REFUGE NARRATIVE REPORT

May through August 1960

KODIAK NATIONAL WILDLIFE REFUGE

Kodiak, Alaska

REFUGE STAFF:

Will Troyer, Refuge Manager

Richard Hensel, Assistant Refuge Manager

Hazel Butler, Clerk-Steno

Kenneth Durley, Temporary Biological Aide

REFUGE NARRATIVE REPORT

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Kodiak, Alaska

I. GENERAL

A. Weather Conditions. All weather data is furnished by the Fleet Weather Central, Naval Station, Kodiak, Alaska.

	Snowfall	Precipitation This Month	Precipitation Normal	Max. Temp.	Min. Temp.
May	0	2.88	6.04	64	36
June	0	4.20	4.50	66	39
July	0	2.69	3.76	76	42
August	0	3.15	4.35	70	40
		12.92	18.65		

B. Habitat Conditions.

1. Water. Although total rainfall was below normal, it fell in the form of drizzling rain and it was well distributed throughout the summer. Stream levels never became very low. The extremely late spring kept a snow supply in the mountains throughout the summer.

2. Food and Cover. As is usual, elderberries were very abundant again this year; however, the crop matured later than normal because of the late spring. The first elderberries were noted in bear scats on July 23 but were quite green. By August 6, elderberries in scats were numerous but the berries were still mostly green. Berries failed to get really ripe until August 15.

II. WILDLIFE

A. Migratory Birds. Few observations were made on waterfowl during this period as personnel were confined to Karluk Lake. One swan nest was found on the Karluk River and several goldeneye broods were noted in the lake.

B. Upland Game Birds. Ptarmigan broods observed appeared quite large and plentiful indicating a good nesting success. The season opened on August 20 but little hunting has occurred to date.

C. Big-Game Animals.

1. Goats. None were observed this period.

2. Reindeer. Reindeer were observed in various locations while flying bear surveys but no complete counts were flown. Several hundred were observed in Halibut Bay in late July.

3. Kodiak Brown Bear.

a. Hunting Data.

(1) Bear Kill. Since the newly formed Alaska Department of Fish and Game now is responsible for management of the bear off the refuge, data will no longer be included on bear hunting on Afognak and Raspberry Islands. Data will be included on bear taken on the area adjacent to the refuge on Kodiak Island as the kill here may have some effect on the refuge population.

The total bear kill on the refuge from January through August is 91 and the kill on Kodiak Island off the refuge is 19. This kill is slightly below the past year. A larger number of resident hunters took bear than is normal but less guided hunts were in the field. A late spring prevented early hunting and most of the trophies were taken in May.

(2) Sex Ratio of Kill. Of the known sex ratio on the refuge, 49 were males and 21 were females as shown in Table I. The unknown sex ratio was 21 which is high. This is primarily due to the method of reporting. Hunters are no longer required to report kills or get export permits to

export trophies, thus leaving us without a good method of obtaining necessary hunting kill information. This will have to be corrected by special refuge regulations unless the ADF&G establishes other regulations requiring hunters to report needed kill information.

(3) Distribution of Kill. Deadman and Uyak received the heaviest kills on the refuge. The kill of 19 is extremely high for Deadman. Usually it is hunted by one guide only but a number of residents hunted the area this year.

(4) Trophy Sizes. The average squared size hide of the guided hunts was slightly larger than last year. However, the percent of 10 foot bears was lower than any previous year.

TABLE I

BEAR KILL KODIAK ISLAND - JANUARY THROUGH AUGUST 1960

	Kodiak Refuge				Off Refuge			
	Male	Female	Unknown	Total	Male	Female	Unknown	Total
Trophies								
Resident Hunters	14	12	8	34	2	3	1	6
Non-Resident Hunters	32	9	1	42	0	0	0	0
Defense of Life & Property							8	8
Scientific Purposes	1			1				
Food	2		4	6				
Estimated Unknown Mortality			8	8			5	5
Totals	49	21	21	91	2	3	14	19

TABLE II

BEAR KILLS BY DISTRICT - JANUARY - AUGUST 1960

Red Sturgeon		2
Red River	0	
Sturgeon	2	
Upper Station		2
Deadman		19
Old Harbor		3
Karluk Dog		17
Dog Salmon	5	
Karluk Lake	11	
Larsen	1	
Uyak		19
Uyak Bay	10	
Zachar	3	
Spiridon	6	
Little River		1
Uganik-Terror		13
Uganik	9	
Terror	4	
Uganik I.	0	
Off Refuge		19
Shearwater	10	
Kupreanoff	0	
Chiniak	9	

TABLE III

COMPARISON OF SPRING BEAR HIDE SIZE TAKEN
BY GUIDED HUNTERS - 1950-1960

	No. Bears Represented	Ave. Size	Percent 9' Plus	Percent 10' Plus
1950	24	9' 4"	71.0	50.0
1951	44	9'	47.7	34.0
1952	41	9' 1"	61.0	36.6
1953	43	9' 1"	60.4	25.6
1954	68	9' 8"	51.5	26.5
1955	37	9' 2"	59.4	35.1
1956	49	8' 8"	55.0	20.4
1957	55	8' 8"	42.0	27.0
1958	42	9' 6"	60.0	29.0
1959	65	8' 11"	47.7	26.2
1960	36	9' 1"	63.9	13.9

4. Sitka Black-Tailed Deer. Very few deer are found on the refuge; however, the population is increasing especially on Uganik Island. Nearly all hunting on Kodiak is off the refuge.

5. Olympic Elk. Elk are not found on the refuge and since management of this species is no longer the responsibility of the Refuge Division, elk data will be eliminated from this report.

