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US FISH & WILDLIFE SERVICE--ALASKA

Spencer

REFUGE NARRATIVE REPORT

September - December, 1955

KENAI NATIONAL MOOSE RANGE

Kenai

Alaska

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U. S. DEPT. OF THE INTERIOR

Fish & Wildlife Service

Kenai, Alaska

US FISH & WILDLIFE SERVICE--ALASKA



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REFUGIUM NARRATIVE REPORT

September - December, 1955

KENAI NATIONAL MOOSE RANGE

Kenai

Alaska

I GENERAL

A. Weather Conditions

Rainfall, depth of snow on ground, and minimum temperatures as recorded at the Kenai CAA Station were as follows:

<u>Day</u>	<u>Rainfall-Snow Depth*</u> (in inches)			<u>Minimum Temperatures</u>		
	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>
1	.05	0	7. *	37	1	- 6
2	.40	0	7.6*	36	1	9
3	.31	0	8. *	31	- 2	2
4	.02	0	8. *	32	4	5
5	.04	0	8. *	32	- 3	- 7
6	.11	0	8. *	33	- 1	-15
7	T	0	6. *	31	2	9
8	0	0	6.4*	25	- 6	- 7
9	0	0	10.3*	17	-11	-24
10	T*	0	10. *	25	- 5	-31
11	.12*	4. *	10. *	30	9	-33
12	T*	5.2*	10.2*	24	19	1
13	0	5.8*	12. *	14	26	15
14	.12*	6.2*	12. *	31	25	5
15	.06*	6. *	12. *	33	15	- 7
16	.37	6.3*	12. *	29	11	- 7
17	1. *	11. *	12.3*	28	21	- 4
18	1. *	9. *	12. *	32	- 7	2
19	1. *	9. *	10. *	24	- 9	11
20	1. *	9. *	7. *	12	-11	-15
21	1. *	9. *	7. *	21	-13	- 6
22	0*	9. *	7. *	33	-21	- 4
23	0*	9. *	7. *	32	-18	-13
24	0*	9. *	7. *	31	-19	-17
25	0*	9. *	7. *	28	-15	-18
26	0*	9. *	7.7*	25	-10	-21
27	0*	9. *	8.5*	24	-18	7
28	0*	9. *	23. *	21	6	11
29	0*	7. *	30. *	13	0	15
30	0*	7. *	31.6*	24	- 6	10
31	0*		22. *	6		2

More detailed weather reports of this station are available in published Weather Bureau Reports.

B. Water Conditions

Normal for the period.

C. Fires

None during the period.

II WILDLIFE

A. Migratory Birds

No detailed survey of waterfowl numbers was made this fall. Reports and observations indicated a normal flight of birds in the Kenai River below Skilak Lake, the Kenai River Flats and the Chickaleon Flats.

B. Upland Game Birds

Spruce grouse:

A substantial amount of the spruce grouse hunting on the Kenai is accomplished by driving the roads in the early morning during the fall to find birds that have gathered on the road for gravel. However very few birds showed up along the highways this fall. It is believed this reflects a lowered population due to damp, rainy weather during the hatching season.

C. Big Game

Moose:

Composition Count: The annual moose composition count was made during the period November 18 to December 6, 1955 by Refuge Manager Troyer, Enforcement Agent Branson and the writer. Aircraft N-705 was used requiring a total of approximately 25 hours for the survey. Thirty-one hundred moose were checked in the Kenai flatlands and in the mountain area along the highway and in Juneau Flats. The northern part of the Caribou Hills was covered. An earlier concentration of around 1,000 moose had moved off the Caribou Hills so that a total of only 200 were checked in this area. The Caribou Hills normally has a high proportion of bulls.

