

winter habitat and to the continued presence of introduced arctic foxes (*Alopex lagopus*) on many former nesting islands. Delisting is not justified at this time. This change in classification from endangered to threatened status reflects an improvement in population status, and will not diminish the protection of Aleutian Canada geese under the Act.

EFFECTIVE DATE: January 11, 1991.

ADDRESSES: The complete file for this rule is available for public inspection, by appointment, during normal business hours at the following offices: U.S. Fish and Wildlife Service, Ecological Services Anchorage, 605 W. 4th Avenue, Room 62, Anchorage, Alaska 99501; or Portland Regional Office, U.S. Fish and Wildlife Service, 1002 N.E. Holladay Street, Portland, Oregon, 97232.

FOR FURTHER INFORMATION CONTACT: Mr. Brian Anderson (see ADDRESSES section/Alaska) at 907/271-2888 or FTS 868-2888 or Mr. Robert Ruesink (see ADDRESSES section/Oregon) at 503/231-6131, FTS 429-6131.

SUPPLEMENTARY INFORMATION:

Background

Branta canadensis leucopareia is one of 11 currently recognized subspecies of the large and diverse *Branta canadensis* group (Bellrose 1976). It is the only subspecies in this group whose range once included both the North American and the Asian continents (Amaral 1985). The Aleutian Canada goose is currently known to nest on remote islands southward of the Alaska Peninsula and in the Aleutian Archipelago of Alaska. Aleutian geese can be distinguished from most other Canada geese by their small size (only cackling Canada geese, *B. c. minima*, are smaller) and a ring of white feathers at the base of the neck in birds older than eight months. Most Aleutian geese migrate from their breeding grounds in Alaska during September. They may stop along the Washington and Oregon coast en route to the wintering grounds in California, where they begin arriving in mid-October. Geese from Kaliktagik Island winter in coastal Oregon near Pacific City. Aleutian geese depart the wintering areas in April and return to Alaska to nest and rear young during May through September.

The decline in numbers of Aleutian geese and the reduction of their breeding range is attributed to predation by arctic fox, which were introduced on many Aleutian islands during the period 1836-1930. Aleutian geese were also hunted recreationally and for food in the Pacific Flyway, particularly California,

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018-AB31

Endangered and Threatened Wildlife and Plants; Reclassification of the Aleutian Canada Goose From Endangered to Threatened Status

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The U.S. Fish and Wildlife Service (Service) concludes that the Aleutian Canada goose (*Branta canadensis leucopareia*) should be reclassified from endangered to threatened status under the authority of the Endangered Species Act (the Act) of 1973, as amended in 1988. Aleutian geese currently nest on six islands of the Aleutian Archipelago and on one island in the Semidi Island Group, southward of the Alaska Peninsula, Alaska. Aleutian geese are particularly vulnerable to severe storms and disease. Additionally, Aleutian geese are subject to markedly increased social and economic pressures to develop their

until 1975. The Aleutian Canada goose was added to the U.S. Department of the Interior's list of native endangered species on March 11, 1967 (32 FR 4001) and to the list of foreign endangered species (i.e. Japan) on June 2, 1970 (35 FR 8495).

At the time of listing, Aleutian Canada goose population estimates were based upon sparse data. Kenyon (1963) speculated that only 200-300 individuals of this species remained. Nesting was believed to be restricted to Buldir Island in the western Aleutians, and the migratory routes and wintering habits of Aleutian geese were largely unknown. Introduced arctic foxes persisted on many islands throughout the Aleutian chain—islands that formerly provided nesting habitat for a large number of Aleutian Canada geese. Surveys in the Aleutian Islands in the late 1930's showed that geese were rare or extirpated in locations where foxes had been introduced (Murie 1959).

Prior to listing, the Service began efforts to eliminate fox populations from islands formerly occupied by nesting geese. By 1965, arctic fox were eradicated from Amchitka Island, and by the late 1970's, Nizki-Alaid and Agattu Islands were also fox free. More recently, Amukta and Rat Islands were cleared of introduced foxes. Apparently, all foxes were eliminated from Kiska Island following experimental fox control efforts in 1987, but additional surveys are needed to verify the island is fox free.

While fox control efforts in Alaska made former breeding habitat once again suitable for nesting geese, hunting closures on key wintering areas in California and Oregon are primarily responsible for Aleutian goose population increases, from 790 birds in 1975 to about 6,000 birds in fall 1989. Annual increases in numbers of Aleutian Canada geese on the California wintering grounds have averaged 16 percent (McNab and Springer 1989; Springer and Gregg 1988) during this 14-year period (Table 1).