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

1. Beaver. Beaver continue to expand their range and are now in Uganik Lake. A colony dammed a lake near Mush Bay.

2. Meadow Mice. Meadow mice continue to be abundant and are still at a high peak.

3. Weasels. Weasels too are abundant and are becoming more so with the high meadow mouse population.

E. Hawks, Eagles, Owls, Crows, Ravens and Magpies.

1. Eagles. Seven nests were occupied in the Karluk drainage this summer. These were nests #9, 8A, 17, 19, 20 and 23, and Thumb Lake #2. Nest #8A was a new nest, the remainder having been built in previous years. Nest #19 and 20 were occupied last year. A total of 12 young were successfully raised for an average of 1.7 eaglets per nest. All nests had two eaglets except #19 and 20 which had but one each.

Four eaglets were banded, two in Thumb Lake #2, one in 8A and one in #19. The Thumb Lake eaglets were banded with FWS leg bands #509-11416 and #509-11415. In addition, plastic colored leg bands of approximately one inch width were placed on one leg for future observation. Eaglet #509-11416 received a yellow band on the left leg and #509-11415 received a yellow band on the right leg. Eaglet #509-11419 banded in nest #8A received a green marker on left leg and #509-11413 banded in nest #19 received a blue band on right leg. Because of the busy bear trapping season, time did not permit banding more eaglets.

The colored bands were acrylic plastic obtained from the Universal Plastics Company in Seattle, Washington. They were placed on the eaglet by heating and then forming in leg-band shape.

On July 21, 1960, while flying bear composition counts on the Sturgeon River, eagles were noted to be quite numerous and consequently numbers were tabulated. A total of 124 eagles were counted on the drainage. Most of them were sitting on the banks feeding on decomposed salmon. Few eagle nests are found on this drainage and they apparently were attracted to the area from other parts of the island.

TABLE IV

NESTING SUCCESS AND BALD EAGLETS BANDED - KARLUK LAKE 1960

Nest No.	No. Eaglets	Band No.	Color Marks L.	Color Marks R.
9	2			
8A	2	509-11419	Green	
17	2			
19	1	509-11413		Blue
20	1			
22	2			
Thumb #2	2	509-11416	Yellow	
		509-11415		Yellow

FIGURE I - EAGLE NESTINGS, 1960

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development.

1. Refuge Quarters Site. The area around the Refuge Quarters, which was formerly a swamp, was filled in, leveled and drained and sown in grass. Cement steps and a walk were built for access to the rear of the house.

B. Collections and Receipts. None.

C. Fires. None occurred this period.

IV. RESOURCE MANAGEMENT

A. Special Use Permits. No new permits were issued.

V. FIELD INVESTIGATIONS

A. Karluk Lake Studies. Bear live-trapping and ear-tagging operations were carried out from July 8 through August 17. A total of 46 bear were handled. Of these, 42 were new captures. Techniques similar to last year were employed in capturing and handling bear.

A special report will cover this study.

VI. PUBLIC RELATIONS

A. Recreational Use. Major uses were bear hunting and sport fishing.

B. Refuge Participation. Refuge Manager Troyer met with the new ADF&G PR Biologist several times to assist him in getting started on elk and deer work.

C. Hunting. The following hunting seasons were open during this period:

Bear	-	Spring season ended May 31.
Deer	-	Opened August 20.
Ptarmigan	-	Opened August 20.

D. Violations. No individuals were apprehended during this period.

VII. OTHER ITEMS

A. Items of Interest.

1. As of January 1 the new State Fish and Game Department became responsible for management of wildlife in Alaska. Thus the Refuge Manager has been relieved of management responsibilities off the refuge. This was happily anticipated for some time. More time will be available in the future to carry out refuge responsibilities.

2. Refuge Manager Troyer returned to duty on June 10 after several months of educational leave. He attended Montana State University at Missoula, Montana, where he is working toward a Master's Degree.

3. Dick Hensel, a graduate of Wildlife Management of the University of Alaska, entered on duty July 1 as the Assistant Refuge Manager at Kodiak. This was a welcome addition. Dick is not new to Kodiak, having spent several seasons in the field on snowshoe rabbit studies. He admits there is more excitement in trapping bears than hares.

Submitted by: Will Troyer
Will Troyer
Refuge Manager

September 20, 1960

Approved by: DL Spencer
Refuge Supervisor

US FISH & WILDLIFE SERVICE--ALASKA
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Kodiak, Alaska

I. GENERAL

A. Weather Conditions. All weather data is furnished by the Fleet Weather Central, Naval Station, Kodiak, Alaska.

	Snowfall	Precipitation This Month	Precipitation Normal	Max. Temp.	Min. Temp.
Sept.	0	4.92	5.51	59	33
Oct.	Trace	3.78	6.95	58	28
Nov.	5.5	4.30	5.45	46	20
Dec.	3.0	8.60	5.34	43	24
		21.60	23.25		

B. Habitat Conditions.

1. Water. Water conditions were normal during most of the period. The smaller lakes froze around the middle of November but by the end of the period all lakes were open again.

2. Food and Cover. Food and cover was abundant throughout the period. Snowfall has been light to date and because of constant rains, vegetation at the lower elevations remains uncovered.

Elderberries and high-bush cranberries remained abundant into the late fall. Late runs of silver and red salmon provided food for bear into late November.

II. WILDLIFE

A. Migratory Birds. Good flights of pintails, mallards, teal and widgeon passed through the refuge in late September and October and early November. The many bays were used as resting and feeding areas. Hunting was especially good from October through November and many mallards remained throughout December. From November 3 - 7 large populations of ducks were observed in the Uyak and Uganik Bay areas. Approximately 2,000 were located in the head of Uyak. Most of these consisted of mallards, although quite a few pintails were present. On November 6, 23 swans were observed on the Karluk River. These were presumably whistlers.

The actual hunting pressure on the refuge is minute as few people hunt the area since it is not accessible by road. The kill off the refuge is small, since constant harrassment along the road system by hunters keeps the ducks moving onto less disturbed areas. In addition most of the flats off the refuge along the road system are heavily grazed by cattle thus eliminating much of the desirable food plants of the ducks.

