RG 22 Narrative Report Aleutian Island NWR July 1973- June 30, 1974

REFUGE NARRATIVE REPORT
FY-74

July 1, 1973 - June 31, 1974

ALEUTIAN ISLANDS NATIONAL WILDLIFE REFUGE

and

BOGOSLOF NATIONAL WILDLIFE REFUGE

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U. S. DEPARTMENT OF THE INTERIOR
Fish and Wildlife Service
Adak, Alaska

I. GENERAL

A. Physical Description

The Aleutian Islands National Wildlife Refuge consists of all but seven of the more than two hundred Aleutian Islands, which stretch in a 1,100-mile arc from the tip of the Alaska Peninsula westerly toward the Kamchatka Peninsula. The refuge encompasses 2,720,430 acres of land area, making it the third largest refuge in the National Refuge System.

The Aleutians are the emergent peaks of a submarine mountain range, and may have appeared as islands as early as 8,000 years ago when the surrounding seas rose. Most of the islands are mountainous and the larger ones are dotted with lakes and cut by streams. Irregular shorelines have boulder or sand beaches, rocky cliffs, and offshore islets and reefs. The Aleutian climate is characterized by fog, persistently overcast skies, frequent, often violent cyclonic storms, and high winds.

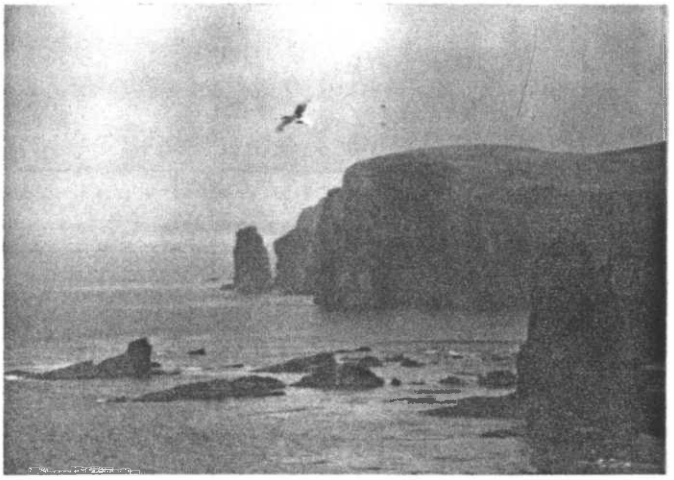

Figure 1. The rugged coastline of Agattu Island is typical of most islands of the Chain. Photo by Trapp

At one time the Aleutians were the home of about 16,000 Aleuts, but their numbers were severely decimated following Russian discovery of the islands in 1741. Today, only two active villages exist on the refuge. Approximately 6,000 transient military and civilian personnel reside on the two major installations located on the refuge.

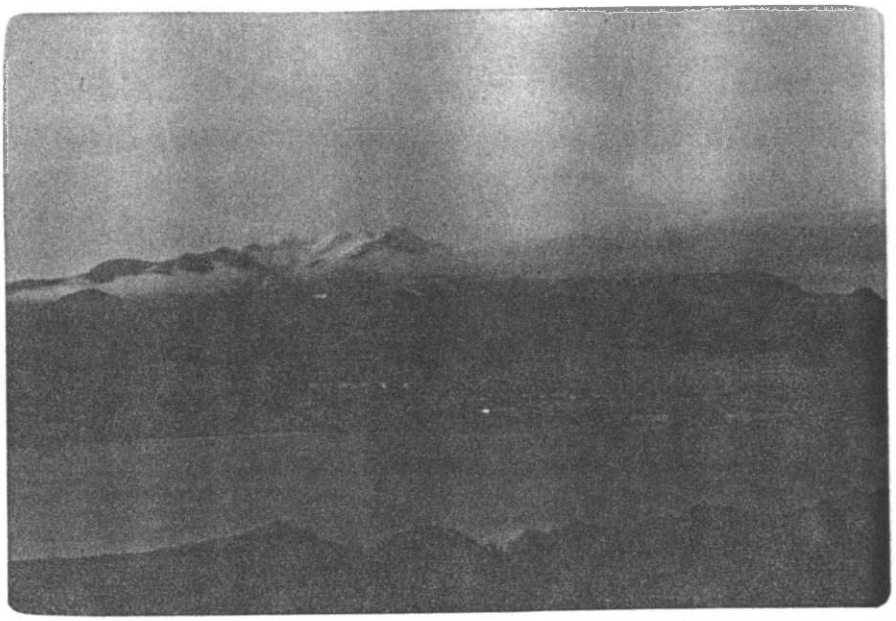

Figure 2. The U. S. Naval Station, Adak Island, site of refuge headquarters, is situated on the shore of Sweeper's Cove and at the base of Mt. Moffet. Photo by Trapp

B. Weather Conditions

Weather data in the Aleutian Islands is recorded at two locations. The U. S. Weather Bureau maintains a station at Shemya, in the western Aleutians, and the Naval Weather Service Environmental Detachment maintains records at Adak.

Weather during FY-74 did not vary significantly from the normal. A characteristic of the Aleutian Island weather pattern is climatic stability from year to year, with relatively small seasonal variations. For instance, the average annual temperature at Adak is 41.0°F. The average for the

coldest month (February) is 33.3°F, while the average for the warmest month (August) is 51.8°F, an annual variation of only 18.5°F in mean monthly temperature. The extreme temperatures recorded at Adak, 3°F and 75°F, further illustrate the modifying influence of the Japanese Current on Aleutian Island weather.

C. Habitat Conditions

Nothing of significance to report.

II. WILDLIFE

A. Migratory Birds

1. Whooper Swan. Whooper Swans were recorded at Attu, Adak, and Atka Islands during the winter of 1973-74, with the maximum count being the seven adults seen at Adak in early March. They were last seen at Atka in early April, and the last observation at Attu was April 9.