TABLE 1.—PEAK NUMBER OF ALEUTIAN CANADA GEESE WINTERING IN CALIFORNIA, 1975-1989

Year	Peak count	Increase (percent)
1975 (spring)	790	
1975-76	900	15
1976-77	1,200	33
1977-78	1,500	25
1978-79	1,590	6
1979-80	1,740	9
1980-81	2,000+	15
1981-82	2,700	35
1982-83	3,500	30

TABLE 1.—PEAK NUMBER OF ALEUTIAN CANADA GEESE WINTERING IN CALIFORNIA, 1975-1989—Continued

Year	Peak count	Increase (percent)
1983-84	3,800	9
1984-85	4,200	11
1985-86	4,300	2
1986-87	4,800+	12
1987-88	5,400	12
1988-89	5,800	7
1989-90	6,200	7

The 1977 Aleutian Canada Goose Recovery Plan, which was revised in 1982, includes the following three primary subobjectives for reclassification and delisting the species:

1. Maintain the wild population of Aleutian Canada goose at a level of 1,200 or greater.
2. Reestablish self-sustaining populations of geese (50 breeding pairs/area) on three former breeding areas in addition to Buldir Island.
3. Continue an active public relations program.

Specific criteria for reclassifying and delisting are:

After self-sustaining populations of 50 or more breeding pairs have been reestablished on each of 2 areas or a total of 100 or more pairs have been reestablished on 3 areas (with 10 pairs the minimum colony size), recommendations for reclassifying the Aleutian Canada goose to threatened status will be sent to the Director, U.S. Fish and Wildlife Service. When 50 or more breeding pairs are reestablished on each of 3 areas, recommendations for removal from the list of threatened and endangered species will be sent to the Director (emphasis added).

These requirements are subject to the wild population maintaining a level of 1,200 birds or greater and the "reestablished populations" being considered additional to and not inclusive of the Buldir Island nesting colony.

Based on the best current estimates available, the primary remnant breeding population on Buldir Island numbers between 1,100-1,500 pairs. The remnant nesting population on Kiliktagik Island of the Semidi Islands Group numbers between 20-22 pairs. The remnant nesting population on Chagulak Island of the Islands of Four Mountains Group numbers between 20-25 pairs. One pair was observed on Amukta Island in the Islands of Four Mountains Group for the second year in a row, and two pair were

observed on Little Kiska Island of the Rat Islands Group during the 1990 field season. Agattu and Nizki-Alaid Islands of the Near Islands Group sustain +55 and 7 pairs, respectively.

Summary of Comments and Recommendations

In the September 29, 1989, proposed rule (54 FR 40142-40146) and associated notifications, all interested parties were requested to submit comments for use in preparing a final rule. Appropriate State and Federal agencies, Native groups, scientific organizations, and other interested parties were contacted and requested to comment. Notices were published in Alaska's Anchorage Daily News and the Aleutian Eagle on October 15, 1989. On December 8, 1989, notices were published in three California newspapers, the San Francisco Chronicle, the Sacramento Bee, and the Colusa County Sun Herald; one notice was published in an Oregon newspaper, the Oregonian. Each notice invited general public comment.

To ensure notification and comment opportunity over this large area, the normal 60-day comment period was extended an additional 60 days, for a total of 120 days. During this period, 40 written and oral comments were received. Two Federal agencies, one State agency, and two hunting-advocacy organizations expressed support for the proposal. Opposition was expressed by one state agency, six environmental organizations, and 28 individuals.

Requests for a public hearing were received from three environmental organizations and one individual. A public hearing was held on January 17, 1990, at the San Francisco Bay National Wildlife Refuge office in Fremont, California. Nine persons presented oral statements at the public hearing.

All comments received during the public hearing and comment period are summarized below. Comments of a similar nature or point are grouped into several general issues. These issues, and the Service's response to each, are discussed below.

Comment: Eight comments suggested that the reclassification criteria, as specified in the 1982 Aleutian Canada Goose Recovery Plan, had not been achieved. Some comments indicated that estimates of breeding pair numbers on Chagulak Island are unreliable, being based on incomplete, dated surveys.