Assistant Refuge Manager Hensel spent several days on Tugidak Island in September to investigate the waterfowl population. This island lies adjacent to the refuge and a report of his findings follows:

In accompaniment with State Game Biologist, Calvin Lensink, eight days were spent at Tugidak Island. Mr. Lensink's primary objective was to make a general reconnaisance of the foot-shaped island to establish a study area whereby Pacific harbor seal could be investigated. My objectives were to classify waterfowl and to estimate their numbers.

Tugidak Island lies between meridians 155° 23' and 155° 48' and parallels 56° 23' and 56° 36' north latitude. Its length, between the most distant points, is approximately 19 miles and widths at the northeast and southwest ends are 7 and 3½ miles respectively.

The island extends to 150 feet above sea level and for the most part is essentially flat. A series of beach ridges parallel the south shore. Chains of lakes and ponds, interspersed with muskegs extend between the ridges. Ponds, lakes and tide flats occupy about one-third of the surface area of

Tugidak Island. With the exception of tundra and hydrophytic conditions, moisture dependent sedges and grasses flourish. Bluejoint and beach rye grasses, goldenrod and fireweed are predominant. The top soil of the tundra areas are decked with crow and cranberry communities. These plant species together with bunchberry, blueberry and various pondweeds, including eel grass, provide an ample food source for resident and migratory waterfowl. Copious nesting cover, consisting primarily of bluejoint grass, is available around the littoral zone of the ponds and lakes situated at lower elevations.

A large lagoon occupies the northeast end of the island and possesses tide flats which occasionally project seaward 2 or 3 miles during two low tide periods. It was in this lagoon that a concerted effort was made to evaluate the numbers and kinds of waterfowl inhabiting the area.

Surveys were conducted daily between September 17 and 25, 1960. These surveys were made on foot from a camp located by a large lake near the middle of the island. Waterfowl were not especially abundant until September 23, at which time moderate numbers of migratory flocks of ducks were first noted. Prior to this date, small flocks of dabbling ducks, 10 emperor geese and about 40 swans were recorded. Apparently the vanguard of migrating geese and ducks arrived the evening of September 22. The next day estimates were obtained on the following species:

Emperor geese	300
Lesser Canadian geese	30
Cackling geese	8
Greater scaup	1000
Mallard	400
Green winged teal	150
Pintail	1000
Baldphate	350
Shovellar	150

The following day an increase was noted on the number of ducks; however, the number of geese remained about the same. By this time a conservative estimate of 50 swans was established. The type of swans present on the island is difficult to ascertain. Most of the swans observed were considered to be whistling swans, although on one instance a trumpet-like call, characteristic of trumpeter swans, was distinctly heard which led both investigators to believe that this species was also present on Tugidak Island.

B. Upland Game Birds. Ptarmigan again were plentiful this fall although the overall number seemed to be somewhat reduced over the past year. The low-bush cranberry crop was much better this year providing ample food.

C. Big-Game Animals. The only big game animals found on the refuge are blacktail deer and brown bear, plus the formerly domesticated reindeer. Former reports on goats and elk, which are found off the refuge, now come under state jurisdiction.

1. Sitka Black-tailed Deer. The greater portion of the Sitka black-tailed deer inhabiting Kodiak Island are found on the northeast end off the refuge. In recent years deer have continued to spread onto the refuge and especially along the northwest side. Deer are now quite numerous on Uganik Island. Three large bucks were taken on the island during the fall hunting season. In addition, tracks are plentiful in Cannon's Lagoon on the outer northwest shore of Uganik Bay. Several deer have been observed around Uyak for the past three years.

2. Kodiak Brown Bear.

a. Hunting Data.

(1) Bear Kill - September through December. The fall hunting season did not open until October 1 on the Kodiak Refuge. The total kill this period was only 30 bear as shown in Table 1. This is one of the lowest fall kills recorded for some years. This was due to the shortened fall hunting season. Most of the hunting occurred in October and early November. Cold temperatures arrived on November 17 and most bears went into hibernation.

(2) Bear Kill - January through December 1960. Table 2 gives a breakdown of the total 1960 kill on the refuge and also for that portion of Kodiak Island off the refuge. The total refuge kill this year was 121. The kill by guided hunters was quite reduced over last year; however, an increase by non-guided hunters was noted. Reasons for the reduced number of kills by guided hunts was the reduced fall season, an exceptionally late spring, allowing only a limited harvest in early April and guides reported a greater number of hunter cancellations.

The greatest portion of the kill occurred in the Karluk-Dog and Uyak districts with Deadman also receiving a substantial kill. The bear kill off the refuge was normal. The information on rancher kills is hard to get but is considered more accurate this year than usual as the information was gleaned from several military men who had considerable contact with the ranchers.

(3) Sex Ratio of Kill. The sex ratio of the total bear kill was 100 females per 186 males and for those taken for trophies on the refuge, the ratio was 100 females per 208 males. As can be seen in Figures 1 and 2, this ratio has been quite constant since 1950 and no definite up or down trend in the female take can be noted.

In Figure 3 the ratio of the spring and fall trophy harvest are compared. It is readily apparent as has been noticed in previous years that a higher percentage of females are taken during the fall than the spring.

(4) Squared Hide Size. Tables 5 and 6 show the average size of the bear hides taken by the guides the past 11 years. Hides by non-guided hunters are not included because they are rarely measured and usually are only reported as estimates. Guides hunt selectively for large bear and downward trends of hides should indicate overhunting.

The average size for 1960 was nine feet. Even this is actually a little higher than the 11 year average and Table 6 indicates a fairly stable population. The per cent of bear hides that are 10 feet and over shows a slight downward trend. Only 14.8 per cent fell in this class this year.

As can be seen in Table 5, the spring bear average is larger than the fall. Bear in the ten foot class are rarely taken in the fall.

A planned regulation during the 1961 season to require all hunters to have their bear hides sealed should assist in obtaining this data. Plans are to have either state or refuge biologists seal and measure all hides thus obtaining an unbiased and accurate measurement.

b. Census and Composition Counts. Aerial composition counts were again flown over the major refuge drainages during July and August. The total bear sampled this year was 286 which is entirely inadequate. This is quite a bit less than in 1958 and 1959 as shown in Table 7. Because of poor weather conditions and difficulties in chartering planes, no surveys were flown between July 21 and August 7. This is at the peak of the bear activity on the streams.

