

ALASKA DEPARTMENT OF FISH AND GAME  
JUNEAU, ALASKA

STATE OF ALASKA  
William A. Egan, Governor

DEPARTMENT OF FISH AND GAME  
Wallace H. Noerenberg, Commissioner

DIVISION OF GAME  
Frank Jones, Acting Director

ANNUAL REPORT OF SURVEY-INVENTORY ACTIVITIES  
PART II - CARIBOU, BROWN - GRIZZLY BEAR, SHEEP  
FURBEARERS, MARINE MAMMALS, BISON,  
GOAT, WOLF, WOLVERINE AND BLACK BEAR

Edited and Compiled by  
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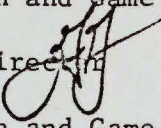
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(Printed October 1971)

MEMORANDUM OF TRANSMITTAL

October 8, 1971

TO: Wallace H. Noerenberg, Commissioner  
Alaska Department of Fish and Game

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

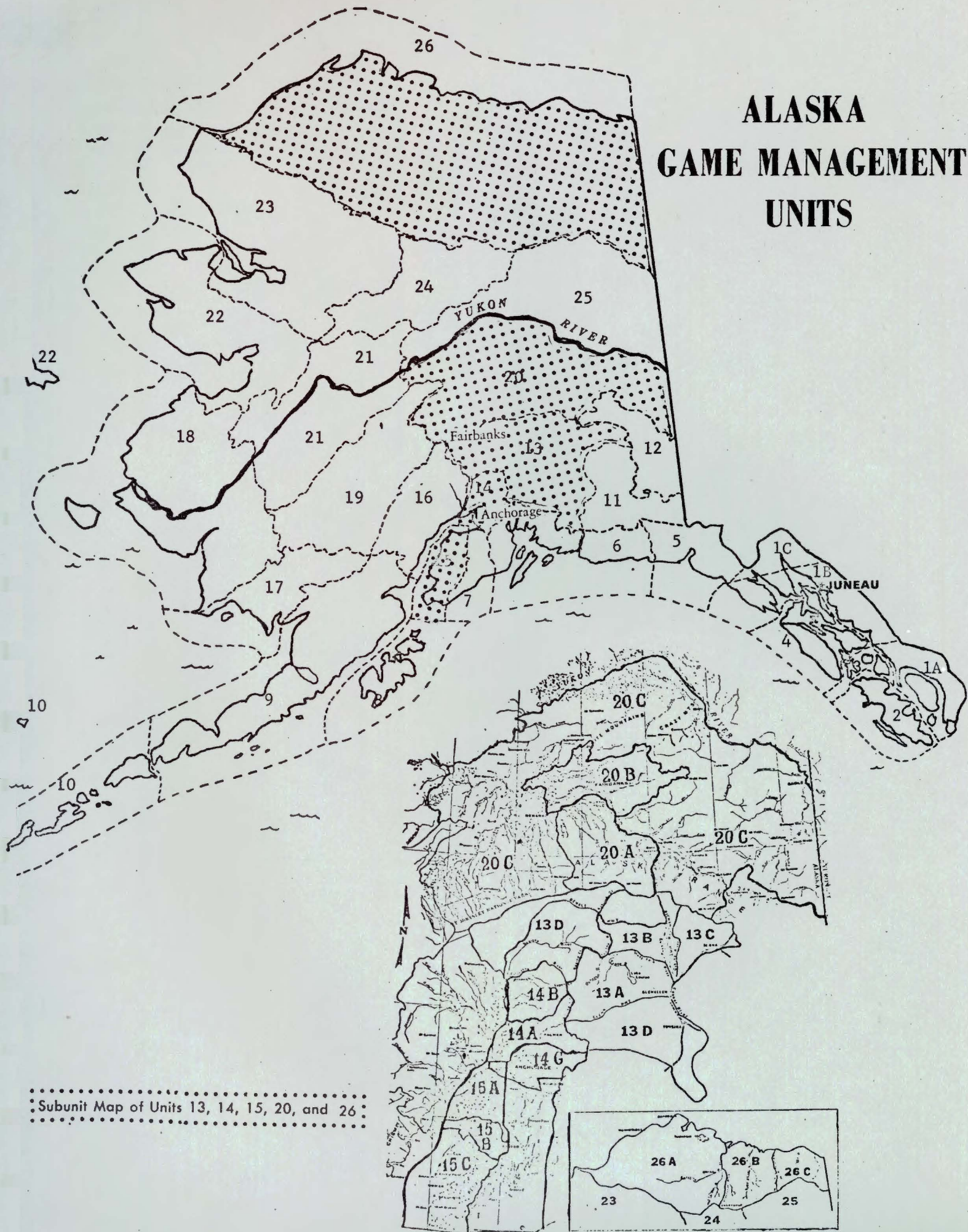
SUBJECT: Annual Report of Survey-Inventory Activities

In 1969 the Game Division initiated a series of annual reports relating specifically to survey and inventory activities conducted by staff biologists each year. Surveys and inventories include all routine data collections directed toward assessment of the status of game populations and toward the determination of annual game harvests. These reports include study results and conclusions and, when applicable, recommended hunting regulation changes.

Several improvements have been incorporated into the 1970 reports. Because experience has shown that these reports are of interest to citizens unfamiliar with Game Management Unit boundaries, a map of Alaska showing these boundaries is included in each report this year. Also, even though 1969 reports were organized by game species and Management Units, for easy reference a table of contents has been added to the 1970 reports to provide easier access to specific information.



# ALASKA GAME MANAGEMENT UNITS



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## CARIBOU

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 9 - Alaska Peninsula (Alaska Peninsula Herd)

#### Seasons and Bag Limits

Aug. 10 - March 31

Three caribou

#### Harvest and Hunting Pressure

Harvest ticket returns indicate that 309 caribou were taken in Unit 9 during the 1969-70 hunting season. Eighty-five percent of these animals were males, 11 percent were females, and 4 percent were of unknown sex.

#### Composition and Productivity

A composition survey on the Alaska Peninsula herd in the vicinity of Becharof Lake was made during 1970 (Appendix I). Counts were made on the ground with the aid of a 20x spotting scope. Animals were separated into sex and age categories on the basis of genital characteristics or by body form and antler development at 50-100 yards. Counts made in this manner are more accurate than those previously made from aircraft since more time can be given to observing each animal, insuring that it is correctly placed in the proper category. A sample size of 3,116 caribou gave a ratio of 48.3 bulls per 100 cows and 46.1 calves per 100 cows.

#### Management Summary and Conclusions

Alaska Peninsula caribou are abundant and are only lightly harvested by man. The herd appears to be growing and expanding its range northward and into many of the Pacific drainages.

During the fall of 1970, occasional caribou were observed limping. Although animals infected with hoof rot (*Bacteroides fundiliformis*) exhibit this characteristic debility, it is not uncommon to see a small percentage of any caribou herd limping due to mechanical injuries. These animals were rare and no collections were attempted.

Because of the light hunting pressure exerted upon the Alaska Peninsula herd, and because of its relative abundance, there is no biological justification for restricting the harvest. Residents in the villages of Perryville and Ivanof are generally subjected to a scarcity of animals during the open hunting season. However, during the summer months when the season is closed, caribou are available to the villages in limited numbers. A year-round open season for residents would permit

these villagers and other Peninsula residents to obtain meat whenever animals are present. Because of the logistical expense of traveling to and within Unit 9, the season extension would offer only limited advantages to other Alaskan residents outside of this unit.

#### Recommendations

It is recommended that the caribou season in Unit 9 be changed to read:

Resident	July 1 - June 30	Three caribou
Nonresident	Sept. 15 - Oct. 31	Three caribou

#### Appendix I. Summary Alaska Peninsula Caribou Composition Counts.

Year	Type of Count	MM per 100 FF	Yrlg. per 100 FF	Calf per 100 FF	Total Animals in Sample
1968	Aircraft	47	-	50	4,183
1970	Ground	58.7	8.2	48.3	1,283*
		41.7	6.3	44.7	1,833**
		48.3	7.0	46.1	3,116***

\* Excellent counts = Genital characteristics at close (50 - 60 yds.) range.

\*\* Good counts = Combination of genital character or body form and antler development at medium (60 - 100 yds.) range.

\*\*\* Excellent and good counts combined.

Submitted by: James B. Faro, Game Biologist III



## CARIBOU

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 10 - Aleutian Islands (Adak Herd)

#### Seasons and Bag Limits

Unit 10, Unimak Island only	Aug. 10 - Mar. 31	Four caribou
Unit 10, Adak Island only	Aug. 10 - Mar. 31*	One caribou
* Season will be closed by field announcement upon the taking of 50 caribou.		
Unit 10, except Unimak and Adak Islands	No closed season	No limit

#### Harvest and Hunting Pressure

Fifty-three caribou were harvested on Adak Island in 1970 (Appendix I). The harvest was almost evenly split between sexes with 26 males and 27 females taken. One tagged animal, a 12 year-old female that was part of the original group of calves transplanted to the Island in 1958, was killed this year. No harvest data are available for other areas in the Unit, primarily because no harvest reports are required for Game Management Unit 10.

#### Composition and Productivity

No data are available.

#### Management Summary and Conclusions

Hunting on Adak Island is entirely the result of recreational effort on the part of military personnel stationed there. The management policy for the Island is to keep the herd at approximately 200 animals. This level of population is easily within the carrying capacity of the range and within the potential of existing hunting pressure to prevent undesired growth of the herd. The 1970 level of harvest was only three animals over the management objective of 50 animals a year. Hunting conditions on the Island are such that there does not appear to be the strong hunter selectivity toward males that characterizes recreational hunting on other caribou herds.

An incomplete survey conducted by Department personnel resulted in the observation of 150 caribou on Adak Island. When proper weather and snow conditions exist, a complete census of the Island will be attempted by U. S. Navy personnel.

#### Recommendations

No changes in seasons or bag limit for any area are recommended.

Submitted by: James B. Faro, Game Biologist III

Appendix I. Adak Caribou Herd, Population and Mortality 1958 - 1970.

Year	Winter Population	Natural Mortality*	Hunting Mortality
1958	10	1	0
1959	23	1	0
1960	-	0	0
1961	-	1	0
1962	36	0	0
1963	43	0	0
1964**	65	1	4
1965**	87	8	2
1966**	106	3	18
1967**	126	1	24
1968**	163	3	55
1969**	167	0	51
1970**	-	0	53

\* Essentially, all natural mortality is due to entanglement in wire.

\*\* Allowable harvest: 1964 - 10; 1965 - 30; 1966 - 30; 1967 - 50; 1968 - 50;  
1969 - 50; 1970 - 50.



## CARIBOU

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 11 - Wrangell Mountains-Chitina River (Mentasta Herd)

#### Seasons and Bag Limits

Aug. 10 - Sept. 30

Three Caribou

Nov. 1 - March 31

#### Harvest and Hunting Pressure

Harvest data for 1970-71 are not available since the season is still in progress. The Mentasta herd, which resides part of the year in Unit 11, is normally available to most hunters (excluding guided hunts) only when animals migrate across the Slana-Tok Highway or when they are along the Nabesna Road. Both hunting pressure and kill are thusly variable. In September 1970, an estimated 5,000 animals migrated north into Unit 13, from the Wrangell Mountains. An estimated 500 animals were taken by hunters. The actual 1969-70 harvest report returns (without extrapolation included) indicate 203 males, 81 females and 4 unknown sex caribou were harvested.

#### Composition and Productivity

Little is known of the status of this population. A small sample of jaws was collected in September 1970, but these have not yet been aged. In June 1970, observations were made of post-calving groups in the Wrangell Mountains. Approximately 1,900 animals were observed of which 290 were bulls and yearlings, 1,020 were adult cows and 580 were newborn calves.

#### Management Summary and Conclusions

The net effect of hunting on this herd is minimal since it is not normally available to hunters. The closure of the season during the month of October was a Board action based on public sentiment. The effect of this closure on harvest will probably be slight except for those years when migrations into accessible areas occur in October. Therefore, the October closure seems illogical. That the effect of hunting on this herd is minimal is evidenced by the presence of relatively large numbers of large-antlered bulls. There is a very noticeable sparcity of large-antlered bulls in the more heavily hunted Nelchina herd.

### Recommendations

Caribou hunting is receiving increasing criticism for a variety of reasons, especially in those areas where caribou can be hunted by snow-machine. The Mentasta herd is not normally available to snowmachine hunting, and thus because of its inaccessibility is not subjected to the long hunting season. There is no logical reason for the season to be closed during October, however a closer look at the long season should be considered.

Submitted by: Loyal Johnson, Game Biologist III

## CARIBOU

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 12 - Upper Tanana and White River (Chisana Herd)

#### Seasons and Bag Limits

August 10 - March 31

3 Caribou

#### Harvest and Hunting Pressure

Harvest ticket data disclosed that in 1969 hunters took 13 bull caribou from the Chisana Herd. In 1968, 39 animals were reported taken. Data on the 1970 kill are not yet available.

Hunting pressure on this small herd, located in the Wrangell Mountains, is primarily for trophies, although a few are probably taken for camp meat. No significant changes in the harvest are expected to occur in the near future.

#### Composition and Productivity

No data. A reconnaissance flight was made over the Chisana-White River area on June 22. Cows with newborn calves were sighted on the benchland areas between Chisana and Beaver Creek. No other observations were made in 1970.

#### Management Summary and Recommendations

Because harvest data suggest that the hunter take is small and selective toward trophy bulls, no changes in season or bag limit are recommended.

Submitted by: Larry Jennings, Game Biologist III

## CARIBOU

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 12 and 20C (Alaska Range Herd)

#### Seasons and Bag Limits

August 10 - March 31

3 Caribou

#### Harvest and Hunting Pressure

Because of the method in which harvest statistics are compiled, no harvest information is presently available on this herd. Hunting pressure is known to be very light and sporadic. Most animals are taken incidentally during August and September by moose and sheep hunters.

#### Composition and Productivity

No data. A reconnaissance flight on June 20 disclosed that most animals had moved into the Alaska Range, primarily up the Johnson River. Calving is believed to have occurred on Macomb Plateau.

Animals began moving out of the mountains during late September and on October 4 about 500 animals, believed to be nearly the entire herd, were moving west between the Robertson and Johnson Rivers. No other observations were made during 1970.

#### Management Summary and Recommendations

Because of the light harvest this herd is believed to experience, and the herd's apparent ability to withstand it, no changes in seasons or bag limits are recommended.

Because some exceptional trophy heads come from this herd, it is recommended that this herd be managed for trophy production rather than maximum yield.

Submitted by: Larry Jennings, Game Biologist III

## CARIBOU

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 13 - Nelchina Basin (Nelchina Herd)

#### Seasons and Bag Limits

August 10 - September 30  
November 1 - March 31

3 Caribou

#### Harvest and Hunting Pressure

Harvest data for 1970-71 are not available since the season is still in progress. However, the Nelchina herd was available to road based hunting only for a very short time. This was in early November along the Lake Louise Road, when an estimated 300 to 500 animals were taken.

The final reported harvest for the 1969-70 season is available. Actual IBM harvest returns without extrapolation indicate 5,422 caribou (2,627 males, 2,705 females and 90 sex unknown) were harvested.

This year the general inaccessibility of the Nelchina herd to the road systems resulted in the lowest reported number of caribou being checked out through the Denali Check Station. Between August 10 and October 2, 1970, only 509 animals were reported taken. Age analysis of these caribou has not been made. Blood samples from 12 animals taken along the Lake Louise Road in November were analyzed for Brucella and Leptospirosis. No positive reactors to either organism were detected.

#### Composition and Productivity

The Nelchina caribou rutted in the timber country of the Lake Louise area in 1970 and so the fall sex and age composition survey could not be accomplished.

A sex and age composition survey was conducted in April, 1970, which is a time when all sexes and ages are integrated. The ratios nicely compliment the same type data collected the previous October. Data summarized below show no change in the bull:cow ratio and a reduction of about 25% of the calf population, which can logically be attributed to natural causes, such as winter loss, predation, etc.

<u>Date</u>	<u>Total MM/100 FF</u>	<u>Calves/100 FF</u>	<u>Sample Size</u>
October 1969	21.0	39.0	3007
April 1970	21.9	29.2	3388

#### Management Summary and Conclusions

Harvest report data indicate that the current sport hunting kill is approaching and perhaps exceeding the annual increment. A photo extrapolation census of this herd is scheduled for early 1971. The long seasons and liberal bag limit are both receiving increasing public criticism, but until the current population status is more fully known, no conclusions can be drawn.



