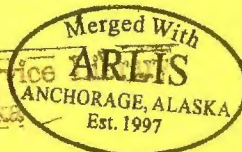




REFUGE NARRATIVE REPORT  
January 1962 - April 1962

ALEUTIAN ISLANDS NATIONAL WILDLIFE REFUGE  
and  
IZEMBEK NATIONAL WILDLIFE RANGE  
Cold Bay, Alaska

U. S. Fish and Wildlife Service  
Anchorage, Alaska



SPEC  
COLL  
NARR  
AI/INWR  
Jan-Apr  
1962

SPEC  
COLL  
NARR  
AI/ENWR  
Jan-Apr  
1962

Merged With  
**ARLIS**  
ANCHORAGE, ALASKA  
U.S. Fish & Wildlife Service  
1011 E. Tudor Road  
Anchorage, Alaska 99503

REFUGE NARRATIVE REPORT

January 1962 - April 1962

ALUTIAN ISLANDS NATIONAL WILDLIFE REFUGE

and

IZEMBEK NATIONAL WILDLIFE RANGE

Cold Bay

Alaska

Staff:

Robert D. Jones, Jr.

Refuge Manager

Vernon D. Berns

Assistant Refuge Manager

US FISH & WILDLIFE SERVICE--ALASKA



3 3755 000 80916 0

U. S. DEPT. of the INTERIOR  
Bureau of Sport Fisheries and Wildlife  
Fish and Wildlife Service  
Cold Bay, Alaska

## TABLE OF CONTENTS

	Page Number
I. GENERAL	
A. Weather Conditions	1
B. Habitat Conditions	1
1. Water	1
2. Food and cover	1-2
II. WILDLIFE	2
A. Migratory Birds	2
1. Geese	2
2. Ducks	
3. Swans	3
B. Upland Game Birds	3
C. Big Game Animals	3
1. Alaska Brown Bear	3
2. Caribou	3
3. Reindeer	3
D. Fur Animals, Predators, Rodents, and Other Mammals	5
1. Sea Otter	5
2. Red Foxes	6
3. Arctic Hare	6
4. Microtine rodents	6
E. Falcons, Eagles, Owls, Ravens, and Magpies	6
1. Falcons	6
2. Bald Eagles	6
3. Snowy Owls	6
4. Ravens and Magpies	6
F. Fish	6
III. REFUGE DEVELOPMENT AND MAINTENANCE	6
A. Physical Development	6
B. Fires	7
IV. RESOURCE MANAGEMENT	7
A. Grazing	7
V. FIELD INVESTIGATIONS AND APPLIED RESEARCH	7
VI. PUBLIC RELATIONS	7
A. Recreational Uses	7
B. Refuge Visitors	7
C. Refuge Participation	8
D. See under WILDLIFE	8
E. Violations	8
F. Safety	8

TABLE OF CONTENTS (cont.)

VII. OTHER ITEMS	8
1. NR-1 (Waterfowl) Aleutian Islands Refuge	9
2. NR-1 (Waterfowl) Izembek Range	10
3. NR-1A	11
4. NR-2	12
5. NR-4	13

ALIENTIAN ISLANDS NATIONAL WILDLIFE REFUGE  
and  
IZEMBOK NATIONAL WILDLIFE RANGE

Narrative Report

January 1962 - April 1962

I. GENERAL

- A. Weather conditions. In view of what might have happened at this period of the year, we must consider ourselves fortunate, for we were in the field and vulnerable. Snow accumulated enough to require snowshoes on only one occasion in January. Northerly circulation prevailed, as usual, in January with southerly (and stronger) winds later.

In this day and age one hesitates to ascribe celestial flashes and rumblings to anything so ordinary as thunder and lightning, especially in an area where these phenomena are conspicuously absent. However, the Refuge Manager on the nights of the 11th and the 18th of February observed at Adak flashes and rumblings that in the Great Plains would unhesitatingly be classed as lightning followed by thunder.

Climatological Data for Cold Bay Area from the Weather Bureau:

		Jan.	Feb.	March	April
Temperature	Max.	43	44	44	44
	Min.	-5	9	19	19
	Avg.	22.7	33.2	31.2	31.9
Precipitation (inches)		2.53	1.53	2.10	.76
Snow & Sleet	Total	3.1	3.6	4.6	2.9
Winds (MPH)	Max.	60	58	44	38
Avg. for month	(MPH)	18.6	19.9	16.0	17.8
Peak Gusts	(MPH)	72	75	62	46

B. Habitat Conditions.

1. Water. Streams and lakes remained frozen for the greater part of the reporting period. The substantial wintering waterfowl populations move onto salt water when this occurs.

