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ALASKA DEPARTMENT OF FISH AND GAME
JUNEAU, ALASKA

STATE OF ALASKA
Jay S. Hammond, Governor

DEPARTMENT OF FISH AND GAME
James W. Brooks, Commissioner

DIVISION OF GAME
Frank Jones, Director

ANNUAL REPORT OF SURVEY-INVENTORY ACTIVITIES
PART IV. FURBEARERS, SMALL GAME AND
WOLVERINE

Edited and compiled by
Donald E. McKnight, Research Chief

Volume V
Federal Aid in Wildlife Restoration
Project W-17-6, Job Nos. 7, 10, 15 and 22

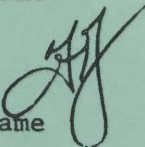
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(Printed July, 1975)

MEMORANDUM OF TRANSMITTAL

July 1975

TO: James W. Brooks, Commissioner
Alaska Department of Fish and Game

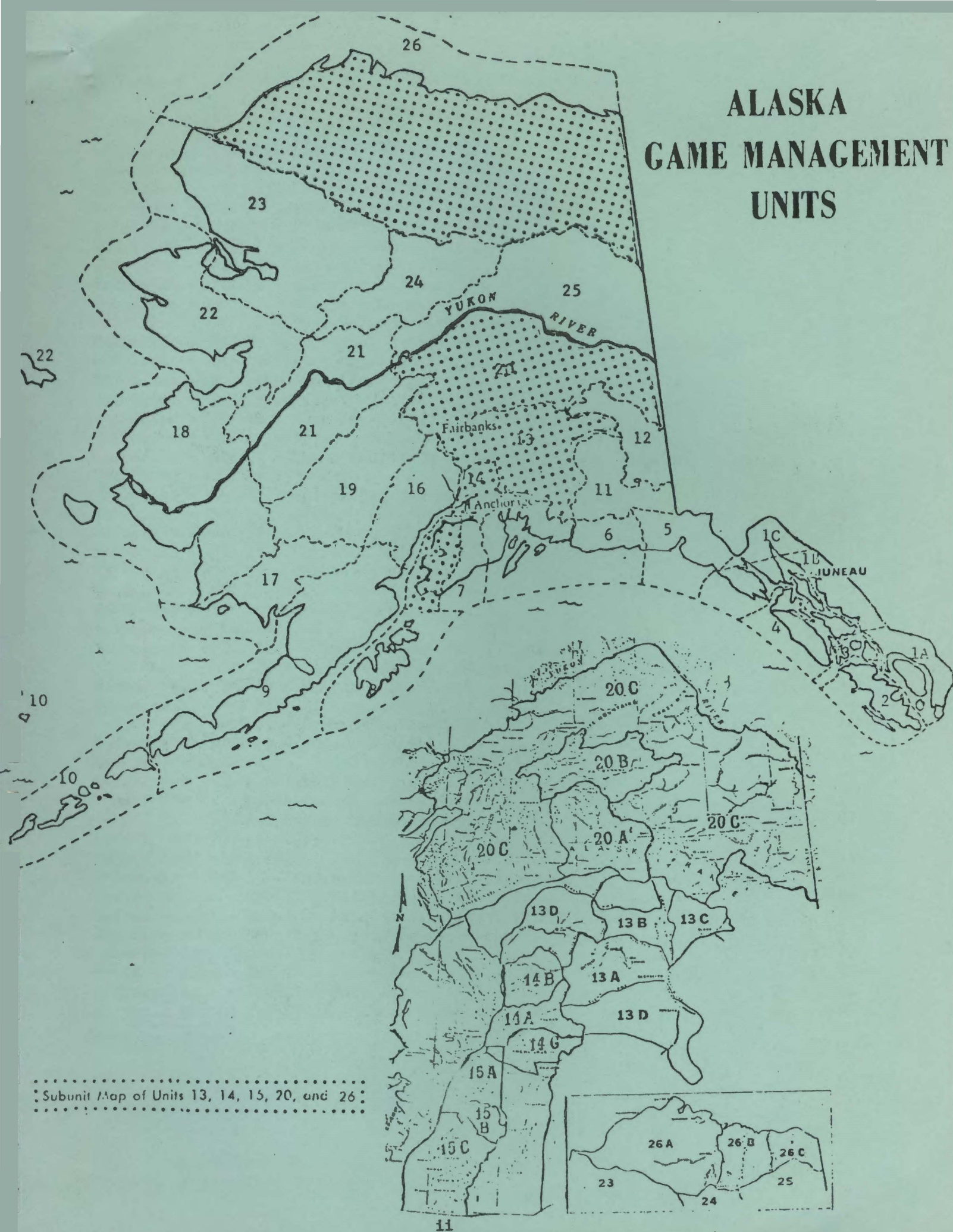
FROM: Franklin F. Jones, Director 
Division of Game
Alaska Department of Fish and Game
Juneau

SUBJECT: Annual Report of Survey-Inventory Activities

Surveys and inventories include all routine data collections directed toward assessment of the status of game populations and the determination of allowable annual game harvests. These reports, which are written primarily by Area Management Biologists, provide information on the current status of Alaska's game populations and include, when applicable, recommended hunting regulation changes. Reported harvest data for most species are obtained from computerized analyses of harvest tickets (Job 22.0), and continuing aerial surveys provide the basis for assessment of population trends for most populations.

Information in these reports is presented by game species and management units in most instances. A brief summary of statewide harvests and population trends is provided. A map showing Alaska Game Management Unit boundaries has been included for those unfamiliar with these units.

ALASKA GAME MANAGEMENT UNITS



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WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 3 and Subunits 1A and 1B - Ketchikan, Wrangell and Petersburg areas

Seasons and Bag Limits

Hunting	Dec. 1 - Jan. 31	One wolverine
Trapping	Dec. 1 - Jan. 31	No limit

Harvest and Hunting Pressure

Almost all of the wolverines taken in these units are trapped incidentally in wolf sets. The wolverine season extends from December 1 through January 31, while the wolf trapping season runs from November 1 through April 30, and many wolverines are undoubtedly taken after the season closes. These are either never sealed or held until the following year, as none are turned in.

A breakdown by subunit of the past Unit 1 harvests shows: Subunit 1A 4 wolverine taken in 1971-72, 2 in 1972-73 and 4 in 1973-74; in Subunit 1B - 4 in 1971-72, 3 in 1972-73 and 20 in 1973-74. I believe some of this year's reported take for Subunit 1B was held over from 1972-73 and it's quite likely there are some hides being held now that will be sealed in 1974-75.

The Unit 3 harvest, which comes almost entirely from Etolin, Wrangell and Mitkof Islands, has been 12 for each of the past two seasons.

The increased wolverine harvest in Subunit 1B may indicate an increase in the population in this area, as trapping effort has remained relatively constant.

Composition and Productivity

Combining the total harvest for the past 3 years, the Subunit 1A take was 90 percent males and for Subunit 1B it was 76 percent males. Unit 3 data show 61 percent males for the past two years.

Management Summary and Conclusions

As almost all wolverine are taken incidental to wolf trapping during the November 1 - April 30 season and the wolverine trapping season has little to do with the harvest. I suggest the wolverine trapping season be concurrent with the wolf trapping season.

PREPARED BY:

Robert E. Wood
Game Biologist III

SUBMITTED BY:

Harry R. Merriam
Regional Research/Management Coordinator

WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 5 and Subunits 1C and 1D - Yakutat, Juneau and Haines

Seasons and Bag Limits

Hunting		Dec. 1 - Jan. 31	One wolverine
Trapping	Unit 1	Dec. 1 - Jan. 31	No limit
	Unit 5	Nov. 10 - Jan. 31	No limit

Harvest and Hunting Pressure

Data obtained from sealing documents indicate the following harvest for the 1973-74 season: Unit 1C - 9, Unit 1D - 17 and Unit 5 - 12. Ninety percent were taken by trapping.

Composition and Productivity

No data are available.

Management Summary and Recommendations

Wolverine harvests for the past year indicate the resource is receiving an insignificant amount of pressure and thus, no changes in seasons or bag limits are warranted at this time.

PREPARED BY:

Warren Ballard
Game Biologist II

SUBMITTED BY:

Harry Merriam
Regional Research/Management Coordinator

WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 6 - Prince William Sound

Seasons and Bag Limits

Hunting	Sept. 1 - March 31	One wolverine
Trapping	Nov. 16 - March 31	No limit

Harvest and Hunting Pressure

The 1973-74 sealing data revealed a harvest of 55 wolverines (56.4 percent males) in Unit 6 (Appendix I). The majority were taken in December and January by trapping. One trapper utilizing an airplane accounted for 42 percent (23 wolverines) of the harvest.

The 1973-74 harvest of 55 wolverines is by far the largest harvest recorded for Unit 6 (Appendix II). Seven were taken west of the Copper River, 2 in Price William Sound, 4 near Valdez and 42 (76 percent) east of the Copper River to Icy Bay.

Composition and Productivity

No available data.

Management Summary and Conclusions

The 1973-74 sealing data revealed a relatively large wolverine harvest east of the Copper River to Icy Bay. The wolverine harvest in the remaining portion of Unit 6 was moderate.

The annual harvest and trapping pressure east of the Copper River to Icy Bay should be closely monitored to determine if an overharvest occurred. Wolverine trapping is probably self regulating, as abundance drops off so will trapping pressure.

Recommendations

Retain the present seasons and bag limits.

PREPARED BY:

Julius Reynolds
Game Biologist III

John S. Vania
Regional Management Coordinator

APPENDIX I
Wolverine 1973 - 74*
Unit 6

Harvest

<u>Males</u>	<u>Females</u>	<u>Unknown</u>	<u>Total</u>
31	24	0	55
56.4%	43.6%		100.0%

<u>Chronology by Month</u>	<u>Number</u>	<u>Percent</u>
November 1973	8	14.5
December	14	25.5
January 1974	22	40.0
February	7	12.7
March	<u>4</u>	<u>7.3</u>
TOTAL	55	100.0

Method of Take

<u>Method</u>	<u>Number</u>	<u>Percent</u>
Ground shooting	4	7.3
Trapping	<u>51</u>	<u>92.7</u>
TOTAL	55	100.0

* Wolverine sealing data.

PREPARED BY: Jerome Sexton and Julius Reynolds.
Game Biologist II & Game Biologist III

APPENDIX II
Wolverine Harvest Data
Unit 6

<u>Year</u>	<u>Number</u>
1961-62*	14
1962-63*	3
1963-64*	9
1964-65*	12
1965-66*	16
1966-67*	26
1967-68*	8
1968-69*	13
1969-70	UNK
1970-71**	18
1971-72***	21
1972-73***	33
1973-74***	55
Total	228
Average	19

* Bounty records.

** Cordova trapper questionnaire.

*** Sealing records.

PREPARED BY: Julius Reynolds, Game Biologist III

WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 7 - Eastern Kenai Peninsula

Seasons and Bag Limits

Hunting	Sept. 1 - March 31	1 Wolverine
Trapping	Nov. 10 - March 31	No Limit

Harvest and Hunting Pressure

Sealing records show that 12 wolverines were taken in Unit 7 during the 1973-74 season. The harvest was composed of 7 males and 5 females.

Three wolverine were taken by ground shooting and 9 by trapping.

The 1973-74 harvest was about 50 percent lower than the harvest for each of the previous two years (Appendix I). No known changes in trapping or hunting pressure occurred, but casual observations produced less wolverine sign and sightings than last year.

Composition and Productivity

Data from which composition and productivity can be determined are not collected by the Department.

Management Summary and Conclusions

The 1973-74 wolverine harvest was significantly lower than for past years, not only for Unit 7 but for the entire Kenai Peninsula (see Unit 15). This probably reflects natural fluctuations in wolverine abundance.

Recommendations

No changes are recommended.

PREPARED BY:

Paul A. Leroux
Game Biologist III

Spencer Linderman
Game Biologist II

SUBMITTED BY:

John S. Vania
Regional Management Coordinator

APPENDIX I

WOLVERINE BOUNTY AND SEALING RECORDS - UNIT 7

<u>Year</u>	<u>Males</u>	<u>Females</u>	<u>Unknown</u>	<u>Total</u>
1961-62 ¹	--	--	1	1
1962-63 ¹	--	--	5	5
1963-64 ¹	--	--	16	16
1964-65 ¹	--	--	20	20
1965-66 ¹	--	--	11	11
1966-67 ¹	--	--	17	17
1967-68 ²	--	--	--	--
1968-69 ²	--	--	--	--
1969-70 ²	--	--	--	--
1970-71 ²	--	--	--	--
1971-72 ³	10	11	2	23
1972-73 ³	16	5	3	24
1973-74 ³	7	5	0	12

¹ Date from bounty records.

² Bounty discontinued, no record of harvest.

³ Data from sealing records.

-- Zero Data

Prepared by: Paul A. LeRoux, Game Biologist III and Spencer Linderman, Game Biologist II

WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 9 - Alaska Peninsula

Seasons and Bag Limits

Hunting	September 1 - March 31	One Wolverine
Trapping	November 10 - March 31	No Limit

Hunting, Trapping and Harvest Pressure

The harvest of 89 animals from the unit during the 1973-1974 season was the greatest in the unit's history (Appendices I and II). The increased harvest was the result of increased pressure from both sport hunters and trappers. The greatest increase appears to be in animals taken prior to the trapping season by sport hunters. Two animals were taken in September and October 1971, five in 1972, and 13 in 1973. The percentage of animals taken by ground shooting has increased from 23.9 percent in 1972-1973 to 27 percent in 1973-1974. Males composed 61 percent of the harvest.

Composition and Productivity

No data are available.

Management Summary and Conclusions

Harvest of wolverines in Unit 9 continues to be stimulated by high fur prices and the desirability of the species as trophies. The present level of harvest is not considered excessive for existing population levels.

Recommendations

No changes in seasons or bag limits are recommended.

PREPARED BY:

James B. Faro
Game Biologist III

SUBMITTED BY:

John S. Vania
Regional Management Coordinator

Wolverine - G.M.U. 9 - Alaska Peninsula

Appendix I

1973-1974 Wolverine Harvest

Males - 54 Females - 33 Unknown - 2 Total - 89

Chronology by Month

Month	Number	Percent	Month	Number	Percent
July	-	-	January	25	28.1
August	-	-	February	21	23.6
September	5	5.6	March	2	2.2
October	8	9.0	April	-	-
November	11	12.4	May	-	-
December	17	19.1	June	-	-
			Unknown	-	-
			Total	89	100.0

Method of Take	Number	Percent
Ground Shooting	24	27.0
Trapping	64	71.9
Snaring	1	1.1
Other	-	-
Total	89	100.0

PREPARED BY: James B. Faro, Game Biologist III
Jerome J. Sexton, Game Biologist II

Wolverine - G.M.U. 9 - Alaska Peninsula

Appendix II

Historical Wolverine Harvest 1973-1974

Year	Harvest
1962-1963 ^{1/}	14
1963-1964 ^{1/}	34
1964-1965 ^{1/}	39
1965-1966 ^{1/}	40
1966-1967 ^{1/}	63
1967-1968 ^{1/}	43
1968-1969 ^{1/}	10
1969-1970 ^{2/}	5
1970-1971 ^{3/}	-
1971-1972 ^{4/}	46
1972-1973 ^{4/}	71
1973-1974 ^{4/}	89

1/ Data from bounty analysis

2/ Data from harvest report cards

3/ No data available

4/ Data from hide sealing program

PREPARED BY: James B. Faro, Game Biologist III

WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 10 - Aleutian Islands

Seasons and Bag Limits

Hunting	September 1 - March 31	One Wolverine
Trapping	November 10 - March 31	No Limit

Hunting, Trapping and Harvest Pressure

The reported harvest from Unit 10 during the 1973-1974 season was two wolverines.

Composition and Productivity

No data are available.

Management Summary and Conclusions

Wolverine are restricted to Unimak Island in Unit 10. Harvest pressure on the species is light.

Recommendations

No changes in seasons or bag limits are recommended.

PREPARED BY:

James B. Faro
Game Biologist III

SUBMITTED BY:

John S. Vania
Regional Management Coordinator

WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 11 - Wrangell Mountains, Chitina River.

Seasons and Bag Limits

Hunting	Sept. 1 - Mar. 31	One Wolverine
Trapping	Nov. 10 - Mar. 31	No limit

Harvest and Hunting Pressure

A comparison of annual wolverine harvests is shown in Appendix I. The wolverine harvest was relatively low until 1972-73. The increase in the harvest during the past two seasons correlates with the increased trapping effort that has followed an increase in fur prices. Additional harvest data for the period 1971-72 through 1973-74 are shown in Appendix II. The percentages of males in the harvests are high, although the percentage decreased this past season. More wolverines were taken early in the trapping season during 1971-72 compared to the last two years, but the reason for this is possibly related to aerial wolf hunting (legal during 1971-72 but not thereafter), which was most productive during late winter. More wolverines were exposed to legal and illegal harvesting during 1971-72. Over 90 percent (N=122) of the wolverines have been taken with steel traps during the past three seasons.

Composition and Productivity

No information was available.

Management Summary and Conclusions

The wolverine harvest has remained relatively low until recent years when fur prices substantially increased. No information is available on wolverine abundance. Wolverines may be vulnerable to area-wide depletion if trapping effort is sufficiently intensive. However, a plot of the distribution of the harvest on a map (not shown) did not reveal concentrated harvesting over large areas. The sex ratio would be expected to approach equality with heavy harvesting, but male wolverines still dominate in recent harvests. Because of the inaccessibility of much of Unit 11, additional restrictions on hunting or trapping do not appear necessary at this time.