Table I presents the data by areas. Table II gives a comparison of the composition counts over a six year period. Various comments regarding the survey are as follows:

1. Snow and survey conditions were generally good.
2. The survey on some areas was conducted during and after

the November 20-30 hunting season. Consequently some bulls were taken and not tallied. It is estimated that this influenced the survey to the extent of removing approximately 70 bulls prior to the survey in the areas: highway from Quartz Creek to Tin Can Creek, Kenai-Soldotna, and Naptowne.

3. Referring to Table II, bull-cow ratio, there is an apparent drop in this ratio over former years. It is believed this ratio is influenced to some extent by the kill of bulls (item 2) and the fact that only 1/3 to 1/4 of the usual number of moose were checked in the Caribou Hills - this area normally having a very high bull ratio.

4. Referring to Table II, calf-cow ratio, it is noted that this ratio is slightly below that of former years. No known factors have influenced this ratio and it is considered to represent a lowered calf production.

5. The calf-cow ratio is highest in the areas heavily hunted - mountain areas along the highway and lowland areas outside the 1947 burn (includes Kenai-Kasilof and most areas adjacent to the highway). The bull-cow ratio is likewise very low in these areas.

6. Moose were classified in units of 50 by area. The data will be subjected to statistical analysis to appraise sampling accuracy. Stratification by areas seems indicated in the interest of more accurate results.

Hunting:

The seasons on bulls were August 20-September 20 and November 20-30. A hunters report on the big game kill is required by December 10, 1955. To date, 115 kills are reported for the early season and 134 for the November season. There is evidence that a considerable number of the kills are unreported. In the effort to determine the kill on the Kenai Peninsula with greater accuracy, questionnaires are being currently mailed out to a representative number of license holders on the Peninsula. The kill report is considered incomplete at this time.

The location of kills this year follows generally the pattern of previous years and is recorded on a map in this office.

There appeared to be a reduction in the number of resident hunters from areas other than the Peninsula, due possibly to accessible hunting areas to the north of Anchorage. Likewise a reduction was noted in the number of hunters using aircraft, with a consequent slight reduction in the kill in the areas of lakes.

MOOSE COMPOSITION COUNT - KENAI 1955

TABLE I

	1947 Burn	Other Lowland Areas	Above Timberline		All Areas
			Caribou Hills	Mt. Area	
Immature Males	95	32	4	3	134
Adult Males	469	150	133	36	788
Total Males	564	182	137	39	922
Lone Females	819	425	52	220	1516
Female & 1 calf	108	107	6	65	286
Female & 2 calves	10	19	0	4	33
Total Females	937	551	58	289	1835
Total Calves	128	145	6	73	352
Total Moose	1629	878	201	401	3109
Bull-Cow Ratio	60 :100	20.8:100	236:100	13.5:100	50.3 :100
Calf-Cow Ratio	13.6 :100	26.3:100	10.4:100	25.2:100	19.2 :100
% Cows					59
% Calves	7.8	17.6	3	18.2	13.3
% Bulls					29.6
% Female & 1 calf					15.5
% Female & 2 calves					1.8
Ratio Single-Twin calves					8.7 :1

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MOOSE COMPOSITION COUNTS - KENAI 1950-1955

TABLE II

	1950	1951	1952	1953	1954	1955
Immature Males		39	110	115	114	134
Adult Males		502	225	852	705	788
Total Males		541	335	956	819	922
Lone Females		630	533	1174	736	1516
Female & 1 calf		132	122	343	224	286
Female & 2 calves		26	8	28	15	33
Total Females		788	663	1545	975	1835
Total Calves		184	138	399	254	352
Total Moose Checked		1513	1136	2900	2048	3109
Bull-Cow Ratio		69:100	50:100	61.2 :100	84:100	50.3 :100
Calf-Cow Ratio		23:100	21:100	25.6 :100	27.1 :100	19.2 :100
% Cows		52	59	53	47.6	59
% Calves		12.1	12.1	13.8	12.4	11.3
% Bulls		36	29	33	40.0	29.6
% Females & 1 calf		17	10.8	22	24	15.5
% Females & 2 calves		3.3	.7	1.8	1.5	1.8
Ratio Single-Twins		5.1	15.1	12.2 :1	14.9 :1	8.7 :1