Recommendations

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

Submitted by: Loyal Johnson, Game Biologist III

## CARIBOU

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Units 16, 19, and 20C - (Farewell - Rainy Pass - Tonzona River Herd)

#### Seasons and Bag Limits

Units 16 & 20C	August 10 - March 31	3 Caribou
Unit 19	August 10 - March 31	5 Caribou

#### Harvest and Hunting Pressure

These comments apply to Unit 19.

The harvest of these caribou is variable and generally light. Guided hunters may take 30 to 40 animals a year in this area. Hunting at Telida, Nikolai and Farewell is sporadic and the take may range from zero to 30 animals, depending on the movements of the animals. In 1970-71 two were taken at Farewell and two at Telida.

#### Composition and Production

No data have been gathered. The caribou in this area are listed as "herd" to indicate a group that seems to use this area fairly consistently. In 1970-71 about 200 caribou wintered northeast of Farewell, or at least spent a substantial part of the winter there. Caribou are dispersed over the foothills in this area in the fall, and occasionally are found west of this area.

#### Management Summary and Conclusions

The distribution of these caribou precludes an extensive harvest. The liberal bag limit in Unit 19 provides for a substantial subsistence harvest when the opportunity arises. No changes are recommended.

Submitted by: Richard H. Bishop, Game Biologist III

## CARIBOU

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 17 - Bristol Bay (Mulchatna Herd)

#### Season and Bag Limit

August 10 - March 31

Three caribou

#### Harvest and Hunting Pressure

That portion of the Mulchatna caribou herd in Unit 17 received only light harvest by subsistence, recreational and trophy hunters. The crude estimated harvest is less than 100 animals. Harvest information will continue to be estimated only, because no harvest reports are required for this Unit.

#### Composition and Productivity

No data are available.

#### Management Summary and Conclusions

In view of the light utilization of the Mulchatna herd, liberalization of the season and bag limit might appear to be in order. However, because the hunting pressure upon this herd is so light, such liberalizations would probably not noticeably increase the harvest. Until better management data are available, no regulation changes appear necessary.

#### Recommendations

No changes in seasons or bag limits are recommended.

Submitted by: James B. Faro, Game Biologist III

## CARIBOU

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Units 17 and 19 (Mulchatna Herd)

#### Seasons and Bag Limits

August 10 - March 31

5 Caribou

#### Harvest and Hunting Pressure

These comments apply to Unit 19.

Hunting pressure is generally light. Some hunters from Sleetmute and Aniak hunt in the Holitna - Stony River area by airplane. The known kill in this area was 11 caribou in 1970-71, but the actual kill may have reached 20. Three of these were taken by a beaver trapper. In 1969-70 the people of Lime Village on Stony River took about 40 caribou. Their harvest for 1970-71 is not known yet.

The harvest from the caribou wintering around the Big River - Katlitna River area was about 20 animals, all taken by McGrath hunters using airplanes.

In 1969-70, hunters from Nikolai took 14 caribou at the end of the season. These may have been from the Big River group, or one of the small bands which wintered near Farewell.

#### Composition and Production

No data on production have been gathered. Data on distribution are routinely gathered.

#### Management Summary and Conclusions

The 5 caribou bag limit begun this year was generally well received, and in a few cases benefited the hunters who were mainly after meat. No further change is recommended.

Submitted by: Richard H. Bishop, Game Biologist III

## CARIBOU

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 18 and western part of GMU 19 (Western Kuskokwim Mts.-  
Kilback Mts. Herd)

#### Seasons and Bag Limits

August 10 - March 31

5 Caribou

#### Harvest and Hunting Pressure

Hunting pressure is light and sporadic. Except for occasional air-borne hunters, contact with caribou is limited to occasional hunting trips from various villages or contact incidental to other activities.

The actual harvest is unknown but appears to be negligible.

#### Composition and Production

No data have been gathered in this area.

#### Management Summary and Conclusions

The raising of the bag limit from three to five has not materially affected the harvest this year. No change is recommended.

Submitted by: Richard H. Bishop, Game Biologist III



## CARIBOU

### SURVEY-INVENTORY PROGRESS REPORT 0 1970

Game Management Units 19 and 21 - (Beaver Mountains Herd)

#### Seasons and Bag Limits

August 10 - March 31

5 Caribou

#### Harvest and Hunting Pressure

Hunting pressure is negligible. Two caribou were known to have been taken in 1970-71. None are known to have been taken on their wintering area west and north of the Beaver Mountains.

#### Composition and Production

No composition data were gathered. On April 10, 1970 a reconnaissance of the Beaver Mountains area was made. Approximately 1,100 caribou were found on the northwest slopes of the Beavers. On May 15, 1970 the same area was examined. About 700 caribou were seen, of which 150, or about 27 percent, were calves.

Caribou move into this area as early as the first week in March, and many remain in the general area all summer and fall. Most of these caribou apparently winter on the Dishna - Innoko flats, but there are scattered groups in the Takotna River, George River and Iditarod River drainages which may be part of the Beaver Mountains population.

#### Management Summary and Conclusions

No changes in season or bag limit are recommended. The present limit of 5 caribou is appropriate for the circumstances.

Submitted by: Richard H. Bishop, Game Biologist III

## CARIBOU

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Units 19, 20C, and 21 - (Central and Eastern Kuskokwim Mts. Herd)

#### Seasons and Bag Limits

Units 19 & 21	August 10 - March 31	5 Caribou
Unit 20C	August 10 - March 31	3 Caribou

#### Harvest and Hunting Pressure

The extent to which caribou inhabit the Kuskokwim Mountains from the Innoko River east is mostly unknown. Harvest is mainly by hunters from McGrath who take caribou wintering on the Nixon Fork flats. Approximately 30 caribou were taken by McGrath hunters in 1970-71. About 15 caribou were taken by Nikolai hunters early in the winter for the first time in many years.

#### Composition and Production

No data on composition or productivity have been gathered. On 11 April 1970, about 700 caribou were found on the north side of the Sunshine Mountains.

Scattered caribou have been found in the Cloudy Mountains and other alpine hills in past years. The bulk of the caribou that winter on the Nixon Flats and the headwaters of the Nowitna River probably calve in the Sunshine Mountains. However, the calving group could not be located in 1970.

The numbers and distribution of caribou east of the Sunshine Mountains - Von Frank Mountains are not known, but occasional reports of small numbers of caribou in the hills east of Medfra as far as Lake Minchumina are received.

#### Management Summary and Conclusions

No changes in regulations are recommended.

Submitted by: Richard H. Bishop, Game Biologist III

## CARIBOU

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 20C - Tok, Upper Tanana - (Fortymile Herd)

#### Seasons and Bag Limits

August 10 - March 31

3 Caribou

#### Harvest and Hunting Pressure

Harvest ticket data indicate that 342 caribou were taken from the Fortymile Herd in 1969, compared with 579 for 1968. The 1969 kill was comprised of 260 bulls, 79 cows and 3 unknowns. Because availability of caribou along the Taylor Highway dictates the magnitude of the harvest, the year to year hunter kill is highly variable due to the caribou's erratic and unpredictable movements.

No harvest data are available yet for 1970. It is estimated that the kill will be less than 1,000 animals, despite heavy hunting pressure on two weekends in October when animals were crossing the Taylor Highway in large numbers. Some harvest also occurred earlier along the Steese Highway. The Unit 13 caribou closure during October undoubtedly diverted hunting pressure to the Fortymile Herd. The increased pressure was not detrimental to the herd.

#### Composition and Productivity

No data. Composition counts were cancelled for the second consecutive year when caribou moved into the wooded lowlands of Western Yukon Territory during October.

A reconnaissance flight in late June disclosed caribou and newborn calves in the Mt. Harper - Black Mountain area. Calving probably occurred elsewhere as well.

#### Management Summary and Conclusions

The Fortymile caribou herd is probably considerably reduced from its former numbers. During the late 1950's the herd was estimated to contain over 50,000 head. Considerable reconnaissance located less than 6,000 animals during October, 1970. Most flights were aided by good weather and a snow cover. At present the herd is estimated to number not over 15,000 individuals. The reduction is likely due to a population shift, probably into the Yukon Territory. The Canadian Wildlife Service reported several thousand caribou north of Dawson in August. This could be a portion of the "lost" Fortymile Herd since caribou normally do not occur in that part of Canada during August.

No changes in season or bag limits are recommended. Because of the caribou's erratic and unpredictable movements and the fact that a harvest can occur only when the animals are accessible near the Steese or Taylor Highways, it is impossible to forecast future harvests. Should an over-harvest appear to be occurring the situation could be controlled by an emergency field announcement curtailing the season and/or lessening the bag limit.

Submitted by: Larry Jennings, Game Biologist III

## CARIBOU

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 20 - Fairbanks, Central Tanana - (Delta Herd)

#### Seasons and Bag Limits

August 10 - March 31

3 Caribou

#### Harvest and Hunting Pressure

Based on harvest ticket returns, the 70-71 caribou kill for the Delta Herd was 225 animals. This consisted of 169 males (75%), 54 females (24%) and 2 unknown, showing an increase over the 1969-70 harvest when 205 caribou were taken.

Hunting pressure, mainly trophy hunting with guides, continues to increase along the north side of the Alaska Range, resulting in the increased harvest. Since the Delta Herd is generally accessible only to aircraft hunting, subsistence hunting is minimal. Harvest from predominantly guided hunts is reflected in the kill figure of 101 (71 males, 28 females and 2 unknown) taken between Delta Creek and Dry Creek.

#### Composition and Productivity

Herd composition counts have been conducted on the Delta Herd the past 2 years, while spring production counts have been done only once (March, 1970). This spring count indicated a short yearling:cow ratio of 21:100 and a bull:cow ratio of 30 bulls:100 cows. Calf survival was good as reflected by the fall (1969) calf:cow ratio of 28:100 compared to the spring (1970) yearling:cow ratio of 21:100.

Fall composition counts conducted in October, 1970, indicated a bull:cow ratio of 77 bulls per 100 cows, a yearling:cow ratio of 23 per 100 cows and 28 calves per 100 cows were found, indicating good yearling survival and production. A significant increase in the bull:cow ratio over last year's count (when 40 bulls per 100 were observed) may be the result of differences in herd segregation. Early snow fall and the onset of cold weather in 1970 may have resulted in a westerly movement of most of the herd from the Dry Creek-Wood River area towards the Totatlanika River in groups of 100-500 animals. In the fall of 1969 the ground was free of snow, and animals were in small (20-50) scattered groups. At that time no large scale movement had occurred.

#### Management Summary and Conclusions

If the current (fall, 1970) bull:cow ratio of 77 bulls per 100 cows for the Delta Herd is valid, it would appear that selective hunting pressure for bulls has not significantly altered the bull:cow ratio, as



has been suggested earlier. Evaluation of all calf crops (14% of the herd in 1969) and spring yearlings (13% of the herd) indicates an annual increment exceeding the harvest for the 1969-70 season. This may be the case in the 1970-71 season if survival counts in spring 1971 show an increment paralleling a 15% calf crop last fall. Productivity and survival appear to exceed hunting harvest and natural mortality. It is recommended that seasons and bag limits remain unchanged.

Submitted by: Mel Buchholtz, Game Biologist II

CARIBOU  
SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 22 - Seward Peninsula

Seasons and Bag Limits

No Closed Season

No Limit

Harvest and Hunting Pressure

Animals are only available during the wintertime in the extreme eastern portion of the Unit and are available to hunters from Koyuk, Shaktoolik, and Unalakleet. The harvest is relatively light as it is usually a trip of 75 to 100 miles to the animals. Contacts with the villagers in Koyuk and Shaktoolik indicate the harvest this year probably did not exceed 25 to 50 animals.

Composition and Productivity

An attempt was made to locate these animals without success but they occur primarily at the head of the Ungalik River and are very likely to be a portion of the Arctic herd that moved into this area during the winter. We have been unable to determine definitely that these are Arctic herd caribou rather than a local herd.

Management Summary and Recommendations

Due to the very small harvest in this Unit and because of relatively inaccessibility of the animals, it is recommended that the bag limit and seasons remain unchanged.

Submitted by: Robert E. Pegau, Game Biologist II

## CARIBOU

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Units 23, 24, and 26 - (Arctic Herd)

#### Seasons and Bag Limits

No closed season

No Limit

#### Harvest and Hunting Pressure

Harvest tickets are not required for caribou in any of these units. Therefore, an accurate estimate of the total harvest cannot be obtained. The harvest is related to the route of the annual migrations of the caribou and to the villages that they come near. This year most of the animals moved south through the old John River Valley and then some went west and were available to the villages of Kobuk, Shungnak, and Ambler. Another group continued south and wintered near Hughes and Huslia. The village of Anaktuvak had a good fall season. Very few caribou have been available to the residents of Point Hope, Kivalina, Kotzebue, Noatak, Kiana, and Noorvik. During late winter caribou were available to the residents of Selawik. The total harvest this year has been near normal as Anaktuvak, Hughes, Huslia, Selawik, Kobuk, Shungnak, and Ambler all had good hunting success and the other villages had relatively poor success.

#### Composition and Productivity

A major census of the Arctic Herd was conducted during the post-calving concentration in late June. Aerial photographs were taken and a direct count of the animals on the photographs was tabulated. Composition counts at that time of 26,252 animals that were classified to sex and age, indicated a calf-cow ratio of 48:100; a yearling-cow ratio of 37:100 and a bull-cow ratio of 58:100. It compares with a 56:100 calf-cow ratio in 1969, and a ratio of 41:100 in 1968.

A fall composition count of 6,238 animals revealed a calf-cow ratio of 44:100; a yearling-cow ratio of 20:100 (which appears to be a low figure), and a bull-cow ratio of 64:100.

By using the counts from the aerial photographs taken during post-calving concentrations and tabulating the fall composition counts, a total estimate of the Arctic caribou herd population is figured to be 242,000.

### Management Summary and Recommendations

Harvest this year appears to be about normal for the Arctic caribou herd. With a population of 242,000 animals, it appears that the current harvest is only minimally affecting the population. It is recommended that the liberal season and bag limits remain unchanged.

Submitted by: Robert E. Pegau, Game Biologist II

## CARIBOU

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Units 24, 25, and 26 - (Porcupine Herd)

#### Seasons and Bag Limits

No closed season

No Limit

#### Harvest and Hunting Pressure

These animals are accessible only to a limited number of villages.

#### Composition and Productivity

Very little information was obtained last year. Currently the Bureau of Land Management is planning an aerial census of the Porcupine Herd during the post calving concentrations to obtain an estimate of the number of animals in this herd.

#### Management Summary and Recommendations

There is very little information available about this herd. There is increased activity from oil development in the area utilized by this herd. A census is being planned for this coming year. It is recommended that the liberal bag limit and season remain unchanged.



## BROWN/GRIZZLY BEAR

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 1 - Southeast Mainland

#### Seasons and Bag Limits

Sept. 1 - Nov. 30	One bear every four regulatory
April 1 - June 10	years; provided that the taking
	of cubs or females accompanied
	by cubs is prohibited.

#### Harvest and Hunting Pressure

The harvest of brown bears in Unit 1 during 1970 was 13 animals. This is a considerable decrease from the 21 taken the previous year, but within the limits of variation over the previous nine years (9-27) and not much below the average for that period (15.7). Obviously the take in Unit 1 is so small that large percentage variations can be caused by weather and other factors.

A summary of Unit 1 brown bear harvests since 1961 is presented in Appendix I.

The number of bears taken is too small to give much significance to changes in those parameters which might be capable of indicating over-harvest if it occurs (per cent males taken, average male hide size, average male skull size, and average age), at least on an annual basis. Grouping average male hide size (the largest available category of measured variables) into 1961-1965 and 1966-70 provides means of 13.3 and 13.5 respectively, even though the percentage of males was much larger during the first five years (72.6%) than during the last five (55.4%). 1970 marked only the fourth year that skull sizes have been measured; the six male skulls (all the males that were taken) averaged 20.2 inches in length plus width. This was two inches less than the previous year, and 1.3 inches less than the mean of the previous three years. Again it must be stated that the sample size is probably too small to give much significance to this figure.

The average age of four male bears taken in Unit 1 in 1969 was only 3.8 years; the average for six male bears taken in 1970 was 4.7 years. Because of the small sample, these averages mean little, as is well illustrated by the fact that the average skull size decreased two inches from 1969 to 1970 while the average age increased.

#### Composition and Productivity

No data available. The sex composition of the harvest is unlikely to indicate the composition of the population.