Recommendations

No changes in seasons or bag limits are recommended.

PREPARED BY:

Carl McIlroy

Game Biologist III

SUBMITTED BY:

John S. Vania

Regional Management Coordinator

APPENDIX I

Comparison of Annual Wolverine Harvests from 1961-62 through 1973-74 - GMU 11

<u>Year</u>	<u>Harvest</u>	<u>Year</u>	<u>Harvest</u>
1961-62	1*	1967-68	22*
1962-63	7*	1968-69	22*
1963-64	38*	1969-70	No data**
1964-65	12*	1970-71	No data**
1965-66	30*	1971-72	28***
1966-67	33*	1972-73	48***
		1973-74	55***

* Harvest figures are from bounty records.

** The bounty was discontinued on wolverine, and no harvest data are available.

*** Harvest figures are from sealing records.

APPENDIX II

Wolverine Harvest Data from 1971-72 through 1973-74 - GMU 11^a

	<u>1971-72</u>	<u>1972-73</u>	<u>1973-74</u>
Total Wolverine Harvest:	28	48	55
Percent (No.) Males in Harvest ^b :	71%(20)	70%(33)	62%(32)
Harvest Chronology, Percent (No.);			
November:	-(-)	- (-)	2%(1)
December:	-(-)	38%(18)	20%(11)
January:	4%(1)	33%(16)	44%(24)
February:	25%(7)	17%(8)	22%(12)
March:	68%(19)	10%(5)	7%(4)
Other Months:	4%(1)	2%(1)	6%(3)
Unknown:	- (-)	- (-)	- (-)
Method of Take, Percent (No.);			
Ground Shooting:	4%(1)	2%(1)	- (-)
Trapping:	96%(27)	92%(44)	93%(51)
Snaring:	- (-)	6%(3)	6%(3)
Other:	- (-)	- (-)	2%(1)

a. Harvest data are based on sealing data only.

b. Percentage males are based only on animals where sex was specified. There were 0, 1, and 3 harvested wolverines of unspecified sex during 1971-72, 1972-73, and 1973-74, respectively.

PREPARED BY: Carl McIlroy, Game Biologist III

WOLVERINE

SURVEY INVENTORY PROGRESS REPORT - 1973

Game Management Unit 12 - Upper Tanana River and White River

Seasons and Bag Limits

Hunting	Sept. 1 - March 31	Two wolverines
Trapping	Nov. 1 - March 31	No limit

Harvest, Trapping and Hunting Pressure

Sealing records show a record take of 45 wolverines in Unit 12 during the 1973-74 season. The sealing data indicate 24 males, 20 females and 1 unclassified. Chronology of the harvest follows.

<u>Month</u>	<u>Number</u>	<u>Percent</u>
November	4	9
December	9	20
January	4	9
February	15	33
March	13	29

Trapping is by far the most successful means of taking wolverines. Two percent of the harvest was taken by snares and 93 percent by trapping. The remaining 5 percent were shot.

The wolverine harvest for past years was as follows:

<u>Year</u>	<u>Number</u>	<u>Year</u>	<u>Number</u>
1962-63	25	1968-69	9
1963-64	17	1969-70	No data
1964-65	25	1970-71	No data
1965-66	26	1971-72	33
1966-67	30	1972-73	51
1967-68	30	1973-74	45

Management Summary and Recommendations

The current, favorable fur market situation has resulted in a relatively large amount of trapping effort in Unit 12, with a moderate amount of effort directed specifically at wolves and wolverines. While wolverine abundance is never very great, judging from harvest levels for the past few years, it can be concluded that a reasonably large wolverine population exists in Unit 12.

Trapping probably has little overall effect on population size except in certain local instances.

No changes in seasons or bag limits are recommended.

PREPARED BY:

Larry B. Jennings
Game Biologist III

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 13 - Nelchina, Upper Susitna and Upper Copper
River Basins

Seasons and Bag Limits

Hunting	Sept. 1 - Mar. 31	One Wolverine
Trapping	Nov. 10 - Mar. 31	No limit

Harvest and Hunting Pressure

The annual wolverine harvests from 1962-63 through 1973-74 are shown in Appendix I. High harvests in the mid-1960's coincided with increased harvests of wolves and with reported substantial increases in illegal aerial hunting (Rausch, 1969). Increased harvests during recent years are probably a result of increased trapping effort following the upswing in fur prices during 1972. Harvest data from 1971-72 through 1973-74, based on sealing data, are shown in Appendix II. The percentage of males in the harvest has been relatively high. Most of the harvest occurred relatively late in the 1971-72 trapping season and the reason is probably due to the fact that aerial wolf hunting (legal during 1971-72 but not thereafter) was most productive during late winter. More wolverines were exposed to legal and illegal harvesting during 1971-72. Most wolverine (80 to 88 percent) have been taken by trapping. A plot of the distribution of the harvests on a map (not shown) illustrates relatively heavy harvesting in the Lake Louise-Nelchina vicinity (primarily females) and in the Klutina-Tonsina vicinity (primarily males). Wolverine harvest trends in these locales will be monitored in subsequent years to follow any changes that may result from heavy harvesting.

Composition and Productivity

No information was available.

Management Summary and Conclusions

Only indirect information, based on harvest data, was available for wolverines. The total harvest appears small compared to the size of Unit 13, although a concentration of harvesting appeared to have occurred within two localities. Should wolverine harvesting start affecting a substantial portion of the wolverines within an area, the sex ratio of the harvest should show a larger female component. The sex ratios of

the two heavily-trapped areas did not show the expected responses, however, the samples were small. Harvest data from these heavily-trapped areas will be monitored in the future to observe changes in the population due to harvesting.

Recommendations

No changes in seasons or bag limits are recommended at this time.

LITERATURE CITED

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PREPARED BY:

Carl McIlroy
Game Biologist III

SUBMITTED BY:

John S. Vania
Regional Management Coordinator

APPENDIX I

Comparison of Annual Wolverine Harvests from 1962-63 through 1973-74 - GMU 13

<u>Year</u>	<u>Harvest</u>	<u>Year</u>	<u>Harvest</u>
1962-63	37*	1968-69	No Data**
1963-64	32*	1969-70	No Data**
1964-65	65*	1970-71	No Data**
1965-66	102*	1971-72	75 ***
1966-67	132*	1972-73	140 ***
1967-68	86*	1973-74	121 ***

* Harvest figures are from bounty records.

** The bounty was discontinued on wolverine during this period, and no information on the harvest is available.

*** Harvest figures are from sealing records.

APPENDIX II

Wolverine Harvest Data from 1971-72 through 1973-74 - GMU 13^a

	<u>1971-72</u>	<u>1972-73</u>	<u>1973-74</u>
Total Wolverine Harvest:	75	140	121
Percent (No.) Males in Harvest ^b :	57%(40)	65%(89)	63%(76)
Harvest Chronology, Percent (No.);			
November:	4% (3)	14%(20)	17%(21)
December:	12% (9)	23%(32)	20%(24)
January:	9% (7)	19%(27)	23%(28)
February:	21% (16)	26%(36)	23%(28)
March:	41% (31)	15%(21)	15%(18)
Other Months:	1% (1)	3%(4)	2%(2)
Unknown:	11% (8)	- (-)	- (-)
Method of Take, Percent (No.);			
Ground Shooting:	20% (15)	9%(13)	8%(10)
Trapping:	80% (60)	86%(121)	88%(106)
Snaring:	- (-)	4%(5)	4%(5)
Other:	- (-)	1%(1)	- (-)

a. Harvest data are based on sealing data only.

b. Percentage males are based only on animals where sex was specified. There were 5, 3, and 1 harvest wolverines of unspecified sex during 1971-72, 1972-73, and 1973-74 respectively.

PREPARED BY: Carl McIlroy, Game Biologist III

WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Subunits 14A and 14B - Upper Cook Inlet

Seasons and Bag Limits

Hunting	Sept. 1 - Mar. 31	One Wolverine
Trapping	Nov. 10 - Mar. 31	No limit

Harvest and Hunting Pressure

A total of 16 wolverines taken in Game Management Subunits 14A and B were presented for sealing this year (Appendix I). Twenty-two wolverines were taken in these subunits during the 1972-73 season. Prior to the 1972-73 season wolverines taken in Subunits 14A and B were recorded with those taken in the remainder of Unit 14. No wolverines were taken in Subunit 14C this season (Appendix II). This year's take is below the entire unit average of 19.8 wolverines bountied during the 1962-63 through 1967-68 seasons, as well as the harvest of 36 wolverines during the 1972-73 season.

One wolverine was taken by ground shooting, and 15 by trapping or snaring. Eight were taken in Game Management Subunit 14A and eight from 14B.

Five (31.3 percent) of the 16 wolverines were taken in December and five were taken in February. The remaining six were scattered throughout the rest of the season.

Composition and Productivity

Ten of the 16 wolverines taken were males and six were females.

Management Summary and Conclusions

The 1973-74 wolverine harvest from Subunits 14A and B was less than during the 1972-73 season. The portion of the entire Unit 14 harvest that came from Subunits 14A and B during years previous to 1972-73 cannot be ascertained. The entire Unit 14 harvest during the 1973-74 season was below the previous year's take and slightly below the 1962-63 through 1967-68 average taken from bounty records. However, during previous years Subunit 14C was open to wolverine hunting and trapping (14 wolverines were trapped in Subunit 14C during the 1972-73 season).

During the 1973-74 season the portion of Subunit 14C within Chugach State Park was closed to wolverine hunting and trapping. This included much of the accessible wolverine habitat in the subunit and may have significantly influenced trapping efforts in the area. Thus, a harvest of 16 wolverines from the Subunit 14A and B portions of Unit 14 is probably comparable to the average during previous years.

Most (93.8 percent) of the wolverines harvested were taken by trappers. Only one was taken by ground shooting.

Recommendations

No changes in season length or bag limit are recommended at this time.

PREPARED BY:

Jack C. Didrickson & Don Cornelius
Game Biologist III & Game Biologist II

SUBMITTED BY:

John S. Vania
Regional Management Coordinator

Appendix I. Wolverine Harvest by Sex, Chronology and Method of Take in
Alaska's Game Management Subunits 14A and 14B during the 1973-
74 Season.

Harvest

<u>Area</u>	<u>Males</u>	<u>Females</u>	<u>Total</u>
Combined Subunits 14A and 14B	10	6	16
14A	6	2	8
14B	4	4	8

Chronology by Month

<u>Month</u>	<u>14A & B</u>		<u>14A</u>		<u>14B</u>	
	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>
October	1	6.2	0	0.0	1	12.5
November	1	6.2	1	12.5	0	0.0
December	5	31.3	2	25.0	3	37.5
January	1	6.2	0	0.0	1	12.5
February	5	31.3	3	37.5	2	25.0
March	3	18.8	2	25.0	1	12.5
TOTAL	16	100.0	8	100.0	8	100.0

Method of Take

Ground Shooting	1	6.2	0	0.0	1	12.5
Trapping	11	68.8	7	87.5	4	50.0
Snaring	4	25.0	1	12.5	3	37.5
TOTAL	16	100.0	8	100.0	8	100.0

Prepared by: J. Sexton, Game Biologist

Appendix II. Wolverine Harvest from Bounty Records and Wolverine Sealing Data
in Alaska's Game Management Unit 14, 1962-63 through 1967-68
and 1971-72 through 1973-74.

<u>Regulatory Year</u>	<u>Harvest*</u>	
	<u>Total Unit 14</u>	<u>Subunits 14A and B</u>
1962-63	9	Breakdown Not Available
1963-64	10	Breakdown Not Available
1964-65	15	Breakdown Not Available
1965-66	37	Breakdown Not Available
1966-67	27	Breakdown Not Available
1967-68	21	Breakdown Not Available
1968-69 through 1970-71	No Data	No Data
1971-72	12	Breakdown Not Available
1972-73	36	22
1973-74	16	16
Average number bountied 1962-63 through 1967-68	19.8	

* 1962-63 through 1967-68 data from bounty records.
1971-72 through 1973-74 data from wolverine sealing records.

Prepared by: J. Sexton, Game Biologist

WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Subunit 14C - Anchorage

Seasons and Bag Limits

Hunting	Chugach State Park remainder of subunit Sept. 1 - March 31	No open season One Wolverine
Trapping	Chugach State Park remainder of subunit Nov. 10-March 31	No open season No limit

Harvest and Hunting Pressure

No wolverines were reported harvested in subunit 14C for the period 1973-1974, as compared to the 14 animals taken during 1972-73.

Composition and Productivity

No data are available.

Management Summary and Conclusions

The hunting and trapping of wolverines in Subunit 14C have been curtailed by closures in the Chugach State Park. The harvest of this species will remain low in this subunit unless specific arrangements are made with the State Division of Parks.

Recommendations

The State Division of Parks should be contacted to discuss the possibility of arranging some acceptable harvest technique and period.

No changes in season length or bag limit are recommended at this time.

PREPARED BY:

Dimitri Bader
Game Biologist II

SUBMITTED BY:

John S. Vania
Regional Management Coordinator

WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 15 - Western Kenai Peninsula

Seasons and Bag Limits

Hunting	Sept. 1 - March 31	One Wolverine
Trapping	Nov. 1 - March 31	No Limit

Harvest and Hunting Pressure

Sealing records indicate that 15 wolverines were harvested in Unit 15 during the 1973-74 season (Appendices I and II). All were taken by trapping.

This year's harvest was down 25 percent from the 1972-73 harvest and down 40 percent from the 1971-72 harvest. No known changes in trapping or hunting pressure occurred, but casual observations produced less wolverine sign than last year.

Composition and Productivity

Data from which composition and productivity can be determined are not collected by the Department.

Management Summary and Conclusions

The wolverine harvest was lower not only for Unit 15, but for the entire Kenai Peninsula (see Unit 7). This probably reflects natural fluctuations in wolverine abundance.

Recommendations

No changes are recommended.

PREPARED BY:

Paul A. LeRoux
Game Biologist III

Spencer Linderman
Game Biologist II

SUBMITTED BY:

John S. Vania
Regional Management Coordinator

APPENDIX I
WOLVERINE 1973-74

Unit 15

Harvest

Males - 11 Females - 3 Unknown - 1 Total - 15

Chronology by Month

Month	Number	Percent	Month	Number	Percent
July	--	--	January	6	40.0
August	--	--	February	1	6.7
September	--	--	March	--	--
October	--	--	April	--	--
November	3	20.0	May	--	--
December	5	33.3	June	--	--
			Unknown	--	--
			Total	15	100.0

Method of Take	Number	Percent
Ground Shooting	--	--
Trapping	15	100.0
Snaring	--	--
Other	--	--
Total	15	100.0

Prepared by: Paul A. LePoux, Game Biologist III and Spencer Linderman, Game Biologist II

APPENDIX II

WOLVERINE COUNTY AND SEALING RECORDS - UNIT 15

<u>Year</u>	<u>Males</u>	<u>Females</u>	<u>Unknown Sex</u>	<u>Total</u>
1961-62 ¹	--	--	1	1
1962-63 ¹	--	--	--	--
1963-64 ¹	--	--	3	3
1964-65 ¹	--	--	13	13
1965-66 ¹	--	--	15	15
1966-67 ¹	--	--	16	16
1967-68 ¹	--	--	19	19
1968-69 ²	--	--	--	--
1969-70 ²	--	--	--	--
1970-71 ²	--	--	--	--
1971-72 ³	18	7	0	25
1972-73 ³	14	6	0	20
1973-74 ³	11	3	1	15

¹ Data from bounty records.

² Bounty discontinued, no record of harvest.

³ Data from sealing records.

--Zero Data

Prepared by: Paul A. LeRoux, Game Biologist III and Spencer Linderman, Game Biologist III

WOLVERINE
SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 16 - West Side of Cook Inlet

Seasons and Bag Limits

Hunting	Sept. 1 - Mar. 31	One Wolverine
Trapping	Nov. 10 - Mar. 31	No Limit

Harvest and Hunting Pressure

Fifty-two wolverines taken in Unit 16 during the 1973-74 season were presented for sealing. This was below the 1972-73 harvest of 67 but above the 1962-63 through 1968-69 average of 39.9 wolverines bountied per year (Appendix I).

Ten of the wolverines were taken in Subunit 16A and 42 in 16B.

Four (7.7%) of the wolverines were taken by ground shooting and 48 (92.3%) by trapping or snaring.

Chronology of harvest data indicated that 28 (53.9%) of the wolverine were taken during January and February. The remainder were scattered throughout the season.

Composition and Productivity

Thirty-two (61.5%) of the 52 wolverines were males and 20 (38.5%) were females.

Management Summary and Conclusions

The reported harvest of 52 wolverines was below that of the 1972-73 season but comparable to harvests obtained during the previous 10 years.

The major portion of the Unit 16 harvest (80.8%) occurred in Subunit 16B.

Trapping or snaring accounted for 92.3 percent of the take.

Recommendations

No changes in season length or bag limit are recommended at this time.

PREPARED BY:

Jack C. Didrickson

Game Biologist III

Don Cornelius

Game Biologist II

SUBMITTED BY:

John S. Vania

Regional Management Coordinator

Appendix I. Wolverine Harvest from Bounty Records and Wolverine Sealing Data in Alaska's Game Management Unit 16, 1962-63 Through 1968-69 and 1971-72 Through 1973-74.

