ALASKA DEPARTMENT OF FISH AND GAME
JUNEAU, ALASKA

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FURBEARER REPORT

by

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Volume VI
Annual Project Segment Report
Federal Aid in Wildlife Restoration
Project W-6-R-5,6, Work Plan J

The subject matter contained within these reports is often fragmentary in nature and the findings may not be conclusive; consequently, permission to publish the contents is withheld pending permission of the Department of Fish and Game.

(Printed April 1965)

WORK PLAN SEGMENT REPORT
FEDERAL AID IN WILDLIFE RESTORATION

STATE: Alaska

PROJECT NO.: W-6-R-5 and 6 TITLE: Alaska Wildlife Investigations

WORK PLAN: J TITLE: Furbearer Studies

JOB NO.: 1 TITLE: Beaver Management Studies

2 TITLE: Wolf Management Studies

3 TITLE: Wolverine and Lynx Productivity and Breeding Biology Studies

4 TITLE: Selected Mink Population Studies

5 TITLE: Southeastern Mink Management Studies

PERIOD COVERED: January 1, 1964 to December 31, 1964

ABSTRACT

Beaver

The 1963-64 beaver season was the poorest since 1957. The harvest of 14,046 beaver is 7,255 pelts below the seven year average, 1957-1963, of 21,301. A number of factors other than the abundance of beaver influence the success and interest in beaver trapping; however, in several important beaver producing management units, decreased production may be related to the reduced beaver populations. The beaver populations in the affected units may have been lowered by severe floods which occurred in consecutive years and over exploitation of the residual populations.

Wolf

Harvest statistics obtained from 713 wolves presented for bounty indicate that trappers harvested most of the wolves. Aerial hunting was not generally successful in Interior Alaska in 1963-64 due to lack of deep, soft snow accumulations.

Productivity as measured by the number of pups in the harvest varied considerably from area to area. Pups comprised 65 per cent of the harvest in the Arctic region and 39 per cent in the Interior region.

Analysis of specimens obtained from carcass collections reveal that most female wolves produce their first litter as two-year-olds, produce litters every year and have an average of six pups per litter. Mortality factors affecting survival of pups are not known.

Wolverine and Lynx

These studies are still in the specimen collection phase, 119 wolverine carcasses and 1806 lynx carcasses were obtained during this reporting period. The results of specimen examinations are being tabulated for final analysis and publication of pertinent data.

Mink (Central)

Collections of specimen materials were obtained from a number of areas within Alaska and from MacKenzie Delta, Canada. Additional material is needed from the Bristol Bay and Lower Nushagak River areas.

Mink (Southeast)

This activity was activated in the Southeast during October of this segment. Mechanizations were set forth to measure trapping pressures, economic values, and obtain a sex and age analysis of the mink harvest. Findings are fragmentary as post trapping data are currently being received and analyzed. In general, the 1964-65 trapping season appeared to be unfavorable to most trappers due to abnormally cold weather and deep snow. Severe weather conditions coupled with low fur prices resulted in minimum trapping effort and harvest. Management implications from this study indicate the following: trapping pressure is decreasing; fur income represents only a minor segment of the trapper's total income; mink fur is generally prime when taken in bounds of the current established season; and most of the trappers favor successive seasons instead of the alternate seasons.

RECOMMENDATIONS

Beaver

The season or the bag limit in Unit 21 should be reduced. The analysis of beaver affidavits should be based on a tributary system in Units 19 and 21.

Wolf

Some considerations should be made to restrict aerial hunting in Unit 16.

Wolverine and Lynx

None pertaining to management.

Mink (Southeast)

Based upon the low yield of the 1964-65 Southeastern Alaska fur season, a season is recommended for 1965-66. It is further recommended that this study be continued through the next fur season in order to continue evaluations of the fur harvest and obtain comparable data.

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PERIOD COVERED: January 1, 1964 to December 31, 1964

OBJECTIVES

Beaver

To estimate beaver population levels, trends and rates of exploitation.

Wolf

To determine productivity, survival, population composition and population identity of wolves.

To determine wolf population levels and factors influencing these levels.

To obtain information pertinent to predator-prey relationships and movements of wolf packs.

Wolverine and Lynx

To obtain information on the breeding biology and productivity of these species.

Mink

To continue cataloging the various populations of mink in Alaska with the ultimate objective of discovering factors responsible for differences in productivity, characteristics affecting value, and habitat requirements.

To compile information on the habitat requirements of mink in different areas of Alaska.

To clarify the taxonomic status of Mustela vicon ingens.

To evaluate and formulate procedures for the management of mink in Southeastern Alaska in order to keep abreast of changing economic conditions influencing the rate of harvest.

TECHNIQUES

Beaver

Population status was measured through analysis of data obtained from the beaver affidavit program. State regulations require that all beaver skins be presented at a Department of Fish and Game office for inspection. At this time the trapper is interviewed to determine trapping success and serially numbered metal tags are placed on each beaver pelt after it has been measured.