### Management Summary and Conclusions

The Unit 1 brown bear harvest is small. Determination of whether even this is too many bears to allow a trophy population to be maintained (which seems doubtful) will have to await the accumulation of additional data, particularly age data.

### Recommendations

No regulatory changes can be recommended on the basis of information currently available.

Submitted by: Alan Courtright, Game Biologist III

# APPENDIX I

## Legal Brown Bear Harvests in Alaska's Game Management Unit 1, 1961-1970.

Year	Total Bears	% Male	% Spring	% Non- Resident	Mean Male Hide Size	Mean Male Skull Size	Mean Male Age
1961	13	69	46	8	11.1		
1962	14	64	58	29	14.0		
1963	7	57	44	29	13.9		
1964	20	80	40	10	13.9		
1965	8	75	88	13	13.8		
5 yr. Total*	62	44	32	10			
5 yr. Mean	12.4	71.0	51.6	16.1	13.3		
1966	13	69	46	31	13.3		
1967	27	44	67	30	13.8	18.5	
1968	18	61	33	22	12.9	20.9	
1969	21	65	14	5	14.0	22.2	3.8 (4)
1970	13	46	0	31	13.6	20.2	4.7
5 yr. Total*	92	51	33	21			
5 yr. Mean	18.4	55.4	35.9	22.8	13.5		
10 yr. Total*	154	96	65	31			
10 yr. Mean	15.4	62.3	42.2	20.1	13.3		

\* In the summations under % columns, the figures represent numerical totals, not percentage.

## BROWN/GRIZZLY BEAR

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 4 - Admiralty, Baranof, and Chichagof Islands

#### Seasons and Bag Limits

Sept. 1 - Nov. 30	One bear every four regulatory
April 1 - June 10	years; provided that the taking
	of cubs or females accompanied
	by cubs is prohibited.

#### Harvest and Hunting Pressure

The harvest of brown bears in Unit 4 during calendar year 1970 was 66 animals, exactly the same number as was taken in 1969. The composition and distribution of the harvest were very similar also: 73% were males in 1970 compared to 77% in 1969, 85% were taken in the spring in 1970 (1969 - 67%), and 55% were taken by nonresidents (1969 - 52%). Mean male hide sizes were identical in both years at 13.7 feet squared, but average male skull size decreased slightly to 22.0 inches from 1969's 22.7 inches. The average male age, however, increased from 7.2 in 1969 to 7.8 in 1970.

Details of the Unit 4 brown bear harvest from 1961 through 1970 are given in Appendix I.

During the reporting period an analysis was made of all 1964-1969 bear sealing certificates on file in Juneau, primarily to determine specifically where within the unit most bears were being taken. This analysis (summarized in Appendix II) showed that on the average over half (1964-69 mean=55.3%) of the bears taken in Unit 4 came from Admiralty Island, and further that most of these (1964-69 mean=67%, range 55.2% - 80.6%) are taken from the southern portion of that island (south of Kootznahoo Inlet and Gambier Bay). In that area, consisting of perhaps 800-1000 square miles of land, the bear harvest averaged approximately one animal per 35-45 square miles per year. Furthermore, almost three-fourths of the take from the southern half of Admiralty Island comes from just four bays: Pybus, Gambier, Chaik and Hood. These bays have abutting drainages.

A thorough analysis of the effects of a harvest of this intensity must await the availability of age data from bears taken there.

#### Composition and Productivity

No data available. The composition of the harvest is unlikely to reflect the composition of the population, because many hunters select large bears.

### Management Summary and Conclusions

The squared hide size of bears taken in Unit 4 declined from 14.3 feet in 1961-1965 to 13.3 feet in 1966-1970. Skull size averages and age data are available only for more recent years; these data cannot be regarded as conclusive and in any case are in conflict. Skull sizes tend to substantiate a reduction in the number of large bears available to hunters, but male ages averaged slightly higher in 1970 than in 1969. If a reduction is indeed taking place, it is likely to be confined mostly or entirely to the southern half of Admiralty Island. An analysis will be made of ages and skull sizes of bears taken from this area as soon as the data can be extracted.

### Recommendations

No regulation changes are recommended at this time.

Submitted by: Alan Courtright, Game Biologist III

# APPENDIX I

## Legal Brown Bear Harvests in Alaska's Game Management Unit 4, 1961-1970.

Year	Total Bears	% Male	% Spring	% Non- Resident	Mean Male Hide Size	Mean Male Skull Size	Mean Male Age
1961	39	80	74	59	15.1		
1962	44	67	70	66	14.6		
1963	27	74	58	56	14.4		
1964	55	69	73	44	14.2		
1965	64	68	64	52	13.7		
5 yr. Total*	229	160					
5 yr. Mean	45.8	69.9	68.3	54.1	14.3		
1966	75	67	65	67	13.1		
1967	62	72	66	48	13.2	22.7	
1968	50	78	72	35	12.7	22.3	8.0 (10)
1969	66	77	67	52	13.7	22.7	7.2 (32)
1970	66	73	85	55	13.7	22.0	7.8 (40)
5 yr. Total*	319	227					
5 yr. Mean	63.8	71.2	70.8	52.7	13.3		
10 yr. Total*	548	387					
10 yr. Mean	54.8	70.6	69.8	53.3	13.7		

\* In the summations under % columns, the figures represent numerical totals, not percentage.

# APPENDIX II

## Distribution of Brown Bear Harvests from Alaska's Game Management Unit 4 - 1964-69.

Location	1964	1965	1966	1967	1968	1969	Total	Mean	High	Low
Pybus Bay	3	4	16	7	5	3	38	6.3	16	3
Gambier Bay	9	7	3	1	4	3	27	4.5	7	1
Chaik Bay	3	5	3	3	2	4	20	3.3	5	2
Hood Bay	1	1	2	6	0	4	14	2.3	6	0
Total	16	17	24	17	11	14	99	16.5	24	11
Mean	4.00	4.25	6.00	4.25	2.75	3.50				
Kootznahoo Inlet	0	1	2	2	2	2	9	1.5	2	0
Eliza Harbor	0	0	3	0	1	3	7	1.1	3	0
Little Pybus Bay	1	0	1	1	0	4	7	1.1	4	0
Total	1	1	6	3	3	9	23	3.8	9	1
Mean	0.3	0.3	2.0	1.0	1.0	3.0				
Whitewater Bay	1	0	2	0	0	2	5	0.8	2	0
Tyee area	0	1	2	1	1	0	5	0.8	2	0
Wilson Cove	1	0	1	1	1	0	4	0.7	1	0
Total	2	1	5	2	2	2	14	2.3	5	1
Mean	0.7	0.3	1.7	0.7	0.7	0.7				
S. Admiralty										
TOTAL	19	19	35	22	16	25	136	22.7	35	16
% of Admiralty										
TOTAL	57.6	57.6	77.8	68.7	55.2	80.6		67.0	80.6	55.2
Admiralty										
TOTAL	33	33	45	32	29	31	203	33.8	45	29
% of Unit 4										
TOTAL	64.7	52.4	61.6	50.8	56.9	47.0		55.3	64.7	47.0
Baranof										
TOTAL	5	14	12	14	6	11	62	10.3	14	5
% of Unit 4										
TOTAL	9.8	22.2	16.4	22.2	11.8	16.7		16.9	22.2	9.8
Chichagof										
TOTAL	13	16	16	17	16	24	102	17.0	24	13
% of Unit 4										
TOTAL	25.5	25.4	21.9	27.0	31.4	36.4		27.8	36.4	21.9
UNIT 4 TOTAL	51	63	73	63	51	66	367	61.2	73	51

## BROWN-GRIZZLY BEAR

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 5 - Yakutat

#### Seasons and Bag Limits

Oct. 10 - Nov. 30  
May 10 - May 25

One bear every four regulatory years; provided that the taking of cubs or females accompanied by cubs is prohibited.

#### Harvest and Hunting Pressure

The legal reported sport kill for brown-grizzly bears during calendar year 1970 was seven animals (five taken in spring season and two in fall season). The average annual kill for the previous five years (1965-1969) was 18 bears. Nonresidents took 57% of the bears, all (four) of which were taken during the spring season. Nonresidents took 45% of 20 bears in 1969.

Four additional bears were reported taken by nonhunters in 1970.

#### Composition and Productivity

Sex composition of the 1970 harvest was 57% males (four) and 43% females (three). Male hide size in 1970 averaged 13.3 feet as compared to 13.8 feet in 1969. The five year (1965-1969) average hide size was 14.4 feet.

Mean cementum age of five brown-grizzly bears harvested in Game Management Unit 5 in 1970 was 7.0 years. The 1969 mean age was 6.0 years from a sample of 16 bears.

#### Management Summary and Recommendations

The 1970 harvest of seven bears was the lowest reported harvest since 1963 when six bears were taken, and was 65% below the 1969 harvest of 20 bears. The fall season harvest has contributed on the average 67% of the total harvest from 1965 to 1969, whereas, the 1970 fall season contributed only 29%. The 1960 spring season harvest of five bears, on the other hand, has remained relatively consistent with the 1965-1969 average of six bears. The low 1960 bear harvest can be attributed in part to the reduced length of the fall season.

Until more information is available on Unit 5 bear populations, it is recommended that seasons and bag limits remain unchanged.

Submitted by: David W. Zimmerman, Game Biologist II



## BROWN/GRIZZLY BEAR

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 6 - Prince William Sound

#### Seasons and Bag Limits

April 1 - May 31  
Oct. 10 - Nov. 30

One bear every four regulatory years; provided that the taking of cubs or females accompanied by cubs is prohibited.

#### Harvest and Hunting Pressure

The annual brown bear harvest (Appendix I) in Unit 6 increased from 13 bears in 1961 to 63 bears in 1968. In 1969 the harvest dropped to 23. The 1970 harvest of 27 bears is similar. As usual, more bears were taken during the spring season (18) than the fall (9). Two additional bears were taken in defense of life and property during 1970.

Hide size of male bears taken in 1970 averaged 14.5 feet (length plus width) which is slightly above the 10 year average of 14.3 feet. The mean male skull size has remained constant for the past three years (Appendix II).

It is interesting to note that the percent of males in the harvest (46%) dropped below 50% for the first time in 10 years. Our data indicate a gradual decrease in the male percentage since 1967, possibly resulting from heavy harvest pressure exerted in 1967 and 1968. Prior to 1967 the annual harvest was probably not large enough to alter the sex ratio.

Actual hunting pressure exerted during the spring and fall seasons is unknown. Judging from the 1969 and 1970 harvest figures, the shortening of the 1970 season by 125 days had little or no effect upon the harvest.

#### Composition and Productivity

A brown bear survey from Okalee Spit to Icy Bay was flown September 8, 1970. Only 12 bears were observed: six single bears and three sows with cubs. This survey was comparable to a similar survey in 1969, indicating only the difficulty in seeing any meaningful number of bears in this type of terrain.

Incidental observations on brown bear throughout 1970 totaled 108 bears: 48 singles, 20 sows (with cubs) and 40 cubs. Brown bears seemed to be fairly abundant but few "large" single bears were observed.

Composition data on an annual trend basis are not available for Unit 6.

### Management Summary and Conclusions

The present annual harvest level does not appear to be adversely affecting the brown bear population in Unit 6. The annual harvest could probably be increased slightly without affecting the population.

The data on male hide and skull size indicate that hunters are harvesting the mature segment of the bear population. On the other hand, the lower number of bears taken in 1969 and 1970 and the corresponding decrease in percent of males in the harvest may reflect either that fewer mature adults are available for harvest or that there are presently unknown variables in hunting pressure.

The current seasons should be continued for several years so that their effects on harvest and population composition can be evaluated.

### Recommendations

No change in the regulations is recommended at this time.

Submitted by: Julius L. Reynolds, Game Biologist III

# APPENDIX I

Game Management Unit 6 Brown-Grizzly Bear Sport Harvest, Calendar Years 1961 through 1970: Participation by Non-residents in the Bear Harvest with Mean Hide, Skull Size and Cementum Age of Male Bears Presented for Sealing.

Calendar Year	Total Kill	No. Males	% Males	No. Nonres.	% Nonres.	Mean Hide Size Male <sup>1/</sup>	Mean Skull Size Male <sup>2/</sup>	Mean Cem. Age Male <sup>3/</sup>	Calendar Year Seasons
1961	13	8	62	3	23	13.2			1/1 - 6/30 9/1 - 12/31
1962	24	17	71	9	38	13.3			Same
1963	32	16	53	5	16	14.0			Same
1964	32	22	76	9	28	14.6			Same
1965	34	18	53	8	24	15.4			Same
1966	38	20	53	7	18	14.6			Same
1967	56	35	70	26	46	14.2	22.4		1/1 - 6/20 9/1 - 12/31
1968	63	39	67	33	52	14.4	23.5	7.1(26)	1/1 - 6/10 9/1 - 12/31
1969	23	12	55	8	35	14.7	23.4	9.3(10)	1/1 - 6/10 9/15 - 11/30
1970	27	12	46	9	33	14.5	23.6	5.9(8)	4/1 - 5/31 10/10 - 11/30

<sup>1/</sup> Length plus width given in feet.

<sup>2/</sup> Length plus width given in inches.

<sup>3/</sup> Tooth sample size in parenthesis.

# APPENDIX II

Average Male Brown/Grizzly Skull Size Recorded in Inches, and by Year, Season, and Residency of Hunter in Unit 6.

YEAR	S P R I N G				F A L L				T O T A L		
	RES.		NONRES.		RES.		NONRES.		No.	Size	Sample Size %
	No.	Size	No.	Size	No.	Size	No.	Size			
1967	-	-	-	-	5	23.8	8	21.5	13	22.4	100
1968	8	23.8	13	25.5	7	21.8	6	20.6	34	23.5	87
1969	5	24.4	3	25.2	2	23.2	2	18.5	12	23.4	100
1970	3	24.0	4	23.4	3	23.0	1	24.8	11	23.6	92

## BROWN/GRIZZLY BEAR

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 7 - Seward

#### Seasons and Bag Limits

September 20 - October 15

One bear every four regulatory years; provided that the taking of cubs or females accompanied by cubs is prohibited

#### Harvest and Hunting Pressure

Brown/grizzly bear sealing records indicate a sport harvest of 2 bears in Unit 7 during the 1970-71 season (Appendix I). Both bears taken were males and were harvested by residents. During the past 10 years seven bears have been sealed from Unit 7 of which 6 were males. One non-sport kill of a female bear was reported this year.

#### Composition and Productivity

No data are available.

#### Management Summary and Conclusions

Since harvest data are insufficient for analysis only generalizations can be made.

Brown bears are generally scarce over most of Unit 7, with Resurrection Creek and Russian River being the only areas where bears are regularly seen. Fair populations may exist also in localized coastal drainages east of Resurrection Bay.

This Unit was apparently never inhabited by large numbers of brown bears but according to old residents of the area, bears were more abundant in past years. Increased human activities may have contributed to a decline in bear numbers.

Over the past 10 years, the total harvest has been only 7 bears and six were males. It is improbable that a harvest of this nature would adversely affect the bear population of this Unit.

#### Recommendations

No changes in regulations are recommended.

Submitted by: Paul A. LeRoux, Game Biologist III

APPENDIX I  
GAME MANAGEMENT UNIT 7

Brown-Grizzly Bear Sport Harvest, Calendar Years 1961 through 1970: Participation by Nonresidents in the Bear Harvest with Mean Hide, Skull Size and Cementum Age of Male Bears Presented for Sealing.

Calendar Year	Total Kill	No. Males	% Males	No. Nonres.	% Nonres.	Mean Hide Size Male <sup>1/</sup>	Mean Skull Size Male <sup>2/</sup>	Mean Cem Age Male <sup>3/</sup>	Calendar Year Seasons
1961	1	0	0	0	0	0			9/1 - 9/30
1962	1	0	0	0	0	0			Same
1963	1	0	0	1	100	0			Same
1964	0	0	0	0	0	0			Same
1965	0	0	0	0	0	0			10/15 - 11/15
1966	0	0	0	0	0	0			9/1 - 9/30
1967	1	1	100	1	100	-	24.2		10/15 - 11/15
1968	0	0	0	0	0	0	0		Same
1969	2	2	100	1	50	15.2	24.3	7.5(2)	Same
1970	2	2	100	0	0	13.3	18.9	3.0(2)	9/20 - 10/15

- <sup>1/</sup> Length plus width given in feet.  
<sup>2/</sup> Length plus width given in inches.  
<sup>3/</sup> Tooth sample size in parenthesis.