<u>Regulatory Year</u>	<u>Harvest*</u>			
	<u>Total Unit 16</u>	<u>16A</u>	<u>16B</u>	<u>Unknown Subunit</u>
1962-63	13	Breakdown Not Available		
1963-64	43	Breakdown Not Available		
1964-65	34	Breakdown Not Available		
1965-66	58	Breakdown Not Available		
1966-67	51	Breakdown Not Available		
1967-68	44	Breakdown Not Available		
1968-69	15	Breakdown Not Available		
1969-70 through 1970-71	No Data			
1971-72	51	Breakdown Not Available		
1972-73	67	5	59	3
1973-74	52	10	42	0
Average number bountied				
1962-63 through 1968-69	39.9			

* 1962-63 through 1968-69 data from bounty records.
 1971-72 through 1973-74 data from wolverine sealing records.

Prepared by: J. Sexton

WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 17 - Bristol Bay

Seasons and Bag Limits

Hunting	September 1 - March 31	One Wolverine
Trapping	November 10 - March 31	No Limit

Hunting, Trapping and Harvest Pressure

The reported Unit 17 harvest for the 1973-1974 season was 22 wolverines. All but one of these animals were taken by trappers and males predominated in the harvest. The historical harvest for the unit is presented in Appendix I.

Composition and Productivity

No data are available.

Management Summary and Conclusions

Harvest during the 1973-1974 season was down from the 1972-1973 season although fur prices remained high. No reason for this decline is evident but the level of harvest in recent years is not considered excessive.

Recommendations

No changes in seasons or bag limits are recommended.

PREPARED BY:

James B. Faro
Game Biologist III

SUBMITTED BY:

John S. Vania
Regional Management Coordinator

Wolverine - G.M.U. 17 - Bristol Bay

Appendix I

Historical Wolverine Harvest, 1962-1974

Year	Harvest
1962-1963- ^{1/}	8
1963-1964- ^{1/}	70
1964-1965- ^{1/}	7
1965-1966- ^{1/}	27
1966-1967- ^{1/}	31
1967-1968- ^{1/}	35
1968-1969- ^{1/}	24
1969-1970- ^{2/}	-
1970-1971- ^{2/}	-
1971-1972- ^{3/}	21
1972-1973- ^{3/}	45
1973-1974- ^{3/}	22

1/ Data from bounty analysis

2/ Data not available

3/ Data from hide sealing program

PREPARED BY: James B. Faro, Game Biologist III

WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 18 - Yukon-Kuskokwim Delta

Seasons and Bag Limits

Hunting	Sept. - March 31	One wolverine
Trapping	Nov. 10 - March 31	No limit

Harvest, Trapping and Hunting Pressure

The 1973-74 harvest of wolverines was 11, consisting of 9 males and 2 females. The wolverine catch in Unit 18 showed a slight increase over the 1972-73 figure. This change may be due to an awareness and compliance with the mandatory sealing requirement. It is also known that trapping pressure has increased over the past several years, suggesting that the Unit 18 catch statistics may be influenced by several factors, including an increase in the wolverine population.

Management Summary and Conclusion

Reporting of wolverine harvested has continued to improve since inception of the mandatory sealing requirement. Harvests of wolverines still continue to be light even with long seasons and high pelt values.

PREPARED BY:

Peter E. K. Shepherd
Game Biologist III

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 19 - McGrath

Seasons and Bag Limits

Hunting	Sept. 1 - March 31	One wolverine
Trapping	Nov. 1 - March 31	No limit

Harvest, Trapping and Hunting Pressure

The 1973-74 harvest of wolverines was 40, consisting of 29 males, 11 females (Appendix I).

The harvest of wolverines stabilized during the 1973-74 season approaching the take of the 1972-73 season. An interesting shift occurred in the harvest chronology with nearly two-thirds of the wolverines being taken during the early or fall period (September-December). Normally, one would expect that most wolverines would be taken during the spring months. This suggests that increased fur prices may have stimulated more interest in obtaining wolverines as well as establishing more trappers in the field. In addition, comments of trappers and an increased frequency of wolverine sightings suggest that this furbearer may be experiencing a population increase.

Management Summary and Conclusions

Increasing pelt values appear to have stimulated more interest in wolverine trapping. However, wolverine populations are stable or possibly increasing and they remain relatively undisturbed in many areas.

PREPARED BY:

Peter E. K. Shepherd
Game Biologist III

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

Appendix I. Wolverine - Game Management Unit 19 - McGrath, wolverine harvest, chronology and method of take, 1973-74*

<u>Harvest</u>			
<u>Males</u>	<u>Females</u>	<u>Unknown</u>	<u>Total</u>
29	11	0	40

<u>Chronology by Month</u>		
<u>Month</u>	<u>Number</u>	<u>Percent</u>
July	--	--
August	--	--
September	1	2.5
October	--	--
November	4	10.0
December	13	32.5
January	9	22.5
February	7	17.5
March	5	12.5
April	--	--
May	--	--
June	1	2.5
Unknown	--	--
Total	40	100.0

<u>Method of Take</u>	<u>Number</u>	<u>Percent</u>
ground shooting	6	15.0
trapping	27	67.5
snaring	7	17.5
Total	40	100.0

*data from sealing records

WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 20 - Fairbanks, Central Tanana Valley

Seasons and Bag Limits

Hunting	Sept. 1 - Mar. 31	One wolverine
Trapping	Nov. 1 - Mar. 31	No limit

Harvest, Hunting and Trapping Pressure

Information obtained from sealing certificates indicates the legally reported harvest of wolverines in Unit 20 for the 1973-74 season consisted of 146 animals (87 M, 50 F and 9 unknown sex). This represents the largest unit harvest reported for the season, with Unit 20 furnishing 14 percent of the statewide total. The sex composition of the harvest showed little significant change from the 1972-73 season; males comprised 64 percent of the known-sex take in 1973-74 compared to 66 percent the previous year. Unit 20 harvests the past two seasons have been in excess of 100 animals, a considerable increase over the 1971-72 harvest of 55 (the first year of the mandatory sealing requirement).

The large reported harvest can be partly explained by the establishment of wolf/wolverine sealing officers at seven villages within or adjacent to Unit 20 (Eagle, Circle, Ft. Yukon, Beaver, Stevens Village, Manley and Tanana) which provided a more complete assessment of the hunting/trapping effort.

Appendix I lists the subunit harvest, chronology, and method of harvest. Subunit 20C, which occupies the largest area and apparently receives the heaviest trapping pressure, contributed 64 percent of the unit harvest. Trapping accounted for 84 percent of the total take, while 3 percent and 12 percent of the wolverines were taken by ground shooting and snaring, respectively. Harvest chronology indicates a less uniform distribution of the harvest during the period when most trappers prefer to take wolverines (November-March) than for the 1972-73 season. Fifty-eight percent of the known-date harvest occurred in December and March, compared to 30 percent the previous year. It is not known whether this is a reflection of availability of animals or differential trapping effort. The percentage of the known-date harvest taken for the five-month period in 1973-74 is as follows: November - 14%, December - 34%, January - 18%, February - 8%, and March - 24%.

Appendix II lists those areas contributing substantial numbers of wolverines to the 1973-74 harvest, and reflects the concentrated trapping effort along relatively few drainages.

Composition and Productivity

No current information is available.

Management Summary and Recommendations

The substantial harvest of wolverines in Unit 20 during 1972-73 and 1973-74 may be a reflection of an expanding population, intensive trapping pressure, or both. Two successive mild winters and high market value of wolverine pelts (\$50 - \$150 advertised) contributed to the current high interest in recreational and subsistence trapping. High numbers of other furbearers in the Interior (wolf, lynx and fox) provided additional trapping incentive.

Analysis of kill locations indicates pressure on the wolverine resource in this unit is restricted to traditional trapping areas in the Tanana Flats, central and western portions of the Alaska Range (Wood River, Dry Creek, Gerstle River, Healy Creek and Kantishna River drainages) and drainages of Birch Creek, Healy River, Tolovana River and Hess Creek. An overharvest may result in these areas at the current level of harvest, although it is unknown whether the existing population will allow for repopulation.

In the event future harvests decline while fur prices and trapping pressure remain high, it is recommended that a bag limit on trapping be established.

PREPARED BY:

Mel Buchholtz
Game Biologist II

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

Appendix I. Unit 20 wolverine harvest, 1973-74 regulatory year. Based on information obtained from sealing certificates.

	No. Taken			Chronology		Method of Harvest		
	M	F	?	Month	No. Taken	Ground Shooting	Trapping	Snaring
GMU 20A	19	9	2	Nov.	1	1	24	5
				Dec.	12			
				Jan.	7			
				Feb.	2			
				March	8			
GMU 20B	9	4		Oct.	1	1	10	2
				Nov.	3			
				Dec.	3			
				Jan.	3			
				Feb.	1			
GMU 20C	51	36	7	March	2	2	81	11
				Sept.	2			
				Nov.	14			
				Dec.	32			
				Jan.	16			
GMU 20D	8	1	-	Feb.	7	1	8	-
				March	23			
				Sept.	1			
				Nov.	2			
				Dec.	2			
Unit 20 Totals	87	50	9	Jan.	1	5	123	18
				Feb.	1			
				March	2			
					146			

Appendix II. Unit 20 wolverine harvest by drainage, 1973-74 regulatory year.
Only those areas furnishing three or more animals to the harvest
are represented.

	Number Taken	% of Subunit Harvest
GMU 20A		
Tanana Flats	8	27
Totatlanika River	3	10
Wood River, Gold King	3	10
Dry Creek	8	27
Delta River, Delta Creek, Little Delta River	3	10
GMU 20B		
Chatanika River	4	31
Tatalina River	4	31
Tanana River, Chena River, Goldstream Creek	4	31
GMU 20C		
Fortymile River	3	3
Yukon River	8	8
Tanana River	3	3
Healy River (Delta area)	6	6
Salcha River	3	3
Shaw Creek, Goodpaster River	4	4
Birch Creek	14	15
Beaver Creek	3	3
Tolovana River	6	6
Hess Creek	11	12
Nenana River	5	5
Healy Creek, Lignite Creek	7	7
Teklanika River, Toklat River, Savage River	6	6
Kantishna River	6	6
GMU 20D		
Gerstle River	5	56

WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 21 - Middle Yukon

Seasons and Bag Limits

Hunting	Sept. 1 - March 31	One wolverine
Trapping	Nov. 1 - March 31	No limit

Harvest, Trapping and Hunting Pressure

The 1973-74 harvest of wolverines was 46, consisting of 27 males, 7 females, and 12 sex unknown (Appendix I).

In 1973-74 a significant change occurred in the chronology of harvest, that is, a major portion of the catch was taken early in the trapping season (50% in November and December). Wolverines are normally much more mobile during the spring months, especially along the floodplains of most drainages. Therefore, one would expect a large proportion of the annual harvest to take place during this period. This suggests, as in adjacent Unit 19, that increased fur prices may have stimulated more interest in trapping wolverines. In addition, more trappers were active thus increasing the chance for capture of more wolverines. Wolverine populations are also felt to be on the increase in Unit 21.

Management Summary and Conclusions

Despite increased trapping pressure resulting from high prices for wolverine pelts, populations of this valuable fur animal remain high.

PREPARED BY:

Peter E. K. Shepherd
Game Biologist III

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

Appendix I. Wolverine - Game Management Unit 21 - Middle Yukon, wolverine harvest, chronology, and method of take, 1973-74*.

<u>Harvest</u>			
Males	Females	Unknown	Total
27	7	12	46

<u>Chronology by Month</u>		
Month	Number	Percent
July	--	--
August	--	--
September	--	--
October	--	--
November	10	21.7
December	13	28.3
January	5	10.9
February	7	15.2
March	4	8.7
April	--	--
May	--	--
June	--	--
Unknown	7	15.2
Total	46	100.0

Method of Take	Number	Percent
ground shooting	6	13.0
trapping	33	71.7
snaring	7	15.2
Total	46	99.9

*data from sealing records

WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 22 - Seward Peninsula

Seasons and Bag Limits

Hunting	Sept. 1 - March 31	One wolverine
Trapping	Nov. 1 - March 31	No limit

Harvest, Trapping and Hunting Pressure

The wolverine harvest in Unit 22 was up slightly. Of the 24 reported, males outnumbered females 16 to 6 with 2 undetermined (Appendix I). Trapping was the most common method of taking wolverines (38%), which is one of the first times trapping exceeded ground shooting as the most common method of taking wolverines. The Shishmaref and Elim areas were the most productive and also reflect that these two areas had the most active village sealers. February and March are still the principal months when wolverines are harvested.

Seasonal Distribution, Migration and Concentration

Wolverine tracks are not very abundant in Unit 22.

Management Summary and Recommendations

The demand for wolverine pelts far exceeds the amount taken. Sealing records indicate residents of Shishmaref travel great distances to obtain their wolverines.

PREPARED BY:

Robert E. Pegau
Game Biologist III

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

Appendix I. Chronology of wolverine harvest in Unit 22.

Month	Sex			Area				
	Male	Female	Unk	Shishmaref	Elim	Nome	Koyuk	Other
Nov	2	-	-	-	2	-	-	-
Dec	3	1	-	1	2	-	-	1
Jan	4	-	-	1	-	2	-	1
Feb	3	2	1	1	3	-	2	-
Mar	4	3	1	7	-	-	-	1

Method of Take	Number	Percent
ground shooting	9	37.5
trapping	14	58.3
digging out	1	4.2

WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 23 - Kotzebue Sound

Seasons and Bag Limits

Hunting	Sept. 1 - March 31	One wolverine
Trapping	Nov. 1 - March 31	No limit

Harvest, Trapping and Hunting Pressure

The wolverine harvest was down in Unit 23 due, in part, to adverse weather during February. Twenty-eight wolverine pelts were sealed, 16 males, 10 females and 2 undetermined (Appendix I). Trapping accounted for 11, ground shooting 16 and snaring 1. Discussions with residents in Unit 23 revealed that we are still not getting all wolverines taken sealed. The reported harvest was nearly evenly divided between Point Hope, Kivalina, Noatak, Shungnak and Selawik.

Seasonal Distribution, Migration and Concentration

Wolverine tracks are most abundant in the remote areas of Unit 23.

Management Summary and Recommendations

It will take a little time to get good, dependable sealers in each village. It is apparent that some people get better cooperation and are more motivated to do a thorough job. The demand for wolverines will probably exceed the number taken for several years.

PREPARED BY:

Robert E. Pegau
Game Biologist III

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

Appendix I. Chronology of wolverine harvest in Unit 23.

Month	Sex			Area					
	Male	Female	Unk	Pt. Hope	Noatak	Kivalina	Shungnak	Selawik	Other
Nov	5	4	-	3	-	1	3	2	-
Dec	1	2	2	1	2	2	-	-	-
Jan	2	1	-	-	-	-	1	1	1
Feb	4	2	-	2	2	-	1	-	1
Mar	4	1	-	-	1	1	-	1	2
Total	16	10	2	6	5	4	5	4	4

WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 24 - Koyukuk

Seasons and Bag Limits

Hunting	Sept. 1 - March 31	One wolverine
Trapping	Nov. 1 - March 31	No limit

Harvest, Trapping and Hunting Pressure

The reported harvest for the 1973-74 hunting and trapping season was 48 (40 males and 8 females). This was an increase over the 1972-73 harvest of 15 (9 males and 6 females).

The following table lists the harvests for Unit 24 from 1959 to 1974.

<u>Year</u>	<u>Number</u>	<u>Year</u>	<u>Number</u>
1959-60	4	1966-67	11
1960-61	4	1967-68	24
1961-62	0	1968-69	0
1962-63	11	1969-70	No data available
1963-64	10	1970-71	No data available
1964-65	16	1971-72	12
1965-66	5	1972-73	15
		1973-74	48

There was little change in the methods used to take wolverines from the 1972-73 season to the 1973-74 season. In 1973-74, 4 percent were taken by ground shooting, 77 percent by trapping and 19 percent by snaring. In 1972-73, 13 percent were taken by ground shooting and the remainder by trapping techniques. In the 1972-73 season a large majority of the harvest occurred in March, when 10 of the total of 15 were taken. The following season the harvest was spread over November to March, with only 25 percent taken in March.

Management Summary and Recommendations

It is unlikely that the present sealing program accurately reflects the harvest in Unit 24. Local utilization of wolverines for ruffs and garment trim results in wolverine skins being manufactured into various items before they are sealed. Harvest patterns in Unit 24 are associated with trapping techniques unlike Units 22 and 23 where a much higher percentage of the wolverines are taken by ground shooting. Despite substantial increases in the fur markets for many species of furbearers and the continued high value for wolverines, the total trapping effort has not increased greatly. It is unlikely that there will be any management problems associated with excessive harvests of wolverines.

PREPARED BY:

SUBMITTED BY:

Jeannette R. Ernest
Game Biologist II

Oliver E. Burris
Regional Management Coordinator

WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 25 - Ft. Yukon

Seasons and Bag Limits

Hunting	Sept. 1 - March 31	One wolverine
Trapping	Nov. 1 - March 31	No limit

Harvest, Trapping and Hunting Pressure

The reported harvest for the 1973-74 hunting and trapping seasons was 127 (64 males, 41 females, 22 sex unknown). This was a considerable increase over the 1972-73 harvest of 74 (36 males, 32 females, 6 sex unknown).

The harvests for Unit 25 from 1959 to 1974 are listed in the following table.

<u>Year</u>	<u>Number</u>	<u>Year</u>	<u>Number</u>
1959-60	12	1966-67	20
1960-61	56	1967-68	29
1961-62	22	1968-69	29
1962-63	32	1969-70	No data available
1963-64	35	1970-71	No data available
1964-65	42	1971-72	41
1965-66	48	1972-73	74
		1973-74	127

Wolverines taken in Unit 25 are taken by trapping techniques. None were reported taken by hunting in either 1971-72 or 1972-73 and only 4 percent in 1973-74. In most seasons the harvest tends to be evenly distributed between the months of November, December, January, February and March.