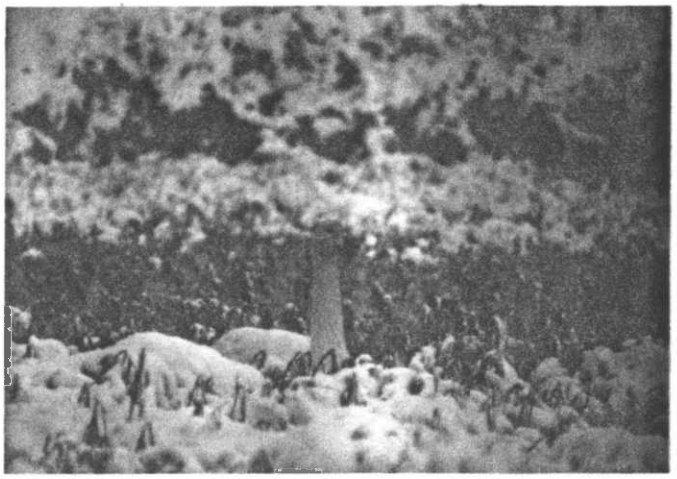

Figure 3. Whooper Swans are regular winter residents in the central and western Aleutians.

2. Aleutian Canada Goose. This endangered race apparently once bred abundantly from the eastern Aleutian Islands to the Kuril Islands, and birds may have historically wintered in Japan, and from British Columbia to California in North America. Early authors evoked striking images of former abundance in the western Aleutians, using phrases such as "breeds by thousands" to describe the population on Agattu Island. Geese were still common at the turn of the century, but their numbers apparently declined rapidly shortly after that time. The reason for this decline is purely speculative, but the introduction of foxes on most of the Aleutian Islands

in the early 1920's is generally believed to have been the main cause. Other factors such as hunting pressure and habitat destruction on their wintering grounds may also have been involved, however.

From whatever cause, the Aleutian Canada Goose had declined greatly by 1936, both in range and numbers. Visiting Agattu in that year, Murie (N. Am. Fauna 61, 1959) found only a few pairs of geese where Clark (Proc. U. S. Natl. Mus. 38, 1910) had encountered thousands of birds thirty years earlier.

By 1963 a single breeding population, estimated at about 300 birds, remained. This population was discovered on Buldir Island in the western Aleutians. Tiny, isolated Buldir was one of the few islands in this species' former range to escape the introduction of foxes.

In the 1950's and 1960's refuge personnel conducted a program to eliminate foxes on selected islands in the western Aleutians. Foxes had been successfully eliminated from Amchitka by 1959, and Agattu Island was presumed to be fox-free by 1970. Meanwhile, from a nucleus of goslings captured at Buldir Island in 1963, biologists had established a thriving captive population at the Patuxent Wildlife Research Center, Laurel, Maryland. And so the groundwork had been laid for the eventual restoration of this endangered form.

In the fall of 1973 Acting Refuge Manager Byrd spent several weeks in Washington, D. C. working with the Office of Endangered Species, and the scientists at the Patuxent Wildlife Research Center on a recovery plan for Aleutian Canada Geese. The document includes an annotated listing of anticipated tasks necessary to restore the goose to a non-endangered status within its historic range. Briefly stated, the four main objectives of the recovery plan are to: 1) maintain the wild population of Aleutian Canada Geese on the nesting area at desirable levels, 2) return the optimum number of geese to the breeding area by providing the essential requirements for the birds during migration and on the wintering grounds, 3) ensure gene-pool survival, and 4) reestablish Aleutian Canada Geese in four locations within their historic nesting area other than Buldir Island.

Early in 1974 the decision was made to proceed with a release on Agattu Island. Several factors were involved in the selection of this island: 1) Arctic Foxes were believed to have been eradicated from the island; 2) Bald Eagles do not occur there; 3) Agattu is uninhabited by humans and its isolation discourages detrimental human intrusion; and 4) Agattu historically supported a high goose population and offers the best chance for successfully reestablishing a breeding population of Aleutian Canada Geese in the western Aleutians.

Patuxent had 41 adult geese available for release in 1974. These arrived at Attu Island, where temporary holding facilities had been established, on March 22. The birds showed little ill effect from their five-day trip from Maryland, and were soon feeding and preening. The birds were held here, and daily observations of their behavior and activities were made, until May 5 when they were crated for shipment to Agattu.

Figure 4. Aleutian Canada Geese in temporary holding pens at Attu field station. Photo by Trapp

Rough seas prevented a run to Agattu Island that evening, so the geese spent the night in the shipping crates below decks. We finally arrived at Agattu on May 6, hauled all our supplies ashore, erected goose pens, and established camp. The geese were held here for five days so that they could adjust to their surroundings. Finally, on May 11 the flightless, wing-clipped geese were released, The birds did not wander far from the Goose Lake release site during the summer, and soon pairs were establishing territories.

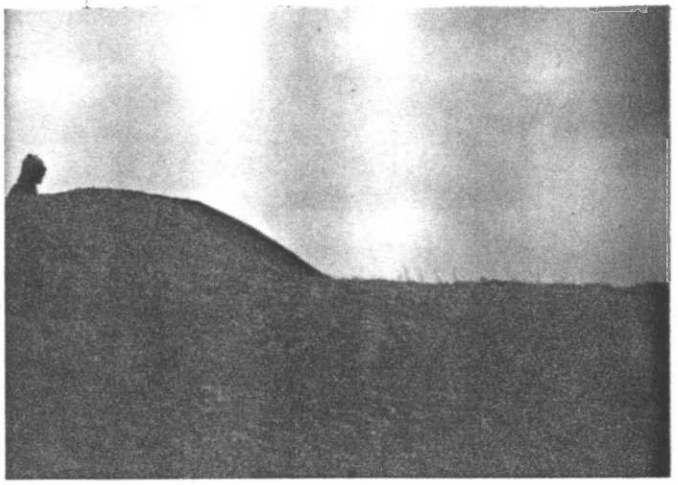

Figure 5. Flock of Aleutian Canada Geese shortly after release on Agattu Island. Photo by Trapp

At least seven pairs (of a possible 16) are known to have been formed. Four females eventually built nests and laid eggs. Two of the four females were successful in producing one and four goslings, respectively. This is a small start perhaps, but at least geese nested successfully at Agattu for the first time in many years. We hope that the information gathered this summer will allow us to increase the chances of success, and that future releases of geese on Agattu will eventually produce a self-sustaining population there.

Figure 6. Aleutian Canada Goose brood on Agattu Island. Photo by Trapp

While Trapp and Craighead were following the activities of the released birds on Agattu, the other half of the party had proceeded to Buldir Island to study the breeding biology of the wild population. After sitting off the lee side of the island for five days, while sixty knot winds buffeted the Aleutian Tern, Byrd, Dau and Dick were finally able to make a landing on Buldir's rocky north beach on May 14.