The percentage of cubs compared to yearlings is completely unrealistic. Either the samples are too small, errors in distinguishing between cubs and yearlings are made, or some other factor would give this lopsided figure.

In early July two surveys were flown in the Uganik Bay area along the high alpine ridges. The experiment was too limited to draw any conclusion but it certainly points to a possibility in those areas where concentrations fail to develop on salmon streams.

The composition of each individual flight over four different drainages is given in Table 9. The counts were quite similar to the past two years except the Dog Salmon population was down. This is due to the salmon run which only developed in a portion of one fork of the river. The highest count this year was 15, where last year 67 were counted in one flight.

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

1. Beaver. No report.

2. Land Otter. The otter season opened November 16. Little trapping effort has occurred on the refuge.

3. Meadow Mice. Meadow mice have continued at a very high population for several years now. Their trails crisscross nearly every place and it is difficult to walk any distance without seeing a dozen or more. Around Pinnell's hunting camp in Olga Bay, one of the employees was shooting them with a pistol for sport and reported he killed 125 in four days.

4. Weasels. The weasel population is increasing rapidly with the high meadow mouse population.

TABLE 1

BEAR KILL ON KODIAK ISLAND - SEPTEMBER 1 THROUGH DECEMBER 31, 1960

	Kodiak Refuge				Off Refuge			
	Male	Female	Unknown	Total	Male	Female	Unknown	Total
Trophies								
Unguided Hunts	0	0	0	0	1	2	3	6
Guided Hunts	10	6	0	16	0	0	0	0
Defense of Life and Property	0	0	0	0	2	2	3	7
Scientific Purposes	0	1	0	1	0	0	0	0
Food	2	0	5	7	0	0	0	0
Estimated Unknown Mortality	0	0	6	6	0	0	2	2
Totals	12	7	11	30	3	4	10	15

TABLE 2

BEAR KILL ON KODIAK ISLAND - JANUARY THROUGH DECEMBER, 1960

	Kodiak Refuge				Off Refuge			
	Male	Female	Unknown	Total	Male	Female	Unknown	Total
Trophies								
Unguided Hunts	14	12	8	34	3	5	4	12
Guided Hunts	42	15	1	58	0	0	0	0
Defense of Life and Property	0	0	0	0	2	2	11	15
Scientific Purposes	1	1	0	2	0	0	0	0
Food	4	0	9	13	0	0	0	0
Estimated Unknown Mortality	0	0	14	14	0	0	7	7
Totals	61	28	32	121	5	7	22	34

TABLE 3

KODIAK ISLAND BEAR KILL BY DISTRICT - KNOWN KILL - 1960

District	Jan. - Aug.		Sept. - Dec.		Total	Percent
Red-Sturgeon		2		6	8	6.1
Red River	0		4			
Sturgeon	2		2			
Upper Station		2		0	2	1.5
Deadman		19		0	19	14.5
Old Harbor		3		4	7	5.3
Karluk-Dog		17		9	26	19.9
Dog Salmon	5		1			
Karluk Lake	11		7			
Larsen	1		1			
Uyak		19		4	23	17.6
Uyak Bay	10		2			
Zachar	3		0			
Spiridon	6		2			
Little River		1		0	1	0.8
Uganik-Terror		13		2	15	11.4
Uganik	9		1			
Terror	4					
Uganik I.	0		1			
Off Refuge		19		11	30	22.9
Shearwater	10					
Kupreanoff	0		5			
Chiniak	9		6			
Totals		95		36	131	

TABLE 4

TOTAL BEAR KILL KODIAK ISLAND - 1949 - 1960

	Refuge							Off Refuge						
	NG	G	DLP	SP	F	EUM	Totals	NG	G	DLP	SP	F	EUM	Totals
1949	25	27	1	5	-	17	75	14	0	8	0	0	6	28
1950	30	42	4	0	-	11	87	53	2	3	0	0	9	67
1951	45	65	2	0	-	18	130	14	1	8	0	0	0	23
1952	42	70	1	0	-	33	146	8	0	6	0	0	4	18
1953	45	101	2	2	-	32	182	10	0	11	0	0	9	30
1954	29	84	2	9	6	34	164	8	1	?	0	0	10	18
1955	19	63	3	1	9	28	123	16	1	6	0	0	8	31
1956	23	93	0	0	13	17	146	16	1	8	0	0	7	31
1957	14	79	0	0	6	13	112	8	1	3	0	0	4	16
1958	14	72	1	1	13	20	121	9	2	17	0	0	4	32
1959	24	106	0	0	14	10	154	10	2	13	0	0	6	31
1960	34	58	0	2	13	14	121	12	0	15	0	0	7	34

NG - Non-Guided hunts
G - Guided hunts
DLP - Defense of life or property
SP - Scientific purposes
F - For food
EUM - Estimated unknown mortality

TABLE 5

AVERAGE SIZE OF BEAR HIDES TAKEN DURING SPRING AND FALL HUNTS
BY GUIDED HUNTERS - 1950-1960

	Spring				Fall			
	No. Represented	Average Size	Percent 9' Plus	Percent 10' Plus	No. Represented	Average Size	Percent 9' Plus	Percent 10' Plus
1950	24	9' 4"	71.0	50.0	7	8' 3"	14.0	0.0
1951	44	9'	47.7	34.0	14	8' 2"	14.3	14.3
1952	41	9' 1"	61.0	36.6	21	8' 1"	14.3	9.0
1953	43	9' 1"	60.4	25.6	39	8' 5"	33.3	15.3
1954	68	8' 8"	51.5	26.5	17	8' 7"	29.4	11.8
1955	37	9' 2"	59.4	35.1	27	8' 6"	22.2	11.1
1956	49	8' 8"	55.0	20.4	40	8' 5"	27.5	7.1
1957	55	8' 8"	42.0	27.0	27	9' 1"	30.0	7.4
1958	42	9' 6"	60.0	29.0	27	9'	60.0	15.0
1959	65	8' 11"	47.7	26.2	39	8' 10"	43.6	5.1
1960	38	9' 1"	63.9	13.2	16	8' 10"	43.7	18.7