Management Summary and Recommendations

The accuracy or completeness of the sealing program in this unit has not been determined, however, it is unlikely that all wolverines being taken in Unit 25 are being sealed. Local utilization of wolverine skins for ruffs and garment trim is probably much less than in several of the other game management units such as Units 18, 22, 23 and 26. Harvest figures taken from the number of wolverine skins sealed in the unit are probably a better measure of the harvest compared to those units where there is a high utilization of wolverine skins. It appears that wolverines are not taken by hunting or ground shooting (shooting is allowed as a legal method of trapping). The increased harvest in the 1973-74 season is most likely a result of the substantial improvement in the fur market and the increase in trapping effort. Management problems are not expected to develop as a result of the increase in trapping pressure.

PREPARED BY:

Jeannette R. Ernest
Game Biologist II

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 26 - Arctic Slope

Seasons and Bag Limits

Hunting	Sept. 1 - March 31	One wolverine
Trapping	Nov. 1 - March 31	No limit

Harvest, Trapping and Hunting Pressure

The reported harvest from the 1973-74 season was only 5 (4 males and 1 female). The harvest from the 1972-73 season was only 5 males.

The historical record of harvest for Unit 26 for the last 15 years is as follows:

<u>Year</u>	<u>Number</u>	<u>Year</u>	<u>Number</u>
1959-60	13	1966-67	33
1960-61	31	1967-68	25
1961-62	8	1968-69	17
1962-63	10	1969-70	No data available
1963-64	42	1970-71	No data available
1964-65	No data available	1971-72	2
1965-66	11	1972-73	5
		1973-74	5

The methods of harvesting wolverines in Unit 26 are essentially the same as the techniques used in Units 22 and 23 where wolverines are hunted and shot. Very few are taken by traditional trapping techniques.

Management Summary and Recommendations

Prior to the discontinuation of the wolverine bounty it was felt that the bounty system and harvest estimates derived from the bounty system were not an accurate measure of the wolverine kill in Unit 26. The very high value of wolverines for parka ruffs and other garment trim in this unit resulted in few wolverines being held for the bounty. This situation has not changed in reference to the wolverine sealing program and it's highly likely that the wolverine harvest in Unit 26 has been grossly underestimated for many years. Recent increases in the value of furs and particularly wolverine have not been of substantial influence in this area because the high value of wolverine skins has persisted for many years.

PREPARED BY:

Jeannette R. Ernest
Game Biologist II

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

Trapper Questionnaire

1971-72, 1972-73, 1973-74

Questionnaires requesting information on observations of population trends of lynx, snowshoe hare and grouse have been mailed to a selected group of trappers at the close of each trapping season since 1966. For the past three years about 200 questionnaires have been mailed out each spring, and around 80-90 replies were returned during the following three months.

Questionnaire Results, 1971 - 1972

Lynx populations

The average number of lynx harvested per trapper (Table 1) in 1971-1972 was 14.9, an increase from the 4.3 lynx per trapper in 1970-1971. Fort Yukon area trappers averaged 20.6, an increase from 13.4 lynx in 1970-1971. Delta was next highest with an average of 20.3 lynx per trapper for the five trappers replying.

Replies from all areas indicated a moderately low level of lynx but with an increase over last year in all areas except Fort Yukon. Trappers in Fort Yukon felt there were fewer lynx this year thus far, although their catch was higher. They expressed the feeling that there were fewer kittens, which would not show up in the 1971-1972 catch, but would affect next year's harvest. Fairbanks, Delta and Tok trappers reported a substantial increase in lynx this year as compared to the 1970-1971 season (see Table 2).

Snowshoe Hare Populations

Most areas reported moderately high populations of snowshoe hares, except for Fort Yukon which indicated a very low hare population. The hare population apparently crashed in the Steven Village-Fort Yukon area sometime in late 1970. Hare numbers have increased in all but the Fort Yukon area since the 1970-1971 season (Table 3).

Grouse Populations

Grouse populations were relatively low all over the state in the 1971-1972 season. There were a few returns from trappers in the Glennallen area which indicated a local abundance, but most indicated a moderate to low level of population and a slight decrease from the 1970-1971 season (Table 4).

Table 1. Summary of replies to the 1971-1972 trapper questionnaire on lynx harvest.

Area	Number of Responses	Number Who didn't Trap	Number Returned Unanswered	Number of Lynx Harvested	Average Per Trapper
Fort Yukon	15	2	0	310	20.6
Fairbanks	21	6	0	123	8.2
Delta	5	-	2	61	20.3
Tok	7	2	1	51	10.2
Glennallen	11	5	-	130	11.8
Other	24	2	1	247	11.8
Statewide	83	17	4	922	14.9

Table 2. Summary of replies to the 1971-1972 trapper questionnaire on lynx populations.

Area	Abundance in 1971-1972 Season				Comparison with 1970-1971			
	High	Mod	Low	Index	More	Same	Less	Index
Fort Yukon	3	5	6	4.1	3	3	8	3.6
Fairbanks	4	7	6	4.5	10	6	0	7.5
Delta	0	4	0	5.0	4	1	0	8.2
Tok	0	3	3	3.0	4	1	1	7.0
Glennallen	0	7	7	3.0	5	6	2	5.9
Other	4	6	10	3.8	10	5	6	5.8
Statewide	11	32	32	3.9	36	22	14	6.2

Table 3. Summary of replies to the 1971-1972 trapper questionnaire on hare populations.

Area	Abundance in 1971-1972 Season				Comparison with 1970-1971			
	High	Mod	Low	Index	More	Same	Less	Index
Fort Yukon	2	2	10	2.7	2	2	10	2.7
Fairbanks	1	5	0	8.8	1	5	0	8.8
Delta	3	2	0	7.4	3	2	0	7.4
Tok	4	2	0	7.4	6	0	0	9.0
Glennallen	7	5	2	6.4	7	5	1	6.5
Other	12	4	4	6.6	12	4	5	6.3
Statewide	29	20	16	5.8	31	18	16	5.9

Table 4. Summary of replies to the 1971-1972 trapper questionnaire on grouse populations.

Area	Abundance in 1971-1972 Season				Comparison with 1970-1971			
	High	Mod	Low	Index	More	Same	Less	Index
Fort Yukon	0	4	9	2.2	2	3	8	3.2
Fairbanks	0	5	14	2.1	0	8	11	2.7
Delta	0	0	5	1.0	0	0	5	1.0
Tok	0	2	4	2.3	0	1	5	1.7
Glennallen	2	4	7	3.3	2	5	6	3.8
Other	0	5	15	2.5	0	5	16	2.4
Statewide	2	20	54	2.3	4	22	51	2.6

Questionnaire Results, 1972-1973

Lynx Populations

The average number of lynx harvested per trapper (Table 5) in 1972-1973 was 20.6, an increase from the average of 14.9 lynx per trapper in 1971-1972. Tok area trappers averaged 44.5 lynx per trapper, an increase from 10.2 lynx per trapper average in 1971-1972. Glennallen was next with an average of 21.1 lynx per trapper compared with 11.8 for the 1971-1972 season.

Lynx populations were considered high in Tok, moderate but increasing in Fairbanks and generally high and increasing over the state. Fort Yukon trappers considered lynx populations to be low and decreasing (Table 6).

Snowshoe Hare Populations

Hare populations were reported to be high in Fairbanks and Glennallen, and moderately high in Tok. Statewide returns indicated that snowshoe hares were moderately high generally around the state. Fort Yukon reported low hare populations, about the same or slightly less than last year. Delta trappers also reported low hare populations with a decrease from 1971-1972, but other reports have suggested hares may be abundant in some places around Delta (Table 7).

Grouse Populations

Grouse populations were considered to be generally low around the state, and few trappers felt that there was any increase from the 1971-1972 season (Table 8).

Table 5. Summary of replies to the 1972-1973 trapper questionnaire on lynx harvest.

Area	Number of Responses	Number Who didn't Trap	Number Returned Unanswered	Number of Lynx Harvested	Average Per Trapper
Fort Yukon	13	1	0	162	13.5
Fairbanks	22	3	1	259	14.4
Delta	3	0	0	38	19
Tok	7	0	0	266	44.5
Glennallen	21	1	5	317	21.1
Other	14	4	0	342	34.2
Statewide	84	12	5	1381	20.6

Table 6. Summary of replies to the 1972-1973 trapper questionnaire on lynx populations.

Area	<u>Abundance in 1972-1973 Season</u>				<u>Comparison with 1971-1972</u>			
	High	Mod	Low	Index	More	Same	Less	Index
Fort Yukon	1	7	5	3.8	2	6	5	4.1
Fairbanks	9	5	5	5.8	9	4	2	6.9
Delta	1	1	1	5.0	2	1	0	7.7
Tok	4	3	0	7.0	6	1	0	8.3
Glennallen	3	5	12	3.2	8	4	8	5.0
Other	4	5	4	5.0	7	2	4	5.9
Statewide	23	27	26	5.8	36	20	18	6.0

Table 7. Summary of replies to the 1972-1973 trapper questionnaire on hare populations.

Area	<u>Abundance in 1972-1973 Season</u>				<u>Comparison with 1971-1972</u>			
	High	Mod	Low	Index	More	Same	Less	Index
Fort Yukon	1	5	7	2.8	3	4	6	4.2
Fairbanks	13	7	0	7.6	3	9	4	4.8
Delta	0	1	3	2.0	0	5	2	2.3
Tok	3	3	1	5.7	1	3	3	2.4
Glennallen	10	7	3	6.4	4	13	3	5.2
Other	6	3	4	4.2	3	5	4	4.7
Statewide	37	26	16	6.1	15	38	21	4.7

Table 8. Summary of replies to the 1972-1973 trapper questionnaire on grouse populations.

Area	Abundance in 1972-1973 Season				Comparison with 1971-1972			
	High	Mod	Low	Index	More	Same	Less	Index
Fort Yukon	0	3	8	2.1	3	3	6	4.0
Fairbanks	0	2	18	1.4	0	5	12	2.2
Delta	0	0	3	1.0	0	1	2	2.3
Tok	0	0	7	1.0	0	0	7	1.0
Glennallen	0	6	14	2.2	3	5	12	3.2
Other	0	1	13	1.3	0	2	10	1.7
Statewide	2	14	62	1.9	8	18	48	2.8

Questionnaire Results, 1973-1974

Lynx Populations

The average number of lynx harvested per trapper (Table 9) in 1973-1974 was 18, a decrease from the 1972-1973 average of 21 lynx per trapper. Glennallen area trappers averaged 29 lynx per trapper, the highest in the state.

Lynx populations were considered high in the Delta and Tok areas but at moderate levels elsewhere. Most respondents felt that lynx populations were at about the same level as during the previous year (1972-73) or were decreasing very slightly (Table 10).

Snowshoe Hare Populations

Snowshoe hare populations were generally considered to be moderately high but decreasing in most areas. Fort Yukon trappers felt that hares were at a moderately low level and Fairbanks area trappers indicated that hare populations were definitely on the decline in this area (Table 11).

Grouse Populations

Grouse seemed to be scarce all over the state, according to trappers. Glennallen area trappers felt that grouse populations were at a moderate level, but replies from other areas indicated low populations of grouse. Most replies indicated a decrease in the numbers of grouse since the 1972-1973 season (Table 12).

Table 9. Summary of replies to the 1973-1974 trapper questionnaire on lynx harvest.

Area	Number of Responses	Number That didn't Trap	Number Returned Unanswered	Number of Lynx Harvested	Average Per Trapper
Fort Yukon	13	-	1	183	15
Fairbanks	43	9	0	282	11.2
Delta	3	-	-	27	9
Tok	7	-	-	109	16
Glennallen	12	0	-	353	29
Other	22	7	-	234	16
Statewide	81	21	-	1161	18

Table 10. Summary of replies to the 1973-1974 trapper questionnaire on grouse populations.

Area	Abundance in 1973-1974 Season				Comparison with 1972-1973			
	High	Mod	Low	Index	More	Same	Less	Index
Fort Yukon	2	4	7	3.5	4	6	3	5.3
Fairbanks	1	3	34	1.5	5	10	20	3.3
Delta	0	0	5	1	0	3	2	3.4
Tok	0	1	7	1.5	0	4	3	3.3
Glennallen	0	16	0	5.0	1	6	9	3.0
Other	0	2	21	1.4	0	5	16	2.0
Statewide	3	34	69	2.5	10	31	51	3.2

Table 11. Summary of replies to the 1973-1974 trapper questionnaire on hare populations.

Area	Abundance in 1973-1974 Season				Comparison with 1972-1973			
	High	Mod	Low	Index	More	Same	Less	Index
Fort Yukon	2	4	7	3.5	1	8	4	4.1
Fairbanks	4	29	5	4.9	1	10	26	2.3
Delta	3	2	0	7.4	2	1	2	5.0
Tok	5	2	1	7.0	3	4	1	6.0
Glennallen	7	6	3	6.0	5	7	4	5.3
Other	8	7	8	5.0	3	8	10	3.7
Statewide	26	48	24	7.5	13	37	45	3.7

Table 12. Summary of replies to the 1973-1974 trapper questionnaire on lynx populations.

Area	Abundance in 1973-1974 Season				Comparison with 1972-1973			
	High	Mod	Low	Index	More	Same	Less	Index
Fort Yukon	3	1	9	3.2	3	3	7	3.8
Fairbanks	10	12	12	4.8	6	14	11	4.4
Delta	4	1	0	8.2	3	2	0	7.4
Tok	4	3	1	6.5	2	5	1	5.5
Glennallen	1	6	10	2.9	2	8	5	4.2
Other	7	4	11	4.3	6	7	8	4.6
Statewide	25	26	33	4.6	19	37	32	4.4

FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 11 - Wrangell Mountains

Trapping Seasons and Bag Limits

Beaver	Feb. 1 - Apr. 15	No limit
Coyote	Nov. 10 - Apr. 30	No limit
Fox, Red (including Cross, black and Silver color phases)	Nov. 10 - Feb. 15	No limit
Lynx	Nov. 10 - Mar. 31	No limit
Marten	Oct. 20 - Feb. 28	No limit
Mink and Weasel	Nov. 10 - Jan. 31	No limit
Muskrat	Nov. 10 - June 10	No limit
Otter, Land	Nov. 10 - Apr. 15	No limit
Squirrel and Marmot	No Closed Season	No limit
Wolf	Oct. 1 - Apr. 30	No limit
Wolverine	Nov. 10 - Mar. 31	No limit

Harvest and Trapping Pressure

Prices paid for furs this past season were generally higher than at any time in the past 10 years. These high prices rekindled interest in trapping, and individuals that had not trapped for years again tried their hand. It is estimated that between 40 and 50 persons trapped in Unit 11 during 1973-74. This trapping pressure covered the entire unit but varied in intensity. More accessible areas experienced relatively intensive trapping pressure, while the more remote areas were utilized mainly by aircraft-equipped trappers.

Information on trapping success (Appendix I) was obtained by contacting trappers and fur buyers. The value listed for each species is the average price paid by a local fur buyer. Information specific to each species of furbearer in Unit 11 is presented below.

Beaver: These animals are distributed throughout the unit, although they are not abundant in any one location. Trapping pressure has been relatively light. Only two persons are known to have attempted to trap beaver this past season. Beavers in Unit 11 were trapped primarily for their castors. The average pelt price was \$30.00.

Coyote: Coyotes were moderately abundant along all major drainages. Due to their low pelt value, few trappers actively attempted to trap them, and most were taken in sets intended for other species. The average pelt price was \$21.00.

Red Fox: (including cross and silver or black color phases). Fox were very abundant throughout the northern half of Unit 11 and were one of the two most sought-after furbearers. The average pelt price was \$46.00, and top quality hides brought \$125.00.

Lynx: Lynx were moderately abundant throughout the timbered portions of the unit, although lynx numbers were believed to be down from the 1972-73 level. Their high pelt value and the ease with which they could be caught made them the other of the two most sought after species. The average pelt price was \$78.00 with top quality hides bringing in excess of \$175.00.

Marten: The primary known marten range is located on the slopes of Mt. Drum. Marten abundance in other areas is either low or unknown. At least two trappers intentionally trapped for marten, but most were taken in sets for other species. The average pelt price was \$18.50.

Mink: These animals were numerous throughout Unit 11 but received little trapping pressure. No trappers are known to have intentionally sought them. The average pelt price was \$17.00.

Muskrat: No information is available on muskrat abundance in Unit 11, and no trappers are known to have engaged in muskrat trapping. A few muskrats were taken by trappers, but they were primarily used as bait for other species. The average pelt value was \$2.25.

Land Otter: These animals were scattered throughout the lower elevations of Unit 11. No trappers are known to have engaged in otter trapping in Unit 11. The average pelt value was \$40.00.

Red Squirrel: Red squirrels were abundant and were found throughout the timbered areas of Unit 11. They are considered to be a nuisance by trappers, and only two children are known to have trapped them. The average pelt value was \$.85.

Wolf: Wolves were found throughout Unit 11 with densities seemingly proportional to the available food supply. Most trappers operating in Unit 11 eagerly trapped for wolves, although trapping success was low. The average pelt value was \$95.00, and prime top-quality hides sold for more than \$200.00.

Wolverine: These animals were found throughout Unit 11 with greater numbers being found in the Chitina Valley and in the upper Copper River area. Most trappers eagerly sought wolverine. The average pelt value was \$100.00.

Composition and Productivity

No composition or productivity data are available at this time.