1158 Moose checked at 76 or 6.6% calves. Survey made too late to get bull and cow figures.

By the November season, concentration areas were noted as follows: Mystery Creek-Moose River, Funny River, head of Deep Creek in the Caribou Hills, and the Kenai-Kasilof-Cohoe area. Of these four areas, only the Kenai-Kasilof-Cohoe area was hunted. Here two days previous to the season the percentage of bulls was found to be 18% in 400 animals. Heavy hunting further reduced this ratio by half. Reduction in percentage of bulls from 21 to 3%.

A composition count following the November season made along the mountain highway from Cooper Landing to Tin Can Creek disclosed 6 bulls in 200 moose. Here, moose are readily visible on the mountain slopes from the road and the estimated take of 46 bulls nearly eliminated the bull population.

Heavy hunting for bulls in the two areas mentioned above and in the southern part of the Caribou Hills will reduce hunter success in these areas in years immediately following because of a reduction in the number of bulls that habitually range in here. Viewing the entire herd, it appears that a kill approximately equal to the yearly crop of bulls has been taken.

Miscellaneous Mortality:

Four cows were shot illegally during the November season. Six moose had been struck by cars and trucks in the mountains on the Seward-Anchorage Highway.

Range Conditions:

See under Field Investigations - V

Mountain Sheep

No Report. No open season on the Kenai in 1955.

Mountain Goat

Season - August 20 - October 31, 1955. No goats were known to have been taken on the Moose Range this year.

Brown Bear

One brown bear was shot on Swanson River about November 18, 1955. Three brown bear (cow and 2 cubs) shot south of Coho and unrecorded last report.

One brown bear shot on Birchwood Creek during the September moose season.

One brown bear shot on Lower Russian River in early September.

Four brown bear (cow and 3 yearling cubs) were seen along the Kenai River two miles below Skilak Lake several times in early October.

Black Bear

Eleven black bear were known to have been taken on the Moose Range - all during the early moose season.

Observations indicated a relatively high population of black bear.

Other Mammals

Otter and mink sign continued relatively abundant.

Marten sign was noted on a ridge approximately two miles north of Bottinentnin Lake on November 25. Marten had been considered extirpated from the western side of the Kenai Peninsula for a period of thirty or more years. This may mark their reestablishment on the western side.

Coyote continued numerous with most sign noted southeast of Skilak Lake and in the Quartz Creek area.

Wolverine and Lynx sign was also noted southeast of Skilak Lake. Lynx appear generally low in population.

Snowshoe hare continues low in population, although widely distributed.

III REFUGE DEVELOPMENT

A. Physical Development

Improvement work was done on the Kenai Secondary Quarters to the extent of insulating ends of the building and installing larger windows and cedar siding.

IV ECONOMIC USE OF REFUGE

C. Fur Harvest

Seasons November 16-January 31, 1956 - mink, marten, land otter, fox, lynx, weasel, and wolverine.

Only two trappers were known to be out during this period, one of these being apprehended for trapping before the season.

D. Timber Removal

The following permits were issued during the period:

20654 9/22 Carl Clemson Free Use Fuel Wood

20655	10/10	Alex Bolam	Free Use	Fuel Wood
20656	10/10	Fuller & O'Brien	Free Use	Fuel Wood
20657	10/21	Melvin Tachick	\$ 4.50	3,000' Saw Timber
20658	12/1	Anch. Mission Home	16.00	320 Xmas Trees
20659	12/2	Kermit Douse	37.50	25,000' Saw Timber

V FIELD INVESTIGATIONS

A. Permanent Forage Plots

The annual fall measurement of the yearly growth on these plots was measured prior to use by moose on October 16-17, 1955.

Table III summarizes these data for the twelve plots. Figure 1 presents graphically the total annual growths for the principal forage species for the period 1952-1955.