## BROWN/GRIZZLY BEAR

### SURVEY-INVENTORY PROGRESS REPORT - 1970

#### Game Management Unit 8 - Kodiak and Adjacent Islands

##### Seasons and Bag Limits

Kodiak National Wildlife Refuge	Oct. 20 - Dec. 31 March 1 - May 10	One bear every four regulatory years; provided that the taking of cubs or females accompanied by cubs is prohibited.
Kodiak Island, Kodiak National Wildlife Refuge	Sept. 1 - June 30	One bear every four regulatory years; provided that the taking of cubs or females accompanied by cubs is prohibited.
Raspberry, Afognak and Shuyak Islands only	Oct. 1 - Dec. 31 March 1 - May 31	One bear every four regulatory years; provided that the taking of cubs or females accompanied by cubs is prohibited.

##### Harvest and Hunting Pressure

Records of the bear sealing program show that 91 bears were reported killed in Unit 8 by sport hunters. This is the lowest bear harvest since statehood, but skull measurements do not indicate any decrease in size of the males harvested (Appendix I). As in past years the kill was of predominantly male bears and residents took 49% of the bears harvested. Mean hide size remains basically unchanged since 1967. Hunter success of non-resident and resident hunters combined was 53% for the two seasons. Successful hunters averaged 6.2 days afield during the spring and 3.6 days during the fall season, according to U. S. Fish and Wildlife Service records on the Kodiak National Wildlife Refuge.

##### Composition and Productivity

The only available data on sex and age composition of brown bear populations in Unit 8 have been from varied trend surveys conducted by Refuge personnel of the U. S. Fish and Wildlife Service. Changes in survey methods during the 1970 trend counts, combined with variable results from previous years' counts make it impossible to draw conclusions concerning changes in bear composition and productivity at this time.

### Management Summary and Conclusions

Most brown bear hunting in Unit 8 is conducted on the Kodiak National Wildlife Refuge. Access is presently controlled by a permit system regulated by the U. S. Fish and Wildlife Service. The number of permits issued is the main factor limiting the number of hunters and consequently the magnitude of the harvest during any given year.

As long as the U. S. Fish and Wildlife Service continues to control hunter access, this organization will determine at what level the brown bear population will be harvested on the Kodiak National Wildlife Refuge.

### Recommendations

No changes in the present seasons or bag limits are recommended.

Submitted by: Jack Alexander, Game Biologist II



# APPENDIX I

## GAME MANAGEMENT UNIT 8

Brown-Grizzly Bear Sport Harvest, Calendar Years 1961 through 1970: Participation by Nonresidents in the Bear Harvest with Mean Hide, Skull Size and Cementum Age of Male Bears Presented for Sealing.

Calendar Year	Total Kill	No. Males	% Males	No. Nonres.	% Nonres.	Mean Hide <sup>1/</sup> Size Male <sup>1/</sup>	Mean Skull <sup>2/</sup> Size Male <sup>2/</sup>	Mean Cem <sup>3/</sup> Age Male <sup>3/</sup>	Calendar Year Seasons <sup>4/</sup>
1961	118	78	66	72	61	16.9			1/1 - 5/31 10/1 - 12/31
1962	131	91	78	84	64	16.5			Same
1963	112	77	69	55	49	16.2			Same
1964	118	72	63	62	53	15.2			Same
1965	186	111	60	90	48	15.7			Same
1966	199	106	54	96	48	15.7			Same
1967	184	107	58	91	49	15.3	23.6	5.0(14) Fall	1/1 - 5/20 10/1 - 12/31
1968	104	61	59	62	60	15.6	23.9	6.2(52)	Same
1969	97	62	64	53	55	15.9	24.2	6.2(53)	1/1 - 5/20 11/1 - 12/31
1970	91	62	68	45	49	15.3	23.6	6.0(57)	3/1 - 5/10 10/20 - 12/31

<sup>1/</sup> Length plus width given in feet.

<sup>2/</sup> Length plus width given in inches.

<sup>3/</sup> Tooth sample size in parenthesis.

<sup>4/</sup> Kodiak National Wildlife Refuge only.

# APPENDIX II

Average Male Brown-Grizzly Skull Size Recorded in Inches, and by Year, Season, and Residency of Hunter for Unit 8.

YEAR	S P R I N G				F A L L				T O T A L		
	RES.		NONRES.		RES.		NONRES.		No.	Size	Sample Size %
	No.	Size	No.	Size	No.	Size	No.	Size			
1967	-	-	-	-	8	23.0	19	23.9	27	23.6	93
1968	23	23.7	21	24.3	1	27.7	13	23.4	58	23.9	95
1969	24	23.9	25	24.5	5	24.6	5	23.9	59	24.2	95
1970	16	23.7	16	23.5	13	24.2	14	23.3	59	23.6	95

## BROWN/GRIZZLY BEAR

### SURVEY-INVENTORY PROGRESS REPORT - 1970

#### Game Management Unit 9 - Alaska Peninsula

##### Season and Bag Limits

###### Spring Season:

That portion north of Katmai National Monument, Naknek Lake and Naknek River	May 1 - May 25	One bear every four regulatory years; provided that the taking of cubs or females accompanied by cubs is prohibited.
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Remainder of Unit 9	May 1 - May 15	One bear every four regulatory years; provided that the taking of cubs or females accompanied by cubs is prohibited.
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Fall Season	Oct. 1 - Oct. 31	One bear every four regulatory years; provided that the taking of cubs or females accompanied by cubs is prohibited.
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##### Harvest and Hunting Pressure

A reported harvest of 156 bears was taken from Unit 9 during 1970 (Appendix I). This level of harvest matches almost exactly the management objectives of 150 bears annually for the unit. The spring season produced 71 bears while the fall season accounted for 85. The previously noted pattern of the harvest being composed predominantly of male bears, and successful hunters being primarily nonresidents, continued through the 1970 seasons. There was a slight decrease noted in the average hide and skull size measurements for male bears (Appendices I and II).

##### Composition and Productivity

No information is available at this time.

##### Management Summary and Conclusions

During the spring season, a group of Port Moller area-based guides attempted to operate in defiance of the regulations governing brown bear hunting in Unit 9. These guides refused cooperation with Department employees and openly stated that hides of bears taken by their clients would not be presented for sealing. The precise harvest data necessary

for management of brown bear cannot be obtained without public cooperation and compliance with the sealing regulations. In response to this situation, a Field Announcement was issued on May 11, 1970, closing the spring brown bear season in that portion of the unit being utilized by the offending guides.

The regulation requiring prior camp registration when an aircraft is used for transportation was modified by the Board of Fish and Game to include not only guides but all hunters whether guided or not. This converted a previously weak regulation into utter chaos. Over 200 camps were registered for the fall season and the camp location maps were so cluttered as to be difficult, if not impossible, to read accurately. In addition, some nonresident hunters registered each of their two camps with different guides, making it impossible to determine any meaningful pattern.

The camp registration regulation has served to discourage Alaskan residents from hunting brown bears on the Alaska Peninsula. It is nearly impossible for hunters to preselect a campsite in a productive bear hunting area without prior experience in the unit. The relatively high expense of logistics to and within the unit discourages Alaskan residents from other areas from gaining the necessary experience to select good hunting sites. Nonresidents do not, however, have this problem since their guides have already selected the campsite and need only inform the hunter of the location. Because the camp registration regulation has proven unworkable and discriminatory against the Alaska resident, it should be eliminated or modified to not include Alaskan residents.

In general, there was decreased hunting activity in the unit during the fall hunting seasons as compared to the fall activity of recent years. Many guides reported having difficulties obtaining clients or had hunts cancelled due to the "tight money" situation in the "Lower 48". Also, because antlered moose were protected during the month of October, the opportunity for multi-species guided hunts was eliminated during that period, and some guides transferred their efforts to other units. Although the overall hunting pressure was reduced, intensified pressure was placed on brown bear because trophy hunters lacked the opportunity to pursue bull moose during October.

Biologically, the Unit 9 bear population appears capable of sustaining the present level of harvest. Observations made during field work combined with comments and observations made by area residents, certain guides, and air charter operators, all indicate that reproduction remains high and that sows with cubs are common. A slight decrease in the male skull and hide size does not appear to warrant any reduction in the length of either the spring or fall seasons.

### Recommendations

No changes in season or bag limits are recommended. The instigation of a six-week nonresident big game hunting season coupled with a check-in/check-out system has been proposed by the Attorney General's Office, Protection Division, and Game Division as a method of controlling the enforcement problem that has resulted from the activities of unethical guides and nonresident hunters. The camp registration regulation should be eliminated or modified to allow Alaskan residents to hunt without pre-registration of camps.

Submitted by: James B. Faro, Game Biologist III

# APPENDIX I

Game Management Unit 9 Brown-Grizzly Bear Sport Harvest, Calendar Years 1961 through 1970: Participation by Non-residents in the Bear Harvest with Mean Hide, Skull Size and Cementum Age of Male Bears Presented for Sealing.

Calendar Year	Total Kill	No. Males	% Males	No. Nonres.	% Nonres.	Mean Hide Size Male <sup>1/</sup>	Mean Skull Size Male <sup>2/</sup>	Mean Cem. Age Male <sup>3/</sup>	Calendar Year Seasons
1961	120	85	73	71	59	16.4			1/1-5/31, All of 9 10/1-12/31, S. of Egegik Puale Bay. Rem. of Unit 9/10 - 12/31
1962	155	109	70	97	63	16.4			Same
1963	164	100	65	114	70	16.1			1/1 - 5/31 9/1 - 12/31
1964	155	103	70	108	70	16.1			Same
1965	208	136	67	137	66	15.7			1/1-5/31, All 9 N. of Meshik 9/1-12/31 S. of Meshik 9/15-12/31
1966	230	157	71	173	75	15.7			N of Meshik 1/1-5/31 9/1-12/31, S of Meshik 1/1-5/31 & 9/15-12/31
1967	211	143	68	163	77	15.8	23.5	6.6(30)	1/1 - 5/20 9/15 - 12/31
1968	158	111	73	134	85	15.5	24.3	7.6(48)	1/1 - 5/10 9/15 - 12/31
1969	91	67	75	67	74	15.8	24.5	8.0(57)	1/1-5/10 All of 9 & 9/15-10/30. N of Park, 10/1- 11/30 S of Park.
1970	156	102	66	116	74	15.1	24.0	7.8(90)	S of Park 5/1-5/15 N of Park 5/1-5/25 All of 9 10/1-10/31

<sup>1/</sup> Length plus width given in feet.

<sup>2/</sup> Length plus width given in inches.

<sup>3/</sup> Tooth sample size in parenthesis.

# APPENDIX II

Average Male Brown/Grizzly Skull Size Recorded in Inches, and by Year, Season, and Residency of Hunter for Unit 9.

YEAR	S P R I N G				F A L L				T O T A L		
	RES.		NONRES.		RES.		NONRES.		No.	Size	Sample Size %
	No.	Size	No.	Size	No.	Size	No.	Size			
1967	-	-	-	-	6	23.9	44	23.5	50	23.5	93
1968	5	23.5	49	25.5	9	23.3	40	23.0	103	24.3	93
1969	10	23.9	36	25.5	5	22.5	15	23.2	66	24.5	99
1970	10	24.4	43	25.5	14	21.0	32	23.2	99	24.0	97

## BROWN/GRIZZLY BEAR

### SURVEY-INVENTORY PROGRESS REPORT - 1970

#### Game Management Unit 10 - Aleutian Islands

##### Seasons and Bag Limits

Spring season	May 1 - May 15	One bear every four regulatory years; provided that the taking of cubs or females accompanied by cubs is prohibited.
Fall season	Oct. 1 - Oct. 15	One bear every four regulatory years; provided that the taking of cubs or females accompanied by cubs is prohibited

##### Harvest and Hunting Pressure

Five bears were reported taken during the fall hunting season. No bears were reported taken during the spring season. Four of the five bears were males and all were taken by Alaskan residents (Appendix I). Due to the small sample, no conclusions can be drawn concerning average male skull size.

##### Composition and Productivity

No information is available at this time.

##### Management Summary and Conclusions

Unimak Island has the only brown bear population in the unit. Since the island is part of the Aleutian Island Refuge System, hunting there is controlled by a permit system regulated by the U. S. Fish and Wildlife Service. Because of the limited hunting available under the present administration of the permit system (25 permits annually), the magnitude of the harvest from the unit is limited by the Refuge Personnel's decisions.

##### Recommendations

No changes in the present seasons or bag limits are recommended. The camp registration should be eliminated since it is serving no function as long as the Fish and Wildlife Service maintains its present program of limited permits and designated landing areas for aircraft.

Submitted by: James B. Faro, Game Biologist III



# APPENDIX I

## GAME MANAGEMENT UNIT 10

Brown-Grizzly Bear Sport Harvest, Calendar Years 1961 through 1970: Participation by Nonresidents in the Bear Harvest with Mean Hide, Skull Size and Cementum Age of Male Bears Presented for Sealing.

Calendar Year	Total Kill	No. Males	% Males	No. Nonres.	% Nonres.	Mean Hide Size Male <sup>1/</sup>	Mean Skull Size Male <sup>2/</sup>	Mean Cem Age Male <sup>3/</sup>	Calendar Year Seasons
1961	1	1	100	0	0	18.1			1/1 - 5/31 10/1 - 12/31
1962	3	2	67	0	0	16.6			Same
1963	0	0	0	0	0	0			1/1 - 5/31 9/1 - 12/31
1964	15	9	60	5	33	16.4			Same
67 1965	10	7	70	1	10	15.9			1/1 - 5/31 9/15 - 12/31
1966	6	4	67	1	17	16.1			Same
1967	8	3	38	0	0	13.4	23.5		1/1 - 5/20 9/15 - 12/31
1968	4	2	50	4	100	14.9	23.2	5.0(2)	Same
1969	4	3	75	0	0	19.4	27.3	15.0(1)	1/1 - 5/10 10/1 - 11/30
1970	5	4	80	0	0	12.5	19.9	3.0(4)	5/1 - 5/15 10/1 - 10/31

<sup>1/</sup> Length plus width given in feet.

<sup>2/</sup> Length plus width given in inches.

<sup>3/</sup> Tooth sample size in parenthesis.

## BROWN-GRIZZLY BEAR

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 11 - Wrangell Mountains-Chitina River

#### Seasons and Bag Limits

Sept. 15 - Oct. 5

One bear every four regulatory years; provided that the taking of cubs or females accompanied by cubs is prohibited.

#### Harvest and Hunting Pressure

Hunters took 16 brown-grizzly bears in Unit 11 during 1970; ten of these animals were males. The sport kill and other pertinent data for brown/grizzly bears from 1961 to present are shown in Appendix I. These data are from bear hides and skulls presented for sealing. The extent and amount of hunting pressure is not precisely known but is suspected of being quite low. No nonsport kills were reported in this unit. Male skull sizes are reported in Appendix II.

#### Composition and Productivity

No data available.

#### Management Summary and Conclusions

There has been no significant change in the total harvest, hide size, skull size or age since the advent of the sealing program in 1961. In spite of this, the Board eliminated the spring season in the 1970-71 regulatory year. With so limited a harvest from such a large area, most of which appears to be good bear habitat, it is obvious that hunting is not a significant control on the grizzly bear population in Unit 11.

#### Recommendations

Although there appears to be no biological or other valid reason to prohibit hunting during springtime, no changes in seasons or bag limits are recommended at this time.

Submitted by: Loyal J. Johnson, Game Biologist III

# APPENDIX I

## GAME MANAGEMENT UNIT 11

Brown-Grizzly Bear Sport Harvest, Calendar Years 1961 through 1970: Participation by Nonresidents in the Bear Harvest with Mean Hide, Skull Size and Cementum Age of Male Bears Presented for Sealing.

Calendar Year	Total Kill	No. Males	% Males	No. Nonres.	% Nonres.	Mean Hide <sup>1/</sup> Size Male	Mean Skull <sup>2/</sup> Size Male	Mean Cem <sup>3/</sup> Age Male	Calendar Year Seasons
1961	5	3	75	2	40	11.8			5/15 - 6/15 9/1 - 12/31
1962	14	6	43	11	79	12.4			Same
1963	9	6	67	7	78	12.6			Same
1964	22	13	65	16	73	13.2			Same
1965	18	8	47	14	78	13.3			Same
1966	12	10	91	9	75	12.4			Same
1967	20	10	50	15	75	12.4	23.2		Same
1968	15	8	53	7	47	12.0	20.9	6.8(4)	Same
1969	9	6	67	2	22	15.3	22.8	7.2(5)	5/15 - 6/15 9/1 - 9/30
1970	16	10	63	7	44	13.5	22.0	8.9(9)	5/15 - 6/10 9/15 - 10/5

<sup>1/</sup> Length plus width given in feet.