TABLE 6

AVERAGE SIZE OF BEAR HIDES TAKEN BY GUIDED HUNTERS 1950-1960

Year	No. Bears Represented	Average Size	Percent 9' Plus	Percent 10' Plus
1950	31	9' 1"	58.0	39.0
1951	58	8' 10"	40.0	29.1
1952	62	8' 9"	45.1	27.4
1953	82	8' 9"	47.5	20.7
1954	85	8' 8"	47.0	23.5
1955	64	8' 9"	43.7	25.0
1956	89	8' 7"	42.7	14.6
1957	82	8' 9"	37.8	20.7
1958	69	9' 2"	59.4	18.8
1959	104	8' 11"	46.5	18.3
1960	54	9'	57.4	14.8

TABLE 7

COMPOSITION OF THE KODIAK BEAR POPULATION AS TABULATED BY AERIAL SURVEYS

	1958	1959	1960
Total Bear	421	491	286
Total Cubs	60	68	27
Percent of Total	14.3	13.9	9.0
Sows with Cubs	27	31	12
Average Cub Litter	2.23	2.20	2.25
Total Yearlings	48	108	78
Sows with Yearlings	21	50	33
Percent of Total	11.4	22.0	27.3
Average Litter	2.29	2.16	2.37
Total Bear 2 Years Plus	313	315	181
Percent of Total	74.3	64.1	63.7

TABLE 8

COMPOSITION OF THE KODIAK BEAR POPULATION BY GROUPS - 1960

	Litters			Singles	Total
	(One)	(Two)	(Three)		
Cubs	2	5	5	0	27
Yearlings	5	11	17	0	78
Adults				181*	181
				Total	286

*Includes 45 sows with cubs and yearlings.

TABLE 9

COMPARISON OF AERIAL COMPOSITION AND RELATIVE ABUNDANCE OF BEAR POPULATIONS ON FOUR MAJOR DRAINAGES ON THE KODIAK NATIONAL WILDLIFE REFUGE - 1960.

Drainage	Date of Survey	Morn. or Eve.	Cubs	Percent	Yearlings	Percent	Adults	Percent	Total	Total Flying Time (min.)	Bear per Min. of Flying Time
Sturgeon R.	7/20	E	6		2		35		43	25	
	7/21	M	0		4		13		17	20	
	8/7	E	0		0		4		4	15	
	8/31	M	2		0		3		5	15	
	Totals		8	11.4	6	8.7	55	79.9	69	75	1.09
Red River Lake	7/20	E	0		0		3		3	8	
	7/21	M	0		0		2		2	11	
	8/7	E	0		6		8		14	6	
	8/8	M	0		5		4		9	7	
	8/10	E	3		5		5		13	10	
	8/17	E	0		2		3		5	6	
	Totals		3	6.5	18	39.1	25	54.4	46	48	1.04
Dog Salmon R.	7/20	E	0		2		6		8	4	
	7/21	M	6		3		5		14	6	
	8/7	E	0		3		4		7	10	
	8/10	E	0		0		0		0	10	
	8/17	E	0		4		4		8	10	
	8/30	E	0		0		9		9	15	
	Totals		6	13.0	12	26.1	28	60.9	46	55	1.19
Karluk R.	7/20	E	0		13		14		27	19	
	7/21	M	3		3		6		12	17	
	8/7	E	0		3		6		9	17	
	8/8	M	0		3		4		7	10	
	8/10	E	0		3		3		6	7	
	Totals		3	4.9	25	41.0	33	54.9	61	70	1.15

FIGURE I

SEX COMPOSITION OF THE TROPHY HARVEST ON THE KODIAK NATIONAL WILDLIFE REFUGE, 1950 - 1960.