Response: Because of remote and widely separated locations, it is not logistically possible to survey all nesting areas in any one year. In addition, the difficult working conditions associated with these islands often prevent

thorough surveys. In such instances population estimates are extrapolations based on the best available data. Following publication of the original proposal, the Service conducted 1990 nesting surveys on five of the seven nesting islands, including Chagulak Island where quantitative nesting data were lacking. As discussed in the previous section, the 1990 preliminary data affirm that the reclassification criteria have been achieved.

Comment: Twenty-two comments express concern that winter/migration habitat for the species is threatened by development or pollution. The El Sobrante area of California is cited as an example of Aleutian goose winter habitat currently threatened by residential development.

Response: Although the availability of winter/migration habitat has been sufficient to allow an average 16 percent growth per year in the Buldir segment of the Aleutian Canada goose population over a 14-year period, the potential future shortage of adequate winter/migration habitat is one of the more serious obstacles to full recovery of the species. Current threats to winter habitat include urbanization, changing agricultural practices, and pollution. The Service continues to implement its program to protect winter habitat for the Aleutian Canada goose and other waterfowl through fee simple and easement acquisition. Recent accomplishments include acquisition of habitat in the San Joaquin Valley as part of the newly-formed San Joaquin National Wildlife Refuge. The already approved and funded acquisition of important winter habitat at the Faith and Mapes Ranches near Modesto is being negotiated. Traditional migration areas have been acquired in the Sacramento Valley, including areas within the Butte Sink. Other areas used by this species continue to be protected by existing units of the Sacramento National Wildlife Refuge. As part of the continuing recovery effort, the Service intends to prepare a ranked list of Aleutian goose use areas to be protected. Such a list will guide the Service in developing habitat protection programs.

The State of California is taking an active role in habitat protection using funding generated through bond initiatives. California is also participating with the Service in a joint venture program under the North America Waterfowl Management Plan, working toward achieving an 80,000-acre habitat protection goal for the Central Valley.

Comment: Nine commentors state that the Service initiated this action contrary

to the recommendations of the Aleutian Canada Goose Recovery Team.

Response: The consensus at the 1989 meeting of the recovery team was that the status of the species had improved to the point that it was no longer in imminent danger of extinction. At that time, the recovery team could not confirm that the reclassification criteria had been met, based on the lack of quantitative nesting data for Chagulak Island. Preliminary results of the 1990 nesting survey confirm that the reclassification criteria have been achieved.

Comment: Seven comments were received contending that the Aleutian Canada goose population is still too small, and that the reclassification criteria are inadequate.

Response: The reclassification criteria based on the best professional judgment of species experts and Service staff. These criteria were developed to help measure the progress of the recovery program. The Service believes, based on the best information currently available, that the species status has markedly improved and that it is no longer in imminent danger of extinction. We emphasize that this is a reclassification action, which acknowledges the improved status of the species. Reclassification to threatened status does not remove protection now afforded it under the Act.

Comment: Eleven commentors express concern that this action would allow hunting of Aleutian Canada geese to resume, thereby endangering the species.

Response: The action to reclassify the Aleutian Canada goose from endangered to threatened status will not permit legal hunting for this species. The species will continue to receive full protection under the Act. The Service recognizes the positive contribution that hunting closures have made in the progress of Aleutian goose recovery and will continue the closures of the important Aleutian goose use areas in California to Canada goose hunting.

Comment: Six comments warn of the potential for a natural or man-made disaster that could endanger the species.

Response: The Service shares this concern. At the current Aleutian goose population level and distribution, threats of disaster are great enough to justify a threatened classification. Natural disasters include storms and disease that could result in the loss of large numbers of Aleutian Canada geese during nesting, over-wintering or migration. The Service will continue to expand the goose's nesting distribution to reduce the potential impacts of a natural disaster. The effects of man-

made disasters, such as hazardous material spills, could be lessened through prevention and response planning. The Recovery Team recently updated the Aleutian Canada Goose Disease and Contamination Hazard Contingency Plan.

Comment: Three commentors argue that the widely separated breeding populations of Aleutian Canada geese may actually represent separate subspecies of *Branta canadensis*. These comments are based upon the great distances, approximately 600 miles, which separate each breeding population at Buldir, Chagulak, and Kiliktagik Islands, and the differences in migrational and wintering behavior exhibited by these nesting populations.

Response: The Service is not aware of evidence sufficient to warrant further taxonomic division of *Branta canadensis leucopareia*. Based on physical (Johnson et al. 1979) and genetic (Shields and Wilson 1987) analyses, the Service believes that the available evidence sustains the view that the remnant population segments from Buldir, Chagulak, and Kiliktagik Islands are part of a once continuous insular nesting population formerly nesting from the western Gulf of Alaska to the Kurile Islands of the Soviet Union.

