,000 acres) with nearby Nizki/Alaid Islands - 1,200 ha. (3,000 acres), Amchitka Island - 28,000 ha. (70,000 acres), and Kanaga Island - 36,000 ha. (90,000 acres) (Fig. 1).

Agattu Island was selected as first priority for a release because it supposedly had been rendered fox-free, and according to the scarce literature it may have had the greatest population of geese of any of the islands (Clark 1910, Turner 1886). Nizki and Alaid Islands just north of Agattu were included in this same restoration area. Amchitka was chosen as the next most desirable island since it was fox-free and geese formerly bred there. Also, there is access by runway, and Atomic Energy Commission personnel no longer inhabit the island. Kanaga was the third island chosen. It has had no fox reduction work but historically had geese breeding on it.

So in 1974 a release of geese was planned on the first chosen island, Agattu, using the recently acquired research vessel Aleutian Tern. Upon arrival, investigators discovered that a few foxes remained on Agattu. As will be discussed later, geese were released anyway; and biologists spent the summers of 1974 and 1975 hunting foxes there. In 1975, foxes were also hunted on Nizki/Alaid. A total of 54 foxes were taken at Agattu in the 2 years. The 1975 effort was much greater than in 1974. Biologists estimate 10-20 foxes are still left. At Nizki/Alaid, 130 foxes were taken in 1975, leaving an estimated 15-40 animals.

Biologists hunting on the islands collected biological information on the foxes including body measurements, age of individuals, and reproductive status of females. The purpose of the fox reduction effort is to attempt to keep populations low until authorization to use chemical toxicants or M-44 cartridges may be considered. If approved, these methods should allow complete eradication. An environmental impact statement has been submitted on the fox control phase of the program.

Captive Goose Production

The second major part of the program is to produce birds in captivity for prospective release to the wild. The original 18 goslings taken at Buldir in 1963 were held at Monte Vista National Wildlife Refuge, Colorado, until 1966 when 8 of the birds were sent to the newly established Endangered Wildlife Research Program at the Patuxent Wildlife Research Center in Maryland (Erickson pers. comm.). An additional 21 goslings taken at Buldir in 1972 and 20 in 1975 were sent to Patuxent. Altogether over 325 birds have been produced from 1966 through 1975 (Erickson pers. comm.). Only geese taken from the wild or first generation birds are used as breeders. Pairs have also been farmed out to carefully selected game breeders at various locations in the United States, Canada, and England to "spread the risk." The goal is to produce up to 200 goslings per year. To accomplish this objective, a second production center will be established, and additional stock must be procured from Buldir. Plans are to transport additional young from Buldir to Patuxent in 1976 to expand the breeding flock so that the desired production capacity may be reached by 1980.

Goose Release and Monitoring

Part three of the program involves moving birds to the Aleutians for a period of acclimatization, then releasing the birds and monitoring their fate.

In 1974 a total of 41 wing-clipped 2- and 3-year-old birds were moved to Attu Island and held until early May when they were transported to Aggatu for release. A pre-release reconnaissance revealed that some foxes were present on the island. Several days observations in the area of potential release convinced biologists that the fox population was low so the geese were liberated as planned. Out of 16 females and 25 males in the captive flock, 4 nested, and 2 successfully raised young. The others remained near the release site in one group all summer. Because the released birds had never migrated before, nine molting geese were brought to Agattu from Buldir with the hope that when these wild birds regained flight they would guide the captive-raised birds to a wintering area, at the time unknown. The flock departed Agattu on September 4 headed east.

Apparently the released birds responded to the leadership because in the winter of 1974-75 two of the released birds were recovered along northern coastal California and another was identified there by its white plastic leg band. The birds apparently did not return to Agattu in 1975 although biologists spent the summer there looking. The released birds were not seen at Buldir with the wild birds either, but they may have gone unnoticed there. The theory that some may still be alive is supported by several reports in California this winter of single Aleutian geese wearing apparent white bands (Dennis Woolington pers. comm.).

To increase the chances in the future of released birds becoming better acclimated and developing a tradition for the Aleutian Islands, a facility is being established on Amchitka Island where goslings will be raised to maturity and released.

Study and Protection of Wild Geese

The last part of the recovery program involves studying the biology and ecology of the wild population of geese and maintaining their numbers.

In 1973 it was known that Aleutian geese bred on Buldir Island. Very little information was available on their population size, migration route, and wintering area, and almost nothing was known about their ecology. In 1974 and 1975, biologists went to Buldir to study the geese and to mark birds with colored plastic leg bands and Fish and Wildlife Service bands. This was necessary so that Aleutian geese could be recognized away from the breeding grounds. They are nearly inseparable in the field from the slightly larger Taverner's Canada goose (B. c. taverneri) and the slightly smaller cackling Canada goose (B. c. minima). Aleutian Canada geese vary in breast color; and immature birds have only small neck rings, whereas some individuals of the other races also have similar white neck rings.