At Cold Bay ice on the lakes was 16 to 18 inches thick during part of the period. Izembek Bay was frozen from time to time, intermittently breaking up with the advent of warm, strong winds.

2. Food and Cover. In Izembek Bay the eelgrass was observed to be growing by April 4, imparting a green color to the tidal flats.

At Adak the snow cover on the Caribou Peninsula, while appearing to be complete, was in reality light and did not influence the availability of food for the caribou. It seems quite unlikely that this should ever occur on Adak.

## II. WILDLIFE

### A. Migratory Birds.

1. Geese. Emperor geese winter along the Alaska Peninsula and in the Aleutian Islands. On the Peninsula where ice often forms along the protected shores they are obliged to leave the inner bays for the more exposed Pacific beaches. Thus at Cold Bay these birds were absent from the ice-locked shoreline until February 12 when a flock of 15 returned to the tide flats northwest of Delta Point.

At Adak a flock of about 50 emperor geese provided a considerable distraction to the Naval Station. These birds made use of grass and clover sown by the Naval Station on the disturbed ground in the heart of the Station. The handsome geese contentedly grazed and rested beside the heavily travelled roads of the Base, moving off only when a vehicle stopped.

At Amchitka in January about 400 emperor geese grazed and rested on the Kirilof Peninsula, flying out to the Constantine Islands in the Harbor at dusk. The pattern was so characteristic of Canada geese that it evoked images of Izembek Bay in the mind of the Refuge Manager.

Our first record of northbound brant is dated March 11 when four flocks of 4, 11, 14, and 13 birds were observed in Izembek Bay. These may have been the vanguard of migrants from the south or some of those that winter along the Alaska Peninsula, principally in the Sanak Reefs.

2. Ducks. At Amchitka, where the lakes do not remain frozen any appreciable part of the winter the dabbling ducks were, none the less, wintering in the salt water. Only two exceptions to this were noted, and in these two cases substantial numbers of mallards and common teal were observed on lakes adjacent to the ocean. It is thought that these birds were merely resting on the lakes and feeding in the salt water.

At Igitkin Island the following observations were recorded the 9th and 10th of February:

75 old squaw ducks  
20 - 30 buffleheads  
150 greater scaup  
No emperor geese  
Few harlequins

The 11th of February while approaching Atka Island from the west, king eiders were identified in Atka Pass. This undoubtedly represents the western limits of the wintering range of the species.

In Cold Bay large rafts of common and white-winged scoters were noted the 11th of April, and to the westward between Thin Point and Amagat Island very large numbers of king eiders and Steller's eiders.

The northbound migration including brant, old squaw ducks, Steller's eiders, king eiders and others was in full swing by mid-April. At night large flocks of these birds were heard flying over Cold Bay on a course that would take them to Izembek Bay. On one night, one or more flocks of king eiders flew into the beacon tower and seven were recovered at its base. One had struck in such a manner and with such force as to shear its wing from the body.

April 12, about 350 pintails were observed at Grant's Point in Izembek Bay.

3. Swans. Seventeen whooper swans in three groups of 2, 8, and 7 were observed near Crescent Bay, Atka Island on February 11.

Eleven swans were reported near Christenson's Lagoon Unimak I. January 17. Fifteen swans were first sighted on a small lake north of Cold Bay town April 5. These were presumably whistling swans and remained for several days.

B. Upland Game Birds. Around Cold Bay willow ptarmigan were scarce, but large flocks were reported near King Cove and Canoe Bay. This seems to be a pattern in this area during the low point of the cycle.

At Amchitka abundant evidence of increasing numbers of rock ptarmigan was recorded. These are now numerous there and the birds in winter plumage against a background of no snow are very obvious.

C. Big Game Animals.

1. Alaska Brown Bear. April 7, a sow with one cub was observed in the area south of Russell Creek. An airplane hunting party reported one bear on the Bering Sea beach between Nelson's Lagoon and False Pass, April 10.