<sup>2/</sup> Length plus width given in inches.

<sup>3/</sup> Tooth sample size in parenthesis.

# APPENDIX II

Average Male Brown/Grizzly Skull Size Recorded in Inches, and by Year, Season, and Residency of Hunter for Unit 11.

YEAR	S P R I N G				F A L L				T O T A L		
	RES.		NONRES.		RES.		NONRES.		No.	Size	Sample Size %
	No.	Size	No.	Size	No.	Size	No.	Size			
1967	-	-	-	-	2	21.6	4	23.9	6	23.2	75
1968	3	21.5	-	-	1	17.1	4	21.5	8	20.9	100
1969	1	22.6	-	-	3	22.4	1	24.5	5	22.8	83
1970	3	20.9	2	25.3	3	22.5	2	19.7	10	22.0	100

## BROWN/GRIZZLY BEAR

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 12 - Upper Tanana-White River

#### Seasons and Bag Limits

Sept. 15 - Oct. 5

One bear every four regulatory years; provided that the taking of cubs or females accompanied by cubs is prohibited.

#### Harvest and Hunting Pressure

Harvest data for Unit 12 since 1961 are presented as follows:

<u>Year</u>	<u>Males</u>	<u>Females</u>	<u>Total</u>	<u>Mean Hide Size</u>
1961	11	4	15	11.8
1962	9	10	19	11.8
1963	13	10	23	12.0
1964	9	6	15	13.1
1965	8	11	19	12.5
1966	6	6	12	12.7
1967	7	9	16	11.4
1968	7	9	16	11.8
1969	8	5	13	11.6
1970	8	6	14*	12.3

\* Preliminary data. All sealing reports may not be in.

It is difficult to obtain a true measure of hunting effort for grizzly bears. Most resident hunters will take a bear if the opportunity presents itself, but few make special trips for bears. Real hunting effort by those making special preparations to hunt bears does not appear to be increasing noticeably. But further restrictions governing brown/grizzly seasons may cause effort to increase by creating an artificial "shortage" of bears, thereby causing would-be bear hunters to attempt a hunt before the seasons are so curtailed that getting an Alaskan grizzly is nearly impossible.

The harvest in Unit 12 has remained fairly constant since 1961. Elimination of the spring season will have little effect on the overall harvest, since the spring take has always been small--and taken almost exclusively by residents.

Skull and hide size has remained constant, however, we have no measure of the additional effort, if any, required by the hunters to maintain this standard.

### Composition and Productivity

No data.

### Management Summary and Recommendations

Data suggest that the grizzly bear population has been fairly static in Unit 12, although it may have increased slightly during the past two or three years. At least grizzly sightings are not uncommon.

The annual harvest appears commensurate with the population and it appears that bear numbers and trophy quality are being maintained.

Elimination of the spring season has served no useful purpose and it should be reinstated, provided it is also reinstated in other nearby units to prevent a concentrated hunting effort from forming in any one unit.

Further restrictions of the bag limit are not biologically necessary at this time.

Submitted by: Larry Jennings, Game Biologist III

## BROWN/GRIZZLY BEAR

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 13 - Nelchina Basin

#### Seasons and Bag Limits

Sept. 15 - Oct. 5

One bear every four regulatory years; provided that the taking of cubs or females accompanied by cubs is prohibited.

#### Harvest and Hunting Pressure

Accurate data on hunting pressure in Unit 13 are not available but it appears to be relatively light. No significant changes have occurred in harvest or pertinent harvest data since at least 1965. Hunting has been restricted to fall only seasons since 1958. Harvest data for the sport kill since 1961 are summarized in Appendix I. Skull sizes for male bears can be seen in Appendix II. In addition to the sport harvest, one male and two female bear were reported killed.

#### Composition and Productivity

No data available.

#### Management Summary and Conclusions

Bears are vulnerable to spring hunters utilizing aircraft in this unit so the closure of the spring season is justified. The late and short fall season could no doubt be liberalized in view of stabilized harvest and unchanged statistics of harvested animals. Small changes, often Board initiated, have been made in the season nearly every year. Hunting pressure does not appear to be a significant factor controlling the bear populations in Unit 13.

#### Recommendations

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

Submitted by: Loyal J. Johnson, Game Biologist III

## APPENDIX I

## GAME MANAGEMENT UNIT 13

Brown-Grizzly Bear Sport Harvest, Calendar Years 1961 through 1970: Participation by Nonresidents in the Bear Harvest with Mean Hide, Skull Size and Cementum Age of Male Bears Presented for Sealing.

Calendar Year	Total Kill	No. Males	% Males	No. Nonres.	% Nonres.	Mean Hide Size Male <sup>1/</sup>	Mean Skull Size Male <sup>2/</sup>	Mean Cem Age Male <sup>3/</sup>	Calendar Year Seasons
1961	42	20	50	26	62	13.0			9/1 - 9/30
1962	34	22	65	19	56	13.8			Same
1963	42	22	54	27	64	12.6			Same
1964	35	14	41	22	63	12.8			Same
1965	44	25	58	21	48	12.9			Same
1966	63	33	56	41	65	13.2			Same
1967	29	16	57	13	45	12.8	21.5	6.5(15) Fall	9/15 - 10/5
1968	38	18	49	19	50	12.9	22.0	5.9(9)	Same
1969	17	15	88	9	53	13.4	22.5	6.9(12)	9/20 - 10/20
1970	27	18	69	15	56	12.7	20.6	5.3(16)	9/15 - 10/5

<sup>1/</sup> Length plus width given in feet.

<sup>2/</sup> Length plus width given in inches.

<sup>3/</sup> Tooth sample size in parenthesis.



# APPENDIX II

Average Male Brown/Grizzly Skull Size Recorded in Inches, and by Year, Season, and Residency of Hunter for Unit 13.

YEAR	S P R I N G				F A L L				T O T A L		
	RES.		NONRES.		RES.		NONRES.		No.	Size	Sample Size %
	No.	Size	No.	Size	No.	Size	No.	Size			
1967	No Season				6	20.7	5	22.5	11	21.5	69
1968	No Season				9	21.8	6	22.2	15	22.0	83
1969	No Season				5	22.4	9	22.5	14	22.5	93
1970	No Season				7	20.4	11	20.7	18	20.6	100

## BROWN/GRIZZLY BEAR

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 14 - Upper Cook Inlet

#### Seasons and Bag Limits

September 15 - October 5

One bear every four regulatory years; provided that the taking of cubs or females accompanied by cubs is prohibited.

#### Harvest and Hunting Pressure

The brown bear harvest in Unit 14 during 1970 was six animals (Appendix I). There was no reported non-sport kill of brown bears in Unit 14. Although the harvest represents a doubling of last year's take, the number is still about half the annual harvest during 1967 and 1968. As reported last year, it is doubtful that many brown bears are taken other than incidentally to moose or sheep hunts in Unit 14.

#### Composition and Productivity

Of the six brown bears harvested in Unit 14, none were taken by nonresidents. Hunter selectivity decreased to the point where five females and one male were taken. As noted earlier however, these bears were probably taken incidental to other hunting (i.e., moose and sheep) and selectivity is minimal. Only one male bear was taken and no skull size is available on that specimen.

#### Management Summary and Conclusions

It is believed that the manipulation of the bear seasons did lower the bear harvest in the past two years in Unit 14. The small harvest in Unit 14 makes harvest data difficult to interpret.

Bear observations incidental to other work indicate that the bear population in Unit 14 can sustain the present harvest and possibly a higher one.

#### Recommendations

No season changes have been proposed this year.

Submitted by: Jack C. Didrickson, Game Biologist III

# APPENDIX I

Game Management Unit 14 Brown/Grizzly Bear Sport Harvest, Calendar Years 1961 through 1970: Participation by Non-residents in the Bear Harvest with Mean Hide, Skull Size and Cementum Age of Male Bears Presented for Sealing.

Calendar Year	Total Kill	No. Males	% Males	No. Nonres.	% Nonres.	Mean Hide Size Male <sup>1/</sup>	Mean Skull Size Male <sup>2/</sup>	Mean Cem. Age Male <sup>3/</sup>	Calendar Year Seasons
1961	14	6	43	7	50	12.6			9/1 - 9/30
1962	8	4	50	0	0	13.1			Same
1963	13	8	67	5	38.4	12.9			Same
1964	12	9	75	1	8	12.9			Same
1965	15	7	47	7	47	12.7			9/1 - 10/15
1966	5	2	40	2	40	13.5			9/1 - 9/30
1967	12	6	55	6	50	12.0	21.2		Same
1968	11	3	30	6	55	14.5	22.0	5.7(3)	Same
1969	3	3	100	0	0	11.7	18.7	2.0(3)	9/20 - 10/20
1970	6	1	17	0	0	11.6	-	2.0(1)	9/15 - 10/5

<sup>1/</sup> Length plus width given in feet.

<sup>2/</sup> Length plus width given in inches.

<sup>3/</sup> Tooth sample size in parenthesis.

## BROWN/GRIZZLY BEAR

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 15 - Kenai Peninsula

#### Seasons and Bag Limits

Sept. 20 - Oct. 15

One bear every four regulatory years; provided that the taking of cubs or females accompanied by cubs is prohibited.

#### Harvest and Hunting Pressure

Brown/grizzly bear sealing records indicate a harvest of three brown bears from Unit 15 during the 1970-71 season. The harvest was composed of two males and one female. This compares with a harvest of six brown bears in 1969 of which four were males and two females (Appendix I).

One non-sport kill of a male bear was reported this year. The 1970 harvest was 46 percent below the five-year average of 5.6 bears and 34 percent below the ten-year average of 4.6 bears.

Sixty-seven percent of the 1970 harvest was taken by residents compared to a five-year average of 85.7 percent and a ten-year average of 83.5 percent.

There is no apparent trend in hide size or skull size.

#### Composition and Productivity

No data available.

#### Management Summary and Conclusions

Because the annual harvest is so low in this unit, it is not possible to determine trends from the harvest data. However, one generalization can be made; the mean male skull size for the past four years has been very high indicating that the level of harvest is not affecting the unit's bear population and that a preponderance of older bears are being taken.

#### Recommendations

No changes are recommended.

Submitted by: Paul A. LeRoux, Game Biologist III

# APPENDIX I

## GAME MANAGEMENT UNIT 15

Brown-Grizzly Bear Sport Harvest, Calendar Years 1961 through 1970: Participation by Nonresidents in the Bear Harvest with Mean Hide, Skull Size and Cementum Age of Male Bears Presented for Sealing.

Calendar Year	Total Kill	No. Males	% Males	No. Nonres.	% Nonres.	Mean Hide Size Male <sup>1/</sup>	Mean Skull Size Male <sup>2/</sup>	Mean Cem Age Male <sup>3/</sup>	Calendar Year Seasons
1961	4	2	50	0	0	18.6			9/1-9/30
1962	5	2	40	3	60	11.5			Same
1963	4	2	50	0	0	12.8			Same
1964	2	2	100	2	100	12.9			Same
1965	3	1	33	1	33	13.2			Same
1966	4	1	25	1	25	17.3			Same
1967	4	2	50	1	25	15.5	24.5		Same
1968	11	7	64	1	9	14.5	25.1	2.0(2)	Same
1969	6	4	67	0	0	14.3	24.8	7.0(2)	Same
1970	3	2	67	1	33	15.3	26.3	8.0(1)	9/20 - 10/15

<sup>1/</sup> Length plus width given in feet.

<sup>2/</sup> Length plus width given in inches.

<sup>3/</sup> Tooth sample size in parenthesis.

## BROWN/GRIZZLY BEAR

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 16 - West Side of Cook Inlet

#### Seasons and Bag Limits

May 15 - June 10	One bear every four regulatory
Sept. 1 - Oct. 15	years; provided that the taking
	of cubs or females accompanied
	by cubs is prohibited.

#### Harvest and Hunting Pressure

The brown bear harvest in Unit 16 during 1970 rose to 40 animals (Appendix I). There were no reported non-sport kills of brown bear in Unit 16. There are some reasons to believe that bears taken in neighboring units where regulations are more restrictive are reported as taken in Unit 16, but the supposition cannot be proven. Sixty-eight percent of all bears taken in Unit 16 were reported taken by nonresidents.

#### Composition and Productivity

The percentage of male bear taken during the 1970 season (79%) is the highest it has ever been since record-keeping started in 1961.

The average male hide size decreased somewhat from 14.2 feet in 1969 to 13.6 feet in 1970, but is still greater than hides measured in 1961 when 28 bears were measured that averaged 13.0 feet. It is believed, however, that hide measurements in the past few years have been a great deal more accurate. Skull sizes (Appendix II) were not down significantly from 1969. The ages of bears taken (Appendix I) reveal that older animals are predominant in the harvest, indicating the population is not extensively harvested.

#### Management Summary and Conclusions

The five day shortening of the season had little effect on the harvest since three more bears were taken this year than were harvested in 1969. Hide size this year has diminished somewhat, but skull sizes and the age structure are remaining fairly constant indicating that the bear population in Unit 16 is not over-harvested. Unit 16 borders Unit 9; it appears that, as regulations become more restrictive in Unit 9,

the reported harvest has increased in Unit 16. A continued liberal season in Unit 16 could possibly result in false reporting by hunters; therefore, a season consistent with Unit 9 is proposed.

Recommendations

The brown bear season should run from October 1 through October 31, 1971.

Submitted by: Jack C. Didrickson, Game Biologist III

# APPENDIX I

## GAME MANAGEMENT UNIT 16

Brown-Grizzly Bear Sport Harvest, Calendar Years 1961 through 1970: Participation by Nonresidents in the Bear Harvest with Mean Hide, Skull Size and Cementum Age of Male Bears Presented for Sealing.

Calendar Year	Total Kill	No. Males	% Males	No. Nonres.	% Nonres.	Mean Hide <sup>1/</sup> Size Male	Mean Skull <sup>2/</sup> Size Male	Mean Cem <sup>3/</sup> Age Male	Calendar Year Seasons
1961	28	12	43	18	64	13.0			5/15 - 6/15 9/1 - 12/31
1962	18	9	50	10	83	12.1			Same
1963	27	18	69	11	41	13.0			Same
1964	20	13	65	9	45	12.7			Same
1965	37	22	73	19	51	13.5			Same
1966	27	11	42	14	52	13.3			Same
1967	28	13	50	19	68	14.4	23.1	8.1(10)	(Fall) Same
1968	23	16	70	16	70	14.5	23.3	8.1(14)	Same
1969	37	23	62	17	46	14.2	22.7	7.0(21)	5/15 - 6/15 9/1 - 10/15
1970	40	31	79	27	68	13.6	22.6	7.5(28)	5/15 - 6/10 9/1 - 10/15

<sup>1/</sup> Length plus width given in feet.

<sup>2/</sup> Length plus width given in inches.

<sup>3/</sup> Tooth sample size in parenthesis.



# APPENDIX II

Average Male Brown/Grizzly Skull Size Recorded in Inches and by Year, Season and Residency of Hunter for Unit 16.

YEAR	S P R I N G				F A L L				T O T A L		
	RES.		NONRES.		RES.		NONRES.		No.	Size	Sample Size %
	No.	Size	No.	Size	No.	Size	No.	Size			
1967	-	-	-	-	2	23.1	7	23.1	9	23.1	82
1968	2	23.5	3	25.5	2	21.5	6	22.7	13	23.3	81
1969	1	26.7	5	23.2	10	22.5	6	21.9	22	22.7	96
1970	1	25.5	8	25.1	7	21.3	14	21.6	30	22.6	97

## BROWN/GRIZZLY BEAR

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 17 - Bristol Bay

#### Seasons and Bag Limits

Spring season	May 15 - June 10	One bear every four regulatory years; provided that the taking of cubs or females accompanied by cubs is prohibited.
Fall season	Sept. 1 - Oct. 15	One bear every four regulatory years; provided that the taking of cubs or females accompanied by cubs is prohibited.

#### Harvest and Hunting Pressure

The data recorded in the 1970 bear sealing program indicate that Unit 17 experienced the largest reported sport take of brown bears in the history of the unit. Only four bears were reported taken during the spring season but the addition of 19 bears during the fall season brought the yearly total to 23 bears (Appendix I). Twelve of the 23 bears were males, and 87 percent of the successful hunters were nonresidents. Male skull sizes are presented in Appendix II.

One non-sport kill male bear was reported as being taken in 1970.

#### Composition and Productivity

No information available at this time.

