

ALASKA DEPARTMENT OF FISH AND GAME

JUNEAU, ALASKA

STATE OF ALASKA
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WOLVERINE STUDIES

by

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Volume X
Annual Project Segment Report
Federal Aid in Wildlife Restoration
Project W-17-1, Work Plan O

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(Printed August, 1969)

WORK PLAN SEGMENT REPORT
FEDERAL AID IN WILDLIFE RESTORATION

STATE: Alaska

PROJECT NO: W-17-1 TITLE: Alaska Wildlife Investigations
Big Game Investigations

WORK PLAN: 0 TITLE: Wolf and Wolverine

JOB NO: 2 TITLE: Wolverine Studies

PERIOD COVERED: July 1, 1968 to June 30, 1969

ABSTRACT

The 1967-68 harvest of wolverine declined approximately 16%. The factors responsible for the reduced harvest are not known though the reduced harvest is consistent with past harvest records which show considerable periodic variation. Cessation of bounty payments, July 1, 1969, complicates future management of the wolverine by eliminating the record of annual harvest.

RECOMMENDATIONS

A mandatory system for enumerating the annual harvest of wolverine should be instituted.

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OBJECTIVES

To maintain an annual compilation of the magnitude and sex and age composition of the harvest of wolverines (Gulo gulo) in Alaska. To describe the life history and some aspects of the population dynamics of wolverine in Alaska.

TECHNIQUES

Bounty information forms which provide information on the sex, age, date and location of kill and the name and address of the trapper are completed for each wolverine presented for bounty. The foregoing data formed the basis for estimating size and characteristics of the annual kill.

Life history information was obtained from necropsies of wolverine carcasses purchased from hunters and trappers. Specimens useful in describing reproductive processes, morphology, food habits and aging processes were collected and preserved. Leg bones (radius and ulna) which are useful in classifying young-of-the-year were collected from pelts presented for bounty (State law requires that the left foreleg be attached to the pelt).

FINDINGS

Introduction

A summary of kill statistics, an analysis of reproductive biology and age determination techniques and several management considerations were presented in 1967 (Rausch, 1968. Wolverine Studies, Vol. IX, Fed. Aid in Wildl. Restoration, Proj. W-15-R-2 & 3, Work Plan O. Alaska. pp. 22). A reiteration of these data is not considered pertinent to this report which concludes one phase of the wolverine research program. The material collected during this study supplemented by similar material from Dr. Arthur Pearson, Canadian Wildlife Service, Whitehorse, Yukon Territory, Canada, will be presented at the symposium on "Predator Ecology and Management", St. Paul, Minnesota, December 17, 1969.

Reproductive Materials 1968

Materials collected and analyzed during this reporting period are presented along with those from previous years in Tables 1, 2, 3, and 4. The addition of the 1968 data did not change the conclusions reported in 1968 (Rausch, op. cit.).

Harvest

In 1968 the harvest of wolverine as revealed by bounty records, totaled 578 animals, a decline slightly in excess of 16% (Table 5). The cause(s) of the reduced harvest is unknown, but it is in character with past harvest records which have shown periodic fluctuations (Rausch, op. cit.). In 1968 Units 6, 9, 13, and 20 (Table 6) showed the largest declines. These Units traditionally produce 40 to 50% of the Statewide harvest.

Discussion

Human utilization of wolverines and wolverine habitat is increasing concurrently with the development of remote areas for purposes of extracting renewable and non-renewable resources. Some habitat is permanently lost through urban sprawl. Wolverine are not abundant anywhere, at least when compared to other carnivores of similar size and distribution. In view of the high demand for the species both by resident trappers and recreationists, a rather carefully planned program is necessary to insure their wellbeing. In the past the bounty information sheet provided an accurate tabulation of annual harvests. With the removal of the bounty, this tool will be gone as the Board of Fish and Game did not approve a proposed regulation that would have required sealing of wolverines. A program providing for mandatory recording of each wolverine killed is a first and necessary step in formulating a viable management program for this species.

Table 1. Indicators of productivity of Wolverine, 1965-68, Alaska.