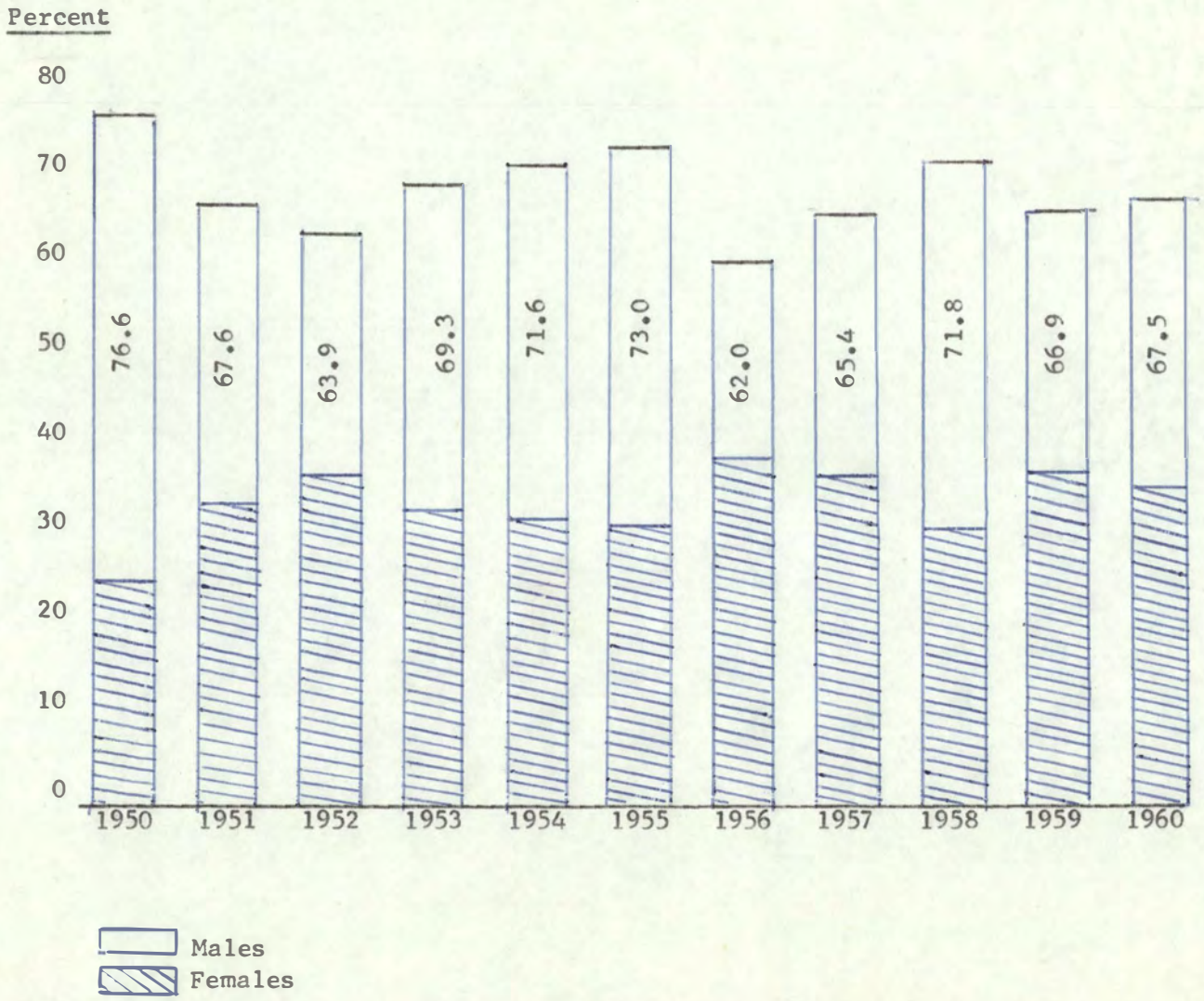


FIGURE II

SEX COMPOSITION OF THE BEAR KILL - KODIAK ISLAND - 1950 - 1960

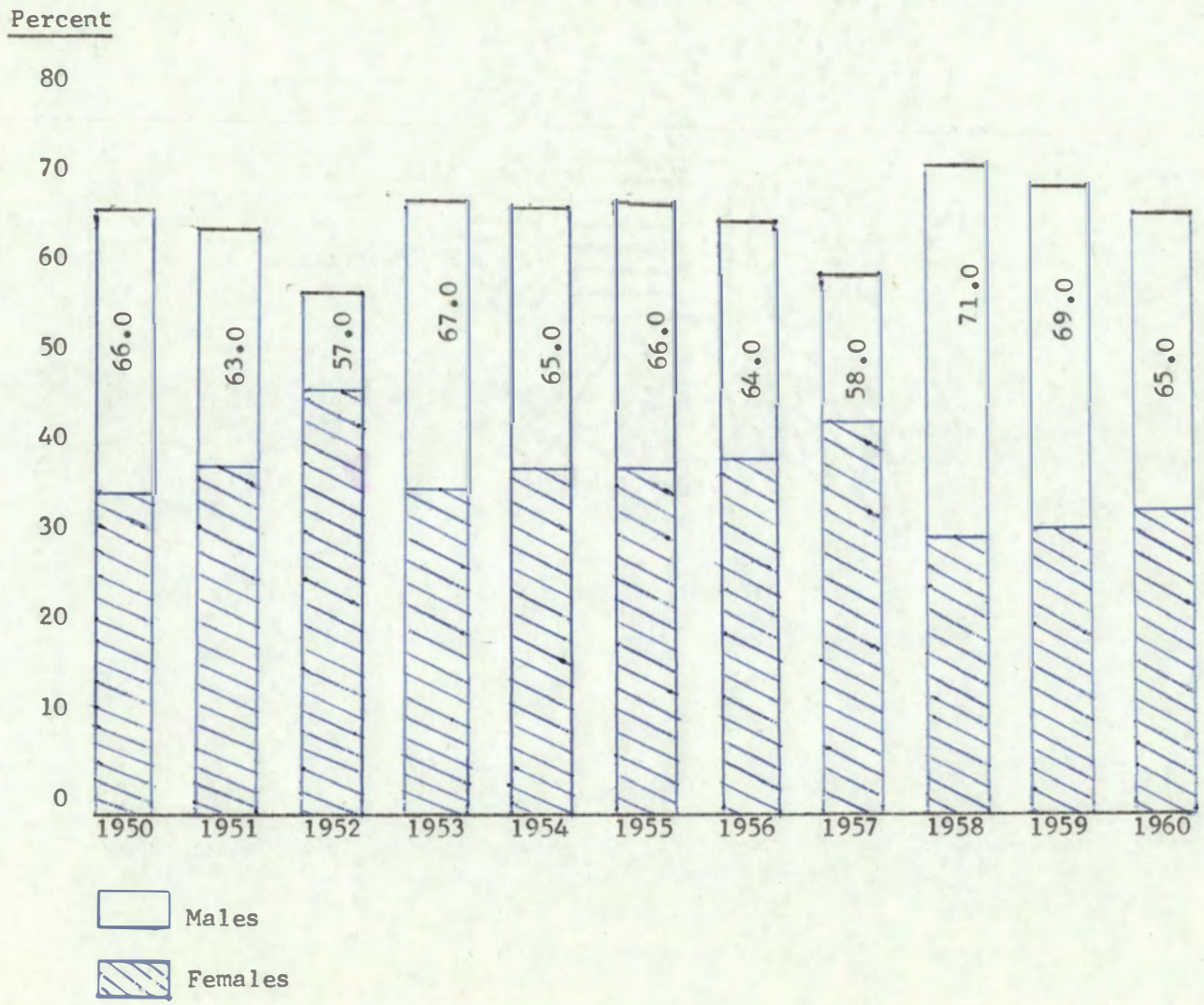
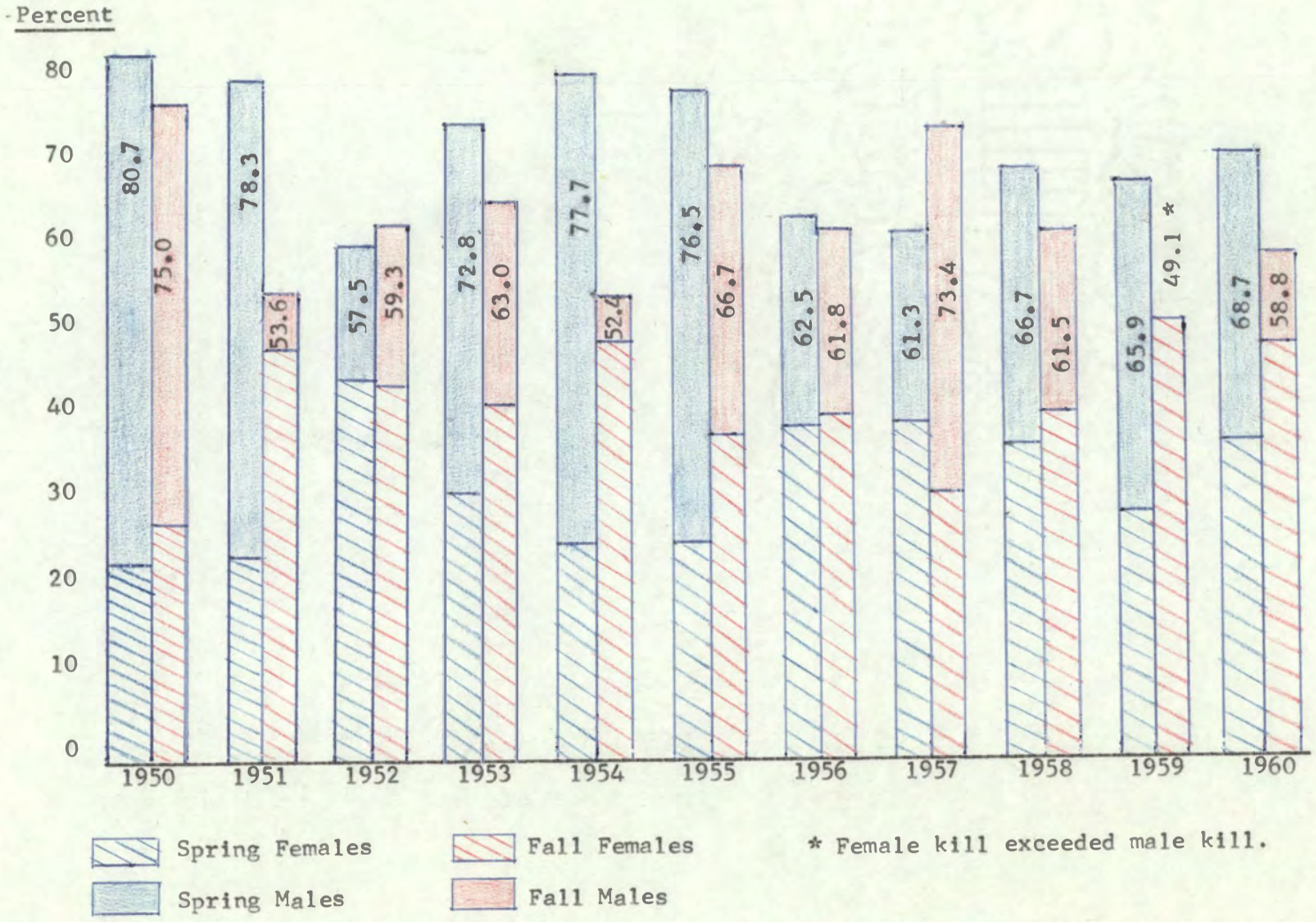