FINDINGS

Beaver

The 1964 beaver season was the poorest since season and bag limit liberalizations were inaugurated in 1957. The harvest of 14,146 beaver was 7,255 pelts below the seven year average, 1957-1963, of 21,301 (Table 1).

The average catch per trapper, 8.84 beaver, also was significantly below the seven year average of 12.$^{+}$. The trend of reduced harvest was not consistent throughout the State nor were the auxiliary harvest indicators of pelt sizes consistent. Interpretation of the meaning of the reduced harvest is complex and frequently related to factors other than the abundance of beaver. The success of the commercial fishing season, snow and ice depths, average temperatures during the trapping season, National Guard encampments and fur market prospects all play important but unevaluated roles in

Table 1. BEAVER AFFIDAVIT ANALYSIS - 1957-1964

Game Mgt. Unit	Year	Limit	Percent Kits (Under 54")	Percent Kits and Yearlings (Under 59")	Percent Adults (Over 59")	Total No. of Beaver	No. of Trappers	Av. No. Beaver/ Trapper	
1	1957	No open season							
	1958	15	24.84	35.75	64.25	330	38	8.68	
	1959	15	24.63	37.67	62.33	69	8	8.62	
	1960	15	6.89	31.03	68.97	115	14	8.21	
	1961	15	28.5	45.9	54.0	99	12	8.25	
	1962	15	21.9	34.2	65.8	42	5	8.4	
	1963	15	12.4	31.3	68.6	180	20	9	
	1964	50	16.1	32.7	67.1	204	17	12	
2	1957	No open season							
	1958	15	22.73	36.36	63.74	22	10	2.20	
	1959	15	22.22	37.03	62.97	27	2	13.50	
	1960	15				75	13	5.77	
	1961	15	25.0	39.2	58.9	56	8	7.0	
	1962	Season Open - No animals taken							
	1963	15	21.1	53.7	46.1	52	5	10.4	
	1964	50	21.65	49.7	50.3	157	12	13.09	
3	1957	No open season							
	1958	15	0.00	0.00	100.0	115	13	8.35	
	1959	15	6.25	6.25	93.75	16	3	5.33	
	1960	15				47	17	2.77	
	1961	15							
	1962	Season Open - No animals taken							
	1963	15	31.6	57.9	42.1	21	5	4.2	
	1964	50	22.5	42.5	57.5	40	3	13.33	
4 1/	1962	15	30.5	56.8	33.2	36	3	12.00	
	1963					16	1	16.00	*over-limit?
	1964	50							

Beaver Affidavit Analysis - 1957-1964 (Continued)

Game Mgt. Unit	Year	Limit	Percent Kits (Under 54")	Percent Kits and Yearlings (Under 59")	Percent Adults (Over 59")	Total No. of Beaver	No. of Trappers	Av. No. Beaver/ Trapper
6	1957	20	24.08	40.00	60.00	245	16	15.31
	1958	20	12.88	28.03	71.97	264	15	17.60
	1959	20	14.28	20.23	79.76	168	11	15.27
	1960	40	14.28	35.71	64.29	304	15	20.26
	1961	40	13.2	31.0	68.9	264	15	17.6
	1962	40	13.5	27.1	72.9	155	10	15.5
	1963	50	13.7	24.4	75.6	305	11	27.7
	1964	50	12.3	29.0	71.0	155	8	19.37
7	1957	20	22.66	47.99	52.01	75		5.36
	1958	20	15.74	34.84	65.16	89	18	4.94
	1959	20	34.0	52.27	47.73	44	8	5.5
	1960	15	17.18	35.38	64.62	393	67	5.86
	1961	15	15.8	22.4	66.0	236	39	6.0
	1962	15	17.3	36.0	64.+	259	57	4.5
	1963	20	24.5	45.2	54.7	106	15	7.1
	1964	20	30.8	61.5	38.5	13	4	3.25
8	1957	15	23.57	32.86	67.14	140	15	9.33
	1958	20	21.28	35.74	64.26	235	24	9.79
	1959	20	22.72	40.90	59.10	154	12	12.85
	1960	40	28.41	47.72	52.28	369	25	14.76
	1961	No limit	20.1	34.4	64.9	154	10	15.4
	1962	No limit	18.3	33.3	56.7	185	13	14.2
	1963	No limit	22.7	42.4	55.6	268	22	12.2
	1964	No limit	23.3	48.6	51.4	210	18	11.66
9	1957	15	16.95	25.94	74.06	1469	138	10.64
	1958	15	22.44	34.17	65.83	1515	141	11.00
	1959	15	23.94	34.72	65.28	1975	170	11.61
	1960	20	21.90	32.25	67.75	1768	115	15.37

Beaver Affidavit Analysis - 1957-1964 (Continued)