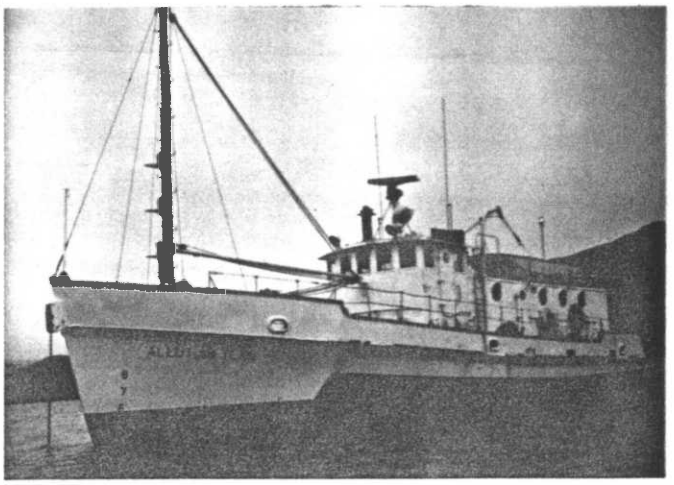

Figure 7. The refuge research vessel, M/V Aleutian Tern. Photo by Byrd

Figure 8. Campsite at Buldir Island. Photo by Byrd

A total of 32 nests were found at Buldir, and these contained an average of 5.4 eggs (range 3-7). Nesting success was 77 percent, and hatching success was 49 percent.

In mid-July, 1974 David L. Spencer, Area Refuge Supervisor; James Shaw, Area Office Staff; and James Bartonek, Research Biologist arrived at Buldir to help band flightless geese. It was anticipated that the molting birds would congregate on the only large lake on the island, where they could easily be herded into a drive trap. This did not happen, however, and the geese had to be run down individually in the waist-high vegetation covering Buldir's sea slopes--a physically exhausting process!

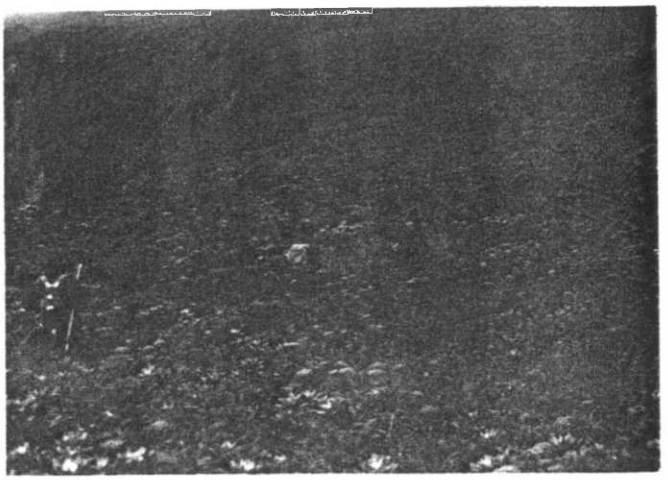

Figure 9. The lush vegetation of Buldir became increasingly difficult to walk through as the summer progressed. Photo by Byrd

A total of 119 birds were eventually banded with FWS aluminum bands and Orange or Blue colored leg bands.

Figure 10. James C. Bartonek, Research Division; Christian P. Dau, and James Shaw, Area Office staff banding geese. Photo by Byrd

Figure 11. David L. Spencer, Alaska Area Refuge Supervisor, also participated in the banding program. Photo by Byrd

Based on the observation of fall feeding flocks, and the calculation of a marked:unmarked ratio (Lincoln Index), the late fall population was estimated at about 580 birds.

3. Emperor Goose. The first fall observation of Emperors at Unalaska Island (eastern Aleutians) was on September 21, and the first birds were noted at Adak on October 6. No further observations were made at Adak until November 3, when a sizeable flock was noted. Emperors arrived in numbers at Adak during the period of December 7-10. A few birds still remained at Adak in mid-April, while substantial numbers were still present at Shemya Island the last week of April. At Attu Island, where large numbers had been present in February and March, the last large concentration was noted on April 17, with only occassional small flocks subsequently observed through April 27. Only occassional birds were noted at Agattu and Buldir in early May. At Agattu the last birds were seen May 12, while at Buldir a lone straggler remained through June 20.

4. Other Geese. A single Bean Goose was observed at Buldir Island May 16, 20 and 22, and a subadult female was collected at Amchitka Island on May 26. This is the fourth consecutive year in which this Asiatic goose has been recorded on the refuge.

5. Ducks. Thirty-two species of ducks have been recorded on the refuge. Although spectacular concentrations of waterfowl are seldom observed, birds are well-distributed throughout the Chain. During the period of maximum winter abundance numbers probably exceed 200,000 individuals. Of particular interest are a number of Asiatic species occurring regularly on the refuge, but found only as accidentals elsewhere in North America. Only those species of particular interest or significance are discussed in this account.

Surface-feeding Ducks. An adult male Garganey collected May 14 at Buldir Island is the first specimen for North America. A second male and two females remained there through June 3, with a lone male present through June 16. This is the third record of the palearctic species in the Aleutian Islands, single birds having been previously seen at Adak and Amchitka Islands. European Wigeon have been recorded on the refuge in all months of the year except July and August. In recent years paired and courting birds have been observed and breeding is suspected, but has not yet been confirmed. Up to 8 individuals were observed at Adak September 16 to November 4. They were first seen at Attu Island in late April, with a maximum of 14 birds there in early May. A maximum of 11 birds were present at Buldir Island May 19-20, with up to two pairs seen periodically through June 3. Up to three pairs were seen at Agattu Island May 12-31. American Wigeon are rare in the central and western Aleutians, so the presence of an adult male at Agattu Island May 21-31 is of interest.

Bay Ducks. Two female-plumaged Common Pochards observed at Adak on October 16 constitute the first fall record of this species for North America. Two males were observed at Adak May 13-23, and a pair was present on Clam Lagoon, Adak Island June 2-7. These were the only two observations recorded in the Aleutians in 1974. Common Pochard has been recorded annually since 1971, with records from Attu, Amchitka, and Adak Islands.