2. Caribou. January 8, the Refuge Manager visited the introduced caribou band on Adak Island. After two reproductive seasons the original 23 have increased to 36. A great deal of unrest was evident in the band, probably due to the different temperaments of the hand-reared and wild-reared animals, hence it was not possible to determine sex ratios and numbers of calves in the time available. Three of the adults were still tame enough to approach the Refuge Manager; and one of these, the big bull, was aggressive. The entire band approached to within 20 yards where they stood in a semicircle, altogether an impressive spectacle.

3. Reindeer. In Crescent Bay near the west end of Atka, a band of about 40 feral reindeer was observed. Three cows were killed and found to be in good flesh. Both subcutaneous and visceral fat was present in all three animals. The range in the area showed heavy utilization, and no lichens were evident.

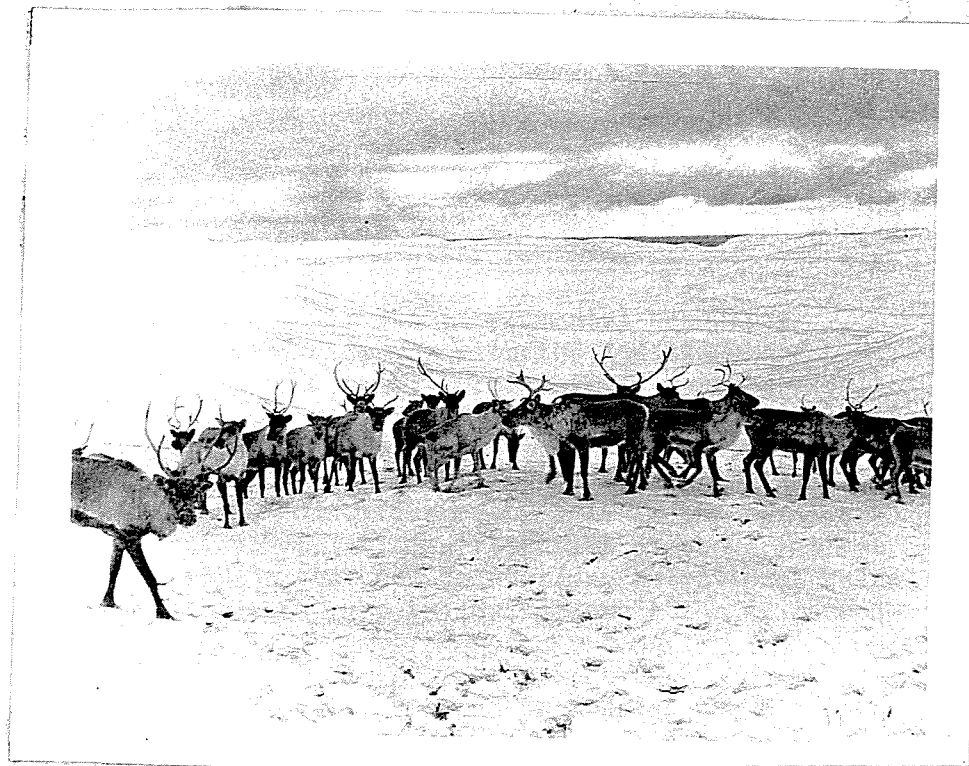


Fig. 1 Adak Caribou

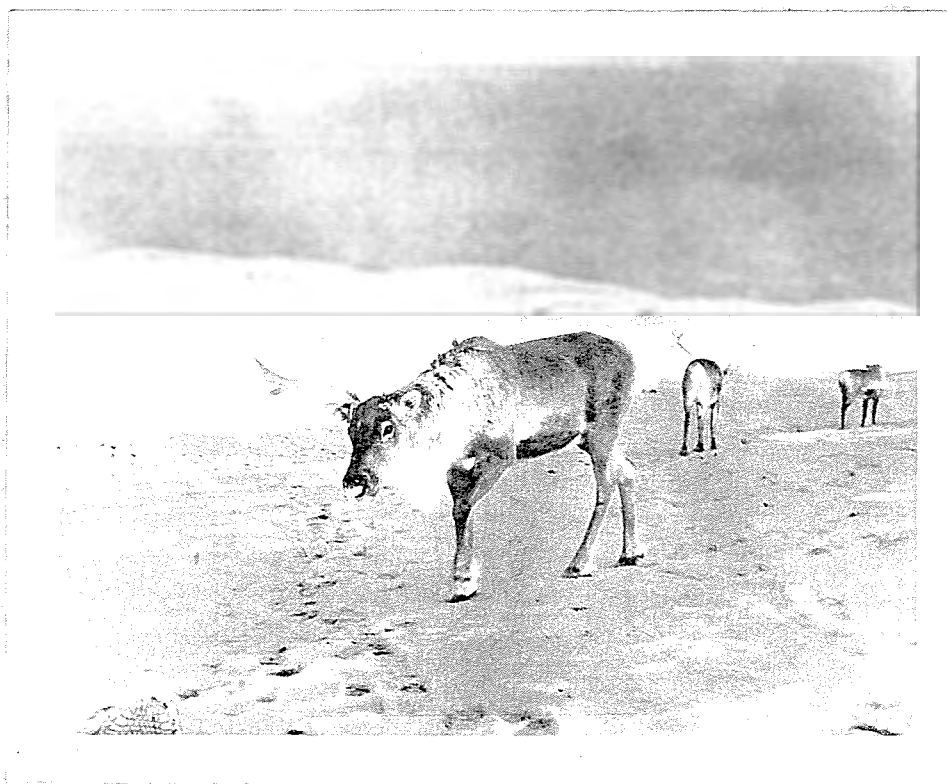


Fig. 2 Caribou 117, Adak Herd Bull



D. Fur animals, Predators, Rodents, and Other Mammals.

1. The Refuge Manager helped with the experimental sea otter harvest at Amchitka by assisting Kenyon with the logistics and retrieving killed sea otters by swimming. The animals were in excellent condition, exhibiting extensive fat depositions. These collections were coincidental to the waning of reproductive activity in the green sea urchins. Subsequent to this period Kenyon reported the usual losses of emaciated animals. Significance of this is the considerable dependence of the sea otter population at Amchitka on the green sea urchins, and the heavy strain that occurs when the nutritional value of the echinoid drops almost to zero following completion of reproductive activity.