This study was started with the following objectives:

1. To provide a relatively accurate measure of the yearly utilization of key browse species by moose.
2. To provide a long term measurement of vegetative changes in winter range areas. Only the initial record has been made of the vegetation on the plots. It is planned that this will be done at five year intervals.
3. To study the effect of utilization on the growth rate of browse plants.

The study is not as large in scope as desirable. However, it requires 8-9 man days a year field work and 2-3 days for compilation of data. The study is subject to a number of influences as follows:

1. Growing season weather as it influences the growth rate.
2. Competition through the progress of succession.
3. Variability in age of plants:
Plants in the Kenai-Kasilof area in general are birch 15-30 years of age and old willow which in some cases has been revegetating from the same root system over a period of 40-50 years.
The 1947 burn plots consists of aspen root suckers and willow seedling and sprout growth that was 4-6 years of age in 1952.
4. Local influences of soil and moisture conditions. Because of these influences, possibly of considerable magnitude, no short term conclusions can be drawn regarding the effect of varying degrees of browsing on the growth rate, hence objective #3 may not be accomplished. However, over a long term period the trend in quantity of available forage should be apparent.

PERMANENT FORAGE PLOTS

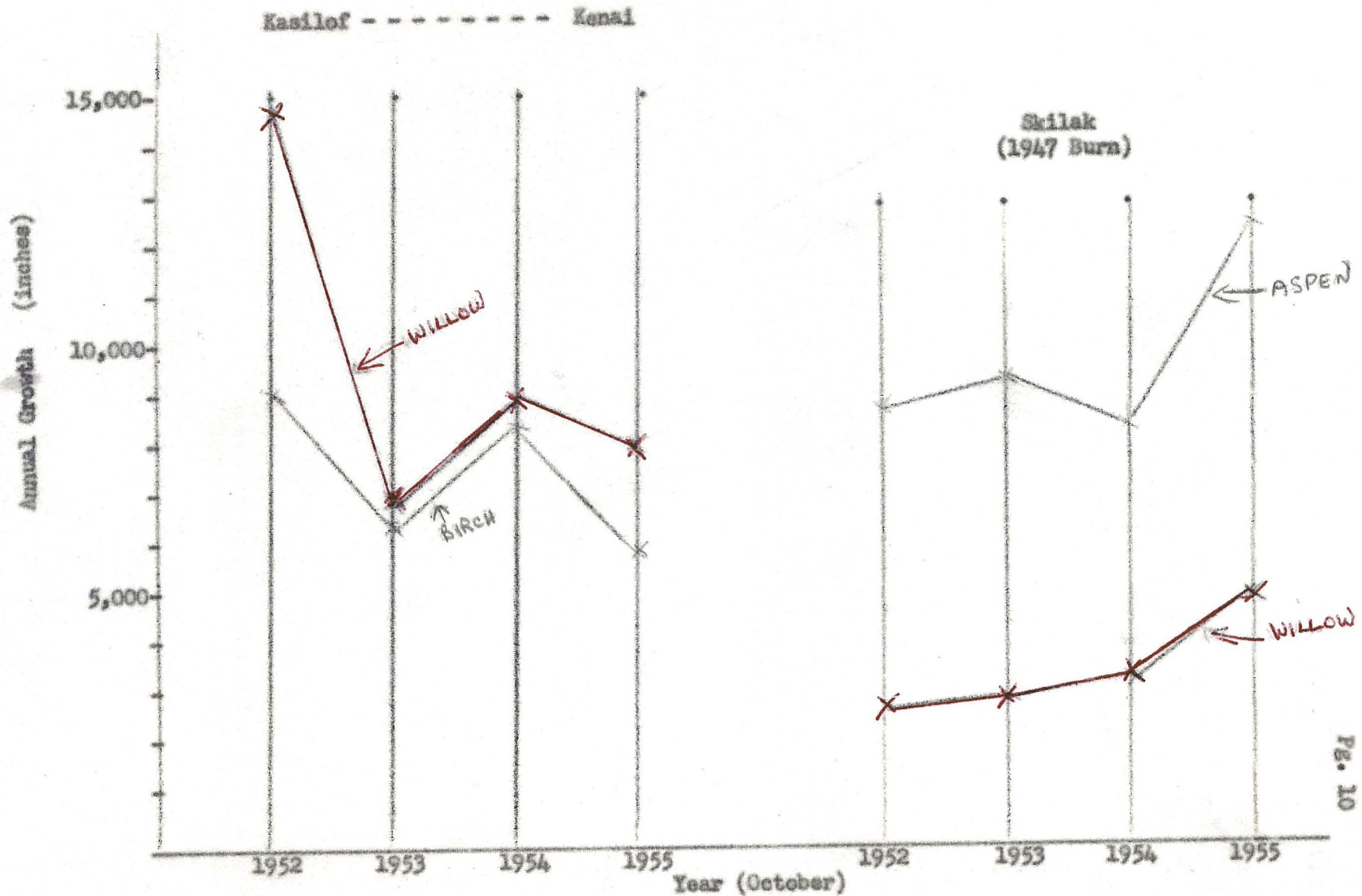
TABLE III

Annual Growth

(Measured October 16 - 17, 1955)

<u>Plot No.</u>	<u>Location</u>	<u>No. Leaders</u>	<u>Total Length</u> <u>Annual Growth</u>		
<u>Willow</u>					
1.	"	Kasilof	110		720
2.	"	"	100		544
3.	"	"	163		956
4.	"	"	202		1760
5.	"	"	294		2244
6.	"	"	87		846
9.	"	Kenai	91		480
8.	"	Skilak	243		3848