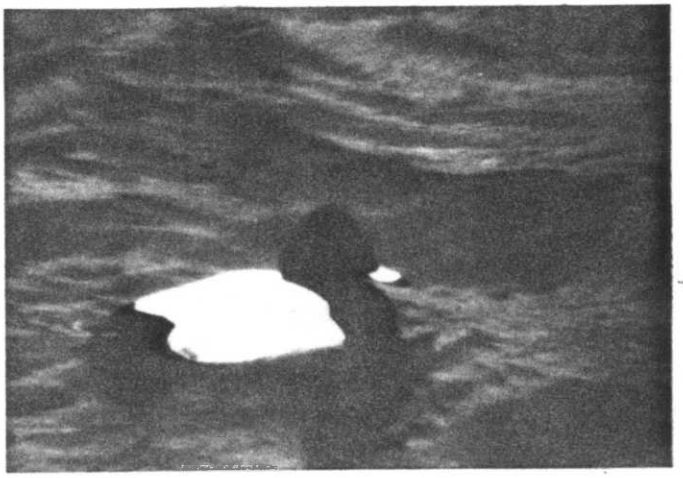

Figure 12. The Common Pochard has been recorded annually in the Aleutian Islands since 1971. Photo by David L. Johnson

The 30 Canvasbacks observed at Adak January 5 to March 6 is double the previous high count of 16 individuals there. Canvasbacks have been recorded annually at Adak since 1968, with the birds normally arriving about mid-December and departing by late April. The origin of this small, isolated wintering population is particularly interesting. The species is rare on the Alaska Peninsula during migration (Gibson, Condor 72: 242-243, 1970), and the only other winter record for Alaska is a single male present at Glacier Bay N.M. December 1970 to January 1971. The only other record of this species in the Aleutian Islands is based on the collection of humeri from an Aleut midden site on Amaknak Island (Friedmann, J. Wash. Acad. Sci. 27: 431-438, 1937).

Swift. A White-throated Needle-tailed Swift collected at Shemya Island in late May is the first record for North America.

Passerines. A Barn Swallow, an example of the race gutturalis, collected at Agattu Island June 12 is of particular interest, as there are relatively few Alaska records of this palarctic form. Even more interesting was the collection of a Cliff Swallow at Buldir Island, far west of its normal range, on June 4.

Up to two White Wagtails were observed daily at Buldir May 14-18. Single Yellow Wagtails, rare in the Aleutians, were recorded at Buldir Island May 17 and 24, and at Agattu Island May 20. Three Red-throated Pipits were observed at Buldir on May 30, and one or two were seen at Agattu June 1-2; these are the first Aleutian Island records for this species. Two Northern Shrikes observed on Amaknak Island November 8, and one at Adak Island November 21 are only the second records for both locations.

The three Bramblings observed at Agattu Island May 9 was the only observation of this palearctic species during the period. A singing male Savannah Sparrow observed in late May at Adak was in the same location as a bird found last year. This species breeds as far west at Amukta Island, and this sighting is the third at Adak in as many years.

B. Upland Game Birds

Willow and Rock Ptarmigan are found in the eastern Aleutians, but only Rock Ptarmigan occur west of Unimak Island. Eight recognized subspecies of the Rock Ptarmigan inhabit the refuge, with distinct races found on each of the major islands, or island groups. These serve as an excellent example of the process of natural selection at work. Little is currently known about population sizes on the various islands.

Ptarmigan have apparently never occurred on tiny Buldir Island, the most isolated of the Aleutian Islands. The only basis for its inclusion on the Agattu Island avifauna is Turner's (Contributions to the Natural History of Alaska, Wash., D.C., 1886) statement, based on the accounts of natives, that the species was found there and was abundant. He further says that

its abundance was "probably on account of the absence of foxes." More recently, Spaulding (Anthropological Papers Museum of Anthropology, Univ. of Michigan, No. 18, 1962) has reported finding ptarmigan bones in an Aleut midden site at Krugloi Point. We failed to find this species in extensive surveys on the island from May to August, 1974. There is a possibility, however, that the bird may have been nesting in the mountains, which were not searched. Previous Fish and Wildlife Service expeditions to this island have also failed to detect ptarmigan. It is therefore interesting to speculate if its present absence (assuming that it occurred at one time) is due to the introduction of foxes to the island. If so, the fox population would have had to exterminated the ptarmigan population rapidly. Foxes were first introduced to the island in 1923. Murie observed no ptarmigan during his 1936 visit and, more significantly, did not find ptarmigan remains in any of the fox droppings collected there (N. Am. Fauna 61, 1959). Additional searching of Agattu's mountainous northern end is certainly warranted to determine the present status of ptarmigan on Agattu.

C. Pelagic Birds

The Aleutian Island N.W.R. was established as "a preserve and breeding ground for native birds," among other things, and the most striking feature of many of the islands is large seabird colonies. Recent surveys indicate that an estimated minimum of 4,000,000 pelagic birds may breed on the refuge.

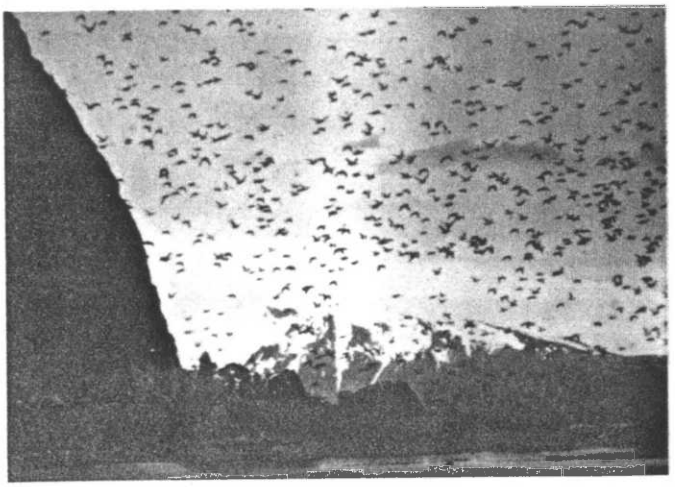

Figure 18. Spectacular concerntations of seabirds, such as this flight of murres, occur in the vicinity of colonies. Photo by Edgar P. Bailey