Twenty-five green sea urchins were gathered from under the Kirilof Wharf in Constantine Harbor, Amchitka January 26, in from 15 to 30 feet of water. The water was absolutely clear, temperature 38°F. These were weighed, measured, and the volume of the gonads measured. This information is recorded, together with similar data from 25 sea urchins gathered February 15 off the Adak Jetty in from 10 to 60 feet of water that was also absolutely clear and 38°F.

<u>Amchitka</u>			<u>Adak</u>		
diameter of shell in mm.	wet weight in grams	volume of gonads in cc.	diameter of shell in mm.	wet weight in grams	volume of gonads in cc.
1 - 24.2	5.03	.2	76.7	102.12	1.0
2 - 28.7	8.13	.25	69.6	77.15	1.0
3 - 28.8	8.38	1.2	63.9	97.36	3.5
4 - 29.2	7.69	.2	73.9	93.05	1.0
5 - 18.5	2.32	.1	37.8	20.42	.5
6 - 21.8	3.68	.3	61.9	89.42	1.0
7 - 31.1	10.20	.7	69.3	117.07	4.5
8 - 25.0	5.03	.5	61.2	78.84	20.0
9 - 23.8	4.25	Trace	60.4	77.08	1.0
10 - 23.7	4.41	.2	46.8	36.54	Trace
11 - 21.0	3.20	.1	59.8	67.30	1.0
12 - 22.5	3.71	.3	45.9	35.79	Trace
13 - 23.8	4.51	Trace	44.8	32.38	1.0
14 - 22.8	3.93	.2	41.0	22.65	Trace
15 - 24.5	4.56	.1	70.3	112.50	10.5
16 - 22.9	3.33	Trace	76.9	142.80	2.5
17 - 23.0	4.25	.4	47.0	36.39	Trace
18 - 24.1	5.09	Trace	70.9	118.16	20.0
19 - 23.9	4.44	Trace	40.9	26.61	.5
20 - 22.1	3.22	.3	59.9	70.30	Trace
21 - 21.1	3.23	.1	53.7	53.87	16.0
22 - 20.2	3.04	Trace	57.5	65.11	Trace
23 - 21.3	3.17	Trace	47.8	34.91	Trace
24 - 22.3	3.59	Trace	43.6	30.30	Trace
25 - 21.6	3.05	Trace	40.4	22.99	.3

2. Red foxes became common about Cold Bay, where food was more readily available than in the wilderness. This evoked the usual comments about the possibility of rabid animals and requests to kill them if they ventured into town. With the appearance of ground squirrels in April the foxes moved out again and the problem once more resolved itself.