It was found that at Buldir the geese nest on steep sea slopes under tall vegetation. Their main food is sedge (Carex sp.) and red fescue (Festuca rubra). They lay an average of nearly six eggs in late May or early June, and in 27-28 days over 80 percent of the nests successfully hatch. Bald eagles take a few birds and glaucous-winged gulls eat some eggs, but predation is apparently not severe.

Flightless birds are hidden by the over-1-meter-tall rye grass (Elymus arenarius) and umbelliferous plants (Heracleum lanatum and Angelica lucida), and capturing birds to band involves searching the vegetation in hopes of seeing movement. Nearly 200 geese were marked in the 2 years. International orange, light blue, yellow, and bright green were used on Buldir birds. Some geese departed from Buldir in early September each year, but

many were still present when the investigators left on September 4 and 5.

Since Canada geese are popular game birds in western North America, it is important to discover their main use areas if the Aleutian geese are to be protected and their populations restored more quickly. Potential observers along the west coast of North America and east coast of Asia were notified about the banded birds, and the watch began.

During the 1974-75 hunting season, nine recoveries of banded wild birds and two of released birds were reported from central and northwestern California (Fig. 2). In early March 1975 a flock of Aleutian geese was found near Crescent City in extreme north coastal California. We were able to census the birds as they flew the 2.4 km. (1.5 miles) from 5.2 ha. (13-acre) Castle Rock, their normal roosting place, to the vicinity of the Del Norte County Airport on the mainland where they fed on fescue (Festuca dertonensis), velvet grass (Holcus sp.), plantain (Plantago major), and other plants. The population varied from 285 birds when first discovered to a peak of 790 in mid-April. On April 23 over 400 birds departed north and the remainder left by the end of the month. Mr. Joe Welch (pers. comm.), manager of the Willapa National Wildlife Refuge, saw a flock of about 70 Aleutian geese (several of which had blue leg bands) on May 3 on Sand Island, Oregon, near the mouth of the Columbia River. So for the first time it was known where the Buldir birds spent at least part of their time away from the Aleutians, and the minimum size of the population which had survived various kinds of mortality including hunting was determined.

Using information on the distribution of the banding recoveries, the California Department of Fish and Game closed three areas to hunting of all Canada geese in order to protect the Aleutian geese (Fig. 2). These included the northwest coastal counties of Del Norte, Humboldt and Mendocino for the entire season, part of the Sacramento Valley in Glenn and Colusa Counties during the period from the season opening in mid-October to mid-December, and part of the San Joaquin Valley in San Joaquin, Stanislaus, and Merced Counties during the period from mid-December to the close of the season in mid-January.

In addition, arrangements were made for a student investigator to locate and study the geese on their migration and wintering grounds.

In the fall of 1975, study personnel searched unsuccessfully for birds on Vancouver Island and in Washington and Oregon. However, we observed up to 200 Aleutians frequenting Castle Rock between late October and mid-November.

A banded bird was shot east of the closed area in the Sacramento Valley on November 11, and a mixed flock of 230 Aleutians and cacklers was observed in the same locality during the latter part of November. On the basis of this information the State of California extended the size of the closed area in the Sacramento Valley to include parts of Butte and Sutter Counties (Fig. 2).

Eight other banded birds were reported shot during November and December 1975 and January 1976 in Yolo, Contra Costa, Merced and Imperial[1] Counties in California, and in Mohave County, Arizona, just across the Colorado River from California. All but one were taken legally outside the closure areas or prior to the late closure date. Also, a flock of 40 probable Aleutians were observed from late November 1975 to early February 1976 at the California Department of Fish and Game's Grizzly Island Wildlife Area in Solano

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[1]The Imperial County location was on the Salton Sea National Wildlife Refuge, and following this recovery the refuge was closed to Canada goose hunting for the rest of the hunting season.

County. Half of the geese were unbanded, but unfortunately the legs of the remainder could not be seen because of the tall barley (Hordeum vulgare) in which the birds were feeding. On January 10, 1976, the first birds (12 in number), reappeared at Castle Rock. Their numbers increased thereafter.[2]

FUTURE PLANS

Birds will be monitored carefully again in the spring of 1976 at Castle Rock, and likely spots to the north will be checked for migrants. Also, we hope to capture and band some birds near the Del Norte County Airport. Studies will be continued on breeding biology and banding at Buldir and on searches for banded birds released at Agattu in 1974. In addition, fox control will be carried out at Agattu and Nizki/Alaid, and at Kanaga. Finally, 14 pairs of 3-year-old birds will be released on Amchitka Island. Some of the hand-reared and wild geese will be equipped with neck collars or radio transmitters to better locate the birds on their migration and wintering areas.

As can be seen, the overall recovery program involves a multi-pronged, integrated effort. We have received excellent cooperation from many state, federal, and private individuals; and we solicit and look forward to even greater help in the future. With continued support and cooperation we are confident we can achieve the project objective of restoring the Aleutian Canada goose to non-endangered, non-threatened status.

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[2] A peak of about 900 was observed from late March to mid-April 1976.

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