Laysan Albatross are known to winter in the offshore waters of the Aleutian Chain in small numbers but observations at this season are rare, so the observation of up to two birds in Chugul, Amlia and Seguam Passes in January and February is of interest. Immense numbers of Sooty and Short-tailed Shearwaters occur annually along the Aleutian Chain from April to October as the birds undergo their clock-wise migration around the Pacific Basin to and from the New Zealand breeding colonies. Enormous concentrations of Short-tailed Shearwaters were noted in Unimak Pass and the north side of Unimak Island on July 4; the densest flocks, totalling perhaps one million birds, were seen just off Unimak Island. The Fork-tailed Storm-Petrel is widely distributed as a breeding species throughout the Aleutian Islands. Largely because of its nocturnal habits, however, it is rarely observed. Hundreds of these birds fed in Unimak Pass on July 4, the largest concentration seen by Byrd during daylight hours in two years of intensive fieldwork in the Aleutians. Nothing is known of the winter distribution of the Fork-tailed Storm-Petrel, so the ten birds which came aboard ship at Nazan Bay, Atak Island on January 19-20 are of particular interest.

The Red-faced Cormorant is the most abundant of the three cormorant species nesting on the refuge. One of the largest concentrations of this species is found at Amak Island in the extreme eastern Aleutians. A total of at least 1,476 nests were counted in four distinct colonies there July 5; the nests were in all stages on this date, from eggs to nearly fledged young. The Head Rock, Adak Island colony contained 22 Red-faced Cormorant nests on July 14. These 22 nests contained a total of 43 eggs, for an average clutch size of 1.95 (range 0-4). On August 8 the colony contained broken eggs and destroyed nests; no birds (adult or young) were observed. The reason for the nesting failure is not known. In his 1936-37 survey Murie found that Red-faced Cormorants were greatly outnumbered by Pelagic Cormorants at Agattu and Buldir Islands. In the intervening 38 years there appears to have been a major reversal in the abundance of these two species in the western Aleutians. As a nesting species, the Red-faced Cormorant now outnumbers the Pelagic Cormorant at least 12:1 at Agattu, and about 20:1 at Buldir.

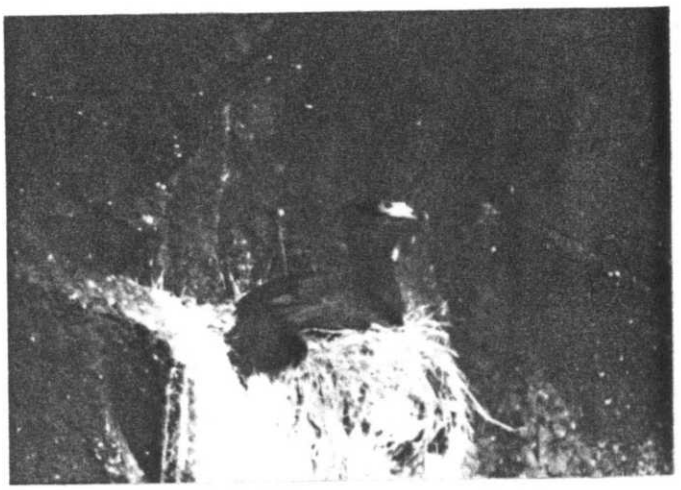

Figure 19. Red-faced Cormorants nest abundantly throughout the Aleutian Islands. Photo by Byrd

The Whiskered Auklet is perhaps the rarest of the small auklets, being confined in distribution to the Commander and Aleutian Islands. In the Aleutians it is encountered most frequently in the eastern Andreanof and Islands of Four Mountains groups, and is suspected of breeding on several of those islands. A single bird seen at Amak Island July 4 is nearly 100 miles east of the former easternmost record. Observations in recent years have shown that Whiskered Auklets number in the tens of thousands at least. They are much more abundant than Murie suspected.

Figure 20. The Whiskered Auklet is the rarest, most poorly-known, and perhaps the most beautiful of the alcids. Photo by Byrd

D. Birds of Prey

A courting pair of Golden Eagles carefully observed at Dutch Harbor, Amaknak Island is the first confirmed record of this species in the eastern Aleutians in many years.

A large, dark eagle observed by Trapp (while caught off-guard without binoculars!) at Attu Island in early April, was probably either a Gray or Steller's Sea Eagle, but the identification could not be confirmed.

The Bald Eagle is common as a breeding bird as far west as Buldir Island (where 3 or 4 pairs nest), but is not found at all in the Near Island group. Apparently the present distribution is a reduction in range, as the bald eagle occurred in the Commander and Near Islands as the end of the 19th century.

Figure 21. Bald Eagles continue to reproduce successfully in the Aleutians. Photo by Byrd

E. Big Game Animals

1. Caribou. Caribou were introduced to Adak Island in 1958-59 when 23 calves were successfully released. From this nucleus, the herd has increased to over 350 animals in October, 1972 (Table 1). Attempts by Jerry Sexton, Alaska Department of

Fish and Game wildlife biologist, to obtain accurate population estimate in Ocotber 1973 were hindered by foul weather and inability to secure air trapsportation. A total of 108 caribou were harvested during the 1973-74 hunting season, which extended from August 10 to March 31.

2. Reindeer. Reindeer were introduced to Atka Island in 1914 to provide a subsistence food source for the natives of the island. There is no closed season or limit on the herd, but the annual harvest is probably fewer than 200 animals. The isolation of Atka has prevented any attempt to wisely manage the herd or to obtain accurate population estimates. During an aerial survey conducted September 7, 1974 under ideal weather conditions, four observers counted 1,692 reindeer, with the majority occurring on the western half of the island. John Sarvis, Assistant Refuge Manager at Izembek N.W.R. and coordinator of the survey, reported that the reindeer were scattered in small groups with the largest composing of 70 animals. This survey was accomplished through the interest, cooperation and support of the Aleut Corporation.

F. Other Mammals

1. Arctic Fox. The Arctic Fox is indigenous only to Attu in the Aleutian Islands, but by the early 1930's it had been introduced on nearly all islands of the Chain for commercial trapping. The foxes effectiveness as a ground predator enabled it to substantially reduce the islands' bird populations, especially that of the Aleutian Canada Goose. The successful restoration of this goose in the Aleutian Islands must necessarily be preceeded by the elimination of foxes from selected islands.