10.	"	"	129	1,419	1100
					12,498
					8.81
<u>Kenai Birch</u>					
4.	"	Kasilof	211		1902
5.	"	"	170		1608
6.	"	"	185		1840
9.	"	Kenai	21	587	194
					5,544
					9.41
<u>Dwarf Birch</u>					
9.	"	Kenai	61		384
					6.30
<u>Aspen</u>					
1.	"	Kasilof	6		32
5.	"	"	11		140
7.	"	Skilak	500		3374
8.	"	"	697		2124
10.	"	"	377		2014
11.	"	"	588		2800
12.	"	"	475		2207
				2,654	12,691
					4.78
<u>Cottonwood</u>					
1.	"	Kasilof	31		178
2.	"	"	31		178
				4,752	31,295
					5.74
					6.59

Annual Growth



Willow on all plots and birch at Kasilof has been subjected to heavy use over a long period of years. The Skilak plots have been utilized lightly with the exception of the winter of 1953-1954 when use was heavy. In general, the Kasilof plots show a downward trend whereas Skilak plots show a slight increase in growth.

VI PUBLIC RELATIONS

A. Recreational Uses

One photographic party was in the Funny River country in September photographing moose (Alaska Game Commissioner ^{W.} A. Simon).

Other recreational use consisted of hunting and fishing as recorded elsewhere in this report.

B. Refuge Visitors

C. Rhode	FWS	Inspection	1 day
W. Troyer	FWS	Moose Survey	12 days

Anchorage FWS personnel, Alaska Road Commission, Tenth Rescue Squadron, a detachment from Ft. Richardson, and a large number of local people participated in the search for Petersen and Watson at Skilak Lake during September.

D. Hunting & Fishing

Hunting was as outlined under Moose.

A limited amount of ice fishing was done in late December on Skilak Lake.

VII OTHER ITEMS

A. Items of Interest

Carl Knos, Biological Aid, terminated as of October 22, 1955.
Rex Williams, Biological Aid, terminated as of December 10, 1955.

Submitted by: David L. Spencer

January 6, 1956

Approved by: _____

Permanent - Forage Plots

Annual Growth

Kasilof - Kenai

Skilak
(1947 Burn)