#### Management Summary and Conclusions

The greatly increased harvest reported for Unit 17 during 1970 is the direct result of the more restrictive regulations in effect in the neighboring Unit 9. The Fall bear season opened a month earlier than did Unit 9, and in addition, antlered moose were legal in Unit 17 during October, whereas the bull season was closed in Unit 9. Many Peninsula-based guides who booked multi-species hunts were forced into Unit 17 to fulfill their clients' expectations. It has been hypothesized that the unit's early season may also have served as a "loophole" through which pre-season Unit 9 brown bears could have been presented for sealing by unethical guides.

Future bear seasons should coincide with those of Unit 9 to avoid undue funneling of hunting pressure into the area. The result of having similar seasons would probably be a reduction in guided, nonresident hunting pressure with a commensurate reduced harvest level.

Recommendations

The brown bear season in Unit 17 should coincide with that of Unit 9.

Submitted by: James B. Faro, Game Biologist III

## APPENDIX I

## GAME MANAGEMENT UNIT 17

Brown-Grizzly Bear Sport Harvest, Calendar Years 1961 through 1970: Participation by Nonresidents in the Bear Harvest with Mean Hide, Skull Size and Cementum Age of Male Bears Presented for Sealing.

Calendar Year	Total Kill	No. Males	% Males	No. Nonres.	% Nonres.	Mean Hide <sup>1/</sup> Size Male <sup>1/</sup>	Mean Skull <sup>2/</sup> Size Male <sup>2/</sup>	Mean Cem <sup>3/</sup> Age Male <sup>3/</sup>	Calendar Year Seasons
1961	2	1	50	0	0	13.7			5/15 - 6/15 9/1 - 12/31
1962	2	2	100	0	0	15.5			Same
1963	3	1	33	0	0	16.3			Same
1964	5	2	40	4	80	11.5			Same
1965	6	2	33	5	83	13.3			Same
1966	9	4	50	4	44	14.1			Same
1967	11	3	27	10	91	14.8	22.5		Same
1968	10	7	70	6	60	13.6	23.4	7.3(3)	Same
1969	5	2	40	3	60	15.3	23.2	8.5(2)	5/15 - 6/15 9/1 - 10/15
1970	23	12	55	20	87	14.7	23.0	6.4(11)	5/15 - 6/10 9/1 - 10/15

<sup>1/</sup> Length plus width given in feet.

<sup>2/</sup> Length plus width given in inches.

<sup>3/</sup> Tooth sample size in parenthesis.

# APPENDIX II

Average Male Brown/Grizzly Skull Size Recorded in Inches, and by Year, Season, and Residency of Hunter for Unit 17.

YEAR	S P R I N G				F A L L				T O T A L		
	RES.		NONRES.		RES.		NONRES.		No.	Size	Sample Size %
	No.	Size	No.	Size	No.	Size	No.	Size			
1967	-	-	-	-	-	-	2	22.5	2	22.5	100
1968	2	23.5	-	-	1	20.8	2	24.6	5	23.4	71
1969	1	23.5	-	-	-	-	1	22.8	2	23.2	100
1970	0	0	4	25.4	1	19.6	7	22.1	12	23.0	100

## BROWN/GRIZZLY BEAR

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 18 - Yukon-Kuskokwim Delta

#### Seasons and Bag Limits

September 1 - November 30	One bear every four regulatory years, provided that the taking of cubs or females accompanied by cubs is prohibited.
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#### Harvest and Hunting Pressure

Hunting pressure in this unit is light. Reported harvest of one bear in the calendar year 1970 reflects the low hunting pressure. Some bears killed are probably not reported. The reporting of bears killed in this unit is probably poorer than in adjacent Units 19 and 21. The harvest probably does not exceed 10 to 15; however, this is a guess. In this unit there are areas with good numbers of grizzly bears, most of which are un-hunted. As restrictions on grizzly bear hunting and competition in hunting grizzlies increase elsewhere, more pressure can be anticipated in Unit 18. The 1972 spring season in Unit 18 will probably affect the harvest.

#### Composition and Productivity

Surveys relating to these parameters have not been done in this unit. Observations and reports of areas with relatively abundant grizzly bear populations have been recorded.

#### Management Summary and Conclusions

Changes in season and bag limit in Unit 18 are not recommended at this time. The harvest of grizzlies in this area will probably increase in the future. It would be appropriate to begin devising a set of workable regulations which could control the harvest of grizzlies when needed. Surveys to obtain data on relative abundance and productivity should be undertaken.

Submitted by: Richard H. Bishop, Game Biologist III

## BROWN/GRIZZLY BEAR

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 19 - McGrath

#### Seasons and Bag Limits

September 1 - November 30

One bear every four regulatory years, provided that the taking of cubs or females accompanied by cubs is prohibited.

#### Harvest and Hunting Pressure

Hunting in this unit is light. The reported 1970 harvest was 11 males and 4 females, for a total of 15. This harvest reflects low hunting pressure, especially considering that several guides are active in this unit. Although some bears killed are unreported, reporting is proportionately better in Unit 19 than in Units 18 and 21. The total harvest probably does not exceed 25-30; however, this is a guess. There are areas with good numbers of grizzly bear, most of which are unhunted. As restrictions on hunting grizzlies and competition and grizzly hunting increase elsewhere, more pressure in this unit can be anticipated.

#### Composition and Productivity

Surveys relating to these parameters have not been done in this unit. Observations and reports of areas with relatively abundant grizzly bear populations have been recorded.

#### Management Summary and Conclusions

Changes in season and bag limit in Unit 19 are not recommended at this time. Since the harvest of grizzlies in this unit will probably increase in the future, it would be appropriate to begin devising a set of workable regulations which could control the harvest of grizzlies as needed. Surveys to obtain data on relative abundance and productivity should be undertaken.

Submitted by: Richard H. Bishop, Game Biologist III

## BROWN/GRIZZLY BEAR

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 20 - Fairbanks, Central Tanana

#### Seasons and Bag Limits

Sept. 15 - Oct. 5

One bear every four regulatory years; provided that the taking of cubs or females accompanied by cubs is prohibited.

#### Harvest and Hunting Pressure

Based on sealing records, the 1970 spring bear harvest was nine animals (4 males and 5 females), two more than the spring 1969 harvest (4 males and 3 females). Kill figures for the past five years range from a harvest of 17 animals in the spring 1965 season to a kill of four in 1967. Incomplete fall 1970 data indicate a kill of 13 bears (10 males and 3 females), compared to a kill of 19 (11 males and 8 females) in 1969. Fall harvests the past five years varied from 45 in 1966 to 11 in 1967. Hide sizes of bears harvested in Unit 20 have remained fairly constant since 1961, while skull size and age have decreased since 1967.

Hunting pressure in certain portions of Subunit 20C is relatively light, e.g., on the Taylor Highway where bears are taken incidental to other hunting. In other areas, namely the north slope of the Alaska Range, increased guiding activity has resulted in heavy hunting pressure.

The spring season was discontinued in 1971.

#### Composition and Productivity

No data are available.

#### Management Summary and Recommendations

Certain lightly hunted areas of Unit 20 could sustain continued hunting pressure without adversely affecting the productivity of the bear population. Portions of Subunit 20A will undoubtedly receive heavy hunting pressure resulting in overexploitation of the population. Regulations flexible enough to restrict the bear harvest may be necessary in these areas.

Submitted by: Mel Buchholtz, Game Biologist II



## BROWN/GRIZZLY BEAR

### SURVEY-INVENTORY PROGRESS REPORT -1970

#### Game Management Unit 21 - Middle Yukon

##### Seasons and Bag Limits

September 1 - November 30

One bear every four regulatory years, provided that the taking of cubs or females accompanied by cubs is prohibited.

##### Harvest and Hunting Pressure

Pressure in this unit is light. A reported harvest of one bear in the calendar year 1970 reflects the low hunting pressure. The reporting of the bear harvest in Unit 21 is poorer than the reporting in adjacent Unit 19. The total harvest probably does not exceed 10-15 in Unit 21; however, this is a guess. There are areas with good numbers of grizzly bears in Unit 21, most of which are unhunted. As hunting restrictions are increased and the competition also increases elsewhere, more pressure can be anticipated. The 1972 spring season in Unit 20 will probably affect the harvest.

##### Composition and Productivity

Surveys relating to these parameters have not been done in this unit. Observations and reports of areas with relatively abundant grizzly bear populations have been recorded.

##### Management Summary and Conclusions

Changes in season and bag limit in Unit 21 are not recommended at this time. Because the harvest of grizzlies in this area will probably increase in the future, it would be appropriate to begin now to devise a set of workable regulations which could control the harvest of grizzlies as needed. Surveys to obtain data on relative abundance and productivity should be undertaken.

Submitted by: Richard H. Bishop, Game Biologist III

## BROWN/GRIZZLY BEAR

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 22 - Seward Peninsula

#### Seasons and Bag Limits

September 1 - November 30

One bear every four regulatory years; provided that the taking of cubs or females accompanied by cubs is prohibited.

#### Harvest and Hunting Pressure

Harvest of bears in this Unit has always been very low; the highest being six in 1968. In the past year, the reported harvest was 2 males. These bears were 9 and 13 years old.

#### Composition and Productivity

Bears are not uncommon in this Unit, but there is very little interest in hunting them.

#### Management Summary and Recommendations

The hunting pressure is very light in this Unit. It is recommended that the spring season again be initiated in Unit 22 to allow the take of grizzly bears when they are in prime condition.

Submitted by: Robert E. Pegau, Game Biologist II

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 23 - Kotzebue Sound

Seasons and Bag Limits

September 1 - November 30	One bear every four regulatory years; provided the taking of cubs or females accompanied by cubs is prohibited.
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Harvest and Hunting Pressure

Harvest of bears in this Unit has varied from a low of 6 in 1961 to a high of 29 in 1968. In 1970 the total harvest reported was 26 bears. The age of bears ranged from 3 to 10 years of age with most being the older animals.

Composition and Productivity

There is no composition or productivity information on grizzly bears available for this Unit.

Management Summary and Recommendations

The current harvest of bears in this Unit remains high although there is only a fall season on bears. It is recommended that the seasons and bag limits remain unchanged until some data on production of bears in this Unit are obtained.

Submitted by: Robert E. Pegau, Game Biologist II

## BROWN/GRIZZLY BEAR

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 24 - Koyukuk

#### Seasons and Bag Limits

May 15 - May 31

September 1 - November 30

One bear every four regulatory years;  
provided that the taking of cubs or  
females accompanied by cubs is  
prohibited.

#### Harvest and Hunting Pressure

Based on sealing information, the 1970 spring harvest was 8 bears (6 males and 2 females). This compares to a spring harvest of 2 in 1969 and 0 in 1968. Age data are not available for spring or fall 1970 bear. The total fall harvest for 1970 consisted of 9 bears (5 males and 4 females), compared to a fall harvest of 7 in 1969 and 5 in 1968. The total sport harvest has varied from a low of 5 in 1968 to the current high of 17 when data from the past 5 years are examined. Mean hide size has decreased slightly from 12.9 in 1966 to the present 12.1, along with skull size (22.1 in 1967 and 21.2 in 1970). Increased guiding activity in the area may result in a significant increase in hunting pressure in portions of this unit.

#### Composition and Productivity

No composition or productivity information is available from this area.

#### Management Summary and Recommendations

Based on the limited information available, it is recommended that seasons and bag limits remain unchanged.

Submitted by: Mel Buchholtz, Game Biologist II

## BROWN/GRIZZLY BEAR

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 25 - Fort Yukon

#### Seasons and Bag Limits

May 15 - May 31

September 1 - November 30

One bear every four regulatory years; provided that the taking of cubs or females accompanied by cubs is prohibited.

#### Harvest and Hunting Pressure

The total 1970 spring bear harvest in Unit 25 was six bears (4 males and 2 females), based on sealing information. This compares to a spring harvest of 4 in 1969 and 3 in 1968. Age data are not available for spring or fall 1970 bear. The total fall harvest for 1970 consisted of 7 bears (4 males and 3 females), compared to a fall harvest of 8 in 1969 and 7 in 1968. The total sport harvest has varied from a high of 25 in 1966 to a low of 10 in 1968 when data from the past 5 years are examined. Average hide and skull size have remained basically unchanged the past 5 years. The reported harvest of bears in this unit is undoubtedly low, as illegally killed bears and those shot in defense of life and property are often times not documented. There does not appear to be any significant increase in hunting pressure in Unit 25.

#### Composition and Productivity

No composition or productivity information is available from this area.

#### Management Summary and Recommendations

Based on the limited information available, it is recommended that seasons and bag limits remain unchanged.

Submitted by: Mel Buchholtz, Game Biologist II

## BROWN/GRIZZLY BEAR

### SURVEY-INVENTORY PROGRESS REPORT - 1970

#### Game Management Unit 26 - Arctic Slope

##### Seasons and Bag Limits

September 1 - November 30	One bear every four regulatory years; provided that the taking of cubs or females accompanied by cubs is prohibited.
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##### Harvest and Hunting Pressure

The reported 1970 sport harvest of grizzly bear in Unit 26 was 14 bears. Ten were males, and 4 were females. The harvest of grizzly bear in Unit 26, as reflected by the sport harvest, is not a good indicator of the overall harvest. Since 1961 the reported sport harvest has varied from 1 to 16 bears from the entire unit. However, the known and rumored subsistence kill of bear in the area has often exceeded the reported sport harvest. The mean annual number of bears killed from Anaktuvuk Pass alone is 8, and the kill has run as high as 15. Some of these bears were obviously harvested in Game Management Unit 24. It is also generally known that a few bears are killed each year out of the villages of Barrow, Wainwright, Kaktovik, and Point Hope. In 1970 there were many rumors of bears being taken in defense of life and property in the vicinity of oil exploratory or drilling operation. The magnitude of this kill has not been determined.

##### Composition and Productivity

In conjunction with the brown bear research project active in Unit 26 during part of 1970, 464 bear observations were reported. Of these 15.5% were female with young, 27.6% were cubs and yearlings, and 56.9% were solitary adults. The mean litter size reported for 79 females with young was 1.8 young. The age of the cubs was reported for 42 litters, and from these the mean litter size was 2.0 young of year per female and 1.5 yearlings per female. No estimates of absolute abundance can be supported by present data, but the average observed density in 56 hours of aerial surveys was 1 bear per 89 square miles surveyed. This is equal to 1 bear per 1.6 hours flown.

These preliminary figures indicate that the North Slope bears have a low annual recruitment into the adult population. Compared to the reported composition of Alaska Peninsula brown bear, the North Slope bears have a smaller percentage of breeding females with a lower reproductive rate.

Submitted by: Mel Buchholtz, Game Biologist II

### Management Summary and Recommendations

It is recommended that the season remain closed until means can be implemented to more accurately measure the magnitude of the harvest and the size and productivity of the bear population in Unit 26. Efforts should be made to discourage the killing of bear in defense of life and property. Most observations indicate that these killings would not be necessary if proper preventative measures were initiated.

Submitted by: J. Lynn Crook, Game Biologist (temporary)

## SHEEP

### SURVEY-INVENTORY PROGRESS REPORT - 1970

#### Game Management Unit 7 - Seward

##### Seasons and Bag Limits

Unit 7; that portion bounded on the northwest by the Sterling Highway, on the northeast and east by the Anchorage-Seward Highway, on the south and southwest by Kenai Lake.	August 10-September 20	One sheep with 1/2 curl or less; 100 sheep of either sex may be taken by permit only. Dates will be described by Commissioner's announcement.
Remainder of Unit 7:	August 10-September 20	One ram with 3/4 curl horns or larger.

##### Harvest and Hunting Pressure

Based on harvest report returns the ram harvest since 1962 has been as follows:

1962	-	15*	1967	-	21
1963	-	25	1968	-	52
1964	-	8	1969	-	42
1965	-	22	1970	-	25
1966	-	18			

\* 1962 was first year of harvest ticket regulations. Coverage is known to have been incomplete.

Two hundred and twenty-six hunters reported hunting Unit 7 during the 1969 season, of which 25 (11.1 percent) were successful. Hunters afield dropped 35.2 percent from 1968 while hunter success increased by 3.6 percent. Data pertaining to hunting pressure and hunter success for 1970 are not available at this time.

##### Composition and Productivity

As reported in 1969, all known sheep habitat in the Unit was covered by aerial survey in 1968, and 928 sheep were counted. No classification was attempted on the overall herd.

Classification counts have been conducted on three sample areas within the Unit since 1968. The results of these counts are as follows: sex and age classes are shown as ratios to the ewe segments.