From 1951 to 1959 Robert D. Jones conducted an intensive fox elimination program on Amchitka Island which involved the distribution of some 600 pounds of bait treated with 1080, and more than 85,000 strychnine pellets dropped by airplane. Follow-up ground work was conducted to hunt or trap any foxes not killed by the poison baits. By 1960 foxes had been virtually eliminated from Amchitka Island. No foxes have been sighted there in many years, and it is apparent that the program was successful.

Table 1

POPULATION AND MORTALITY OF THE ADAK CARIBOU HERD, 1958-74[1]

Year	Year End Population	Mortality		
		Natural	Hunting	Total
1958	10	1	0[1]	1
1959	23	1	0	1
1960	--	0	0	0
1961	--	1	0	1
1962	36	0	0	0
1963	43	0	0	0
1964	65	1	4	5
1965	87	8	2	10
1966	106	3	18	21
1967	126	1	24	25
1968	163	3	55	58
1969	167	0	51	51
1970	214	0	53	53
1971	230	3	45	48
1972	268[2]	1	98	99
1973-74	230[3]	0	108	108

[1]Table from Burris and McKnight (Alaska Department of Fish and Game Wildl. Tech. Bull. 4, 1973), based on data compiled by Jerry Sexton.

[2]Based on count of 347 animals on October 6, 1972 minus mortality of 79 animals after that time.

[3]Estimated post-hunting season population.

Jones then set his sights on Agattu Island, which is known to have harbored a large population of Aleutian Canada Geese at one time. Fifty thousand strychnine-injected Harbor Seal baits were air dropped around the island's periphery in March 1964. Follow-up ground work was conducted during the summers of 1964, 1967, 1968 and 1970. Several weeks were spent each summer searching for fox sign and placing 1080 or strychnine bait stations in areas where sign was encountered. No foxes were seen during Jones' last visit in 1970, and he believed that the animals had been eradicated.

When we arrived at Agattu on May 2 to set up a tent camp prior to bringing the geese ashore, fox sign was encountered and a lone animal was observed in the Aga Cove area. Obviously, a few animals had escaped the poisoning program of the 1960's. Biologists spent much time searching for foxes, setting traps in likely areas, and shooting foxes whenever they were encountered. A total of 17 foxes were trapped or shot throughout the entire summer, and an additional 7 animals were sighted. Of the foxes killed, there were 9 males, 7 females and 1 of unknown sex. Five of the animals were pups. A female shot on May 5 carried a well-developed fetus. A den discovered July 28 contained five large pups. The small number of sightings during the summer, despite almost daily fieldwork from May to August, 1974, indicates that the present fox population is small, at least in those areas that we were able to cover by foot.

2. Steller's Sea Lion. Steller's Sea Lion is the most abundant pinniped in the Aleutian Islands, with an estimated population of about 100,000 animals. Sea lions are well-distributed throughout the area, with especially large concentrations occurring on Bogoslof, Buldir, Ugamak, Agattu, and Attu Islands. Biologists involved with the Aleutian Canada Goose restoration project at Agattu had an opportunity to estimate sea lion numbers there. They found eleven distinct colonies, ten in the vicinity of Cape Sabak and one at Gillon Point. Based on five separate estimates made between May 16 and July 19, 1974, the Agattu population is estimated to be about 9,015 individuals, which agrees well with previous estimates (Table 2). Of 6,057 animals counted in 7 Cape Sabak colonies on July 19, 36.1 percent (2,189) were pups.

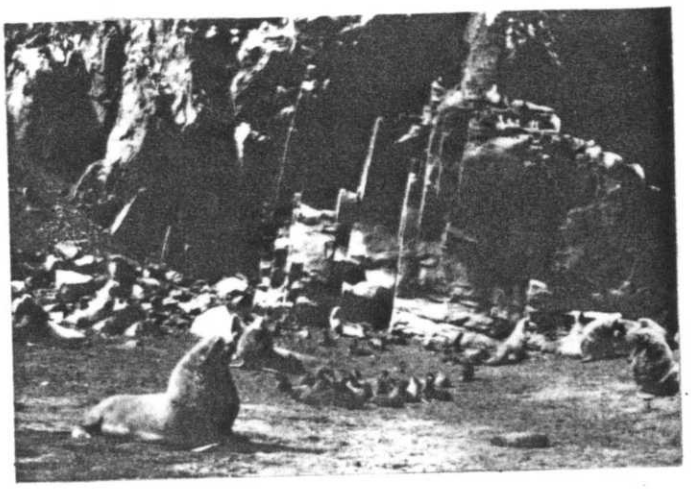

Figure 22. Photo of Steller's Sea Lions
Photo by Byrd

Table 2

Steller's Sea Lion Population Estimates, Agattu Island

Year	Colony			Totals
	Gillon Pt.	Otkriti Bay	Cape Sabak	
1959	3,000	100	3,300	6,400[a]
1965	---	---	---	1,300[b]
1969-72	750	0	8,635	9,385[c]
1974	830	0	8,185	9,015[d]

[a]Kenyon and Rice (J. Mammal. 42: 223-234, 1961).
[b]Kenyon and King (Aerial survey of sea otters, other marine mammals and birds, Alaska Peninsula and Aleutian Islands, Unpublished field report on FWS files, Anchorage, 1965).
[c]U.S. Fish and Wildlife Service (Aleutian Islands National Wildlife Refuge Wilderness Study Report, Unpublished report on FWS files, Anchorage, 1973).
[d]Estimates based on unpublished observations of Trapp and Craighead.

G. Fish

In 1973 the Alaska Department of Fish and Game requested assistance from the Fish and Wildlife Service in managing Adak's sport fishery. Division of Fishery Services personnel Jon Nelson and Ed Crateau, subsequently made several visits to Adak in the latter half of 1973. In the course of two visits to the island they surveyed and inventoried seven lakes, held meetings with the Commanding Officers of the Naval Station and the Naval Communications Station, visited with representatives of the Sportsmans Club, and made fishermen contacts. They considered what species of fish could be successfully introduced into the waters to improve the sport fishing and enthusiasm of the island residents and, based on the information at hand, decided that Grayling would be the species to consider.