Game Mgt. Unit	Year	Limit	Percent Kits (Under 54")	Percent Kits and Yearlings (Under 59")	Percent Adults (Over 59")	Total No. of Beaver	No. of Trappers	Av. No. Beaver/ Trapper
9	1961	20	19.8	32.0	67.3	2319	161	14.4
	1962	15	28.3	38.0	62.0	933	82	11.3
	1963	15	19.9	34.9	65.1	2030	161	12.9
	1964	15	26.3	37.9	62.0	951	91	10.45
11	1957	20	12.82	15.38	84.62	39	5	7.80
	1958	20	0.00	0.00	100.00	20	4	5.00
	1959	20	8.47	16.94	83.06	59	5	11.80
	1960	20	35.00	50.00	50.00	20	2	10.00
	1961	20	5.0	30.0	70.0	20	2	10.0
	1962	20				2	1	2.0
	1963	20				16	3	5.3
	1964	20	5.13	30.8	69.2	39	6	6.5
12	1957	5	2.83	13.21	86.79	106	40	2.65
	1958	15	10.51	13.94	86.06	409	85	4.81
	1959	15	11.58	15.12	84.86	423	80	5.28
	1960	15	17.18	35.38	64.62	393	67	5.86
	1961	15	15.8	22.4	66.0	236	39	6.0
	1962	15	17.3	36.0	64.+	259	57	4.5
	1963	15	22.7	32.5	67.5	255	67	3.8
	1964	15	16.0	33.2	66.3	205	63	3.25
13	1957	20	20.00	23.48	71.52	165	24	6.88
	1958	20	12.93	22.46	71.54	473	59	8.00
	1959	20	16.36	28.30	71.70	385	37	10.40
	1960	20	23.18	36.94	63.06	507	59	8.59
	1961	20	23.9	44.3	55.0	206	21	9.8
	1962	20	27.5	34.0	66.0	98	13	7.5
	1963	20	19.1	40.6	59.4	335	51	6.6
	1964	20	20.7	34.8	64.1	376	43	8.74

Beaver Afficavit Analysis - 1957-1964 (Continued)

Game Mgt. Unit	Year	Limit	Percent Kits (Under 54")	Percent Kits and Yearlings (Under 59")	Percent Adults (Over 59")	Total No. of Beaver	No. of Trappers	Av. No. Beaver/ Trapper
14	1957	20	17.65	36.17	63.83	923	84	10.99
	1958	40	16.36	30.65	69.35	1204	96	12.58
	1959	40	27.20	50.69	49.31	647	49	13.20
	1960	40	24.14	43.41	56.69	844	68	12.41
	1961	40	23.9	44.3	55.0	877	69	9.8
	1962	40	22.3	45.9	54.1	493	38	12.9
	1963	40	24.9	48.1	51.9	789	83	9.5
	1964	40	21.22	46.0	54.0	655	60	10.91
15	1957	20	17.16	37.95	62.05	303	26	11.65
	1958	40	16.39	27.50	72.50	360	30	12.00
	1959	40	29.76	46.42	53.58	168	15	11.20
	1960	40	17.50	35.28	64.72	379	20	18.95
	1961	40	15.1	33.9	66.1	438	20	21.9
	1962	40	17.7	33.9	66.1	180	14	12.8
	1963	40	18.1	33.2	66.8	254	25	10.1
	1964	40	19.4	36.3	63.7	237	24	9.87
16	1957	20	19.35	41.93	58.07	62	5	12.40
	1958	40	13.63	25.70	74.30	1148	45	25.51
	1959	40	22.09	39.69	60.29	1715	72	23.81
	1960	40	15.08	35.29	64.71	2200	95	23.16
	1961	40	20.9	37.9	62.3	1309	63	20.7
	1962	40	34.3	43.3	56.7	524	34	15.4
	1963	40	18.1	38.3	61.7	1305	66	19.7
	1964	40	19.54	38.7	62.3	798	39	20.46
17[2/]	1957	10	22.89	36.79	63.21	367	46	7.98
	1958	15	19.12	33.02	66.98	3165	263	12.02
	1959	10	19.63	29.42	70.58	3245	369	8.79

Beaver Affidavit Analysis - 1957-1964 (Continued)

Game Mgt. Unit	Year	Limit	Percent Kits (Under 54")	Percent Kits and Yearlings (Under 59")	Percent Adults (Over 59")	Total No. of Beaver	No. of Trappers	Av. No. Beaver/ Trapper
17[2/]	1960	15	24.29	34.19	65.81	3721	279	13.34
	1961	15	23.1	24.7	65.2	2849	230	12.3
	1962	15	29.5	41.5	58.5	1903	175	10.8
	1963	15	23.3	36.8	63.2	2172	189	11.5
	1964	15	28.36	38.4	61.6	1766	180	9.8
18	1957	No open season						
	1958	No open season						
	1959	10	31.20	45.08	54.92	2766	357	7.74
	1960	10	25.73	38.67	61.33	2013	260	7.74
	1961	10	28.9	44.6	55.3	1428	187	7.6
	1962	10	34.9	45.1	54.8	817	116	7.0
	1963	10	33.3	50.1	49.9	1503	202	7.44
	1964	10	30.33	44.7	54.9	666	116	5.74
19	1957	15	12.53	24.84	75.16	2200	200	11.09
	1958	20	15.52	23.96	76.04	3852	256	15.05
	1959	20	16.31	29.32	70.68	4034	284	14.20
	1960	20	16.67	29.96	70.04	3128	210	14.89
	1961	20	17.5	30.8	69.1	4576	307	14.9
	1962	20	19.7	35.2	65.8	3035	219	13.9
	1963	15	20.0	34.9	65.1	2250	196	11.4
	1964	15*	20.0	32.6	67.3	2148	176	12.2
20	1957	15	8.91	16.59	83.41	641	74	8.80
	1958	20	8.67	19.74	80.26	1869	152	12.30