Management Summary and Conclusions

The trapping effort in Unit 11 during 1973-74 was more intense than it has been for the past several years. This is believed to have been a result of high fur prices. All furbearer populations are believed to be remaining relatively static throughout their range. However, lynx are believed to be in the higher ranges of their cycle corresponding to the high hare population that has existed. Lynx are expected to decline in the near future following a recent reduction in hare numbers.

Recommendations

No recommendations on season or bag limits will be made at this time.

PREPARED BY:

Nick Steen
Game Biologist II

SUBMITTED BY:

John S. Vania
Regional Management Coordinator

Appendix I. Number and Value of Furbearer Harvest in Unit 11 during 1973-74

<u>Species</u>	<u>Furbearer Harvest During 1973-74</u>		
	<u>Average Pelt Price</u>	<u>Number Harvested</u>	<u>Total Value</u>
Beaver:	\$30.00	1	\$ 30.00
Coyote:	\$21.00	47	\$ 987.00
Red Fox (including cross, silver or black):	\$46.00	369	\$16,974.00
Lynx:	\$78.00	349	\$27,222.00
Marten:	\$18.50	95	\$ 1,758.00
Mink:	\$17.00	60	\$ 1,020.00
Muskrat:	\$ 2.25	0	\$ 0
Land Otter:	\$40.00	1	\$ 40.00
Red Squirrel:	\$.60	85	\$ 51.00
Wolf:	\$95.00	73	\$ 6,935.00
Wolverine:	\$100.00	76	<u>\$ 7,600.00</u>
Total Value of Harvest:			\$62,617.00

Prepared by: Nick Steen
Game Biologist II

FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 18 - Yukon-Kuskokwim Delta

Seasons and Bag Limits

<u>Species</u>	<u>Season</u>	<u>Bag Limit</u>
Beaver	Feb 1 - March 31	10 per season
Coyote	Nov. 10 - Apr. 30	No limit
White Fox	Nov. 10 - Apr. 15	No limit
Red Fox	Nov. 10 - Apr. 15	No limit
Lynx	Nov. 10 - March 31	No limit
Marten	Oct. 20 - Feb 28	No limit
Mink & Weasel	Nov. 10 - Jan. 31	No limit
Land Otter	Nov. 10 - March 31	No limit
Squirrels (all species)	No closed season	No limit
Wolf	Oct. 1 - Apr. 30	No limit
Wolverine	Nov. 10 - March 31	No limit

Harvest and Hunting Pressure

Beaver: Unit 18 had one of the best beaver catches in many years during the spring season of 1973. There appear to be several reasons for the renewed interest in beaver trapping on the lower Kuskokwim and Yukon Rivers. The prime reason, in my opinion, is the need to reinforce the concept of subsistence lifestyle which, until recently, was gradually being replaced by other means of support such as welfare and food stamps. Furthermore, beaver populations have increased greatly on the Delta and have also expanded to the coastal sloughs, especially on the lower Yukon. Another important factor involved in the growing pressure is the trend towards higher pelt prices. Travel on the tundra was enhanced by a healthy snowpack in 1973 making snow machine trips less arduous than when there is a lack of snow.

Two hundred and thirty trappers took 1,769 beaver in 1973 compared to 133 trappers and a catch of 961 beaver in 1972. This trend is expected to continue as long as beaver populations and fur prices remain high and additional cash is needed to supplement other means of support. The prime motivation, that of establishing subsistence use, will also influence future trapping effort.

White Fox: White fox are increasing in Unit 18 although interest in this furbearer was not high in 1973. Increasing pelt value and an active demand for white fox fur will no doubt influence trapping effort in the future.

Red Fox: Red fox are definitely on the increase in Unit 18. Trappers reported taking more fox than they had for many years. Future catches of this furbearer will also be influenced by the rapidly increasing market for long-haired fur.

Lynx: Lynx appeared in the catches of trappers especially in the Aniak, Kalskag and lower Kalskag area. The total catch is not known but is relatively insignificant in comparison with other areas.

Mink: Mink populations were reported low especially in the Chevak, Kuchinak and Bethel areas. Trapping effort was also relaxed and only a few trappers reported taking over 20 mink during the season.

Land Otter: Land otter were abundant on the Yukon-Kuskokwim Delta in 1973 and several large catches were reported. This season Delta otters were bringing the trapper an average of \$55.00 per pelt, a price certainly more inducive to the trapping of this difficult to handle peltry.

Abundance and Productivity

No studies or aerial surveys were conducted in Unit 18 in 1973.

Management Summary and Recommendations

No regulatory changes are proposed.

PREPARED BY:

Peter E. K. Shepherd
Game Biologist III

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 19 - McGrath

Season and Bag Limits

<u>Species</u>	<u>Season</u>	<u>Bag Limit</u>
Beaver		
Unit 19A (Kuskokwim drainage upstream from McGrath and Takotna River)	Feb. 1 - Apr. 15	25 per season
Unit 19B (Downstream from McGrath, except Holitna River as described below)	Feb. 1 - Feb. 28	10 per season
Unit 19B (Holitna River drainage upstream from its confluence with Hoholitna River except Titnuk Creek)	No open season	
Coyote	Nov. 1 - Apr. 30	No limit
Red Fox	Nov. 1 - Jan. 31	No limit
Lynx	Nov. 1 - Mar. 31	No limit
Marten	Oct. 20 - Feb. 28	No limit
Mink and weasel	Nov. 1 - Jan. 31	No limit
Muskrat	Nov. 1 - June 10	No limit
Land otter	Nov. 1 - Mar. 31	No limit
Squirrel (all species)	No closed season	No limit
Wolf	Oct. 1 - Apr. 30	No limit
Wolverine	Nov. 1 Mar. 31	No limit

Harvest and Hunting Pressure

The beaver trapping effort in 1973 was more intensive than in the past few years. This difference was largely due to increases in pelt values, a light snowpack, moderate ice and possibly an attempt to renew subsistence roles and needs. In 1973, 155 trappers reported 1,085 beaver compared to 93 trappers with a catch of 597 in 1972.

Fall surveys of beaver caches in 1972 suggested a continued increase of beaver numbers along the Takotna and Nixon Fork Rivers. Other watersheds in Unit 19 are experiencing a like expansion of beaver colonies and numbers. These increases are probably related to the lack of trapping pressure, better than average overwintering conditions and movement of side stream beaver populations into the main river systems.

Coyote: Sightings of coyotes are infrequent in Unit 19. However, several have been seen in the upper river valleys of the Tonsona and South Fork of the Kuskokwim where, at present, hares are extremely

abundant. Very few coyotes are caught in the remaining sections of Unit 19 at present. In the past coyotes have been caught in the vicinity of McGrath and Sleetmute.

Red Fox: Red fox were in moderate numbers during 1973. Few were trapped in the McGrath and Sleetmute areas; I would estimate only 20-30 fox were caught in this unit.

Marten: Marten were not abundant in Unit 19 during 1973 despite the fact that microtine populations were quite high and one would expect a resultant increase in the marten population. McGrath area trappers took approximately 400-500 marten, and a lesser number were taken in the Stony River-Sleetmute-Crooked Creek area with about 300 being brought into the fur trader there.

Mink: Although mink were plentiful in the McGrath area few trappers attempted to take them during the 1973 season. This again, as it has been in the past, is probably a result of the low price received for these local mink which are considerably smaller than the lower Kuskokwim mink. Another reason for the reluctance to trap mink may be that most traplines are oriented to the upland areas in order to take marten and fox and trappers seldom encounter enough mink to make their efforts worth setting traps for them.

Muskrat: Muskrat hunting in 1973 was not good. Few push-ups were present in local lakes and the catch did not exceed 100 rats in the McGrath area and perhaps double that number in the Sleetmute area.

Land Otter: Otters apparently reached a high in 1973 as signs of otter were common throughout the unit. Otters were seen during daylight hours in the water and crossing portages in the snow. The catch was fairly high with about 50-60 being caught in the McGrath area. Sleetmute trappers took an additional 25 otters as reported to me by the local fur buyer.

Abundance and Productivity

Specific surveys relating to abundance, composition and productivity of furbearers were not done in 1973. However, beaver house surveys were made along the Takotna and Nixon Fork Rivers. Results of these counts are reported in the beaver research report.

Management Summary and Recommendations

With the exception of beaver, present fur regulations provide the trapper with more latitude for harvest than is actually needed or desired. Aerial cache surveys of beaver colonies on selected streams in Unit 19 have shown healthy increases in the beaver populations. Review of these data suggests that perhaps a more liberal outlook should be taken in the management of beaver in some of the Unit 19 watersheds. These changes appear warranted in the 19B area of Unit 19.

PREPARED BY:

Peter E.K. Shepherd
Game Biologist III

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 21 - Middle Yukon

Seasons and Bag Limits

<u>Species</u>	<u>Season</u>	<u>Bag Limit</u>
Beaver		
Unit 21A (Yukon River Drainage upstream from Anvik River and Innoko River upstream from Holikachuk)	Feb. 1 - Mar. 31	15 per season
Unit 21B (Remainder of Unit 21)	Feb. 1 - Feb. 28	15 per season
Coyote	Nov. 1 - Apr. 30	No limit
Red fox	Nov. 1 - Jan. 31	No limit
Lynx	Nov. 1 - Mar. 31	No limit
Marten	Oct. 20 - Feb. 28	No limit
Mink and weasel	Nov. 1 - Jan. 31	No limit
Muskrat	Nov. 1 - June 10	No limit
Land otter	Nov. 1 - Mar. 31	No limit
Squirrels (all species)	No closed season	No limit
Wolf	Oct. 1 - Apr. 30	No limit
Wolverine	Nov. 10 - Mar. 31	No limit

Harvest and Hunting Pressure

Beaver: The beaver catch for Unit 21 increased from 1,029 taken by 122 trappers in 1972 to 1,558 taken by 171 trappers in 1973. Snow depths were moderate with two to three feet over most of the unit in the spring of 1973. Trappers reported encountering thick ice on some streams, especially those which tend to overflow. Most areas were trapped lightly with the exception of those close to Anvik, Grayling and Ruby where most of the trapping pressure originated.

Aerial beaver cache surveys on the Innoko and Dishna Rivers showed continued buildup of the beaver population. Beavers are abundant in many of the other Unit 21 drainages and are, at present, under little trapping pressure.

Red Fox: Red fox are increasing in the middle Yukon Valley. Few trappers attempted to take fox however, and the catch for 1973 was light.

Lynx: Lynx were present in 1973 on the Yukon above Galena and on the Koyukuk. Most were trapped in the Ruby and Galena areas.

Marten: Marten populations were high in several drainages of the Yukon. One trapper on the Dishna River caught 155 marten before Christmas. The total catch for Unit 21 may not have exceeded 500 marten.

Mink: Mink were not abundant in Unit 21 and only a few trappers attempted to trap this furbearer. Residents blame the scarcity of mink on previous high water springs and summers. This seems like a plausible reason since spring high water would flood mink dens during the very early denning period.

Otter: Otter appear to be numerous throughout most of the middle Yukon drainage. Trappers showed little interest in otter trapping except during the late spring when many are taken incidental to beaver trapping.

Muskrat: Muskrat are beginning to appear in significant numbers along the Yukon Valley lakes and sloughs after several years of scarcity. This lack of muskrats was also blamed on several successive high water springs and summers. Little interest in trapping muskrat was voiced by interviewed trappers. Most trappers stated the scarcity of muskrats and low pelt prices were keeping them from hunting.

Abundance and Productivity

Beaver are surveyed yearly on the Innoko and Dishna Rivers. Results of these surveys will appear in the beaver research report.

Management Summary and Recommendations

Liberalization of beaver limits and seasons is suggested for most of Unit 21 with the exception of that part of Subunit 21A below Anvik and below Holikachuk on the Innoko River. No other regulatory changes are contemplated at this time.

PREPARED BY:

Peter E. K. Shepherd
Game Biologist III

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 22 - Seward Peninsula

Seasons and Bag Limits

<u>Species</u>	<u>Season</u>	<u>Bag Limit</u>
Beaver	Feb. 1 - Apr. 15	40 per season
Arctic Fox	Nov. 10 - Apr. 15	No limit
Red Fox	Nov. 10 - Apr. 15	No limit
Lynx	Nov. 1 - March 31	No limit
Mink and Weasel	Nov. 1 - Jan. 31	No limit
Muskrat	Nov. 1 - June 10	No limit
Land Otter	Nov. 1 - Apr. 15	No limit
Ground Squirrel	No closed season	No limit

Harvest and Hunting Pressure

Trapping pressure in Unit 22 increased only moderately although fur prices increased substantially. Most of the increased trapping pressure was on red fox and lynx due to the high fur prices and relative abundance of the animals.

Beaver: Residents of Unakleet, St. Michael and Stebbins trap beaver with the majority being taken on the Pilmiktalik River. Total reported harvest in Unit 22 was 35 beavers taken by 4 trappers.

Arctic Fox: The Arctic fox harvest on St. Lawrence Island was below normal in 1973-74. Few white fox were taken at other locations in Unit 22.

Red Fox: Red fox remained abundant and trapping pressure increased slightly. Prices increased and \$50 a pelt was a common average. One serious trapper operating near Safety Sound caught 95 red fox using a trap line that contained a maximum of 7 traps. He caught 49 fox from one walrus carcass. On several occasions he would have 5 or more fox in his 7 traps. Although accounts of his success were widespread, they did not stimulate other people to trap extensively.

Lynx: Increased prices attracted a few more trappers but the total unit take was about the same as last year.

Mink and Weasel: The harvest of these animals remains very low.

Land Otter: There was very low trapping pressure, less than 29 were taken throughout Unit 22.

Ground Squirrel: A few women still trap squirrels in the spring for parkas.

Abundance and Productivity

Arctic fox on St. Lawrence Island were down from last year.

Red fox continue to be abundant and were regularly sighted near towns or during aerial surveys.

Lynx were fairly abundant but they appeared to be less numerous than last year.

Land otter tracks were regularly seen on most river systems.

Ground squirrels were less abundant than last year.

Management Summary and Recommendations

Increased fur prices had only a small impact on trapping effort in Unit 22. Most trappers in Unit 22 trap to supplement their incomes or for recreation. Hunting red fox in the winter is a prime recreational sport.

PREPARED BY:

Robert E. Pegau
Game Biologist III

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 23 - Kotzebue Sound

Seasons and Bag Limits

<u>Species</u>	<u>Season</u>	<u>Bag Limit</u>
Beaver	Nov. 1 - Apr. 15	20 per season
Arctic Fox	Nov. 10 - Apr. 15	No limit
Red Fox	Nov. 10 - Apr. 15	No limit
Lynx	Nov. 1 - March 31	No limit
Mink and Weasel	Nov. 10 - Jan. 31	No limit
Muskrat	Nov. 1 - June 10	No limit
Land Otter	Nov. 1 - Apr. 15	No limit
Ground Squirrel	No closed season	No limit

Harvest and Hunting Pressure

Increased fur prices had very limited impact on trapping or hunting effort for furbearers in Unit 23.

Beaver: Eleven beaver were reported taken in the unit.

Arctic Fox: The arctic fox harvest was down considerably this year, total unit take was less than 100.

Red Fox: Recreational hunting and trapping of red fox increased slightly due to increased fur prices and the generally favorable weather conditions that prevailed during most of the trapping season.

Lynx: The lynx harvest remains low, but more were caught in the lower Kobuk River villages.

Mink and Weasel: A few mink were taken near Selawik.

Muskrat: Limited numbers were taken at Selawik and at villages along the Kobuk River.

Land Otter: A very few were taken incidental to fishing.

Ground Squirrel: Limited numbers of ground squirrels were taken for use in making women's parkas.

Abundance and Productivity

Beaver houses and caches are very common on the Upper Selawik, Kugarak and Nuleargowik Rivers.

Numbers of Arctic fox seen and trapped at coastal villages indicate that they were much less numerous this year than last.

Red fox continue to be abundant throughout Unit 23.

Lynx sign was more abundant on the Lower Kobuk than in previous years. On the Upper Kobuk they appeared to be down this year.

Muskrats were relatively numerous in most ponds in the Selawik and Kobuk River villages.

Ground squirrel populations were probably unchanged from last year.

Management Summary and Recommendations

Although fur prices increased substantially, trapping effort did not increase proportionately because of the lack of readily available fur buyers. Most residents in Northwest Alaska have to mail their furs out to fur buyers and are at the mercy of the buyer regarding price. There have been several instances of the trapper receiving considerably less than what he felt was an adequate price, which tends to discourage potential trappers.

PREPARED BY:

Robert E. Pegau
Game Biologist III

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

BEAVER

SURVEY-INVENTORY PROGRESS REPORT - 1973

Statewide

Techniques

Since 1957 the stretched pelts of beaver have been sealed and measured to enumerate the harvest and separate the entire catch into age classes. In Alaska beaver hides are traditionally stretched round. Pelts are measured by adding the diameter taken from nose to the base of the tail, or bottom of the pelt, to the medial diameter. These measurements are taken in inches and age classes are established on the following basis: young-of-the-year or kits - less than 53 inches, yearlings - 53 to 59 inches, two-year-olds - 60 to 64 inches and adults -65 inches and larger.

Studies previously made at the Alaska Cooperative Wildlife Research Unit have determined the general relationship between the degree of exploitation and the percentage of age classes in the harvest. These relationships are not completely inflexible and should be considered indicators or symptoms rather than conclusive evidence of the effect of the beaver harvest on the population.

When the harvest is comprised of more than 25 percent kits the population can be considered overharvested. A properly harvested population will have 20 percent or less kits in the harvest. A beaver population can be considered to be underharvested when the harvest is composed of less than 15 percent kits.