Consequently, a Fishery Management Proposal for Adak was submitted in October 1973. This proposal was subsequently rejected by the Washington office, which stressed the current policy of the Division of Wildlife Refuges to limit any introduction of exotic species. It was felt that the stated reasons for a Grayling introduction (suitable environmental conditions, unsuccessful attempts to establish Coho Salmon and Rainbow Trout, and sportsmen's enthusiasm for the project) were not sufficient to justify a change in Refuge Policy.

As a viable alternative, it was decided to release Rainbow Trout in two lakes on the 61,000-acre Adak military reservation. In a cooperative venture between the U.S. Fish and Wildlife Service, the Alaska Department of Fish and Game, the U.S. Navy and the U.S. Air Force, a total of 4,500 Rainbow Trout fingerlings were stocked; 2,500 were stocked in the White Alice Reservoir and 2,000 were stocked in Smith Pond on the Zeto Point Road.

The fish reared at the Alaska Department of Fish and Game's Fire Lake Hatchery were delivered to Elmendorf Air Force Base at 9:30 a.m. August 3, 1974, by hatchery personnel. The fingerlings, in plastic bags packed in insulated styrofoam boxes, were loaded on a waiting P3 Orion aircraft which was airborn by 10:20 a.m. The fish were aeriated once enroute after the pressure of the oxygen pumped into the bags during packing had to be released due to the difference between sea level pressure and cabin pressure of approximately 6,500 feet. The fish arrived in approximately 3 1/2 hours and were stocked in the respective ponds in excellent condition.

Sockeye, Chum, Pink and Coho Salmon all spawn in freshwater streams of the Aleutian Islands, with major runs occurring on Unimak and Attu Islands. The Attu salmon run provides important recreational opportunities for military personnel stationed at isolated Attu and Shemya Islands. Dolly Varden is the most abundant freshwater fish native to the area, while Rainbow Trout have been introduced to some freshwater lakes to enhance sport fishing opportunities. Rock Greenling and Halibut abound in the coastal waters.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development

Following substantial remodeling of trailers obtained from the Atomic Energy Commission, the refuge office was officially opened at Adak in September, 1973.

Lack of funds during the Fiscal Year has prevented the remodeling and renovation of the three trailers destined to be used as residences for refuge personnel.

B. Plantings

None.

C. Collections

A total of 348 bird specimens (skins and eggs) of 81 species were donated to various scientific institutions during CY-1974.

D. Control of Vegetation

No practiced on this refuge.

E. Planned Burning

Not practiced on this refuge.

F. Fires

None reported.

IV. RESOURCE MANAGEMENT

A. Grazing

Grazing is permitted on Caton, a small island of about 4,414 acres located in the extreme eastern Aleutians, under a permit issued to Mr. Knute Anderson of False Pass. Mr. Anderson grazes about 100 head of cattle, and the refuge receives an annual payment of $150.00 for the grazing rights.

The U.S. Navy pastures about 11 horses on the southern half of Adak Island during the fall caribou harvests on that island. The horses are used for the transportation of hunters and meat, and generally enhance the quality and efficiency of the Adak caribou hunt.

B. Haying

None.

C. Fur Harvest

Fewer than a dozen military personnel stationed at Adak trapped Arctic Foxes in early 1974. The low prices currently being offered for fox pelts limits the recreational potential of this activity. Revised trapping regulations issued by the Alaska Department of Fish and Game in July, 1974 now prohibits trapping of Arctic Foxes on all islands of the refuge with the exception of Atka.

D. Timber Removal

Trees are not indigenous to the Aleutian Islands.

E. Commercial Fishing

The offshore waters of the Aleutian Chain are plied by the fishing fleets of a number of nations, notably Japan and the Soviet Union. The primary species harvested are salmon, halibut, and king and tanner crabs. Although this offshore fishing industry does not occur on the refuge proper, an unknown percentage of the salmon caught are produced in the freshwater streams of the refuge.

Owners of Adak Aleutian Processors, Inc., a commercial seafood-processing plant located on 10 acres of land leased from the U.S. Navy at Finger Bay, Adak Island, hired a commercial fishing vessel to do exploratory fishing in the central Aleutians in the summer of 1974. In three months of extensive fishing in the waters between Adak and Atka Islands, fishing for everything from herring to salmon to halibut, they failed to locate any product in commercially harvestable levels.

F. Other Uses

A number of military reservations and navigational-aid stations, created by various Executive Orders and Public Land Orders, exist on the refuge. The largest of these is the U.S. Naval Station occupying the northern 61,000 acres of Adak Island. The U.S. Air Force maintains facilities on the entire 3,520 acres of Shemya Island, and the U.S. Coast Guard maintains small navigational stations on Unimak, Adak, and Attu Islands.

The U.S. Atomic Energy Commission's use of Amchitka Island as a test-site for the underground explosion of nuclear devices terminated officially in September, 1973, after a thorough clean-up of the island was completed by that agency. Teams of scientists will continue to visit the island periodically to monitor the effects of the nuclear detonations on the environment.

V. FIELD INVESTIGATIONS

A. Aleutian Canada Goose Restoration Project

This project has already been discussed in some detail under the Wildlife section. In addition to the goose restoration, however, investigator's were able to complete a number of other studies. These included: 1) complete survey of Agattu Island's seabird colonies; 2) breeding biology study of Fork-tailed and Leach's Storm-Petrels at Buldir Island; 3) general avifaunal surveys of both Agattu and Buldir; 4) breeding biology studies of Pelagic and Red-faced Cormorants; and 5) quantitative pelagic bird observations along the entire length of the Aleutian Chain in both spring and fall.

B. Field Investigations at Bogoslof N.W.R.

Our visit to this isolated island in July, the first by refuge personnel since establishment of the refuge in 1909, was treated in detail in the 1972-73 narrative. The information gathered on sea bird and marine mammal populations of the island has been analyzed and is being prepared for publication. This paper should appear in 1975. A popular account of the visit, written by Byrd, appeared in the October, 1974, issue of Alaska magazine.

C. Winter Banding of Passerine Birds

Gray-crowned Rosy Finches and Snow Buntings are the only abundant winter passerines at Adak. With the approach of inclement weather in October and November they gather in loose flocks for the duration of the winter. These flocks roam the island in search of food and are easily attracted to feeding stations. Especially during conditions of cold and windy weather when the ground is snow covered, the birds are easily captured in funnel traps or modified Australian crow traps.