*Portion of Unit 19 (above Medfra) had limit of 25 in 1964.

Beaver Affidavit Analysis - 1957-1964 (Continued)

Game Mgt. Unit	Year	Limit	Percent Kits (Under 54")	Percent Kits and Yearlings (Under 59")	Percent Adults (Over 59")	Total No. of Beaver	No. of Trappers	Av. No. Beaver/ Trapper
20	1959	20	4.10	17.70	82.30	1242	119	10.43
	1960	20	9.13	23.34	76.66	1540	145	10.62
	1961	20	11.4	24.5	75.5	1435	129	11.1
	1962	20	15.8	25.7	74.1	1139	96	10.2
	1963	20	9.6	21.7	78.3	1514	133	13.3
	1964	25	12.2	23.0	76.0	2176	194	11.2
21	1957	15	12.33	23.41	76.59	5460	490	11.14
	1958	20	11.03	22.61	77.39	6871	499	13.77
	1959	20	12.68	26.23	73.77	5771	425	13.57
	1960	20	11.97	25.85	74.15	5945	381	15.60
	1961	20	12.8	28.7	71.1	5488	356	15.4
	1962	20	13.6	32.4	67.6	3833	288	13.3
	1963	20	14.5	29.1	70.9	4638	343	13.5
	1964	20	16.0	31.3	68.6	2067	212	9.75
22	1957	No open season						
	1958	10	45.24	54.76	45.24	42	10	4.20
	1959	10	18.75	35.41	64.59	48	14	3.42
	1960	10	25.81	41.93	58.07	62	12	5.17
	1961	10	4.7	14.2	85.7	21	3	7.0
	1962	10	26.1	38.2	61.8	42	7	6.0
	1963	20						
	1964	50	19.4	27.6	72.4	98	14	7.0
23	1957	15	0.0	0.0	100.0	5	1	5.0
	1958	No open season						
	1959	15				0	0	
	1960	15				0	0	
	1961	15	12.5	50.0	50.0	8	1	8.0

Beaver Affidavit Analysis - 1957-1964 (Continued)

Game Mgt. Unit	Year	Limit	Percent Kits (Under 54")	Percent Kits and Yearlings (Under 59")	Percent Adults (Over 59")	Total No. of Beaver	No. of Trappers	Av. No. Beaver/ Trapper
23	1962	15		30.0	70.0	7	2	3.5
	1963	15				3	1	3
	1964	15						
24	1957	20	8.21	22.01	77.99	1486	96	15.48
	1958	25	6.17	23.19	76.81	1841	105	17.53
	1959	25	6.76	17.63	82.37	1434	97	14.78
	1960	25	12.96	30.16	69.84	1375	79	17.41
	1961	25	11.1	30.9	68.5	1333	88	15.1
	1962	25	8.2	27.8	72.2	1066	71	15.0
	1963	25	9.5	27.9	72.1	965	70	13.7
	1964	15	6.9	19.0	80.6	578	64	9.03
25	1957	15	21.74	31.58	68.42	630	77	8.18
	1958	15	25.92	37.12	62.88	625	77	8.12
	1959	15	21.10	38.34	61.66	725	86	8.43
	1960	15	17.26	33.25	66.75	788	61	12.92
	1961	15	13.4	30.2	69.9	644	70	9.2
	1962	15	15.8	29.1	70.9	430	44	9.8
	1963	20	14.6	27.9	72.1	464	63	7.4
	1964	20	18.44	30.9	69.1	488	63	7.74
Total	1957		13.79	25.80	74.20	14,344	1351	10.62
	1958		**14.15**	**26.15**	73.85	24,484	1940	12.62
	1959		17.88	30.96	69.04	25,115	2223	11.29
	1960		16.42	29.37	70.63	26,504	2028	13.07
	1961		17.6	32.3	67.4	23,859	1800	13.2
	1962		19.1	33.4	66.6	15,187	1289	11.7
	1963		18.5	34.0	66.0	19,619	1739	11.3
	1964		19.47	33.6	66.3	14,046	1589	8.84

1. Either no open season or no beaver taken during 1957-1961 in Units 4, 5, 10, and 26.
2. Part of Unit 17 closed in 1957 and 1958.