Since 1957 when this system was basically initiated, numerous exceptions have been noted to these guidelines. Game management units are generally large geographic areas and a manageable beaver population may be the beaver inhabiting a relatively small tributary within a unit. Overharvests of drainages or tributaries within a unit are sometimes obscured by a large but conservative harvest in the remainder of the game management unit. Human populations are not evenly distributed within a unit; therefore, trapping pressures are often disproportionately distributed in relation to beaver abundance and distribution. The potential for overharvest varies between the units and with other factors such as the economic wellbeing of the trappers in the area and the particular type or style of trapping employed by the trappers. Whenever the harvest is composed of 20 percent kits, a careful examination of the harvest by tributary or drainage should be made. At the 20 percent level of harvest in an entire game management unit it is highly likely that over-exploitation is occurring on some tributaries.

Findings

The beaver harvest has been separated into age classes since 1957 by the measurements recorded on the beaver affidavit. The harvest by game management unit and age class since 1969 is recorded in Appendix I.

The 1973 harvest of 10,864 beavers is a substantial increase over the 1972 harvest of approximately 5,636. Beaver harvests generally reflect economic and cultural situations with only a few possible exceptions. The increased harvest in 1973 probably does not indicate an increasing statewide beaver population.

Management Summary and Conclusions

The beaver sealing program provides a sound basis for proper management of the beaver resource. Its analysis provides sufficient information to indicate where management problems may be occurring. Aerial cache counts, analyses of the harvest by tributary and surveys of the local economic situation and trapping modes can provide sufficient information for positive and finite management of the resource.

The 1973 beaver harvest data suggest that additional information may be needed in Units 2, 3, 7, 8, 9, 14, 15, 16, 17, 18, 22, 23 and 25. All of these units had about 20 percent or more kits in the harvest. Harvests in Units 2, 3, 7, 8, 14, 15, 22 and 23 are very small and may not justify the additional field effort needed to evaluate beaver populations or trapping techniques which might tend to influence the percentage of kits in the harvest.

PREPARED AND SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

Appendix 1. Beaver affidavit analysis, 1969-73.

Game Mgmt. Unit	Year	Limit	Percent Kits (Under 54")	Percent Kits and Yearlings (Under 59")	Percent Adults (Over 59")	Total No. of Beaver	No. of Trappers	Avg. No. Beaver/ Trapper
1	1969	No limit	15.1	41.1	58.9	75	9	8.3
	1970	No limit	15.2	38.0	62.0	165	24	6.8
	1971	No limit	15.5	25.0	75.0	84	7	12.0
	1972	No limit		20.0	80.0	5	3	1.7
	1973	No limit	7.3	20.0	80.0	169	18	9.4
2	1969	No limit	8.7	39.1	61.2	23	4	5.8
	1970	No limit	21.4	52.4	47.6	42	6	7.0
	1971	No limit	20.0	40.0	60.0	5	1	5.0
	1972	No limit		66.7	33.3	3	1	3.0
	1973	No limit	40.8	66.7	33.3	27	4	6.7
3	1969	No limit	No harvest reported					
	1970	No limit	30.6	45.1	54.9	62	5	12.4
	1971	No limit	40.0	60.0	40.0	20	1	20.0
	1972	No limit	25.0	50.0	50.0	8	3	2.7
	1973	No limit	44.5	44.5	55.5	9	5	1.8
4	1969	No limit	33.3	66.6	33.4	3	2	.6
	1970	No limit	50.0	80.0	20.0	10	2	5.0
	1971	No limit	No harvest reported					
	1972	No limit			100.0	1	1	1.0
	1973	No limit*		100.0		1	1	1.0
5	1971	No limit	60.0		40.0	5	1	5.0
	1972	No limit	No harvest reported					
	1973	No limit	No harvest reported					
6	1969	50 and no limit*	39.1	52.1	47.9	48	7	6.8
	1970	10 and no limit*	18.7	42.0	58.0	150	15	10.0

Appendix 1. Beaver affidavit analysis, 1969-73 (continued).

Game Mgmt. Unit	Year	Limit	Percent Kits (Under 54")	Percent Kits and Yearlings (Under 59")	Percent Adults (Over 59")	Total No. of Beaver	No. of Trappers	Avg. No. Beaver/ Trapper
6	1971	10 and no limit*	17.3	25.0	75.0	52	7	7.4
	1972	10 and no limit*	35.8	56.7	43.3	67	8	8.4
	1973	10 and no limit*	12.3	33.7	66.3	188	11	17.1
7	1969	20	50.0	50.0	50.0	3	3	1.0
	1970	20	25.0	54.2	45.8	24	4	6.0
	1971	20	11.8	35.3	64.7	17	3	5.6
	1972	20	10.0	23.3	76.7	30	5	6.0
	1973	20	27.8	51.6	48.4	126	12	10.5
8	1969	No limit	28.5	40.7	59.7	175	12	14.5
	1970	No limit	31.3	49.3	50.7	351	24	14.6
	1971	No limit	36.5	55.4	44.7	85	8	10.6
	1972	No limit	32.0	40.0	60.0	52	6	8.7
	1973	No limit	24.3	43.4	56.6	115	9	12.8
9	1969	40 and 15*	23.4	34.4	66.0	148	17	8.7
	1970	40 and 15*	19.6	34.2	65.8	419	37	11.3
	1971	40 and 15*	26.4	42.7	57.3	246	25	9.8
	1972	40 and 20*	21.3	36.0	64.0	337	27	12.5
	1973	40 and 20*	19.7	35.4	64.6	726	57	12.7
11	1969	20	10.4	31.2	68.9	77	7	11.0
	1970	No limit	8.5	29.8	70.2	47	6	7.8
	1971	No limit	9.1	42.4	57.6	34	8	4.2
	1972	No limit	33.4	33.4	66.6	3	2	1.5
	1973	No limit		16.7	83.3	6	3	2.0

Appendix 1. Beaver affidavit analysis, 1969-73 (continued).

Game Mgmt. Unit	Year	Limit	Percent Kits (Under 54")	Percent Kits and Yearlings (Under 59")	Percent Adults (Over 59")	Total No. of Beaver	No. of Trappers	Avg. No. Beaver/ Trapper
12	1969	15	7.4	19.4	80.6	108	29	3.7
	1970	15	9.5	34.7	65.3	148	32	4.6
	1971	15	12.5	31.3	68.7	16	3	5.3
	1972	15	25.0	37.5	62.5	9	5	1.8
	1973	15	13.6	28.4	71.6	81	16	5.1
13	1969	20	8.3	25.9	74.1	204	32	6.3
	1970	20	13.2	27.9	72.1	189	24	7.8
	1971	20	34.4	49.1	50.9	116	15	7.7
	1972	20		6.7	93.3	16	7	2.3
	1973	20	17.1	30.8	69.2	117	25	4.7
14	1969	40	16.8	42.4	60.0	220	33	6.6
	1970	40	27.2	51.0	49.0	202	32	6.3
	1971	40	20.0	42.0	58.0	50	14	3.5
	1972	40	34.8	43.5	56.5	23	6	3.8
	1973	40	18.6	35.0	65.0	159	37	4.3
15	1969	40	39.3	57.1	45.1	135	14	9.6
	1970	40	25.0	58.3	41.7	73	15	4.8
	1971	40	20.7	34.5	65.5	29	7	4.1
	1972	40	41.5	58.7	41.3	29	5	5.7
	1973	40	24.2	46.0	54.0	133	20	6.6
16	1969	40	15.8	41.5	59.1	975	66	14.7
	1970	40	17.9	38.3	61.7	717	62	11.5
	1971	40	17.6	40.2	59.8	279	28	9.9
	1972	40	13.8	31.6	68.4	329	25	13.1
	1973	40	19.7	39.8	60.2	620	58	10.7

Appendix 1. Beaver affidavit analysis, 1969-73 (continued).

Game Mgmt. Unit	Year	Limit	Percent Kits (Under 54")	Percent Kits and Yearlings (Under 59")	Percent Adults (Over 59")	Total No. of Beaver	No. of Trappers	Avg. No. Beaver/ Trapper
17	1969	No harvest reported				Est. 1,750	Est. 150	Est. 11.6
	1970	15	22.6	34.1	65.9	1,190	118	10.1
	1971	15	27.5	41.0	59.0	824	80	10.3
	1972	15	20.5	34.0	66.0	762	70	10.9
	1973	15	23.9	35.8	64.2	1,849	163	11.3
18	1969	10	19.8	35.6	64.4	975	137	7.1
	1970	10	21.2	37.2	62.8	946	128	7.3
	1971	10	15.6	33.0	67.0	385	58	6.6
	1972	10	20.6	39.7	60.3	961	133	7.2
	1973	10	24.4	38.0	62.0	1,769	230	7.7
19	1969	25 and 10*	7.4	23.0	77.0	895	98	9.1
	1970	25 and 10*	7.3	22.9	77.1	1,132	128	8.8
	1971	25 and 10*	17.0	31.1	68.9	516	78	6.6
	1972	25 and 10*	13.3	27.2	72.8	597	93	6.4
	1973	25 and 10*	12.9	29.7	70.6	1,089	155	7.0
20	1969	25 closed*	12.9	29.9	70.1	1,658	156	10.6
	1970	25 closed*	11.3	29.2	70.8	1,366	148	8.7
	1971	25 closed*	6.9	23.5	76.5	607	78	7.7
	1972	25 closed*	6.4	20.4	79.6	1,136	103	11.0
	1973	25 closed*	10.3	24.1	75.9	1,523	170	9.0
21	1969	15	7.3	24.0	76.0	1,991	185	10.7
	1970	15	6.4	21.5	78.5	1,138	119	9.5
	1971	15	10.5	22.0	78.0	472	57	8.2
	1972	15	8.3	28.4	71.6	1,029	112	9.2
	1973	15	11.3	28.3	71.7	1,558	171	9.1

Appendix 1. Beaver affidavit analysis, 1969-73 (continued).

Game Mgmt. Unit	Year	Limit	Percent Kits (Under 54")	Percent Kits and Yearlings (Under 59")	Percent Adults (Over 59")	Total No. of Beaver	No. of Trappers	Avg. No. Beaver/ Trapper
22	1969	50	15.4	30.8	69.2	27	4	6.7
	1970	50	No harvest reported					
	1971	50	66.7		33.3	3	1	3.0
	1972	50	No harvest reported					
	1973	50	22.9	48.6	51.4	35	4	8.8
23	1969	20	No harvest reported					
	1970	20	No harvest reported					
	1971	20			100	12	1	12.0
	1972	20	No harvest reported					
	1973	20	45.4	54.5	45.5	11	4	2.8
24	1969	20	7.2	25.5	74.5	842	64	13.1
	1970	20	3.9	24.6	75.4	508	48	10.5
	1971	20	7.2	31.8	68.2	71	13	5.4
	1972	20	4.8	18.1	81.9	116	13	8.9
	1973	20	8.9	22.3	77.7	305	45	6.8
25	1969	20	13.6	36.3	62.7	120	34	3.5
	1970	20	19.5	40.5	59.5	343	61	5.8
	1971	20		9.5	90.5	31	7	4.4
	1972	20	13.8	34.1	65.9	123	28	4.4
	1973	20	23.0	37.9	62.1	248	30	8.3
Total	1969		12.5	30.3	69.7	10,474	1,069	9.7
	1970		15.2	32.4	67.6	9,220	1,038	8.8
	1971		18.4	33.9	66.1	3,911	501	7.8
	1972		14.3	30.6	79.4	5,636	663	8.5
	1973		17.8	33.0	67.0	10,864	1,248	8.7

* Unit was divided with different bag limits in the subdivisions and/or closed areas.

5 year average	(1969-73) harvest	8,021
5 year range	(1968-73) harvest	3,911-10,864
5 year average	(1969-73) no. of trappers	904

BEAVER

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 17 - Bristol Bay

Seasons and Bag Limits

Feb. 1 - Feb. 28

15 per season

Trapping and Harvest Pressure

The reported harvest for Unit 17 during the spring 1974 season was 1,681 beavers (Appendix I). Since 1960 the percentage of kits in the harvest has exceeded 20 percent and this trend continued in 1974. In late February, a field announcement was issued extending the trapping season to March 15.

Composition and Productivity

Beaver cache surveys conducted in 1974 showed small increases in the abundance of active beaver houses (Appendix II). However, on those streams near villages the distance between active beaver houses still exceeded one-mile. On streams remote to villages, caches were approximately a half-mile, or less, apart.

Management Summary and Conclusions

Heavy trapping pressure near villages has seriously depleted the beaver resources. Analysis of harvest data following the Dillingham Beaver Round-up showed kits exceeded 30 percent of the harvest for those areas. In the Togiak drainage, kits comprised 40 percent of the harvest and a small sample from the Manokotak area exceeded 55 percent kits. However, kits comprised only 10 percent of the harvest from the remote drainages and this harvest lowered the unit wide percentage of kits to 23.9.

In previous years the beaver season has been in February because the adverse weather that normally occurs during that month discourages the casual trapper, thereby decreasing pressure. Although this approach has been successful in reducing the overall unit trapping pressure, it concentrates trapping close to the villages. Extensions of trapping seasons, during years of poor commercial salmon harvest by unit residents, have added additional pressure on an already overharvested resource. Steps should be taken to protect the resource from continued overharvest.

Recommendations

The trapping season in those drainages near villages should be closed for a three to five-year period to allow the resource an opportunity to recover. Continued surveys should be conducted in the unit to monitor the effects of a closure as well as detect any adverse effects of increased trapping pressure on the more remote streams. Harvest data will continue to be analyzed closely.

PREPARED BY:

James B. Faro
Game Biologist III

SUBMITTED BY:

John S. Vania
Regional Management Coordinator

Beaver - GMU 17 - Bristol Bay

Appendix I

Historical Beaver Harvest for Unit 17

Game Mgmt. Unit	Year	Limit	Percent Kits (Under 54")	Percent Kits and Yearlings (Under 59")	Percent Adults (Over 59")	Total No. of Beaver	No. of Trappers	Avg. No. Beaver/ Trapper
17**	1957	10	22.9	36.8	63.2	367	46	8.0
	1958	15	19.1	33.0	67.0	3,165	263	12.0
	1959	10	19.6	29.4	70.6	3,245	369	8.8
	1960	15	24.3	34.2	65.8	3,721	279	13.3
	1961	15	23.1	24.7	65.2	2,849	230	12.3
	1962	15	29.5	41.5	58.5	1,903	175	10.8
	1963	15	23.3	36.8	63.2	2,172	189	11.5
	1964	15	28.4	38.4	61.6	1,766	180	9.8
	1965	15	22.1	34.9	65.1	957	97	9.9
	1966	15	25.2	37.9	62.1	1,424	143	10.0
	1967	15	25.3	37.0	63.0	2,711	215	12.6
	1968	20	25.7	36.4	63.6	3,158	198	15.9
	1969	15	No Harvest reported			Est. 1,750	Est. 150	Est. 11.6
	1970	15	22.6	34.1	65.9	1,190	118	10.1
	1971	15	27.5	41.0	59.0	824	80	10.3
	1972	15	20.5	34.0	66.0	762	70	10.9
	1973	15	23.9	35.8	64.2	1,849	163	11.3
	1974	15	23.9	36.6	63.4	1,681	169	9.9

PREPARED BY: James B. Faro, Game Biologist III

Appendix Two

Aerial Beaver Cache Surveys, GMU 17, Bristol Bay, 1968 through 1974^{1/}

Stream	No. of Caches 1968	No. of Caches 1970	% of Change Miles per Cache	No. of Caches 1971	% of Change Miles per Cache	No. of Caches 1974	% of Change Miles per Cache
Mulchatna River	69	126	+83	119	- 6	119	0
Mosquito River	43	50	+16	37	-35	44	+16
Nushagak River	55	87	+58	NA	NA	NA	NA
Harris Creek	42	35	-17	38	+ 8	19	-100
Napotoli, N. Fork	12	11	- 8	NA	NA	NA	NA
Napotoli, S. Fork	20	16	-20	NA	NA	NA	NA
Klutuk Creek	21	16	-19	NA	NA	19	NA
Kokwok River	21	20	- 5	NA	NA	43	NA
Iowithla River	26	33	+27	32	- 3	36	+11
Tik Chik River	54	70	-30	71	+ 1	NA	NA
Stuyahok River	NA	NA	NA	34	NA	63	+46
Togiak System	10	59	NA ^{1/}	52	NA ^{1/}	NA	NA
King Salmon River	54	66	+22	71	+20	94	+24
Sunshine Valley	NA	NA	NA	15	NA	22	+32
Totals ^{2/}	427	589	NA	469	NA	459	NA

^{1/} No work accomplished in 1969, 1972, 1973

^{2/} Areas of survey substantially different each year so data not comparable.

LYNX

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 12 - Upper Tanana - White River

Seasons and Bag Limits

Hunting	Sept. 1 - Apr. 30	Two lynx
Trapping	Nov. 1 - Mar. 31	No limit

Harvest and Hunting Pressure

Trapper questionnaires indicated an average of 44.5 lynx trapped per trapper from the Tok area. Trapping pressure seems to be fairly light in Unit 12, with less than 10 trappers reporting on the trapper questionnaire.

Abundance, Composition and Productivity

Female lynx carcasses were purchased from trappers during the 1972-73 trapping season. A total of 28 carcasses were collected from Unit 12. Of these, 3 (11%) were kits, 15 (54%) were subadults (1-year-olds) and 10 (36%) were adults.

According to trapper questionnaires, lynx populations were high around Tok in the 1972-73 season. Trappers thought that there were definitely more lynx in 1972-73 than during the previous season.