#### COOPER MOUNTAIN

<u>Date</u>	<u>Legal MM:FF</u>	<u>Young MM:FF</u>	<u>All MM:FF</u>	<u>Yrlg:FF</u>	<u>Lambs:FF</u>	<u>Total</u>
7/56	75:100	50:100	125:100	19:100	69:100	50
6/68	32:100	13:100	45:100	5:100	31:100	117
5/69*	-	7:100	7:100	19:100	-	76
1970	NO COUNTS MADE					

\* Counts not completed due to inclement weather.

#### CRESCENT LAKE MOUNTAINS

<u>Date</u>	<u>Legal MM:FF</u>	<u>Young MM:FF</u>	<u>All MM:FF</u>	<u>Yrlg:FF</u>	<u>Lambs:FF</u>	<u>Total</u>
6/56	47:100	33:100	80:100	41:100	78:100	136
6/68	CLASSIFICATION INCOMPLETE					
3/70	4:100	23:100	27:100	31:100*	-	255
7/70	-	-	48:100	20:100	30:100	287

\* Yrlgs. misidentified, ratios distorted.

#### GRANT LAKE MOUNTAINS

<u>Date</u>	<u>Legal MM:FF</u>	<u>Small MM:FF</u>	<u>All MM:FF</u>	<u>Yrlgs:FF</u>	<u>Lambs:FF</u>	<u>Total</u>
8/68	-	-	30:100	-	56:100	43
8/69	27:100	10:100	37:100	-	53:100	57
8/70	14:100	16:100	30:100	-	38:100	62

Results of classification counts indicate an upward trend in sheep numbers through 1968 on Cooper Mountain and the Crescent Lake Mountains. Surveys conducted on the Crescent Lake Mountains in 1970 indicate a very slight (3 percent) drop in that population. Cooper Mountain was not surveyed in 1970 and the 1969 survey was incomplete.

Data collected on the Grant Lake Mountains indicate a steady upward trend in the total population and a downward trend in lambs/100 females at survey time. These data suggest the typical inverse ratio of production and population density observed in most other wild populations.

#### Management Summary and Conclusions

Inventory and classification surveys indicate that the sheep population in Unit 7 increased through 1968. Since 1968, surveys have not shown a definite trend but there is no reason to believe a significant change in the trend has taken place.

The harvest has followed a downward trend since 1968. Effort dropped sharply in 1969 and hunter success improved slightly.

A definite overall trend in this population is not evident at this time.

### Recommendations

No changes in seasons and bag limits are recommended. The established limited ewe season for Crescent Mountains should be continued for research purposes.\*

\* Results of ewe sheep hunt and sheep collections are reported under research.

Submitted by: Paul A. LeRoux, Game Biologist III

## SHEEP

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 11 - Wrangell Mountains-Chitina River

#### Seasons and Bag Limits

Aug. 10 - Sept. 20

One ram with 3/4 curl  
horns or larger

#### Harvest and Hunting Pressure

Harvest report returns since 1962 have shown the kill of rams to be as follows:

1962*	-	117	1967	-	149
1963	-	131	1968	-	215
1964	-	151	1969	-	157
1965	-	131	1970	-	171
1966	-	125			

\* 1962 was the first year of the harvest report. Coverage is known to have been incomplete.

#### Composition and Productivity

Survey and inventory flights, with sex and age classification noted when possible, were made in early August, just prior to the opening of the season. The sheep ranges north of the Chitina River from the Canadian border west to the Nazina River were covered. The results are shown in Appendix I.

#### Management Summary and Conclusions

Since hunting has always been limited to 3/4 curl or larger rams, the effect of hunting on Wrangell Mountains sheep populations has to be negligible. Our data, though scanty, do not indicate that the sex ratio has been affected. The largest "trophy" Dall sheep in the world have been taken in the Wrangells. Thus the interest in sheep hunting there is high. The area is extremely rugged and much of it is inaccessible except for the hardiest of sheep hunters. Recent surveys indicate that while some of the more accessible populations, MacColl Ridge for instance, may show the effect of trophy hunting on adult ram numbers; overall, there is a healthy abundance of trophy rams available. There are indications, mostly

gleaned through discussions with people familiar with the area since the early 1940's, that sheep have shown periods of scarcity and abundance, as would be expected. These periods of ups and downs apparently occurred on specific populations rather than over the entire area.

#### Recommendations

No changes recommended at this time.

Submitted by: Loyal J. Johnson, Game Biologist III

# APPENDIX I

## 1970 Sheep Sex and Age Composition Counts, Portion of Unit 11 - Wrangell Mountains

Date	Uncl.	Ram Young	Legal	Ewes	Lambs	% Lambs	Unid	Total	Area
8/4/70	6	13	35	131	61	24.8	0	246	1 - Canyon Ck. - Bernard Gl.
8/4/70	0	12	54	148	54	19.6	7	275	2 - Bernard Gl. - Anderson Gl.
8/4/70	0	20	26	114	60	27.3	0	220	3 - MacColl Ridge
8/5/70	0	8	14	86	35	24.5	0	143	4 - So. Chitistone, E. Nizina, W. Canyon Ck., No. MacColl Ridge
8/5/70	14	0	25	2	1	--	1	43	5 - W. of West Fork Glacier
Totals	20	53	154	481	211	22.8	8	927	

Note: Area 5 should be redone.

## SHEEP

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 13 - Nelchina Basin

#### Season and Bag Limits

August 10-September 20

1 ram with 3/4 curl horns or  
larger

#### Harvest and Hunting Pressure

Harvest report returns since 1962 have shown the kill of rams to be as follows:

1962*	-	107	1967	-	152
1963	-	132	1968	-	159
1964	-	156	1969	-	155
1965	-	143	1970	-	134
1966	-	154			

\* 1962 was the first year of the harvest ticket. Coverage is known to have been incomplete.

The extent of hunting pressure is not known though it must be considerable to result in an average annual kill of 155 rams.

#### Composition and Productivity

No data are available beyond those which were reported in the 1969 S & I Report.

#### Management Summary and Conclusions

Previous years' survey data, though limited, indicate an increasing sheep population. The harvest has been remarkably consistent at about 155 rams.

#### Recommendations

Documented survey and inventory data as well as distribution data are lacking for much of the Unit. Such surveys should be initiated and conducted as time allows. Trend data on the Boulder Creek drainage should be continued on a semiannual basis.

Submitted by: Loyal J. Johnson, Game Biologist III

## SHEEP

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 14 - Upper Cook Inlet

#### Seasons and Bag Limits

August 10 - September 20

1 ram with 3/4 curl or larger

#### Special controls

West Chugach Management Area: The drainages of the Chugach Range in Game Management Units 7 and 14, including the west side of Lake George, the west side of Knik River, the south side of Knik Arm, and the south side of Turnagain Arm to the west bank of Twenty Mile River, Glacier River, Twenty Mile Glacier and Lake George Glacier, are closed to all motorized vehicular transportation except boats, involving hunting away from established roads and airports each year from August 1 through November 30.

#### Harvest and Hunting Pressure

Based on harvest ticket returns the harvest of rams in Unit 14 since 1962 is presented below:

<u>Year</u>	<u>Kill</u>	<u>Year</u>	<u>Kill</u>
1962*	99	1967	72
1963	110	1968	76
1964	67	1969	94
1965	62	1970	63
1966	49		

\* First year of harvest report regulation; coverage known to have been incomplete.

The reason for the lowered take in 1970 is somewhat obscure. Weather in sheep hunting areas can be extremely changeable during the hunting season and can influence harvest. Also, the effort one must expend in the area covered by the West Chugach Management Area (Subunit 14C) where no planes or vehicles are allowed may also result in lowered participation in sheep hunts.

Although a complete breakdown of hunting success in Unit 14 is not available, 21 percent of the 655 hunters who hunted the Chugach Range (partially in Unit 13) were successful in 1969. Fifty-one nonresidents took 33 sheep (65 percent successful) while 593 residents took 102 sheep for a 17 percent success ratio.

#### Composition and Productivity

Surveys conducted in 1967 and 1968 revealed a minimum population of 1220 sheep in the Unit 14 portion of the Chugach Range.

Classification by sex and age was undertaken in that portion of the Chugach Mountains in Unit 14 known as the Rainbow Area. Results of these surveys are depicted as follows:

# SHEEP SEX AND AGE COUNTS, RAINBOW AREA, UNIT 14, 1967-1970

<u>Date</u>	<u>Unclass. MM</u>	<u>Young MM</u>	<u>Legal MM</u>	<u>FF &amp; Yearl.</u>	<u>Lambs</u>	<u>Unid.</u>	<u>Total</u>
7/11/67	--	7	4	8	5	4	28
7/16/69	--	4	13	42	13	--	70
8/18/69	2	2	3	39	14	--	60
8/26/69	--	3	6	15	1	--	25
8/6/70*	3	--	2	35	8	--	82

\* A portion of the Rainbow Area, McHugh Creek to Rainbow Creek, was not flown due to turbulence.

Sheep movements are not restricted to areas within the Rainbow Area, hence under present regulations the legal male segment of the sheep population will continue to diminish while the total population in the area will fluctuate with environmental influences.

## Management Summary and Conclusions

The ram harvest in Unit 14 decreased from 94 in 1969 to 63 in 1970, a 33% reduction. Reasons are not completely known, but the establishment of the Chugach State Park, which many people did not realize allowed the hunting of sheep, may have had something to do with it. The West Chugach Management Area, over which the Park is superimposed, also undoubtedly led to some confusion. The Management Area disallows the use of vehicles or airplanes, which in combination with the rugged terrain and poor weather, results in a very low success ratio (11 percent in 1968, 13.5 percent in 1969, 15.2 percent in 1970). Three hundred and sixty-two sheep hunters used the Management area in 1969, and in 1970, 251 sheep hunters used the area.

Sporadic surveys conducted from 1949 to 1969 reveal a trend toward increasing total sheep populations in the area, but possibly a lowering in the percentage of legal rams available to hunters.

No data are available for the Talkeetna Mountains portion of Unit 14, but it is known that hunting pressure is minimal at present due to access problems.

Composition and number changes in the former Rainbow Closed Area are probably due to movement since the area is easily vacated by sheep if they are disturbed.

## Recommendations

Studies presently being undertaken in other Units may dictate future changes in regulations, but presently there does not appear to be any reason to change the season or bag limit.

Submitted by: Jack C. Didrickson, Game Biologist III



## SHEEP

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 15 - Kenai Peninsula

#### Seasons and Bag Limits

August 10-September 20                      1 ram with 3/4 curl horns or larger

#### Harvest and Hunting Pressure

Harvest report returns indicate the kill of rams over the past 6 years has been as follows:

1962	-	35	1967	-	47
1963	-	93	1968	-	52
1964	-	26	1969	-	31
1965	-	35	1970	-	42
1966	-	48			

Eighty-four hunters reported hunting in Unit 15 in 1969 of which 31 (36.9 percent) were successful. Data pertaining to hunting pressure and success are not available for the 1970 season.

#### Composition and Productivity

As reported in 1969, all known sheep habitat in Unit 15 was covered by aerial survey in 1968, and 1267 sheep were observed. No attempt was made to classify the total herd. Classification counts have been conducted within the Unit only on Surprise Mountain. Results of these counts, expressed as ratios of sex and age classes to 100 ewes, are as follows:

##### SURPRISE MOUNTAIN

<u>Date</u>	<u>Legal MM:FF</u>	<u>Young MM:FF</u>	<u>All MM:FF</u>	<u>Yrlg:FF</u>	<u>Lambs:FF</u>	<u>Total</u>
5/56	104:100	77:100	181:100	45:100	73:100	88
7/66	8:100	14:100	22:100	31:100	53:100	256
6/68	CLASSIFICATION INCOMPLETE					
5/69	-	12:100	12:100	29:100	-	207*
7/70	-	-	19:100	4:100	14:100	185

\* Conducted before lambing.

Survey data show an upward trend in population size through 1968, and a downward trend in 1969-70. Between 1968 and 1970, the overall population after lambing was reduced by 33 percent. Documentation of the 1969-1970 winter mortality is reported under research.

Legal rams have not been observed on Surprise Mountain since 1966. Sub-legal rams 100/ewes; yearlings 100/ewes; and lambs/100 ewes have all followed a downward trend since 1966.

### Management Summary and Conclusions

Inventory data from Surprise Mountain show a definite decline in numbers during the winter of 1969-70. Since Surprise Mountain has easy access and very heavy hunting pressure, it is not representative of the remainder of the Unit. Data from the remainder of the Unit are lacking.

### Recommendations

No changes in seasons or bag limits are recommended.

Submitted by: Paul A. LeRoux, Game Biologist III

## SHEEP

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 16 - West Side of Cook Inlet

#### Seasons and Bag Limits

August 10 - September 20

1 ram with 3/4 curl horn or  
larger

#### Harvest and Hunting Pressure

Based on harvest report returns, the harvest of rams since 1962 is represented below:

<u>Year</u>	<u>Kill</u>	<u>Year</u>	<u>Kill</u>
1962*	4	1967	4
1963	15	1968	9
1964	20	1969	14
1965	16	1970	11
1966	6		

\* First year of harvest report regulation; coverage known to have been incomplete.

A total of 16 hunters reported hunting in 1969; 13 were successful. In 1970, 13 hunters reported taking 11 sheep for an 85 percent success ratio.

#### Composition and Productivity

On June 23 and 24, 1970 a portion of Unit 16 was flown and 148 sheep were seen. The areas included the Happy and Styx Rivers, and Timber, Crystal, Muddy, Emerald and North Fork of Emerald Creeks. No sheep were seen in the Nagishlamina River drainage.

Of the 148 sheep seen, 22 were identified as males, 3 were females, 18 were lambs and the remainder (105) were identified only as adults.

#### Management Summary and Conclusions

Very little hunter pressure is directed toward Unit 16 sheep as evidenced by the low harvest. A recent survey revealed 148 sheep in a portion of the mountainous area of Unit 16. It is probable that most of the harvest is from hunts by guided nonresidents. With the rugged terrain, poor weather, and low harvest, trophy sheep should be available until such time as access improves greatly.

#### Recommendations

No changes in hunting season or bag limits are recommended.

Submitted by: Jack C. Didrickson, Game Biologist III

## SHEEP

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Parts of GMU's 9, 16, 17 and 19 - Alaska Range West (ARW)

#### Seasons and Bag Limits

August 10 - September 20      One ram with 3/4 curl horns or larger

#### Harvest and Hunting Pressure

The harvest of sheep from the ARW increased from 37 in 1962 to 105 in 1969. In 1970 the reported harvest decreased to 84 rams. Foul weather, early and late in the season, discouraged some hunters and probably reduced hunter success in these periods. The success ratio and horn size remained high as indicated below:

	<u>ARW</u>			
	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
Sheep Harvest	65	95	105	84
No. of Hunters	97	151	155	162
% Success	67	63	68	52
Horn Size	-	34.7(n=86)	33.5(n=95)	31.7(n=81)*

\* n = the number of sheep horns in the sample.

The trend toward more registered guides operating in Unit 19 continued. There were 12 to 15 guides operating at various intensities in the area between Mt. McKinley National Park on the east and Stony River (roughly) on the west, compared to 6 to 8 in 1969. Four more guides are known to be considering hunting in this general area in 1971.

From the McGrath area, between 20 and 25 people hunted sheep in the ARW in 1970, exhibiting considerable local interest. There appeared to be more hunters from the Anchorage area in 1970 than in 1969.

In summary, an increasing number of resident hunters with private aircraft available and an increasing number of guides searching for new areas of operation are contributing to an increase in hunting pressure.

#### Composition and Productivity

No information has been gathered on herd composition and productivity. In the Sheep Creek drainage near Farewell, sheep appeared to have moved out of the area, at least temporarily. The apparent cause was increased traffic related to mineral prospecting by helicopter and steady vehicular traffic in the valley.

On the Post River, future development of a mine and a road from the mine to Farewell may influence sheep distribution in that area.

Management Summary and Recommendations

The greatest present use of the sheep population and most probable future use is as a source of trophy sheep. With the relatively low hunting pressure, no changes in seasons or bag limits are recommended.

Submitted by: Arthur C. Smith, Game Biologist II  
Richard Bishop, Game Biologist III

## SHEEP

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Parts of GMU's 12,13 and 20 - Alaska Range East of McKinley Park (ARE)

#### Seasons and Bag Limits

August 10 - September 20      One ram with 3/4 curl horns or larger

#### Harvest and Hunting Pressure

Hunting pressure in the Alaska Range East has generally increased since 1962, with the exception of 1969. The rain and snow during the first week of the 1969 hunting season may have been responsible for the slightly lower kill and hunter pressure. Complete figures are not available for the 1970 sheep hunting season but all indices of hunting pressure indicate a substantial increase during this season. Information on total kill, total hunters, success percentage and average horn size since 1967 is presented below.