3. That the Arctic hare population continues at a high level is apparent from the frequent hunter success.

4. In the Morzhovoi Bay area sign of a heavy population of microtine rodents was apparent. These were probably lemmings and shrews.

E. Falcons, eagles, owls, ravens, and magpies.

1. Peregrine falcons were observed as usual at Amchitka. One gyrfalcon was also observed there.

2. At Cold Bay the bald eagles occupied perches on the headlands overlooking the Bay. Cold Bay in winter is inhabited by numerous large rafts of diving ducks such as king eiders, and old squaw ducks, and the more widely scattered harlequins and Steller's eiders. The behaviour of the eagles suggested that they are preying on these divers.

3. We have two records of snowy owls from Amchitka, and several from the Izembek Range. The owls are resident on Amchitka but on the Izembek Range they are apparently only winter migrants.

4. Ravens and Magpies. At Cold Bay both of these species tend to concentrate at the dump along with a large number of glaucous-winged gulls in winter. The ravens soar on updrafts along the headlands, displaying a marked tendency to cavort, performing slow rolls, half rolls, and snap rolls.

Ravens were elsewhere observed at Amchitka, Adak, Igitkin, and Atka.

F. Fish. Ice fishing is practiced at Cold Bay in Blinn Lake. There the successful effort is almost wholly limited to the shallow water around the perimeter of the lake or about the islands. Presumably the fish feed in the rubble areas, and as these are limited to the shallow water, this would account for the preponderance of fish there.

### III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development. Using as we are, a number of WWII "theatre of operations" buildings that are in the final stages of disintegration,

a rather substantial effort is required to maintain any degree of serviceability. The weaknesses become particularly apparent in winter.

B. Fires. None to report.

#### IV. RESOURCE MANAGEMENT

A. Grazing. The grazing fees for Caton Island were paid and the lease was in good standing for another year.

#### V. FIELD INVESTIGATIONS OR APPLIED RESEARCH

See sea otter discussion under WILDLIFE.

#### VI. PUBLIC RELATIONS

A. Recreational Uses. The previously mentioned ice-fishing at Cold Bay and harbor seal hunting at Adak constitutes the principal recreational uses for this period.

B. Refuge Visitors.

<u>Name</u>	<u>Title</u>	<u>Organization</u>	<u>Purpose of Visit</u>
Karl W. Kenyon	Biologist	BSFW	Research
Loren Croxton		ADF&G	Procure sea otter skins
Edwin Bendixen	Fisherman	Private	Personal Call
Walter Bendixen	Fisherman	Private	Personal Call
Harold Bendixen	Fisherman	Private	Personal Call
Herman Bendixen	Fisherman	Private	Personal Call
Capt. Howard		USAF, Cold Bay	Business
Capt. Sweeney		USAF, Cold Bay	Business
Bob Burkholder	Supvr. animal control biologist	BSFW	Business
Cal Reeve	Station Mgr.	Reeve Aleutian Airways	Personal Call and Business
Ray Caudle	Station Mgr.	FAA	Business
Tom Wardleigh	Pilot	FAA	Personal Call
Fred Barnett	Master, JOHN R. MANNING	BCF	Personal Call
Dave Hanna	Fire Supervisor	FAA	Inspection
David L. Spencer	Refuge Supervisor	BSFW	Business
Theron Smith	Aircraft Supvr.	BSFW	Business
John Kobza	Pilot	BSFW	Business
John Burns		ADF&G	Business
Ken Gilpin	Enforcement Agent	ADF&G	Business
John Klingbeil	Enforcement Agent	BCF	Business
John Engas	Master, R. G. FALLAS	Standard Oil	Personal Call

- C. Refuge Participation. Refuge Managers Berns and Jones participated in the volunteer fire fighting training program at the Cold Bay Fire and Crash Station. Berns completed the first 30-hour course and was awarded a certificate of completion.
- D. See under WILDLIFE.
- E. Violations. Assistant Refuge Manager Berns filed charges against one man for trapping without a license and taking a fur bearing animal out of season. He was fined \$125 and given a ninety day jail sentence, the latter suspended for five years. The Deputy Magistrate in Cold Bay officiated.
- F. Safety.
1. One safety meeting to discuss hazardous practices in handling hand and power tools, and in working around machinery.
  2. No accidents.
  3. No corrective measures were taken.
  4. Record to date: 151 days.