It is not anticipated that this action will have an adverse effect on any of the remnant breeding segments of the Aleutian goose population. Behavioral differences among the remnant populations will be recognized in the revised species recovery plan and will be taken into account during development of management strategies for full recovery of the Aleutian goose population.

Summary of Factors Affecting the Species

After thorough review and consideration of all information available, the Service has determined that the Aleutian Canada goose *Branta canadensis leucopareia* should be reclassified from endangered to threatened status. The Service's listing regulations (50 CFR Part 424) provide for a review of the five following factors when reclassifying (or listing or delisting) a species (sec. 424.11). The Service has studied the relevant information available for the Aleutian Canada goose and summarizes this information for each of the five factors below:

1. The Present or Threatened Destruction, Modification, or Curtailment of its Habitat or Range

Historically, Aleutian Canada geese are known to have bred on most of the larger islands of the Aleutian Chain, as well as the Commander and northern Kurile Islands (U.S. Fish and Wildlife Service 1982). At the time of listing, the known remnant breeding range for the species was restricted to 4,914-acre (1,900 hectare) Buldir Island, which, because of its small size and inhospitable topography, was spared the introduction of foxes. The wintering range was sought to have included Japan and the coastal areas of British Columbia to California (Delacour 1954). The wintering area of the Buldir Island nesting population was unknown.

In addition to the introduction of foxes on many islands, other disturbances to the historical breeding range of the Aleutian Canada goose existed, for example, private inholdings, military activity, and the introduction of other mammals (i.e. cattle, rats, voles, and ground squirrels). Islands where Aleutian geese are currently known to next are inhabited and relatively undisturbed. Current nesting islands include Buldir, Little Kiska, Agattu, Nizki-Alaid, Chagulak, and Amukta of the Aleutian Archipelago; and Kiliktagik Island off the Alaska Peninsula. All nesting islands are within the boundaries of the Alaska Maritime National Wildlife Refuge.

The wintering range for this species has been the focus of study from 1974 to the present. Areas in California and Oregon essential to the winter survival of this species have been identified and partially protected. For example, the Service has added lands to the National Wildlife Refuge System in western Oregon; acquired Castle Rock, California; acquired habitat and protective easements in the San Joaquin and Sacramento Valleys; and recently approved habitat acquisitions that will be added to the new San Joaquin River National Wildlife Refuge. Other areas important to the wintering flock in Del Norte County were acquired by the State of California and are part of its Wildlife Area and State Park systems. The above actions notwithstanding, one of the greatest obstacles to the future recovery of the Aleutian goose is the dwindling availability of sufficient wintering habitat. Some privately owned agricultural areas currently used by wintering Aleutian geese are being converted from row crops or pasture-land to crops of little or no food value to geese. Winter habitat is also being lost completely to commercial development.

2. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

Historically, Aleutian geese were harvested for food by Aleuts, a people indigenous to the Aleutian Islands. Aleutian geese were also taken by market hunters on the wintering grounds. In the recent past, Aleutian geese were hunted recreationally and to some extent for food within the Pacific Flyway, particularly in California. Although it is generally recognized that predation by introduced arctic fox on the nesting grounds caused the initial near extinction of Aleutian geese, hunting during migration and on the goose's wintering areas have kept their numbers depressed. Management of the Canadian goose harvest in California was complicated by three factors: (1) specific areas important to Aleutian geese were not identified; (2) several subspecies of Canada geese wintered in the Central Valley of California; and (3) most hunters are unable to readily differentiate between Canada goose subspecies.

The area west of Unimak Pass, Alaska, was closed in 1973 to the hunting of Canada geese. In contrast, little was known about the wintering behavior of Aleutian geese, and as a result, a great deal of field work was needed in order to learn which areas were important. Sightings and band return data helped biologists to determine movements and distribution of Aleutian geese. Subsequently, a comprehensive effort ensued to protect wintering flocks from hunting and to secure roosting and feeding habitat. Three areas in California—Del Norte and Humboldt Counties; areas near Colusa; and areas near Modesto and Los Banos—have been closed to Canada goose hunting since 1975. In Oregon, portions of Coos, Curry and Tillamook Counties have been closed, since 1982. More recently, Aleutian Canada geese in Washington, Oregon, and California have also benefited indirectly from hunting closures to protect wintering dusky Canada geese (*B. c. occidentalis*) and cackling Canada geese.