	Placental Scars	Corpora Lutea	Fetuses
1965	3.7* (6)**	3.8* (16)**	3.33* (3)**
1966	3.1 (23)	3.4 (33)	3.00 (6)
1967	4.1 (21)	3.5 (35)	3.4 (14)
1968	3.1 (11)	3.1 (15)	3.7 (4)

* Mean number.

** Sample sizes in parentheses.

Table 2. Age composition and pregnancy rates of 366 female wolverine, 1961-68.

	Non-Preg.		Pregnant Total		Females
	Imm.	Ad.	(Including Post-Parturient)		
1962	33	1	15	(3)	49
1963	18	-	14	(1)	32
1964	24	4	10	-	38
1965	31	-	16	(3)	47
1966	30	2	34	(4)	66
1967	38	4	35	(3)	77
1968	30	2	25	(12)	57
	204*	13**	149**	(26)**	366
	217 - Non-Preg.				

* Immature = 204 - 55.74% (Age determination based on morphology of uteri and ovaries)

Adults = 162 - 44.26%

** Adults = 149 of 162 = 92% of females judged adults were pregnant or had recently given birth.

Table 3. Timing of implantation and parturition in female wolverines, 1962-1968. Each date represents one individual.

	Embryos Implanted	Post Parturient
Date of Death	December 31	February 2
	January 3	February 15
	January 22	February 23
	January 23	February 23
	January 26	February 28
		March 5
		March 6
		March 10
		March 10
		March 10
		March 14
		March 15
		March 17
		March 19
		March 20
		March 22
		March 22
		March 28
		March 29
		March 30
		April 14

Table 4. Chronology of the harvest of pregnant wolverine, 1962-1968.

	Nov. Sample		Dec. Sample		Jan. Sample		Feb. Sample		Mar. Sample		Apr. Sample		Unk. Sample	Total	%		
1962	1	1	0	6	5	10	2	5	5	14	-----		2	13	15	49	30.61
1963	3	5	3	6	3	8	3	5	1	5	1	2	0	1	14	32	43.75
1964	0	3	4	12	2	5	0	4	2	4	0	2	1	8	10	38	26.31
1965	2	8	2	4	2	10	2	6	4	11	-----		4	8	16	47	34.04
1966	3	6	7	15	10	13	1	6	5	10	1	1	7	15	34	66	51.51
1967	1	11	11	19	10	19	4	10	4	10	-----		5	8	35	77	45.45
1968	1	3	2	8	7	15	8	15	7	14	-----		1	1	26	58	44.8
Total	11	37	30	70	39	80	20	51	28	68	2	5	20	53	150	367	40.87
%Pregnant	29.72		42.85		48.75		39.2		41.17		40.00		35.84		40.87		

Table 5. Information on wolverine harvest 1959-1969.

Year	Total Animals Bountied	Animals Bounty Information Obtained	Class of Hunter				Method of Take					
			1. Professional	2. Incidental	3. Recreational	4. Unknown	1. Ground Shooting	2. Trapping	3. Snaring	4. Digging Out	5. Aerial Shooting	6. Unknown
			1	2	3	4	1	2	3	4	5	6
1959-60	420	(53)	41			12	3	10	4			36
1960-61	441	(136)	116	10	4	6	4	107	5			20
1961-62	383	(142)	114	11	15	2	25	57	57			3
1962-63	445	(287)	216	34	27	10	37	188	52			10
1963-64	551	(474)	320	91	33	30	71	305	64	0	1**	33
1964-65	420*	(402)	235	69	88	10	33	283	33	0	6**	47
1965-66	659	(659)	463	82	105	9	65	492	46	0	0**	56
1966-67	694	(694)	509	35	139	11	78	537	44	1	1**	32
1967-68	578	(578)	396	48	122	12	99	438	35	0	0	6
1968-69	242***	(242)	178	10	20	34	48	165	8	0	0	21

* Bounty records not completed.