A limited amount of banding was done at Adak during the early months of 1971 and the effort was increased during 1973. The data gathered through 1973 were summarized and discussed in some detail in the 1972-73 narrative and it is not appropriate to dwell further on it here. This study is being continued and the results will appear as a series of publications on sex and age structure, mensural characters, and survivorship.

D. Comparative Breeding Behavior of Two Forms of Leucosticte.

Mr. Daniel F. Shreeve, graduate student from Cornell University, Ithaca, New York arrived at Adak in early May to begin a study on the breeding ethology of the Gray-crowned Rosy Finch. Sixteen nests were located and studied throughout the breeding season, courtship and display behavior was studied in detail, and parental care and dispersal of fledglings was documented. Mr. Shreeve hopes that these studies will lead to an insight into the origin, behavioral effects, and adaptive significance of the preponderance of males (3 males per female) in the Adak population. Dan has previously studied the breeding behavior of the Brown-capped Rosy Finch in Rocky Mountain N.P., Colorado. A comparison of the reproductive and behavioral strategies of these two forms will form the basis for a doctoral dissertation.

E. Distribution of Aggregations of the Glaucous-winged Gull at Shemya Air Force Base, Alaska, and Methods for their Dispersal.

This study was conducted by the research group from Andrews University, Berrien Springs, Michigan under the direction of Dr. W. H. Gillett. The work was completed under a contract to the U.S. Air Force. The investigators 1) studied gull distribution on the island to determine those times at which hazards to aircraft were potentially greatest, 2) conducted experiments to compare the effectiveness of five recorded gull calls in the dispersal of aggregations, and 3) investigated the use of stationary gull models to inhibit aggregations. A report submitted by the group has not yet been officially released by the U. S. Air Force.

F. Behavior and Taxonomy of the Glaucous-winged Gull.

Mr. Carl A. Strang, graduate student at Purdue University, West Lafayette, Indiana arrived at Adak in early March to gather data on the behavior and taxonomy of the Glaucous-winged Gull. Mr. Strang had previously worked with Glaucous Gulls at the Clarence Rhode N.W.R. During a two-week visit to Adak he made observations of birds in the wild, filmed gull behavior, and collected 15 birds for taxonomic purposes. The data gathered here will be compared with that form the Clarence Rhode N.W.R. in an investigation of the possibility of hybridization between the two species.

VI. PUBLIC RELATIONS

A. Recreation Uses

Hunting, fishing, beachcombing, and photography are the chief pursuits on the refuge. Over 6,000 people live on military bases on this refuge, and they account for the vast majority of the public use.

Figure 23. Salmon Fishing. Photo by Trapp

The Bird Bonanzas Tour group, led by Daniel D. Gibson of the University of Alaska, visited Adak for the second year in a row. The 14 members of this party, avid birders all, journeyed from as far away as Maine to observe the unique Aleutian birdlife.

A private party of three individuals also visited Adak for the purpose of birdwatching.

B. Refuge Participation

Numerous slide shows, illustrating the fauna and flora of the Aleutians, were presented to various local clubs and organizations at Adak during the period. In November 1973, the FWS movie, "The Sea Otters of Amchitka," was shown to about 190 students of the Adak High School. Several short

articles on the cultural and natural history of the Aleutian Islands were prepared for local distribution. Byrd and Trapp provided technical assistance to personnel of the Naval Communications Station Adak in the preparation of a publication entitled "The Outdoorsman Guide to Adak." They also provided guidance and encouragement in the Establishment of the Wildlife Museum on Shemya Island. The original idea was conceived by John Venable, and under the enthusiatic endeavors of David Loper the concept has become a reality. The Wildlife Museum now occupies part of the library, and contains representative specimens of the birds and marine organisms of the island.

Christmas Bird Counts have been conducted at Adak Island during the past seven years. Refuge personnel play a major role in organizing and conducting these counts. The completed counts are submitted to the National Audubon Society for publication in the appropriate issues of American Birds.

Acting Refuge Manager Byrd serves as co-editor of the Alaska region column in American Birds, and all significant Refuge bird observations are included in that publication.

Miss Chris Card, a senior student at Adak High School, worked with refuge personnel on a cooperative basis during the 1973-74 school year. This is part of a state-wide program in which students receive on-the-job training in an area of interest. Chris' activities included assisting in weekly waterfowl surveys, the winter bird-banding program, and various chores around the office. Our participation in this program was instructive for one and all.

The refuge staff cooperates with the Alaska Department of Fish and Game personnel in their various activities on the refuge. Our contribution has been primarily in the form of logistics support.

C. Hunting

Caribou, ptarmigan, and waterfowl hunting occurs on the refuge. The Adak caribou herd provides island residents with high-quality hunting opportunities. The U.S. Navy transports caribou hunters to the south side of Adak Island on a weekly basis during the fall hunting season. This greatly increases the efficiency of the harvest of this isolated herd.

The pursuit of ptarmigan results in more recreational visits and activity hours than any other form of hunting, largely because of the 8-month open season. Most hunting effort is at Adak, although some also occurs at Attu, Atka and Unimak Islands.

Most waterfowl hunting on the refuge takes place on Clam Lagoon, Adak, where as many as 25 hunters may congregate on a given day. Waterfowl harvest data is not gathered on the refuge, and we have no information on the number of ducks harvested annually, or the proportion of each species in the hunters' bag.

D. Violations

None witnessed.

E. Safety

No vehicle accidents or personal injuries occurred during FY-74

VII. OTHER ITEMS

A. Credits

The narrative was prepared by John L. Trapp and Vernon Byrd and typed by Dorothy Ash.

Credits for all photographs are given under the captions.

The Wildlife section could not have been written without the help of the following persons who generously submitted unpublished field observations: G. Vernon Byrd, E. DeWayne Ash, Charles S. Craighead, Christian P. Dau, Robert Dejong, Matthew H. Dick, George J. Divoky, Glenn W. Elison, Daniel D. Gibson, David L. Johnson, Richard MacIntosh, Robert Nelson, Robert Tamburelli, John L. Trapp, and Clayton M. White.

Submitted by: _____
G. Vernon Byrd
Acting Refuge Manager

Date: 7/28/75
Approved by: David L. Spencer
David L. Spencer
Area Refuge Supervisor