Cooperation and support among federal, state, county, and municipal governments and various interest groups have made the effort to protect Aleutian geese on the wintering grounds easier. The effectiveness and success of the hunting closures are clearly demonstrated in two ways: (1) available data indicate that annual mortality to illegal hunting is usually far less than one percent of the total population; and (2) the wild population has increased from 790 birds in 1975, when the

closures in California were implemented, to nearly 6,000 birds in 1989 (McNab and Springer 1989). It is anticipated that key migration and wintering areas in Alaska, Oregon, and California will continue to be closed to Aleutian Canada goose hunting until this species is delisted.

3. Disease or Predation

Predation by introduced arctic fox throughout the Aleutian Archipelago has a severe impact on this species as well as on all ground nesting birds. In the period, 1949 to the present, the Service eliminated introduced arctic fox from Amchitka (73,024 acres; 29,552 hectares), Agattu (55,535 acres; 22,475 hectares), Nizki-Alaid (3,175 acres; 1,285 hectares), Rat (6,861 acres; 2,777 hectares), and Amukta Islands (12,425 acres; 5,028 hectares). Fox removal apparently succeeded on Kiska Island (69,598 acres; 28,166 hectares); however additional surveys are needed to verify that foxes no longer occur on this island. Together with several small islands (e.g. Little Kiska) that either escaped fox introductions or where fox populations died out, more than 244,000 acres (98,785 hectares) are currently fox free in the Aleutians. This represents, however, less than 15 percent of the habitat that once was used by nesting geese prior to fox introductions.

Concurrent with the fox removal program, the Service began to reintroduce Aleutian geese on fox-free islands. Reintroductions of captive-raised geese on Amchitka Island were unsuccessful. In 1980, family groups of Aleutian geese from Buldir Island were transplanted to several islands. In 1984, the Service confirmed that a small population of nesting geese was reestablished on Agattu island. This marked the first nesting of wild Aleutian Canada geese on Agattu since the 1930's. Although more than 450 Aleutian geese were released on Amchitka, no confirmed nesting has been observed on this island. Service efforts also have resulted in the return of Aleutian geese to Nizki-Alaid Island where a small breeding population was confirmed in 1988. During the 1990 field season, two pairs were observed nesting on Little Kiska Island.

It is fortunate for the recovery effort that no other major mammalian predators, except fox, were introduced in the Aleutian Archipelago. The Service intends to continue fox eradication on specified islands. However, several species of small mammals, such as ground squirrels and Norway rats, which were introduced on numerous islands throughout the Aleutian

Archipelago, are common predators of avian eggs, hatchlings, goslings and young birds. On Kisha Island, for example, when foxes were eradicated, the insular small mammal population exhibited a significant numerical increase. This population eruption in turn prompted loss of vegetative cover. Loss of vegetative cover affects the survival rate of various species of birds, and ultimately increases the vulnerability of nesting geese to avian predators, such as bald eagles.

In general, Aleutian goose mortality due to avian predators (e.g., common ravens, parasitic jaegers, glaucous-winged gulls, and peregrine falcons) on nesting islands are not a significant threat. Similarly, peregrine falcons, prairie falcons, eagles, and coyotes on the wintering grounds in Oregon and California may occasionally prey on Aleutian Canadian geese. Predation of Aleutian geese on the wintering grounds is not a significant mortality factor. Conversely, bald eagles may kill large numbers of Aleutian geese on the island groups eastward of Buldir Island, such as in the Rat Islands Group (Amchitka, Kiska, and Little Kiska) where bald eagle predation is an on-going problem associated with the release of transplanted geese.

Low level bacterial and parasitic infestations were detected in geese from Buldir Island, but losses to these and other diseases in the nesting range are not believed to be significant. In contrast, the Aleutian goose wintering flock in California is often concentrated with other subspecies of Canada geese in areas where food, water or roosting sites are available; under these circumstances considerable mortality to disease has occurred. In 1987, for example, approximately 50 Aleutian Canada geese succumbed during an outbreak of avian cholera that also killed several hundred waterfowl in the Modesto area. Cholera is a chronic problem in San Joaquin Valley, and, while geese can be hazed from locations where cholera is prevalent, few safe alternative roosting areas are currently available.

The threat of large losses of Aleutian geese to disease will increase as the population grows and the available wintering habitat sustains correspondingly greater concentrations of geese. To address this issue, the Aleutian Canada Goose Recovery Team prepared "A Disease and Contamination Hazard Contingency Plan" (Wilbur, S., et al. 1987). The purpose of this plan is to minimize losses of geese through establishing a protocol for responding to disease outbreaks or contaminants.