FIGURE III

COMPARISON OF THE SPRING AND FALL SEASON SEX COMPOSITION OF THE TROPHY BEAR HARVEST ON THE KODIAK REFUGE - 1950-1960.



5. Varying Hare. Rabbits, although very common, do not seem to be extremely abundant in any particular area.

E. Hawks, Eagles, Owls, Crows, Ravens and Magpies.

All these species seem to be in their usual numbers. A more comprehensive report on eagles was submitted in September.

F. Other Birds. No report.

G. Fish.

An excellent run of steelhead trout into the Karluk River occurred this fall. Good fishing was available throughout September, October and November. Steelhead were numerous at the mouth of Karluk Lake in early October and nearly every cast produced a strike in early November at the portage. Little sports fishing effort actually occurred though because of the inaccessibility of the river to most people.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development. Except for general maintenance work, no major development was undertaken during the period.

B. Collections and Receipts. None.

C. Fires. No fires occurred during the period.

IV. RESOURCE MANAGEMENT

A. Special Use Permits. No new permits were issued.

B. Other Uses. A cooperative agreement between the Bureau of Sports Fisheries and Wildlife and the Alaska Department of Fish and Game was signed on October 21, 1960, giving the state permission to install a Fishway on the Frazer River falls just below Frazer Lake. Plans are to establish a red salmon run in this lake system.

V. FIELD INVESTIGATIONS

A. Karluk Lake Studies. Nine additional bear were live-trapped in October. Two were recaptures. A total of 56 bears were handled during the season. Some good information on growth rates, movements and general habits was obtained. A special report to cover this study is being prepared.

VI. PUBLIC RELATIONS

A. Recreational Use. Approximately 500 man days were spent on the refuge during the fall period hunting bear. An estimated 400 man days were expended hunting small game and sport fishing provided 150 man days use.

B. Refuge Visitors.

Name	Date	Organization	Business
David Spencer	9/13-16	BSFW	Inspection
Dave Hickock	"	"	"
Eugene Crawford	"	"	"
Sig Olson	10/10-11	ADF&G	Observe bear work
Ron Batchelor	"	"	"
Herb Downing	"	"	"
Bob Burkholder	11/13-16	BSFW	Rat Control Work

C. Refuge Participation. Refuge Manager Troyer gave an illustrated lecture "Live-Trapping Brown Bear" to the local Rotary Club on December 6.