7 year average (1957-63) 21,301
7 year range (1957-63) 14,344-26,504

the annual harvest of beaver. Still the abundance of beaver must also fluctuate and examination of the major production unit (Game Management Unit 21) suggests a population decline. An average of 5,429 pelts, 25 per cent of the statewide average annual production, were produced annually from 1957-1963 in Unit 21. In 1964 the harvest dropped 55 per cent. The causes are not known but may reflect the effects of consecutive early spring floods. No other major unit shows a comparable sudden change in production although Units 17 and 19 may reflect excessive exploitation.

Production in Unit 24 has consistently declined since 1958. Here, however, the number of trappers has also declined and the size composition of the pelts has remained excellent.

TECHNIQUES

Wolf

Wolf data collections consisted of carcass collections from trappers, bounty and recreational hunters, and the bounty information sheet, a form completed whenever a wolf is presented for bounty.

FINDINGS

Wolf

Harvest

Harvest statistics were obtained from 713 wolves killed and presented for bounty during the period July 1, 1963 and June 30,1964 (Table 2).

The categories of hunters must be considered tentative. Categorizing hunters was difficult because determination of their motivation after they hunted is at best imprecise.

All hunters and trappers living in outlying areas and deriving a portion of their livelihood from hunting or trapping and all hunters utilizing aircraft for taking large numbers of wolves are considered professionals. The incidental category is comprised of individuals who killed a wolf while primarily involved in some activity other than hunting wolves. The recreational category is made up of those individuals who stated that they went afield for the sole purpose of hunting wolves. Generally these individuals

Table 2. Statewide Wolf Bounty Analysis, July 1, 1963 - June 30, 1964.

Class of Hunter

1. Professional
2. Incidental
3. Recreational
4. Unknown

Method of Take

1. Ground Shooting
2. Trapping
3. Snaring
4. Digging out
5. Aerial Shoot
6. Unknown

Unit	Total Wolves Taken	Class of Hunter (1)	(2)	(3)	Sex ♂	♀	Color Bl	Br	G	W	Method of Take (1)	(2)	(3)	(4)	(5)	(6)	(1-2)
1	36	20	16	0	12	24	9	8	17	0	11	24	0	0	0	1	0
2	53	31	22	0	29	21	4	28	15	0	16	24	0	0	0	6	7
3	37	25	12	0	15	21	5	2	30	0	15	20	1	0	0	1	0
5	1	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0
6	1	0	1	0	1	0	1	0	0	0	0	1	0	0	0	0	0
9	16	9	6	1	11	5	3	2	11	0	10	0	1	0	4	1	0
11	24	15	9	0	13	11	8	1	13	1	1	11	0	0	9	3	0
12	17	15	1	1	14	3	4	0	13	0	6	9	1	0	1	0	0
14	8	5	2	0	4	4	0	0	7	0	3	0	5	0	0	0	0
16	21	16	2	2	15	6	6	0	11	0	3	3	0	0	14	1	0
17	14	14	0	0	9	5	6	0	8	0	0	0	0	0	14	0	0
19	53	47	6	0	27	24	9	0	44	0	9	4	1	0	37	1	1
20	237	168	33	28	124	101	70	3	160	1	49	82	94	0	9	3	0
21	43	23	11	1	23	15	16	2	23	0	11	9	2	0	20	1	0
23	41	26	13	1	27	13	13	1	27	0	14	12	0	0	13	2	0
24	12	8	4	0	7	3	3	0	8	0	3	3	2	0	2	2	0
25	50	43	1	2	23	14	13	1	35	1	11	17	7	0	7	8	0
26	49	43	0	5	36	9	15	0	34	0	21	11	0	0	17	0	0
		508	140	41	390	280	186	48	456	3	184	230	114	0	147	30	8
		(24 unknown)			(43 unknown)		(20 unknown)										

killed only one or two wolves.

Interior Alaska, Units 19,20,21 and 25, continued to produce the bulk of the harvest. Here a renewed interest in trapping, possibly stimulated by an abundance of lynx and wolves, accounted for the bulk of the catch (216 of 383 or 56%). Aerial hunting accounted for 19% of the wolves harvested in the Interior. In Unit 20 only 9 of 237 wolves were killed with the aid of aircraft. The unit is heavily wooded and aircraft are successful only if snowfall accumulations are deep--satisfactory aerial hunting conditions did not prevail during the winter of 1963-64.

Productivity

The number of pups produced per adult female and their subsequent survival through the first year can, in theory, be calculated from the age composition of the harvest. The accuracy of such calculations is dependent upon the sample being representative of the population sampled. Techniques of harvest can affect the age and/or sex ratios of the sample. For example traps have been shown to be selective for the males of certain carnivores. Preliminary examination of the material obtained from wolves which were aerial-shot, trapped, snared and shot by hunters show no difference in the sex or age composition of the sample components. If biases related to harvest techniques are operating they apparently are similar for all techniques. Such a coincidence seems highly improbable.