** Illegal.

*** Bounty information data compiled through July 18, 1969; records usually not complete until September.

Table 6. Wolverine harvest by game management unit as obtained from bounty information records--1959-60 through 1968-69.*

Game Management Unit	Year	Number Wolverine Reported on Bounty Info. Sheets	Game Management Unit	Year	Number Wolverine Reported on Bounty Info. Sheets
1.	1962-63	1	11.	1961-62	1
	1963-64	2		1962-63	7
	1964-65			1963-64	38
	1965-66	1		1964-65	12
	1966-67	8		1965-66	30
	1967-68	2		1966-67	33
	1968-69**			1967-68	22
			1968-69	22	
3.	1962-63	1	12.	1962-63	25
	1963-64			1963-64	17
	1964-65			1964-65	25
	1965-66			1965-66	26
	1966-67	1		1966-67	30
	1967-68	0		1967-68	30
	1968-69	0		1968-69	9
4.	1964-65	2	13.	1959-60	2
6.	1961-62	14		1960-61	
	1962-63	3		1961-62	1
	1963-64	9		1962-63	37
	1964-65	12		1963-64	32
	1965-66	16		1964-65	65
	1966-67	26		1965-66	102
	1967-68	8		1966-67	132
	1968-69	13		1967-68	86
				1968-69	***
7.	1962-63	1	14.	1962-63	9
	1963-64	5		1963-64	10
	1964-65	16		1964-65	15
	1965-66	20		1965-66	37
	1966-67	11		1966-67	27
	1967-68	17		1967-68	21
	1968-69	***		1968-69	***
9.	1962-63	14	15.	1961-62	1
	1963-64	34		1962-63	
	1964-65	39		1963-64	3
	1965-66	40		1964-65	13
	1966-67	63		1965-66	15
	1967-68	43		1966-67	16
	1968-69	10		1967-68	19
10.	1968-69	4		1968-69	***

Table 6. Continued

Game Management Unit	Year	Number Wolverine Reported on Bounty Info. Sheets	Game Management Unit	Year	Number Wolverine Reported on Bounty Info. Sheets
16.	1962-63	13	21.	1959-60	4
	1963-64	43		1960-61	9
	1964-65	34		1961-62	23
	1965-66	58		1962-63	33
	1966-67	51		1963-64	12
	1967-68	44		1964-65	15
	1968-69	15		1965-66	45
17.	1962-63	8	22.	1966-67	27
	1963-64	70		1967-68	37
	1964-65	7		1968-69	12
	1965-66	27		1960-61	
	1966-67	31		1961-62	4
	1967-68	35		1962-63	13
	1968-69	24		1963-64	23
18.	1961-62	4	23.	1964-65	11
	1962-63	5		1965-66	41
	1963-64	6		1966-67	31
	1964-65	3		1967-68	31
	1965-66	5		1968-69	19
	1966-67	4		1959-60	3
	1967-68	7		1960-61	1
1968-69	1	1961-62	4		
19.	1960-61	7	24.	1962-63	2
	1961-62	25		1963-64	51
	1962-63	33		1964-65	16
	1963-64	21		1965-66	5
	1964-65	19		1966-67	11
	1965-66	25		1967-68	9
	1966-67	25		1968-69	30
20.	1967-68	16	24.	1959-60	4
	1968-69	13		1960-61	4
	1959-60	15		1961-62	0
	1960-61	20		1962-63	11
	1961-62	26		1963-64	10
	1962-63	28		1964-65	16
	1963-64	57		1965-66	5
	1964-65	60		1966-67	11
	1965-66	102		1967-68	24
	1966-67	108		1968-69	0
1967-68	71				
1968-69	23				

Table 6. Continued

Game Management Unit	Year	Number Wolverine Reported on Bounty Info. Sheets	Game Management Unit	Year	Number Wolverine Reported on Bounty Info. Sheets
25.	1959-60	12	26.	1959-60	13
	1960-61	56		1960-61	31
	1961-62	22		1961-62	8
	1962-63	32		1962-63	10
	1963-64	35		1963-64	42
	1964-65	42		1964-65	?
	1965-66	48		1965-66	11
	1966-67	20		1966-67	33
	1967-68	29		1967-68	25
	1968-69	29		1968-69	17

* The system was first used in 1959-60 in Interior Alaska, in 1963-64 the system was expanded to include the entire State. The data from 1963-64 to present are nearly complete.

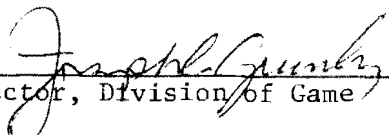
** Data for 1968-69 includes bounty information data through July 20, 1969; compilations normally extend through September.

*** Bounties were not paid in these units after July 21, 1968.

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