Several short wildlife articles were written for the local Naval Base Conservation Bulletin.

D. Hunting. The following hunting seasons were open during this period:

Bear	October 1 - Continuing
Ptarmigan	August 20 - Continuing
Waterfowl	Sept. 1 - Dec. 3
Deer	August 20 - November 30
Rabbits	No closed season

E. Violations. No individuals were apprehended on the refuge during this period.

VII. OTHER ITEMS

A. Items of Interest. Guide Pinnell took a large male bear in October in the Sturgeon River area. The skull measured 30-8/16" and will probably place about third or fourth in all time Boone & Crockett records.

Submitted by: Will Troyer
Will Troyer
Refuge Manager

January 31, 1961

Approved by: David L. Spencer
Refuge Supervisor

3-1750
Form NR-1
(Rev. March 1953)

WATERFOWL

REFUGE Kodiak National Wildlife Refuge MONTHS OF Sept. 1 TO Dec. 31, 19 60

(1) Species	(2) Weeks of reporting period 1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling	0	0	0	0	20	20	20	30	40	40
Trumpeter										
Geese:										
Canada										
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	600	600	600	800	1,000	1,500	4,000	4,000	4,000	4,000
Black										
Gadwall	200	200	200	400	500	500	500	500	500	500
Baldpate	400	1,000	1,000	1,000	1,000	800	800	400	200	200
Pintail	400	1,000	2,000	2,000	2,000	2,000	2,000	1,000	1,000	1,000
Green-winged teal	500	500	1,000	1,000	1,000	1,000	1,000	1,000	500	500
Blue-winged teal										
Cinnamon teal										
Shoveler										
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup, Greater	0	0	0	0	200	200	400	400	700	700
Goldeneye	600	600	600	1,000	1,000	2,000	2,000	2,000	2,000	3,000
Bufflehead	50	50	50	50	100	100	100	200	200	200
Ruddy										
Other										
Coot:										

3 -175
Cont. NR-1
(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE Kodiak National Wildlife Refuge MONTHS OF Sept. 1 TO Dec. 31, 19 60

(1) Species	(2) Weeks of reporting period 11	12	13	14	15	16	17	18	(3) Estimated waterfowl days use	(4) Production Broods seen	Estimated total
Swans:											
Whistling	40	40	20	10	0	0	0	0	2,000		25
Trumpeter											
Geese:											
Canada											
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other											
Ducks:											
Mallard	4,000	2,000	2,000	1,000	500	500	500	500	224,000		400
Black											
Gadwall	500	400	200	200	200	200	200	200	46,500		0
Baldpate	200	200	100	100	100	0	0	0	52,500		0
Pintail	500	500	200	200	200	200	200	200	110,000		0
Green-winged teal	200	200	200	200	200	100	100	100	65,100		200
Blue-winged teal											
Cinnamon teal											
Shoveler											
Wood											
Redhead											
Ring-necked											
Canvasback											
Scaup	700	700	700	700	700	700	700	700	57,400		0
Goldeneye	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	306,000		400
Bufflehead	200	300	300	300	300	300	300	300	23,800		0
Ruddy											
Other											
Coot:											

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans			
Geese			
Ducks			
Coots			

SUMMARY

Principal feeding areas _____

Principal nesting areas _____

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).

Interior Duplicating Section, Washington, D. C. 37944
1953

3-175.
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge Kodiak National Wildlife Months of ..... to 1950

(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. Water and Marsh Birds:										
II. Shorebirds, Gulls and Terns:										

(over)

(1)	(2)		(3)		(4)		(5)		(6)
III. Doves and Pigeons:									
Mourning dove									
White-winged dove									
IV. Predaceous Birds:									
Golden eagle									
Duck hawk									
Horned owl									
Magpie									
Raven									
Crow									
Bald Eagle			600	Summer			200		

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 Gruiiformes)
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

INT.-DUP. SEC., WASH., D.C.

59317

3-175
Form NR-6
(April 1946)

FIS

Refuge Kodiak National Wildlife Year 1960

Species	Relative Abundance	Sport Fishing		Commercial Fishing		Restocking		Number removed for Restocking
		Man days Fishing	Number Taken	No. of Permits	Pounds Taken	Number Stocked	Area Stocked	
Steelhead Trout	Good	75	150					
Rainbow	"	75	500					
Dolly Varden	Excellent	75	400					

REMARKS:

59322

3-1753
Form NR-3
(June 1945)

BIG GAME

Refuge Kodiak National Wildlife Calendar Year 1960

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population		(8) Sex Ratio
Common Name	Cover types, total Acreage of Habitat	Number	Hunting	For Re-stocking	Sold	For Research	Predation	Disease	Winter Loss	Number	Source	At period of Greatest use	As of Dec. 31	Males to Females
Brown Bear	1,600,000	200	104			3			14			1500	1400	80:100
Sitka Black-tailed Deer	100,000	40	3						10			200	197	50:50
Reindeer	400,000	150	80						60			750	700	50:50

Remarks:

Reported by _____

INSTRUCTIONS

Form NR-3 - BIG GAME

(1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.

(2) DENSITY: 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 total number of young produced on refuge.

(4) REMOVALS: Indicate total number in each category removed during the year.

(5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.

(6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.

(7) TOTAL REFUGE POPULATION: Give the estimated population of <u>each species</u> on the refuge at period of its greatest abundance and also as of Dec. 31.

(8) SEX RATIO: Indicate the percentage of males and females of each species as determined from field observations or through removals.

116000

3-1752
Form N
(April 1946)

UPLAND GAME BIRDS

1613

Refuge Kodiak Wildlife Months of Sept. 1 to Dec. 31, 1960

(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'v'd.	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ptarmigan	400,000 acres	10		8,000	50:50	500			40,000	Estimate

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.