The sex ration derived from examination of 600 carcasses collected from 1959-1964 is essentially 1:1 (96♂:104♀). The sex ratio derived from examination of pelts presented for bounty is heavily biased toward males (100♂:72♀), presumably individuals certifying pelts for bounty were unable to accurately determine sex from the pelts or relied upon the statements of the persons presenting the skin for bounty.

The age composition of 307 female wolf carcasses was 39% pups, 19% two-year-olds, and 42% adults (the adult segment probably included a few pregnant two-year-olds). Information obtained from the carcasses shows that each adult female reared approximately two pups (1.8). A partial analysis of reproductive organs collected from 130 adult female wolves throughout Alaska but primarily from the Interior and Arctic region suggest that each female gave birth to approximately six pups (placental scar counts). Counts of fetuses and corpora lutea tend to support the placental scar counts (Table 3).

Table 3. Summary of fertility indices for 130 wolves collected 1961-1964.

Area	Corpora Albicantia			Corpora Lutea			Placental Scars			Fetuses		
	Mean No.	Range	Sample Size	Mean No.	Range	Sample Size	Mean No.	Range	Sample Size	Mean No.	Range	Sample Size
Southeast Alaska	6.7	2-14	6	6	6	1	5.6	3- 9	5	--	--	0
Interior Alaska	7.1	2-22	57	6.4	4-12	40	6	2-12	27	6.8	5-11	15
Arctic Alaska	5.2	1-10	10	6.5	4- 9	13	7.7	7- 8	3	5.3	3- 7	6
Areas Unknown	7.2	3-12	5	6.5	5-11	5	8.3	6-12	3	---	7	1
Totals	6.8	1-22	78	6.3	4-12	59	6.3	2-12	38	6.4	3-11	22

So far the study suggests nigh mortality of pups prior to the time trapping and hunting starts, usually, in November. Of course, for particular age classes, selectivity may be operating but as I pointed out earlier, such selectivity would be most unusual if it affected all harvest techniques equally. Factors affecting survival of pups are unknown and seem to vary from year to year. In 1963-64 pups comprised 65% of the harvest from the Arctic (Table 4). Adult females reared an average of 5.5 pups if the population components in the Arctic are similar to that of the 307 females examined.

The age at which female wolves first breed and proportion of adult females breeding are points of interest that have not been investigated extensively. The reproductive tracts of 119 female pups have been examined and none were pregnant. The ovaries and cornu of most of these animals were very small. The cornu were tissue thin as compared to the thick walled vascular structure of adult females. The ovaries contained small follicles and only one animal from Southeastern Alaska contained follicles that might have matured later in the spring. Age determination beyond pups is tentative but the techniques used suggest that most two-year-old females do breed.

Most female wolves breed every year once they reach maturity. In this study pregnant wolves were obtained from March 11 to May 21 and 84 per cent of all adult and two-year-old females examined during this period were pregnant. Some of those judged not pregnant were potential breeders as the ovaries contained large follicles.

Collection of information on the life history of the wolf will continue.

TECHNIQUES

Wolverine and Lynx

Information on the breeding biology and productivity of these two important and interesting carnivores was obtained by purchasing skinned carcasses from trappers. Additional information on the productivity of wolverine was obtained from bounty information sheets completed whenever a wolverine is presented for bounty.

Table 4. Age composition 2,358 wolves; based on fusion of epiphyses--1959-64.

	Adults	Per Cent	Young of Year	Per Cent	Totals
1959-60	195	(45)	116	(55)	311
1960-61	209	(53)	183	(47)	392
1961-62	311	(61)	200	(39)	511
1962-63	351	(57)	263	(43)	614
1963-64	289	(55)	241	(45)	530
Totals	1,355	(57)	1,003	(43)	2,358

Arctic area wolf age composition 1959-64.

	Adults	Per Cent	Young of Year	Per Cent	Totals
1959-60	78	(45)	93	(55)	171
1960-61	114	(59)	78	(41)	192
1961-62	111	(60)	73	(40)	184
1962-63	71	(49)	75	(51)	146
1963-64	44	(35)	82	(65)	126
Totals	418	(51)	401	(49)	819

Interior area, wolf age composition 1959-64.

	Adults	Per Cent	Young of Year	Per Cent	Totals
1959-60	15	(40)	22	(60)	37
1960-61	80	(47)	91	(53)	171
1961-62	200	(61)	127	(39)	327
1962-63	280	(60)	188	(40)	468
1963-64	245	(61)	159	(39)	404
Totals	820	(58)	587	(42)	1,407

FINDINGS

Wolverine

The wolverine project continued to consist primarily of data collections and 119 carcasses were obtained. Unfortunately specimens from gravid females are not available from late spring and summer months. Originally I had planned to prepare the wolverine material for publication. Some progress was made on this objective, but summer specimen material vital to the project was not available. Data from the bounty information sheets have not been compiled.