#### VII. OTHER ITEMS

In January long quiescent Kiska Volcano renewed activity with a flow of lava at Sirius Point. Before long, vents were opened from the Point all the way to the summit. A change in coastal outline occurred as the lava flowed into the sea, forming a prominent extension of the Point.

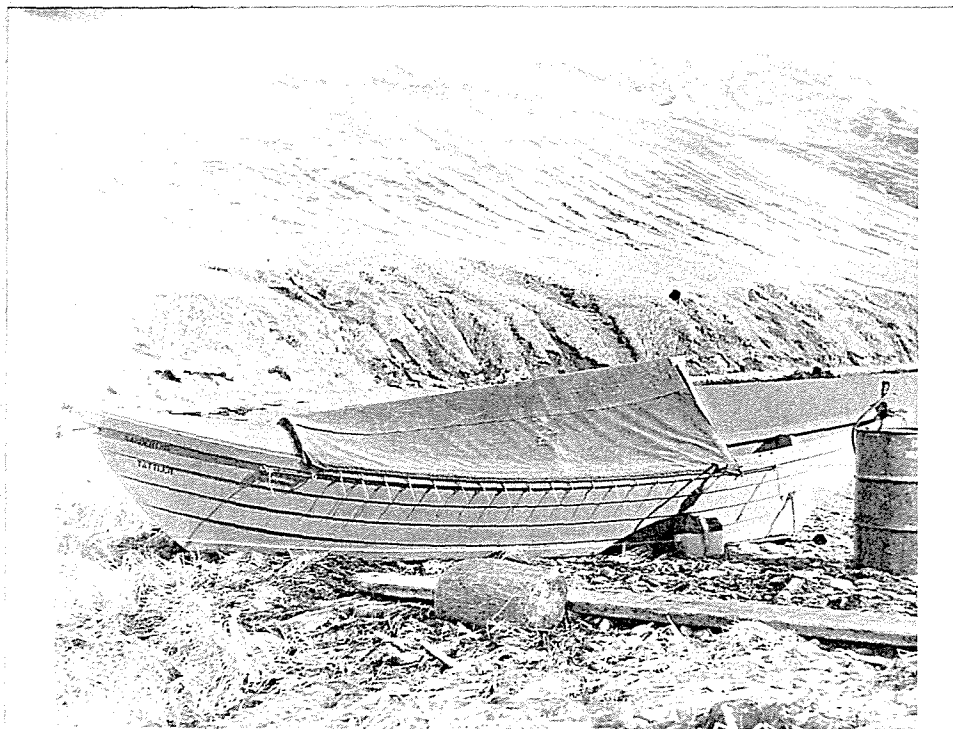


Fig. 3 On the Beach at Igikkin I.

WATER FOWL

REFUGE Alaska National Wildlife Refuge

MONTHS OF January TO April, 1962

(1) Species	(2) Weeks of reporting period									
	1	2	3	4	5	6	7	8	9	10
<b>Swans:</b>										
Whistling	20									
Trumpeter	500									
<b>Geese:</b>										
Canada Goose	0									
<del>Occident</del> Aleutian	200									
Brant	7,500									
White-fronted										
Snow										
Blue										
Other, Emperor	200,000									
<b>Ducks:</b>										
Mallard	50,000									
Black										
Gadwall	500									
Baldpate	50									
<del>Common</del> E. widgeon	21,000									
Pintail	500									
Green-winged teal	100,000									
<del>Common</del> teal										
Cinnamon teal										
Shoveler	100									
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup, Greater	20,000									
Goldeneye	20,000									
Bufflehead	20,000									
Ruddy										
Other King eider	100,000									
Common	5,000									
Stellar's "	10,000									
Harlequin	million									
Oldsquaw	million									
<b>Coot:</b>										
White scoter	250,000									
Int. Dusky scoter	250,000									

WATERFOWL  
(Continuation Sheet)