4. The Inadequacy of Existing Regulatory Mechanisms

This species is protected by the Endangered Species Act of 1973, as amended, 1988; The Migratory Bird Treaty Act; and the Convention on International Trade in Endangered Species as Appendix I species. Captive-raised *B. C. leucopareia* are treated as if listed in Appendix II. It is also currently designated as endangered by the Alaska Department of Fish and Game, and is recognized as endangered by the Oregon Department of Fish and Wildlife and the Washington Department of Wildlife. The Service does not believe that reclassification to threatened status will result in substantive change in the protection afforded this species under these regulatory mechanisms. Regulatory mechanisms deemed necessary to protect this species and its essential habitat will remain in effect.

5. Other Natural or Man-Made Factors Affecting its Continued Existence

The discovery of a remnant breeding population of Aleutian Canada geese in 1982 on Chagulak Island (2,082 acre, 842 hectare) greatly benefited the recovery program (Bailey and Trapp 19). Another apparent remnant breeding population was discovered in 1979 on Kiliktagik Island (93 hectares) south of the Alaska Peninsula (Hatch and Hatch 1983). The Kiliktagik Island nesting location is approximately 600 miles east of what was previously considered the historical breeding range for the species (U.S. Fish and Wildlife Service 1982). Physical measurements of geese from Kiliktagik Island show that they are intermediate between Aleutian Canada geese and a slightly larger mainland subspecies, *B. c. taverneri* (Johnson et al. 1979). Shields and Wilson (1987) examined samples of mitochondrial DNA from these and other Aleutian-type geese (*leucopareia* from Buldir and Chagulak Islands, and two mainland-occurring subspecies, *taverneri* and *minima*). They concluded that geese from Kiliktagik Island showed a clear affinity to *leucopareia* from Buldir and Chagulak and are separable from both *taverneri* and *minima*. This information, together with morphological and behavioral similarities, as well as historical accounts of geese observed in the Semidi Island Group as early as 1790, support the conclusion that the Aleutian geese on Kiliktagik Island are a remnant population. This population segment apparently is part of a continuous insular form of Aleutian Canada goose that extended from the western Gulf of Alaska and Alaska Peninsula region to the Commander and Kurile Islands of

the Soviet Union (Hatch and Hatch 1983).

Aleutian geese, using coastal areas during winter and periods of migration, traditionally roost on off-shore islands such as Castle Rock near Crescent City, California and on rocky islands such as Chief Kiwanda Rock near Pacific City, Oregon. The use of these sites exposes Aleutian geese to storm systems that sometimes drive the birds into the sea. Storm-related drownings killed 43 Aleutian Canada geese near Crescent City in 1984, and 23 Aleutian geese near Pacific City in 1987 (Springer et al. 1989; Lowe 1987). A small number of Aleutian geese have also died as a result of collisions with man-made structures such as powerlines, and from lead poisoning due to ingestion of spent lead shot. Man-made structures probably do not pose a significant collision hazard for the species, and mortality from lead poisoning in the future should be negligible as the use of lead shot is phased out.

Animal populations when reduced to very small numerical levels may exhibit a reduced genetic variability. Such populations may lack the ability to adapt to events that jeopardize their existence (Brussard 1986). At their lowest level, early estimates placed the world's population of Aleutian geese, between 200-800, and the total population nested on a single island. Subsequent field work, however, showed that three remnant populations persisted on three widely separate islands. It is unlikely, therefore, due to the separation of three nesting segments and the relatively large minimum population size of Aleutian geese that the present populations suffers deleterious effects from lost genetic variability and, hence, fitness.

Summary of Status

The Aleutian goose has been the focus of a comprehensive 20-year recovery program. The species benefits from many management and research accomplishments, both on the breeding and on the wintering grounds. From the initial core population on Buldir Island, the wild population has increased an average of 16 percent annually since 1975 and now exceeds 6,000 birds. Aleutian geese translocated from Buldir Island now breed on Agattu and Nizki-Alaid Islands of the Near Islands Group and Little Kiska Island of the Rat Islands Group. During the course of recovery efforts, biologists discovered remnant populations on Chagulak and Kiliktagik Islands.

Translocation of adults and their young from Buldir Island facilitates the

reestablishment of breeding populations extirpated by introduced foxes. This strategy proved effective on Agattu and Little Kiska Islands, and in the near future it will be used on Kiska Island. All current nesting islands and most of the historic breeding habitat for this species in North America occur within the Alaska Maritime National Wildlife Refuge.