Lynx

Carcass collections during the period November 1963 and March 30, 1964 exceeded all expectations--1806 carcasses were obtained. Processing of these specimens has been completed and the data are now being placed on IBM cards to facilitate analysis.

The abundance of lynx presumably is directly related to the recent, and in a very few areas continuing, abundant snowshoe hare populations. Lynx collections during November and December, 1964 have been limited to female lynx. Early returns indicate lynx are abundant in many areas even though the hare population has decreased. Productivity in 1964 may have been poor as very few lynx kits have been obtained.

The data obtained from the lynx project from 1962 through July 1, 1964 will be prepared for publication. Items considered worthy of publication include age determination, techniques, population composition, reproductive biology, and weights and measurements.

TECHNIQUES

Mink (Central)

Efforts during the period covered by this segment report were devoted primarily to the processing and examination of mink received from various sources. A statistical comparison of the various populations of mink from which samples were obtained will not be undertaken until the collection and examination phases of this project are completed.

Since the last segment report, specimens from the following areas have been processed and/or examined: the MacKenzie Delta (NW Canada), supplied by Mr. Vernon D. Hawley of the Canadian Wildlife Service; the Selawik Lake area, supplied by Mr. Lloyd Davis; Southeastern Alaska, supplied by Mr. Harry Merriam of the Alaska Department of Fish and Game; and the Kenai Peninsula and Prince William Sound, sent by Mr. Rae Baxter of the Alaska Department of Fish and Game. In addition, carcasses previously sent by the late Mr. Leroy Bohuslov, formally with the Alaska Department of Fish and Game, were processed. The latter were taken in the central and upper Kuskokwim River area.

Standard body measurements were recorded for all specimens and the skulls, femurs, and bacala were processed by boiling. The specimens received from Messers. Harry Merriam and Rae Baxter were already cleaned. Stomach of entire carcasses were preserved for analysis at a later date. Skulls were measured using dial calipers, and data were recorded to the nearest hundredth of a millimeter. Measurements recorded were those outlined by Hall (1951), with the addition of cranium width (outlined by Bahrens 1961).

Examination (measuring) of the skulls was accomplished, as far as possible, during field trips to Little Diomede Island and the village of Wainwright. Frequent periods of adverse weather provided the opportunity.

Mink (Southeast)

During October and November, southeastern trappers were contacted through personal interviews and the mails. The cooperation of trappers was sought in order to obtain sex and age composition of the mink harvest and evaluate trapping pressure.

Trap line locations were plotted on maps in order to determine the pattern and distribution of trap lines. Mink hind legs were collected in order to analyze the age composition of the catch as set forth in criteria by Greer.

Post season questionnaires were mailed to 292 trapping license holders. Information was requested on area trapped, mink and other furbearers caught, traps used, trap line length and economic values of the take. Trapper opinion was polled as to the feasibility of successive trapping seasons, mink values, primeness, and abundance, and their impression of trapping pressure in their areas.

FINDINGS

Mink (Central)

This project is still in the primary stages of specimen acquisition and examination. No complete statistical comparisons have been undertaken with the exception of one, reported upon earlier (Burns 1964 a, b). A limited amount of additional material is needed, primarily from the Bristol Bay Area including the Alaska Peninsula and the lower reaches of the Nushagak River.

Mink (Southeast)

Results are preliminary and serve more as a progress report than a completion report. Trapper questionnaires are still being received, recorded and analyzed.

Thirty-one per cent or 91 questionnaires have been returned. A total of 49 individuals indicated that they trapped during the 1964-65 season. Twenty carcasses and 417 mink legs were turned in for aging studies.

Subnormal temperatures coupled with deep snow throughout most of the season severely limited pressure and take. Low fur prices added little inducement for trappers to buck the inclement weather. Only two of 19 trappers replying regarded the season as a success. Forty-two trappers averaged 19 days each on their respective trap lines.

The average catch for forty-five trappers was 25 mink per trapper. The median earning for each of 17 trappers was $397.00.