Management Summary and Recommendations

Lynx populations probably will start to decline this coming year, although they may remain abundant in many areas. Lynx populations fluctuate about one year behind the hare populations.

No changes are recommended in season or bag limits.

PREPARED BY:

Jeannette Ernest
Game Biologist II

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

LYNX

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 20 - Fairbanks, Tanana Valley

Seasons and Bag Limits

Hunting	Sept. 1 - Apr. 30	Two lynx
Trapping	Nov. 1 - Mar. 31	No limit

Harvest and Hunting Pressure

From trapper questionnaires we obtained a figure of 14.4 lynx trapped per trapper in the 1972-73 trapping season. Eighteen trappers from Fairbanks sent replies to the trapper questionnaire. Trapping pressure seems to depend on the abundance of lynx and fur prices. Pressure will probably increase as a result of the excellent fur prices.

Abundance, Composition and Productivity

Female lynx carcasses were purchased from trappers during the 1972-73 season, and autopsies provide reproduction and age ratio information. A total of 140 carcasses were collected from Unit 20. There were 31 (22%) kits, 67 (48%) subadults (1-year-olds) and 42 (30%) adults (2 or more years old).

Lynx populations fluctuate in a cyclic pattern, following the snowshoe hare cycle by about a year or so. Questionnaires reported an increasing lynx population in 1972-73 and lynx should be abundant at the peak of the cycle in the coming year (1973-74).

Management Summary and Recommendations

Lynx should be increasing in abundance for the next year or two in Unit 20. The present harvest should have little effect on abundance as lynx populations are mostly influenced by prey abundance.

No changes are recommended in seasons or bag limits.

PREPARED BY:

Jeannette Ernest
Game Biologist II

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

LYNX

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 25 - Fort Yukon

Seasons and Bag Limits

Hunting	Sept. 1 - Apr. 30	Two lynx
Trapping	Nov. 1 - Mar. 31	No limit

Harvest and Hunting Pressure

Fort Yukon trappers averaged 13.5 lynx per trapper in the 1972-73 season. Fur dealer and fur export reports are not available for 1972-1973, but will be reported at a later date. Most lynx from Unit 25 were trapped in the Fort Yukon area or by Fort Yukon trappers.

Abundance, Composition and Productivity

Replies to the trapper questionnaire indicate a declining lynx population in the Fort Yukon area during the 1972-73 season. It is expected that lynx populations will continue to decline during the 1973-74 season, as hare populations have essentially crashed in the area.

Management Summary and Recommendations

No changes are recommended in seasons or bag limits.

PREPARED BY:

Jeannette Ernest
Game Biologist II

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

UPLAND GAME ABUNDANCE

SURVEY-INVENTORY PROGRESS REPORT - 1973

Statewide

Techniques

The standard small game abundance questionnaire was mailed in mid-October 1973 to 299 people throughout the State, and by the end of January 1974, 161 replies had been received. As in the past, the bulk of responses came from the Interior and Gulf Regions. Replies were tabulated and analyzed as in previous years (see Game Bird Report, Vol. V, 1965, pp. 2 and 3). A summary of responses was mailed to cooperators in March 1974.

Findings

Replies to the questionnaire are summarized in Appendix I. Respondents from the Interior, Gulf, Brooks Range and western areas of the state felt that the 1973 grouse populations were low and generally showed a decrease from 1972. Cooperators in Southeastern Alaska felt that grouse populations were moderately low but increasing slightly.

Ptarmigan populations were low to moderate in most areas except Kodiak and the Alaska Peninsula. They were considered moderately low in the Interior with some suggestion of a decline from last year. Replies from Kodiak indicated a definite increase in ptarmigan compared to 1972.

Hare populations were moderate but increasing in the Alaska Peninsula and western areas, and high and increasing in the Gulf areas. In general hare populations in the Interior were dropping but hare populations were still high in some local areas.

Management Summary and Conclusions

The standard small game questionnaire has, over the years, indicated that grouse, ptarmigan and hare populations fluctuate considerably throughout the State, and it is felt that present hunting pressure has little effect on such fluctuations. No change in seasons or bag limits is recommended at this time.

PREPARED BY:

Jeannette Ernest
Game Biologist II

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

Appendix I. Summary of replies to questionnaire on grouse, ptarmigan and hare populations, 1973.

Area	Species	Present Abundance				Comparison with 1972			
		High	Mod	Low	Index	More	Same	Fewer	Index
Brooks Range (5)									
	Spruce Grouse	0	0	2	1	0	1	1	3
	Ptarmigan (General)	2	1	1	6	0	1	2	3.5
	Rock Ptarmigan	0	1	0	5	1	0	0	9
	Snowshoe Hare	1	1	-	7	0	1	1	3
Western (14)									
	Grouse (General)	0	0	1	1	1	-	-	9
	Spruce Grouse	-	2	1	3.7	-	2	-	5
	Ptarmigan (General)	3	5	4	4.7	3	5	4	4.7
	Rock Ptarmigan	-	1	-	5	-	1	-	5
	Willow Ptarmigan	1	2	1	5	2	1	-	7.7
	Snowshoe Hare	2	5	4	4.3	4	5	2	5.7
Alaska Peninsula (10)									
	Grouse (General)	1	-	1	5	-	1	-	5
	Spruce Grouse	2	-	-	9	1	-	-	9
	Ptarmigan (General)	2	3	2	5	1	2	3	3.5
	Willow Ptarmigan	3	1	1	6.6	2	1	2	5.0
	Snowshoe Hare	1	3	4	3.5	3	2	2	5.6
Kodiak (4)									
	Ptarmigan (General)	2	2	-	7.0	2	1	1	6.0
	Snowshoe Hare	-	1	3	2.0	1	1	2	4.0
Southeastern (13)									
	Grouse (General)	-	5	2	3.9	2	4	1	5.6
	Spruce Grouse	-	2	2	3	1	2	0	6.3
	Blue Grouse	1	4	6	3.2	1	6	3	1.8
	Ptarmigan (General)	-	5	3	3.5	0	7	0	5
	Snowshoe Hare	1	1	5	2.7	2	2	2	5.0
Gulf (35)									
	Grouse (General)	0	7	17	2.2	0	17	7	3.8
	Ruffed Grouse	0	1	1	3.0	1	1	0	7.0
	Spruce Grouse	0	10	22	2.3	4	19	8	4.5
	Sharptail Grouse	0	1	2	2.3	0	3	0	5.0
	Ptarmigan (General)	2	14	12	3.6	1	16	10	3.4
	Rock Ptarmigan	1	7	2	4.6	1	8	1	5.0
	Willow Ptarmigan	3	12	2	5.2	1	12	4	4.5
	Whitetail Ptarmigan	1	4	2	5.2	0	4	1	3.3
	Snowshoe Hare	11	19	5	5.7	13	16	1	5.8

Appendix I. Continued.

Area	Species	Present Abundance				Comparison with 1972			
		High	Mod	Low	Index	More	Same	Fewer	Index
Interior									
	Grouse (General)	3	4	43	1.8	4	21	22	4.1
	Ruffed Grouse	1	2	33	1.4	6	16	18	3.8
	Spruce Grouse	0	5	27	1.6	1	15	13	3.3
	Sharptail Grouse	0	3	15	1.7	0	11	6	3.6
	Ptarmigan (General)	0	11	21	2.3	1	16	13	3.4
	Rock Ptarmigan	0	5	11	1.6	-	6	10	2.5
	Willow Ptarmigan	0	4	14	1.9	-	9	9	3.0
	Whitetail Ptarmigan	0	1	7	1.5	-	3	4	2.7
	Snowshoe Hare	4	20	17	2.1	2	7	30	2.1
Statewide									
	Grouse (General)	1	18	60	2.0	5	44	26	3.9
	Ruffed Grouse	1	3	43	1.4	8	17	21	3.9
	Spruce Grouse	0	20	58	2.0	8	39	26	4.0
	Ptarmigan (General)	9	41	44	3.5	6	53	32	3.9
	Rock Ptarmigan	1	16	16	3.2	2	17	13	3.4
	Willow Ptarmigan	8	23	20	4.1	6	27	16	3.7
	Whitetail Ptarmigan	1	6	10	2.9	0	8	7	3.1
	Snowshoe Hare	22	52	37	4.5	28	33	46	4.3

PTARMIGAN

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 20 - Fairbanks, Central Tanana Valley

Seasons and Bag Limits

Aug. 10 - Apr. 30

20 a day;
40 in possession

Harvest and Hunting Pressure

No systems were in operation to determine ptarmigan harvest or hunting pressure in Unit 20 during the 1972-73 season.

Abundance, Composition and Productivity

The annual census of breeding rock ptarmigan at Eagle Creek (May 14-18, 1973) revealed 65 territorial males on the 15-square mile (39 km²) study area representing typical Interior Alaska rock ptarmigan breeding range. This was an 18 percent decline in breeding males from 1972 and a 47 percent decline from the population high of 1969. During the last four years the number of breeding males has declined between 9 and 18 percent annually. The 1973 spring breeding density at Eagle Creek was essentially the same as that of the previous low in 1965.

Rock ptarmigan broods were definitely less abundant in 1973 than during the previous five years, and five broods located in August 1972 averaged 4.4 chicks. Between 1960 and 1967 the number of chicks per brood ranged from 3.9 to 6.2, averaging 5.2. Responses to the Small Game Questionnaire also indicated ptarmigan in the Interior to be low and on the decline. In 1973 the obvious scarcity of broods, coupled with the relatively low brood size, suggested poor production.

Management Summary and Recommendations

Rock ptarmigan densities fluctuate strongly over the years in Interior Alaska, but these fluctuations occur independent of fall hunting (see Effects of Controlled Hunting on Rock Ptarmigan, Final Report, April 1971). Recent findings suggest that moderate spring hunting on small areas does not greatly alter yearly population trends or the abundance of ptarmigan available to fall hunters. In years of low abundance, however, little or no replacement occurs following removal of territorial adults in late April. It is not known if this holds true in springs of high breeding densities (see Effects of Spring Hunting on Rock Ptarmigan Populations, Final Report, May 1973). Ptarmigan are highly vulnerable to hunters in the spring when males are on territories. Large spring harvests in restricted areas, such as along roads or trails that pass through breeding habitat, could greatly reduce or eliminate ptarmigan available for non-appropriative use the following summer.

Heavy spring harvests, over large areas, could significantly reduce availability to fall hunters. There is a trend by the Department of Highways to open roads earlier in the spring, or in some cases to maintain roads throughout the winter. This coupled with increasing human populations and increased popularity of snow machines will result in sportsmen placing more pressure on spring ptarmigan populations.

Although no regulation changes are proposed for 1974-75, I recommend that areas of high hunter use (particularly spring hunting areas) be identified. If preliminary observations suggest large spring harvests in breeding habitat, ptarmigan abundance and harvests should be monitored in these areas. Should spring harvests exceed 40 percent of the breeding population, an earlier spring closure is recommended.

PREPARED BY:

Jerry D. McGowan
Game Biologist III

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

SPRUCE GROUSE

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 20 - Fairbanks, Central Tanana Valley

Seasons and Bag Limits

April 30 - August 10

15 a day;
30 in possession

Harvest and Hunting Pressure

There are no systems in effect to gather information on grouse harvest or hunting pressure in Unit 20.

Abundance, Composition and Productivity

Standard spruce grouse road counts on the Steese Highway were made between September 17 and 28, 1973. Seven counts along the 19-mile route averaged 0.53 grouse observed per mile driven, approximately the same as that recorded for 1972 (0.56). Since 1965 the average number of grouse per mile observed along the route has ranged from 0.39 to 2.11 (mean 0.85). Responses to the Small Game Questionnaire also indicated Interior Alaska spruce grouse populations were low and down somewhat from 1972.

Spruce Grouse Observed on Standard Grouse Count, 1973

Location	Number of Counts	Range	Average Number of Grouse Observed per Mile	Confidence Interval at 90%
Steese Highway	7	5-20	0.53	0.245 to 0.807

Management Summary and Recommendations

Although 1973 counts indicated that fall numbers of spruce grouse were relatively low, enough birds were present to offer fair hunting. The road count is the field program aimed at assessing spruce grouse abundance in the Interior. No change in season or bag limit is recommended at this time, however, the yearly counts should be continued.

PREPARED BY

SUBMITTED BY:

Jerry D. McCowan
Game Biologist III

Oliver E. Burris
Regional Management Coordinator

RUFFED GROUSE

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 20 - Fairbanks, Central Tanana Valley

Seasons and Bag Limits

Apr. 30 - Aug. 10

15 a day;
30 in possession

Harvest and Hunting Pressure

No systems were in operation to determine ruffed grouse harvest or hunting pressure in Unit 20 during the 1972-73 season.

Abundance and Distribution

Although no direct counts were conducted to determine the abundance of ruffed grouse in Alaska, notes were made of dates and locations of ruffed grouse observed by biologists working in the Interior. No ruffed grouse observations were reported in 1972. In 1973, 7 observations were reported suggesting that the population is beginning to recover. This was not reflected, however, by the Small Game Abundance Questionnaire responses. Ruffed grouse numbers were high during 1968-70 and then declined sharply in the early 1970's. Although numbers are currently low, an increase can probably be expected over the next several years.

Management Summary and Recommendations

No change in season or bag limit is recommended at this time.

PREPARED BY:

Jerry D. McGowan
Game Biologist III

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

SNOWSHOE HARE

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 12 - Upper Tanana - White River

Seasons and Bag Limits

No closed season

No limit

Harvest and Hunting Pressure

Neither hunting pressure nor harvest of hares in Unit 12 has been measured, but interest in hunting snowshoe hares generally depends on their abundance. Hares are often hunted on the Taylor Highway and other highways in the vicinity of Tok in conjunction with outings for moose and other big game.

Abundance and Distribution

Snowshoe hare populations have been declining in Unit 12 since the end of 1971, but hares are still at moderate levels in some areas and may even be fairly abundant in local "hot spots."

It is expected that hare populations will continue to decline in 1974 and hares may become quite scarce by the end of the year.

Management Summary and Recommendations

Hares will probably be available in Unit 12 during the coming year, but may be declining to the point where hunting becomes unproductive. Hunting, itself, has little effect on hare populations, however.

No changes are recommended in seasons or bag limits.

PREPARED BY:

Jeannette Ernest
Game Biologist II

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

SNOWSHOE HARE

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 19 - McGrath

Seasons and Bag Limits

No closed season

No limit

Harvest and Hunting Pressure

The local take of snowshoe hares is light at present, possibly not more than several hundred a year in McGrath. Other villages in Unit 19 utilize as many hares as it is possible or practical to find, but concentrations typical of some of the other Interior units during highs in snowshoe hare populations are not found in Unit 19.

Abundance and Distribution

No surveys of snowshoe hares are being made at present. General observations suggest snowshoe hares have increased during this reporting period. Snowshoe hares are not abundant in Unit 19, except in scattered locations. They seem to have increased considerably in the riparian communities bordering the Kuskokwim River and many of its main tributaries arising in the Alaska Range, i.e. South Fork, Big River, Tonsona.

Management Summary and Recommendations

No changes in season or bag limit are recommended.

PREPARED BY:

Peter E. K. Shepherd
Game Biologist III

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

SNOWSHOE HARE

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 20 - Fairbanks, Central Tanana

Seasons and Bag Limits

No closed season

No limit

Harvest and Hunting Pressure

Interest in hunting hares is still fairly high throughout Unit 20 as hares are still fairly abundant in some areas. Hunting pressure generally depends on the availability of snowshoe hares, but probably is greater around larger centers of population such as Fairbanks and Delta.

Abundance and Distribution

Snowshoe hare populations seem to be declining somewhat around Fairbanks but are still fairly high in some areas near Delta. Hare populations have definitely dropped near a low point at Central, but seem to be fairly high in the Healy area.

Management Summary and Recommendations

Hare populations in Unit 20 will probably decline in general although hares may continue to be fairly abundant in some areas such as Delta.

Hunting has no perceptible effect on hare populations and the high populations can accommodate heavy hunting pressure without detrimental effects.

No changes are recommended in seasons or bag limits.

PREPARED BY:

Jeannette Ernest
Game Biologist II

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

SNOWSHOE HARE

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Unit 25 - Fort Yukon

Seasons and Bag Limits

No closed season

No limit

Harvest and Hunting Pressure

Although the harvest has not been measured, there probably isn't a great deal of hunting pressure on hares north of the Yukon, except around villages.

Abundance and Distribution

Snowshoe hare populations have been low for a couple of years around Fort Yukon, Stevens Village and other areas north of the Yukon. They may be starting to increase in some areas, but are not expected to be very abundant anywhere in Unit 25 in 1974.

Management Summary and Recommendations

Hares are expected to be relatively scarce. Hunting has no significant influence on hares, therefore no changes are recommended in seasons or bag limits.

PREPARED BY:

Jeannette Ernest
Game Biologist II

SUBMITTED BY:

Oliver E. Burris _____
Regional Management Coordinator

RAPTOR

SURVEY-INVENTORY PROGRESS REPORT - 1973

Game Management Units 12 and 18-26 - Interior Arctic

Introduction

This report summarizes all information available concerning 1973 nesting success of diurnal birds of prey in northern Alaska. The data presented here come from several sources.