In California and Oregon, efforts to acquire or protect key wintering habitat have been partially successful. Several important areas, including Castle Rock, were acquired and are now part of the National Wildlife Refuge System. Other important wintering areas are not currently protected and are threatened with conversion from pasture or agricultural lands to other uses such as housing, highway, and commercial development. Recent authorization for a 10,300 acre (4,170 hectare) addition to the National Wildlife Refuge System west of Modesto may alleviate some of the threats to the wintering population in this region (Helvie 1987).

Chronic outbreaks of avian cholera and botulism pose additional threats to wintering waterfowl populations. Cumulatively, fewer than 100 Aleutian geese are known to have succumbed to disease since 1975. Although documented mortality to date has been low, the potential for catastrophic losses is present. Hence, geese are routinely hazed from areas where cholera is prevalent. Hazing, however, forces geese to use less preferred roosting sites, travel greater distances to feeding areas and increases the potential for hunting mortality. The recent development of a Disease and Contaminant Hazard Contingency Plan (Wilber *et al.* 1987) will improve agency response and minimize losses to these potential threats. The Service's Madison National Wildlife Health Research Center has developed an effective vaccine for immunizing Canada geese from avian cholera. Although no wild Aleutian geese have been inoculated, the capability exists. The methodology for raising this species in captivity is also well established. More than 140 *leucopareia* are currently being held by zoos and waterfowl propagators in the United States and Canada. This captive flock ensures a separate and secure gene pool should the wild population suffer severe losses from disease or natural calamity.

Some pertinent definitions from 50 CFR 424.02 are as follows:

(e) *Endangered species* means a species which is in danger of extinction throughout all or a significant portion of its range.

(k) *Species* includes any species or subspecies of fish, wildlife, or plant, and any distinct population segment of any vertebrate species that interbreeds when mature . . .

(m) *Threatened species* means any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Population increases, current nesting on seven fox free islands, and protection of the wintering flock through hunting closures and habitat acquisition have significantly reduced the degree of threat to this species. In reviewing the progress toward recovery that this species has made since listing, the Service concludes that the Aleutian Canada goose is no longer in imminent danger of extinction. However, due to the small size of reestablished breeding populations, the continued presence of introduced arctic fox on many former nesting islands, and threats to the species on the wintering grounds from habitat alteration and disease, the Service finds that delisting is premature.

Based on a careful assessment of the best scientific and commercial information available regarding past, present and future threats faced by this species, the preferred action is to reclassify the Aleutian Canada goose from endangered to threatened status. The Service will recommend that this species be delisted when recovery criteria as outlined in the revised recovery plan are achieved.

Available Conservation Measures

This rule changes the status of the Aleutian Canada goose at 50 CFR 17.11 from endangered to threatened. This rule acknowledges that the populations of Canada geese breeding on Kiliktagik Island in the Semidi Islands and wintering in Tillamook County, Oregon, are *Branta canadensis leucopareia*. Furthermore, this rule formally recognizes the relative security of this subspecies from no longer being in danger of extinction throughout a significant portion of its range. This change in classification does not significantly alter the protection of this species under the Endangered Species Act. Anyone taking, attempting to take, or otherwise possessing an Aleutian Canada goose in an illegal manner would be subject to penalty under Section 11 of the Act. There are no differences in penalties for the illegal take of an endangered species versus a threatened species. Section 7 of the Act would also continue to protect this species from federal actions that would jeopardize the continued existence of the species.

National Environmental Policy Act

The Fish and Wildlife Service has determined that an Environmental Assessment, as defined by the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the Service's reasons for this determination was published in the Federal Register on October 25, 1983 (46 FR 49244).

Literature Cited

In addition to the list of references provided below, species experts, numerous other scientific papers, letters, and unpublished field and administrative reports were consulted in preparation of this document. Persons interested in examining these materials may do so at the Ecological Services Anchorage field office (see ADDRESSES section) by appointment during normal business hours (907/271-2888).