REFUGE IZEMBEK NATIONAL WILDLIFE RANGE

MONTHS OF January TO April, 1962

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production : Broods: Estimated : seen : total	
	11	12	13	14	15	16	17	18			
Swans:											
Whistling	10										
Trumpeter	0										
Geese:											
CanadaLesser											
Cackling											
Brant	50,000										
White-fronted											
Snow											
Blue											
OtherEmperor	50,000										
Ducks:											
Mallard	2,000										
Black											
Gadwall	1,000										
Baldpate											
Pintail	50,000										
Green-winged teal											
Blue-winged teal											
Cinnamon teal											
Shoveler	100										
Wood											
Redhead											
Ring-necked											
Canvasback											
Scaupgreater	2,000										
Goldeneye	1,000										
Bufflehead	1,000										
Ruddy											
OtherKing eider	10,000										
Common "	1,000										
Steller's "	10,000										
Harlequin	500										
Boat											
Old Squaw	10,000										
Its winged scoter	10,000										
Common	10,000										

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production	SUMMARY
Swans	:	:	:	Principal feeding areas _____
Geese	:	:	:	_____
Ducks	:	:	:	Principal nesting areas _____
Coots	:	:	:	_____
				Reported by _____

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

3-1751

Form NR-1A

(Nov. 1945)

MIGRATORY BIRDS  
(other than waterfowl)Refuge ~~Alutian Islands National Wildlife~~ Months of January to April 1956~~3~~

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>  Slender-billed shear water Sooty shear water							We do not attempt to assign numbers to these pelagic birds.			
II. <u>Shorebirds, Gulls and Terns:</u>  American golden plover Northern phalarope Least sandpiper Ruddy turnstone Wandering tattler Lesser yellow-leg Bar-tailed godwit Black-tailed godwit										

These are the shorebirds we have encountered but we have no basis for the assignment of numbers.

(over)



(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons</u> : Mourning dove White-winged dove					
IV. <u>Predaceous Birds</u> : Golden eagle Duck hawk Horned owl Magpie Raven Crow					
				Reported by.....	

#### INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)  
 II. Shorebirds, Gulls and Terns (Charadriiformes)  
 III. Doves and Pigeons (Columbiformes)  
 IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.

Refuge ~~Aleutian Islands National Wildlife Refuge~~ Months of ~~January~~ to ~~April~~, 19~~46~~<sup>63</sup>

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Rock Ptarmigan	1,800,000	Unknown				Unknown				Except on Adchitka where the population has risen following removal of foxes present trend in numbers is downward.
Willow Ptarmigan										There is an unknown number of these birds that move back and forth between Unimak I. and the Alaska Peninsula.

## INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.\*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

\* Only columns applicable to the period covered should be used.

## INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

- (1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)
- (2) DENSITY: Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings listed.
- (4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprime-ness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.
- (5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.
- REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

3-1754  
Form NR-4  
(June 1945)

# SMALL MAMMALS

Refuge Alaskan Islands National Wildlife Year ending April 30, 1963

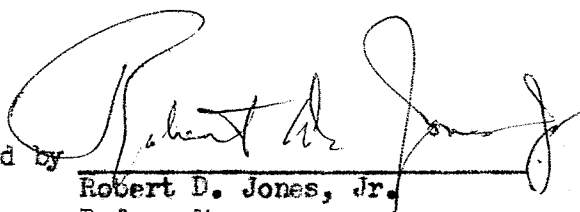
(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs					(5) Total Popula- tion
Mink  Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re- stocking	For Re- search	Share Trapping			Total Refuge Furs Shipped	Furs Donated	Furs Destroyed
								Permit Number	Trappers Share	Refuge share			
Mink	Present on Unimak I. only												
Weasel	Present on Unimak I. only												
Wolverine	Present on Unimak I. only												
Land otter	Present on Unimak I. only												
Sea otter	Present throughout the refuge except in the Near Islands.										150 animals taken by AFSC for research		
Ground squirrel	Present on Unimak and Kavalga Island and probably the Krenitain group.												
Norway rat	Present on Atka, Adak, Anchitka, Attu, Shemya and Bat Island.												
Arctic fox	Present throughout the refuge except Anchitka, Buldir, Davisof and Kvostof Island; also Chagalak												
Red fox	Present on Unimak and Adak												
Arctic wolf	Present on Unimak only.												
Shrew	Present on Unimak Island and probably the Krenitain group.												
Lemming	Present on Unimak Island and probably the Krenitain group.												


\* List removals by Predator Animal Hunter

\* List removals by Predator Animal Hunter

REMARKS:

Reported by

Submitted by   
Robert D. Jones, Jr.  
Refuge Manager

Approved:   
David L. Spencer  
Regional Refuge Supervisor