Dr. John Haugh (State University of New York), with the aid of the Department of Fish and Game, conducted surveys of cliff-nesting raptors along the Colville and Tanana Rivers in 1973. Most of the information concerning raptors along these rivers comes directly from Haugh (1973), in a report on file at the Department of Fish and Game, Fairbanks. Two surveys were made on the Colville River from the mouth of the Etivluk River to Ocean Point (183 river miles) in 1973. While the trips were scheduled primarily for determining production of peregrines, data on gyrfalcons and rough-legged hawks were also obtained. The first survey (June 14-29) was to locate active nest sites and determine clutch size, and the second survey (July 21-24) revealed production at active sites. A more complete account of methods is presented by Haugh (1973). Data for peregrines and gyrfalcons nesting along the Colville River in 1973 very closely reflect the actual nesting population. While data for rough-legged hawks are incomplete, they are adequate for comparison with other years (see White and Cade 1971). Information concerning nesting peregrine falcons along the upper Tanana River was obtained from a single survey conducted during the period July 6-11 between Tok and Delta, Alaska. Eyries between Fairbanks and Nenana with a recent history of activity were checked on June 7. While two eyries between Delta and Fairbanks that had been active in 1970 were not checked, it is doubtful that they were used in 1973, and data presented for the Tanana River probably represent the entire breeding population of peregrines between Tok and Nenana. Comparative data can be found in Cade and Fyfe (1970).

Information concerning peregrine falcons nesting along the upper Yukon River between the towns of Eagle and Circle is from observations made during several trips on the river by Robert Ritchie and Skip Ambrose (University of Alaska students). Comparative data for peregrine populations in this region are found in Cade and Fyfe (1970).

Robert Pegau (Department of Fish and Game) checked 54 eyrie sites, known to have been previously occupied by gyrfalcons, on the Seward Peninsula. This aerial survey (July 10-13) did not cover the entire Seward Peninsula, but provided data comparable with those of Roseneau (1969 and 1970).

Goshawk production was again monitored by Jerry McGowan (Department of Fish and Game) on the 144-square-mile (372 km²) study area directly

north of Fairbanks, and 1973 data are comparable to those of previous years (McGowan 1972 and 1973).

Scattered reports of active raptor nests in 1973 were submitted by Ken Alt, Terry Bendock, Don Bill and Pete Shepherd (all of the Department of Fish and Game).

Peregrine Falcons

Colville River Haugh (1973) summarized nesting success of peregrines (Appendix I) along the Colville as follows:

In our initial survey of the Colville River 14 sites were occupied by pairs of peregrines. In addition one site was occupied and weakly defended by a single bird. Only 11 of the 14 pairs had eggs at the time of our visit; the other 3 were either not nesting or had already failed in their nesting attempts. Our numbers compare with 33 pairs in the same area in 1969 and 25 pairs and 5 single adults in 1971. Our 1973 observations, therefore, show a substantial decline in the number of pairs attempting to nest in this arctic population. Moreover, it appears that the decline has been especially precipitous during the last two years. It is of interest that the decline in the number of pairs has been much more drastic on the upper Colville (Etivluk River to Umiat) where a 75 percent reduction in occupied sites has occurred between 1969 and 1973. On the lower Colville (Umiat to Ocean Point) the decline was only 39 percent. Overall, the number of occupied sites declined 58 percent between 1969 and 1973.

The 11 pairs of falcons with active nests at the time of our June survey produced a total of 32 eggs. At least 5, and probably 7, pairs failed during the late incubation or early nesting period, and only 4 pairs are known to have produced young. The total of 9 young produced on the river represents an average of only 0.64 young per nesting pair. Although this is slightly above the 0.56 advanced young per nesting pair observed in 1971 (White and Cade 1971), the total number of young produced along the Colville River in 1973 represents the poorest reproductive performance recorded in this population in 12 years of observations over a 21 year period.

The mean number of 2.9 eggs for 11 pairs in 1973 is somewhat higher than the 2.15 observed in 1967 and 2.68 in 1968. During the 1950's, Cade found the mean clutch size of Colville peregrines to be about 2.9, so despite poor reproductive performance, the falcons appear to be laying normal clutches as far as numbers

are concerned. The poor reproductive performance is, therefore, the result of failures occurring after laying and is either due to the failure of the eggs to hatch or the failure of young to survive. The 0.64 young per nesting pair compares with 1.4 young per pair in 25 nesting pairs examined by Cade during the 1950's (Cade 1960).

Tanana River - The trend in peregrine falcons nesting along the Tanana was summarized by Haugh (1973).

Four pairs of peregrines (Appendix II) were found along the Tanana River between Cathedral Rapids and Big Delta in 1973. Of these, 2 pairs produced one young each and 2 pairs produced 3 young each. Of the 4 active sites found in 1973, 3 were in the same locations occupied by falcons in 1972. One pair was found at a site which had not been occupied since 1970, but it now seems likely that this pair of birds has alternate nesting cliffs and does not represent an addition to the Tanana population. If this assumption is correct, then no site on the Tanana from which peregrines have disappeared has been reoccupied since my observations began in 1970. Peregrines no longer nest on the lower Tanana between Big Delta and Nenana.

In the past as many as 13 pairs of peregrines may have nested on the Tanana River between Tetlin and Nenana. (This estimate is based upon information provided by Alaskan ornithologists, river guides and other sources.) Although records are not adequate to determine when the majority of the falcons disappeared, it seems likely that most of the decline occurred between 1960 and 1970. In 1970 Haugh and Brian Cade surveyed the falcon population between Tetlin and Nenana and found 7 pairs of falcons. This number declined to the present level of 4 pairs in 1971 and has now remained stable for 3 years.

The reason for the decline of the peregrines along the Tanana is uncertain, but a combination of factors may be involved. Accumulation of pesticide residues may be having an influence on the birds (Cade et al. 1968, White and Cade 1971), but the fact that extinction has been most rapid, and now appears complete, along the more accessible parts of the river between Big Delta and Nenana indicates that direct human interference may be a factor of major importance along the Tanana. In this light, it is interesting to note that in 1970 falconers illegally robbed young falcons from several nests between Fairbanks and Tanacross. Of the 3 pairs of birds which failed to return in 1971, 2 were in the area disturbed by falconers, and one was near Fairbanks and perhaps also subject to considerable human disturbance. In a healthy population nest robbing would usually not be expected to lead to nest site

abandonment the following year. However, in a "sick" population containing high levels of pesticide residues, human disturbance might play a more important role. Moreover in a population failing to reproduce at normal rates, surplus individuals would not be available to replace birds which had disappeared and, therefore, once abandoned, sites would not be found and reoccupied by other falcons.

We were encouraged this summer to find eyrie site number 3 to be occupied by peregrines for the first time since 1970. On checking eyrie site number 4, however, we found this site, which had been occupied in 1971 and 1972, to be unoccupied. Sites 3 and 4 are separated by a distance of approximately 4 miles. Since one of the 2 sites has been occupied in each of the last 4 years, but the 2 sites have never been occupied simultaneously, it seems probable that there is but a single pair of falcons alternating nesting locations.

Falcons along the Tanana in 1973 averaged 2.0 young per successful pair. This was the lowest reproductive rate experienced in the 4 years of my study and is, therefore, somewhat discouraging. Also discouraging is the fact that reproduction would have been greater had not 3 eggs been cracked during incubation. Although analysis of these shells has not yet been carried out, thin cracked shells do hint at the continued interference of DDT with eggshell formation and reproduction of the Tanana falcons. On the plus side, however, and in light of recent declines of peregrines along the Colville (see above), lower Tanana and most other parts of their former range in North America and Europe (see Hickey 1969), the stabilization of the upper Tanana population at 4 pairs, and the continued successful reproduction of all 4 pairs is encouraging. The isolated nature of these remaining sites serves, to an extent, to protect the birds still present and lends hope that this residual population will survive to reproduce and repopulate former eyrie sites along the Tanana River when environmental conditions improve.

Yukon River - Ten pairs of peregrines (Appendix II) were located between Eagle and Circle on the Yukon in 1973 (Ritchie pers. comm.). Four nests failed prior to fledging, the remainder producing 15 (possibly 17) chicks. Hence, the average number of young fledged per breeding pair was 1.6 (possibly 1.7) while young produced per successful nest averaged 2.6 (possibly 2.8).

Peregrines nesting along the upper Yukon have declined somewhat according to figures of 17 (1966 and 1968) and 12+ (1970) reported by Cade and Fyfe (1970). Despite a slight decline in breeding density

the average number of young fledged per breeding pair is relatively high compared to figures of 1.3 (1951), 1.8 (1966), 1.4 (1967), 0.9 (1968) and 1.5 (1970) reported by Cade and Fyfe (1970). Peregrines along the upper Yukon appear to be the most productive group of that species studied in Interior Alaska during recent years. Very little is known concerning peregrine falcon abundance along the Yukon from the Fort Hamlin Hills downstream to the village of Tanana. While this area probably represents poorer nesting habitat than present along the upper Yukon, at least two active nests have been located there since 1970.

Gyrfalcons

Colville River - Haugh (1973) summarized the 1973 reproductive success of gyrfalcons nesting along the Colville River (Appendix III).

Gyrfalcons nest earlier than peregrines, and the young birds normally fledge in early July (see Cade 1960). For this reason, all data relating to this species were collected on our initial survey in late June. We found 9 sites occupied by one or more gyrfalcons in 1973. Only 5 of the sites had active eyries at the time of our visit. This is a significant drop from the 11 active eyries observed in 1967 and 1968, but such fluctuations are not unexpected in gyrfalcon populations. In his study during the 1950's, Cade (1960) found the number of gyrfalcon pairs along the Colville varied between 3 and 10.

Despite fewer nesting pairs, reproduction among the 5 nesting pairs was good. The 3.4 young per nesting pair recorded in 1973 was as good as in any previous year. Thus the gyrfalcon does not show the trend toward reduced reproduction that is exhibited by the Colville peregrines.

Seward Peninsula - Most gyrfalcons on the Seward Peninsula fledge between mid- and late July (Roseneau 1969 and 1970), consequently the timing of the 1973 survey was excellent for determining the number of fledged young. Roseneau (1970) felt that gyrfalcon clutch sizes and number of chicks in nests could be accurately determined from the air. If this is true, the 1973 aerial survey data should be accurate, however, any errors that may have been made would tend to cause an underestimate of production.

Twenty-three active gyrfalcon eyries were located in approximately 10 hours of aerial surveys on the Seward Peninsula in 1973. The 21 nests where counts of young were obtained (Appendix III) contained an average of 2.3 young. In 1968, 19 active nests fledged an average of 2.9 chicks, and in 1969, 14 nests averaged 2.5 young (Roseneau 1969 and 1970). The number of young fledged per nest provides a valid method for comparison of production for the 3-years. Gyrfalcon production on the Seward Peninsula in 1973 was about the same as in 1969. Apparently the Seward Peninsula population had higher reproductive success than that on the Colville in 1973.

Rough-legged Hawks

Colville River - Haugh (1973) summarized rough-legged hawk nesting abundance along the Colville River as follows:

Because of limited time, a detailed examination of rough-legged hawk nests was not made. We did, however, keep data on the number of pairs observed. Only 26 pairs of rough-legs were located in 1973 along the Colville River between the mouth of the Etivluk River and Ocean Point, and not one pair was observed between the mouth of the Killik River and Umiat Mountain. This compares with an average of approximately 70 pairs which White and Cade found in their 1967-69 study. The rough-legged hawk feeds mainly on microtine rodents (see White and Cade 1971), and the number of hawks attempting to nest is related to the abundance of microtines. Microtine populations are known to fluctuate considerably from year to year, and in 1974 these small mammals were at a low point in their cycle. The decline in number of nesting rough-legged hawks is, therefore, not surprising.

Seward Peninsula - While the aerial surveys conducted on the Seward Peninsula in 1973 were designed primarily to assess gyrfalcon abundance, 9 active rough-legged hawk nests were located. The 9 nests contained an average of 2.6 chicks (Appendix IV). In 1968 and 1969 the number of rough-legged hawk nests located was 28 and 7, respectively (Roseneau 1969 and 1970). The data available are not sufficient to compare reproductive success between the Seward Peninsula and Colville River in 1973.

Golden Eagles

Seward Peninsula - During aerial surveys on the Seward Peninsula in 1973, 5 golden eagles nests were located. These nests contained an average of 1.2 chicks (Appendix IV). In 1968 and 1969, 7 and 4 golden eagle nests were located, respectively (Roseneau 1969 and 1970).

Goshawks

Tanana Drainage - Fifty-nine percent of the goshawk nest sites active in 1972 were occupied in 1973. Relatively high clutch size, hatching success and chick survival resulted in good production (Appendix V) despite the fact that 31 percent of the breeding pairs located failed to fledge young. The number of young fledged per nest started in 1973 (2.2) was higher than in 1972 (1.6), but slightly lower than in 1971 (2.4). How the relatively high 1973 production rate relates to the constant decline in snowshoe hare abundance for the same period is unclear. Live-trapping and general observations in the fall of 1973 suggested that the fall goshawk population on the study area was much lower than in 1971 and 1972.

A considerable amount of movement into areas where prey is abundant probably occurred among juveniles in 1973. This has been recorded for other raptors, and possibly accounts for the apparently low fall population following a summer of relatively high production.

Management Summary and Recommendations

The Department should continue to collect information on distribution, abundance and productivity of Alaska raptors. Surveys to reveal abundance and production of peregrine falcons along the Tanana, Yukon and Colville Rivers, and gyrfalcons on the Seward Peninsula should be conducted biannually. Further reconnaissance work should be done in order to determine distribution and abundance of nesting peregrine falcons in areas previously unsurveyed, such as along the Middle Yukon and portions of the Kuskokwim.

The Department should continue to work closely with other land managing agencies in order to designate and protect critical nesting areas.

The Department should cooperate with the U. S. Bureau of Sport Fish and Wildlife in order to provide for the use of gyrfalcons and goshawks for falconry. By utilizing only gyrfalcons and goshawks, total protection can be afforded the peregrine and other migratory species, yet the sport of falconry can be practiced with the species best adapted to Alaskan conditions.

PREPARED BY:

Jerry D. McGowan
Game Biologist III

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

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Appendix I. Peregrine falcon clutch size and fledging data, Colville River, 1973.

Number of Eggs (Late June)	Number of Young (July 21-24)
4	0
4	0
4	0 (?)
4	0
3	0
3	3
3	3
2	0
2	0 (?)
2	2
1	1
0	0
0	0
0	0

Fourteen pairs of peregrines and one single adult were observed along the Colville River in 1973.

Eleven of the 14 pairs produced a total of 32 eggs. Three pairs failed completely during egg-laying or early incubation.

At least 5, and perhaps 7, failed during later incubation or early nestling period.

Only 4 pairs are known to have produced young.

Only 9 young were known to have reached the late nestling stage, or an average of only 0.64 per starting pair.

Appendix II. Summary of peregrine falcon nesting data from Tanana and Yukon drainages, 1973.

<u>Number of Nests Fledging</u>						
<u>Drainage</u>	<u>0 Chicks</u>	<u>One Chick</u>	<u>Two Chicks</u>	<u>Three Chicks</u>	<u>Four Chicks</u>	<u>Active Nest but Chicks Fledged Unknown</u>
Tanana	0	2	0	2	0	0
Yukon	4	0	3	2	1	2*

* One nest on Yukon below Circle and one nest on the Porcupine River.

Tanana - all four active nests produced young. The four nests accounted for 8 chicks fledged, or an average of 2.0 young per nest started.

Yukon (Eagle-Circle) - Ten pairs of peregrines attempted to nest. Four (40 percent) failed prior to fledging. Ten nests produced 16 chicks or an average of 1.6 young fledged per nest started.

Appendix III. Number of gyrfalcon chicks fledged along Colville River and on the Seward Peninsula, 1973.

<u>Number of Nests Fledging</u>						
<u>Area</u>	<u>0 Chicks</u>	<u>One Chick</u>	<u>Two Chicks</u>	<u>Three Chicks</u>	<u>Four Chicks</u>	<u>Unknown</u>
Colville River	-	0	0	3	2	0
Seward Peninsula	-	4	8	7	2	1

Colville River - in 1973 a total of 17 young were produced by 5 pairs which nested successfully. This represents a mean of 3.4 young per successful pair.

In 1967, 11 successful pairs produced 30 young for a mean of 2.7 young per pair. In 1968, 10 nests which were examined produced 28 young for a mean of 2.8 young per pair.

Seward Peninsula - 21 active nests observed during the surveys, contained 49 chicks for an average of 2.3 young fledged per active nest.

Appendix IV. Number of young in rough-legged hawk and golden eagle nests on Seward Peninsula, 1973.

Species	<u>Number of Nests With</u>				
	0 Chicks	One Chick	Two Chicks	Three Chicks	Four Chicks
Rough-legged Hawks	0	1	2	5*	1
Golden Eagle	0	4	1	0	0

* One nest with one egg and three chicks.

Rough-legged Hawks - nine successful nests contained 24 chicks, or 2.6 young hatched per successful nest.

Golden Eagle - five successful nests contained 6 chicks, or 1.2 young hatched per successful nest.

Appendix V. Goshawk nesting data, Tanana drainage, 1973.

Nest Number	Clutch Size	Eggs Hatched	Young Fledged
1-73	4	4	4
2-73	4	4	4
3-73	?	0	0
4-73	3	3	0
5-73	3	2	2
6-73	?	0	0
7-73	4	4	4
8-73	4	4	Nest Tree Destroyed
9-73	4	4	4
10-73	4	4	4
11-73	4	2	2
12-73	?	0	0
13-73	?	?	2

Clutch size of 13 nests averaged 3.8 eggs, and 91 percent of the eggs layed hatched.

Thirty-one percent of the active nests failed at some time prior to fledging.

Twelve nests (deleting #8-73) produced 26 chicks of fledging age, or 2.2 young per nest started.