- Amara, M.J. 1985. The Aleutian Canada Goose. Pp. 437-442. *in* The Audubon Wildlife Report 1985, New York. 671 pp.
- Bailey, E.P., and J.L. Trapp. 1984. A Second Wild Breeding Population of the Aleutian Canada Goose. *American Birds* 38:284-286.
- Bellrose, F.C. 1976. Ducks, Geese and Swans of North America. Stackpole Books, Harrisburg, Pennsylvania.
- Brussard, P.F. 1986. The Perils of Small Populations. Pp. 25-48, *in* The Management of Viable Populations: Theory, Applications and Case Studies. (B. A. Wilcox, P. F. Brussard, and G. G. Marcot, eds.) Stanford University, California. 188 pp.
- Byrd, G.V., and D.W. Woolington. 1983. Ecology of Aleutian Canada Geese at Buldir Island, Alaska. U.S. Fish and Wildlife Service, Special Scientific Report. Wildlife No. 253. 18 pp.
- Deines, F.G., and S. Hatch. 1984. The Aleutian Canada Goose Nesting Survey at Chaguluk Island, Aleutian Islands, Alaska. Unpub. U.S. Fish and Wildlife Service Report. Adak, Alaska. 7 pp.
- Delacour, J. 1954. The Waterfowl of the World. Vol. 2. Country Life Limited, London. 234 pp.
- Hatch, S.A., and M.A. Hatch. 1983. An Isolated Population of Small Canada Geese on Kiliktagik Island, Alaska. *Wildfowl* 34:130-136.
- Helvie, J. 1987. Environmental Assessment—Proposed Acquisition of San Joaquin River National Wildlife Refuge, Stanislaus and San Joaquin Counties, California. U.S. Fish and Wildlife Service, Portland, Oregon. 40 pp.
- Johnson, D.H., D.E. Timm, and P.F. Springer. 1979. Morphological Characteristics of Canada Geese in the Pacific Flyway. Pp. 56-80. *in* Management and Biology of Pacific Flyway Geese: a Symposium (R.L. Jarvis and J.C. Bartonek, eds.). Oregon State University Book Stores, Inc., Corvallis. 346 pp.

Kenyon, K.W. 1963. Buldir Island Expedition, 1-22 July 1963. Unpub. Bureau of Spot Fisheries and Wildlife Report. Seattle, Washington. 34 pp.

Lowe, R.W. 1987. Observation of Semidi Island Canada Geese and Aleutian Canada Geese in Oregon. Unpub. U.S. Fish and Wildlife Service Report. Newport, Oregon. 18 pp.

McNab, R.B., and P.F. Springer. 1989. Population, Distribution, and Ecology of Aleutian Canada Geese on Their Migration and Wintering Areas, 1987-88. Unpub. report, Humboldt State University Foundation. Arcata, California. 21 pp.

Murie, O.J. 1959. Fauna of the Aleutian Islands and Alaska Peninsula. North American Fauna Series, Washington, D.C. 61:1-364.

Shields, G.F., and A.C. Wilson. 1987. Subspecies of the Canada Goose (*Branta canadensis*) have Distinct Mitochondrial DNA's. *Evolution* 41:662-666.

Springer, P.F., and M.A. Gregg. 1988. Wintering Ecology of Aleutian Canada Geese in the San Joaquin Valley. Unpub. report, Humboldt State University, Arcata, California. 15 pp.

Springer, P.F., R.W. Lowe, R.K. Stroud and P.A. Gullett. 1989. Probable Drowning of Aleutian Canada Geese on the Pacific Coast of California and Oregon. *Journal of Wildlife Diseases* 25(2), pp.276-279

U.S. Fish and Wildlife Service. 1982. Aleutian Canada Goose Recovery Plan. Anchorage, Alaska. 42 pp.

Wilbur, S., P. Springer, F. Lee, T. Rothe, and C. Zeillemaker. 1987. Disease and Contamination Hazard Contingency Plan. Unpub. U.S. Fish and Wildlife Service Report. Anchorage, Alaska. 15 pp.

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List of Subjects in 50 CFR Part 17

Endangered and threatened species, Export, Import, Reporting and recordkeeping requirements, and Transportation.

Regulation Promulgation

PART 17—[AMENDED]

Accordingly, subchapter B of chapter I, title 50 of the Code of Federal Regulations is amended, as set forth below:

1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361-1407; 16 U.S.C. 1531-1544; 16 U.S.C. 4201-4245; Pub. L. 99-625, 100 Stat. 3506; unless otherwise noted.

§ 17.11 [Amended]

2. To amend the table § 17.11(h) under BIRDS for the entry of "Goose, Aleutian Canada" by revising the entries under

"Status" to read "T" and under "When listed" to read "1, 3, 410."

Dated: November 28, 1990.

Constance B. Harriman

Assistant Secretary for Fish and Wildlife and Parks.

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