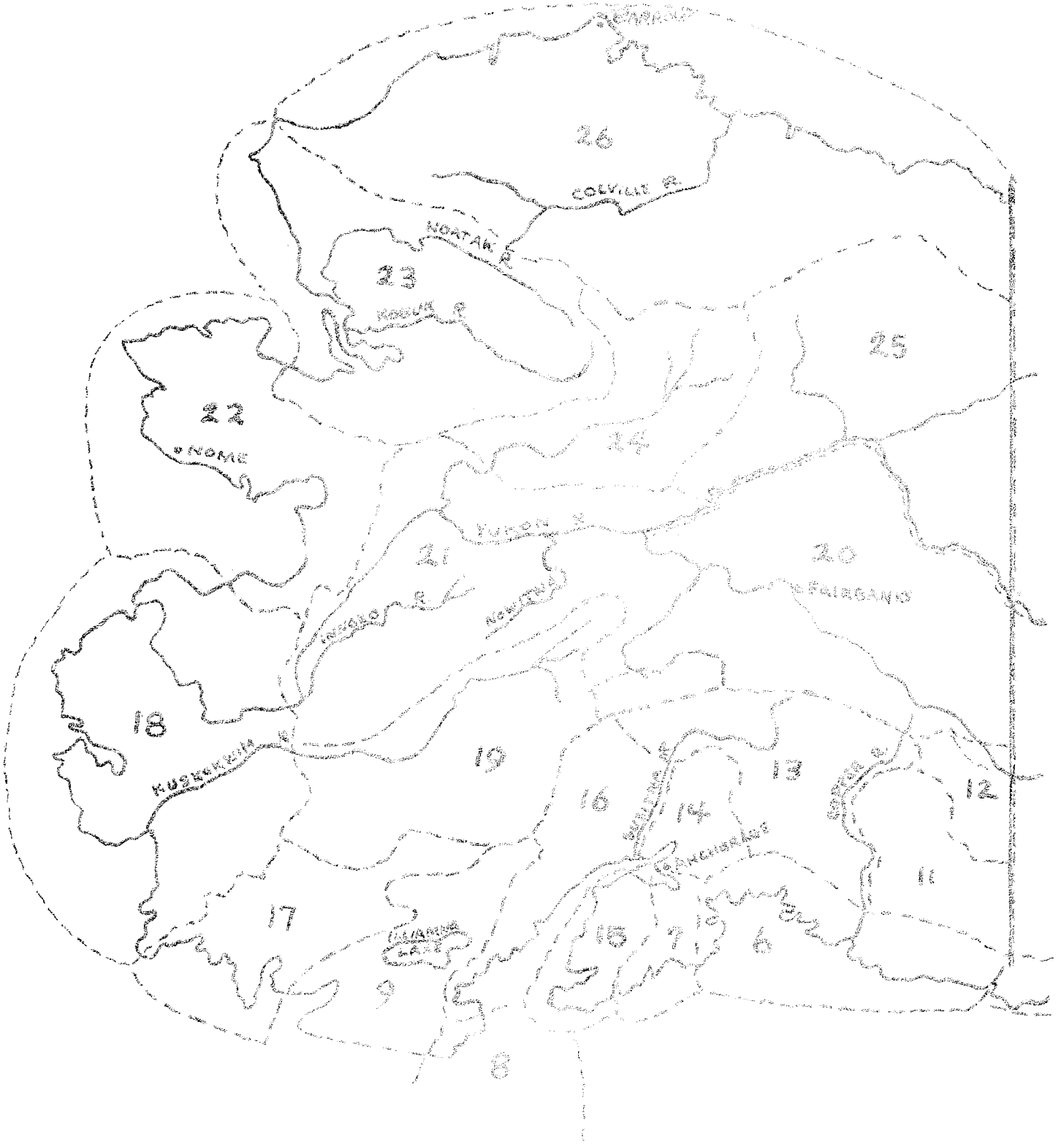
Trapline length for 37 trappers averaged 9.5 miles. Fifty-three traps per line was the average for forty-three trappers.

Nineteen of 26 trappers or 73 per cent rated their mink fur as being taken during the prime period. Six trappers rated their fur as subprime and one as past prime.

Trapping pressure was rated as unchanged or decreasing by 73 per cent of the trappers replying. Twenty-seven per cent of the trappers reported an increase in trapping pressure for their respective areas.

Most of the trappers replying reported mink numbers to range from abundant to average. Seventy-three per cent of trappers

replying favored successive years seasons, and 83 per cent of the trappers reported they would trap successive seasons - if offered.


BARROW
26
COLVILLE R.
NORTAK R.
23
KOBUK R.
25
22
NOME
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YUKON R.
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KOYUKUK R.
NENANA R.
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FAIRBANKS
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KUSKOKWIM R.
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SUSITNA R.
ANCHORAGE
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COPPER R.
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ALASKA RANGE
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ALASKA DEPARTMENT OF FISH AND GAME

Juneau, Alaska

Bounty Information Form
Wolf, Wolverine, Coyote

Claimant's Name _____ Date _____
Month Day Year

Address _____

Certifier _____ Station _____

Type Hunter

__(1) Professional
__(2) Incidental
__(3) Recreational
__(4) Unknown

Species

__(1) Wolf
__(2) Wolverine
__(3) Coyote

Method Taken

__(1) Ground Shooting
__(2) Trapping
__(3) Snaring
__(4) Digging Out
__(5) Aerial Shooting
__(6) Unknown

Age	Color	Sex	Date Taken Mo. Day Yr.	Drainage	Unit	Pack Size	Number of Pack Killed

Remarks (Kills observed, etc.) _____

Instructions: For color of wolves, refer only to Black (Bl), Brown (Br), Gray (Gr), or White (W). Send original to Regional Game Supervisor in your area: 604 Barnett Street, Fairbanks, or St. Rt. B, Box 2200, Anchorage, or 1829 Tongass, Ketchikan. A copy MUST accompany the bounty affadavit when it is forwarded to Juneau.

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Mink

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