#### ARE

	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
Sheep Harvest	120	192	166	211
No. of Hunters	310	578	486	515
% Success	39	34	34	41
Horn Size	-	33.9(n=183)	32.4(n=154)	33.0(n=201)*

\* n = the number of sheep horns in the sample.

The sustainable harvest of trophy rams from this area is unknown. It is likely that with well distributed hunting pressure this area could support a higher harvest level. However, hunting pressure is not evenly distributed. The areas that may now be overhunted include the Healy River - Moody Creek area, the Wood River area and the Delta Management area (including Riley Creek, Jarvis Creek, the Gerstle River, the Little Gerstle River and the Granite Mountains). These areas constitute the major access points for most hunters into the ARE. Hunter pressure and rams harvested in these areas have increased substantially in 1970. The horn size of sheep, taken from at least the Delta Management area, has decreased significantly in the last three years from 35.5 in 1968 to 32.6 in 1970. Although there are no absolute measures for the quality of a hunting experience, indicators lead us to believe the quality of the hunting experience in these areas is definitely decreasing. More people using aircraft and other modes of vehicular transportation, more hunters in the sheep mountains and the resultant increased competition for available rams are several factors influencing the quality of the experience. Competition for

available rams in 1971 will become more intense due to an increase in hunters and low yearling survival in 1966 and 1967.

#### Composition and Productivity

Ground counts, aerial surveys and observations of sheep at a natural mineral lick in the central Alaska Range East indicate that lamb production and yearling survival is good. Averaged counts show a lamb:ewe ratio of 55:100 and a yearling:ewe ratio of 31:100.

The availability of legal rams is expected to decrease, at least in the central portion of this Range, for the hunting seasons of 1971 and 1972. Yearling survival in 1966 and 1967 was very poor. The reason for failure of these year-classes is unknown. Due to the failure in yearling survival these year-classes will not enter the crop available for hunter harvest in 1971 and 1972. This lessened availability will exist for several years. In 1973 the 1968 year-class will enter the legal, huntable population and the available ram crop will again increase.

#### Management Summary and Recommendations

An increasing number of hunters desiring a trophy ram, more efficient transportation methods and a decreasing availability of legal rams in some areas will contribute to increased competition for trophy sheep. The quality of the hunting experience will decrease. In an attempt to maintain trophy value, the high quality experience and, at the same time to respond to public pressure, the Department of Fish and Game has proposed the establishment of several walk-in hunting areas. The proposed Delta Management Area is one of the major access areas into Alaska Range East.

It is further recommended that other major access points, more specifically the Wood River area and the Healy area, be given close scrutiny and that all possible management alternatives for these areas be developed and examined.

Submitted by: Arthur C. Smith, Game Biologist II

## SHEEP

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Parts of GMU's 20 and 25 - Tanana Hills - White Mountains (THW)

#### Seasons and Bag Limits

Unit 20	Aug. 10 - Sept. 20	One ram with 3/4 curl horns or larger
Unit 25	Aug. 1 - Sept. 20	One ram with 3/4 curl horns or larger

#### Harvest and Hunting Pressure

Hunting pressure and harvest in the Tanana Hills - White Mountains have generally increased since 1962 with an exception of 1969. The very rainy and snowy first week of the 1969 hunting season in this area may have been the cause of the drastic reduction in pressure and success. 1970 data are incomplete but known cases of successful hunters indicate the expected return of hunters to this area.

	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
Sheep Harvest	8	21	1	11
No. of Hunters	23	68	16	28
% Success	35	36	6	39
Horn Size	-	32.8	27.0(n=1)	33.4(n=11)*

\* n = the number of sheep horns in the sample.

#### Composition and Productivity

An aerial survey conducted in early August revealed a lamb:ewe ratio of approximately 60:100. No data were gathered on yearling survival, but considering the mild winter of 1969-70, it is expected that yearling survival was high.

It is not known whether the conditions that resulted in very low yearling survival in the Alaska Range East during 1966 and 1967 extended into the Tanana Hills - White Mountains. If these conditions did extend into this area the rams of these year-classes will not be entering the available hunter supply during 1971 and 1972. Our survey showed a relatively high legal ram:ewe ratio of 16:100, an indication of the low hunting pressure in this area.

The survey, which covered a major portion (85-95%) of the habitat available to sheep in this mountain range, revealed the following totals:



Rams (sublegal and legal) = 131  
Ewes (ewes, yearlings and small rams) = 316  
Lambs = 124

Total 571

The sheep were found highly scattered and in small groups throughout the mountain range, generally on the highest, most rugged peaks. The microtopography of several areas made complete coverage very difficult and these areas may have harbored more sheep than were actually observed.

#### Management Summary and Recommendations

The Tanana Hills - White Mountains complex is in general a lightly hunted area. There are a few areas that receive moderate to heavy hunting pressure. The sheep in this complex are in small widely scattered groups and are subject to harvest beyond annual trophy production capabilities of each group.

As the number of resident hunters and new guides increases and as old guides look for new bases of operation, hunting pressure in this area will increase. It is doubtful to me that any area in this complex could support commercial exploitation over the long term. Many areas in this mountain complex are subject to "vacuum cleaner" guide operations. Future regulation may be proposed to prohibit such exploitation and to insure a sustained yield of trophies for the resident hunter.

The only proposed regulation change for this year concerns the establishment of a walk-in sheep hunting area at Glacier Mountain, west of the Taylor Highway, southwest of Eagle.

The sheep population on the mountain is very small, approximately 80 animals. This population exhibits a high legal ram:ewe ratio (34:100), with approximately 15 legal rams in the population. Horns of the average trophy ram taken from this mountain are 36.7 inches in length, one of the highest averages in the state. Our harvest data indicate that, to date, only foot hunters have used the area.

The above conditions, plus the fact that the area is one of extreme beauty, combine to create a potential high quality recreational experience. This potential could too easily be destroyed by commercial exploitation; air strips, cat trails, etc. To prevent this destruction, to maintain the high trophy value of this mountain, to lessen the possibility of over-exploitation by commercial operation and to respond to public pressure for walk-in hunting areas, the Department has proposed that this mountain and surrounding country (60 sq. miles in total) be made a walk-in hunting area from August 10 - September 20.

Submitted by: Arthur C. Smith, Game Biologist II

## SHEEP

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Parts of GMU's 23, 24, 25 and 26 - Brooks Range

#### Seasons and Bag Limits

August 1 - September 20      One ram with 3/4 curl horns or larger

#### Harvest and Hunting Pressure

The harvest of sheep in the Brooks Range does not show any marked trends in recent years. Weather conditions play a greater role in influencing hunting success in the Brooks Range than in other mountain ranges. The weather during the 1969 hunting season was poor and this is reflected in the total harvest as indicated below:

	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
Sheep Harvest	105	144	68	121
No. of Hunters	156	201	121	171
% Success	67	72	56	71
Horn Size	-	32.6(n=131)	32.5(n=62)	33.2(n=118)

\* n = the number of sheep horns in the sample.

#### Composition and Productivity

Little information is available on production and composition of sheep inhabiting the Brooks Range. A July survey that covered the sheep habitat north of Wiseman within 15 miles on both sides of the proposed pipeline route up to Dietrich River, over Atigun Pass and down the Atigun River gave us some insight into 1970 lamb production. A total of 2220 sheep was observed, 1375 south of the Continental Divide. This population of sheep exhibited a lamb:ewe ratio of 53:100 comparing favorably with other areas of the state. No data were gathered on yearling survival.

The legal ram:ewe ratio is unknown but is expected to be high, considering the relatively low overall harvest and hunting pressure. Average age of rams killed, an indication of hunting pressure, in 1970 was 8.8 years, the highest average for any mountain range in the state.

#### Management Summary and Recommendations

No changes in the hunting season and bag limits are recommended. It is recommended that ewe sheep be made legal game for hunters under terms of a permit issued by the Commissioner. Now trophy and ewe sheep are being illegally hunted for food and clothing. The proposal is to accomodate tradition within the law while also creating additional recreational opportunity for the resident hunter.

Submitted by: Arthur C. Smith, Game Biologist II

## FURBEARERS (EXCEPT BEAVER)

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Units 19 and 21 - Middle and Upper Kuskokwim Drainage and  
Middle Yukon Drainage

#### Seasons and Bag Limits

##### Trapping:

Marten	Oct. 20 - Feb. 28	No Limit
Mink	Nov. 1 - Jan. 31	" "
Red Fox	Nov. 1 - Jan. 31	" "
Otter	Nov. 1 - March 31	" "
Wolf	Oct. 1 - April 30	" "
Wolverine	Nov. 10 - March 31	" "

##### Hunting:

Marten	No open hunting season	
Mink	" " " "	
Red Fox	Sept. 1 to April 30	Two Foxes
Otter	No open hunting season	
Wolf	Sept. 1 to April 30	No limit
Wolverine	Sept. 1 to March 31	One Wolverine

#### Harvest and Hunting Pressure

**Marten:** Marten were very abundant over most of Units 19 and 21. A few trappers made catches of over one hundred marten, but heavy snows discouraged most trappers from making an intensive effort. Prices remained about the same - \$12 to \$14 average per pelt.

**Mink:** Although mink were generally numerous in Units 19 and 21 the prices were so low that most trappers avoided catching them if possible. Some buyers would not buy mink at all, some paid \$2 to \$4 per pelt. Data on Unit 18 mink harvest and prices have not been obtained.

**Red Fox:** Red fox were generally abundant and prices were high, \$10 to \$25 per pelt. However, few trappers attempted to capitalize on the circumstances.

**Otter:** Otter continued to be relatively abundant and valuable (about \$30 average price). Otter trapping is largely incidental and the harvest remained low.

**Wolf:** Wolves were numerous in most of Units 19 and 21. Approximately 70 were taken by McGrath hunters using aircraft, by landing and shooting. Many were taken in Unit 19, on the North Fork Kuskokwim River, Big River,

Nixon Fork, and Kuskokwim River, and most of the rest were taken in the upper Innoko drainage.

Wolverine: The harvest of wolverine was very low, mainly because of low trapping effort.

#### Composition and Productivity

No data on composition or productivity have been gathered.

#### Management Summary and Recommendations

Changes in the season and bag limit are not recommended at this time.

Submitted by: Richard H. Bishop, Game Biologist III

## RED FOX

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 22 - Seward Peninsula

#### Seasons and Bag Limits

Hunting:	Sept. 1 - April 30	Two Foxes
Trapping:	Nov. 1 - Feb. 28	No Limit

#### Harvest and Hunting Pressure

There is very little information on the harvest in this Unit.

#### Composition and Productivity

Red foxes have become noticeably more abundant, especially in the vicinity of reindeer herds this year. This follows a low that lasted for two years.

#### Management Summary and Recommendations

Red fox appear to be becoming more numerous. It is expected that there will be more frequent contacts with humans in the future.

Submitted by: Robert E. Pegau, Game Biologist II

## RED FOX

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 23 - Kotzebue Sound

#### Seasons and Bag Limits

Hunting:	Sept. 1 - April 30	Two Foxes
Trapping:	Nov. 10 - Feb. 28	No Limit

#### Harvest and Hunting Pressure

Very little information available.

#### Composition and Productivity

Red foxes appear to be more numerous this year from aerial surveys and reports of air taxi operators.

#### Management Summary and Recommendations

Red foxes appear to be on the increase in this Unit and there will probably be more human contacts in the future.

Submitted by: Robert E. Pegau, Game Biologist II

## SEA LIONS

### SURVEY-INVENTORY PROGRESS REPORT - 1970

#### Game Management Units 1-26 - Coastal Waters

##### Seasons and Bag Limits

Units 1 through 26

No closed season

No limit

\*Provided that the taking of sea lions for commercial purposes in excess of ten is permitted only under the terms of a permit that may be issued by the Commissioner in consideration of conservation requirements.

##### Harvest and Hunting Pressure

In 1970, 6057 sea lion pups were harvested by commercial operators from rookeries in Game Management Units 8 and 10. Hunters pelted out 1008 pups at Sugarloaf Island; 2365 at Marmot Island; 2159 at Akutan Island and 525 at Ugamak Island. Total harvest from these islands in previous years was 5208 in 1969; 4118 in 1968; 4855 in 1967; 3050 in 1966; 3029 in 1965 and 1500 in 1964. No adult animals were reported taken for commercial purposes.

##### Composition and Productivity

The Steller sea lion population in Alasia is probably at the carrying capacity of its habitat. Occasional surveys of various rookeries through the years indicate little change in the general abundance and distribution of the animals. An exception is Sugarloaf Island where harvesting has taken place since 1964. The number of sea lions which utilize the island for pupping and breeding has fluctuated from year to year but the general trend appears to be one of fewer and fewer animals utilizing the rookery. The pup production in 1970 was estimated to be between 1800 and 2000 animals. Normally the island produces between 3000 and 6000 pups annually. Marmot Island which has been harvested since 1966 continues to produce large numbers of sea lions although the distribution of the animals on the rookery has changed considerably since the first harvest.

##### Management Summary and Conclusions

The harvest at Sugarloaf Island was closed by field announcement on June 11. A survey of the island at that time indicated that 650 to 700 pups remained on the island. Because of the early closure date, it was expected that additional pups would be born after the harvest had stopped. Sea lions will pup as late as the first week in July. The harvests at Marmot Island, Akutan Island and Ugamak Island were below 50 percent of the total pup production for these islands and the islands were not closed by field announcement. The harvest of sea lion pups was completed by July 1.

### Recommendations

Because of the low number of sea lions which used Sugarloaf Island for a pupping and breeding ground in 1970, it is recommended that no permits be issued for harvesting on that island in 1971. The demand for sea lion pup pelts is low and can be easily met by harvesting on other rookeries. A survey will be made to determine the pup production for the rookery and to observe if there is any noticeable change in the general distribution of the animals on the island.

Submitted by: John S. Vania, Game Biologist IV



## SEA OTTER

### SURVEY-INVENTORY PROGRESS REPORT - 1970

#### Game Management Units 1-16 - Coastal Waters

##### Seasons and Bag Limits

Units 9 and 10 excluding  
the Near Island group and  
Pribilof Islands

The Commissioner may allow  
a controlled harvest by the  
Department or its authorized  
representative.

Units 1 through 8 and  
11 through 26

No open season

##### Harvest and Hunting Pressure

A total of 955 sea otters was harvested by Department personnel from the Aleutian Islands; 606 from Tanaga Island; 144 from the Delarof Island and 205 from Amchitka Island. In addition, 86 sea otters were removed from Amchitka Island and 46 from Montague Island and Green Island during transplant activities.

##### Composition and Productivity

The Amchitka and Delarof Island populations may be higher than previously estimated although both are probably being regulated by food availability. The Tanaga Island population may be declining because of overpopulation. The Sanak Island and Sandman Reef population has expanded onto the Alaska Peninsula and populated the area from the Pavlof Islands to Unimak Island. The northern Shumagin Islands have been repopulated from the south but few have reached the Alaska Peninsula in that area. The Sutwik Island-Kujulik Bay population has expanded considerably in both directions and now stretches from Castle Cape to Paule Bay with high concentrations from Chignik Bay to Ambler Bay.

The populations of the Barren Islands, Shuyak Island and Afognak Island have not changed greatly, but most of the outer coast of the Kenai Peninsula is now sparsely populated possibly by animals from the Barren Islands. Sea otters are expanding their range in Prince William Sound and now are found in substantial numbers in the Knight Island and Port Gravina areas. Large numbers are still found around Hinchinbrook Island and Montague Island and scattered animals are found throughout the Sound.

Scattered otters are now found in Yakutat Bay and in areas outside the Bay. A concentration of transplanted sea otters has been found at Yakobi Island and regular reports of sightings come from the entire west coast of Chickagof Island.

### Management Summary and Conclusions

The removal of animals through harvests and transplants has produced no effects on any population that can be detected by present survey methods.

Material collected during the 1970 harvest has provided information on the reproductive cycle and on the distribution of sex and age classes which will prove useful in controlling the harvest and capture of sea otters in the future. It should also provide information with which we can compare populations; however, analysis will not be complete until next year.

### Recommendations

The removal of sea otters from populations through harvest, transplants or collections should be continued to provide information on the effects of harvesting on sea otter populations. The islands from Kiska to Kagalaska all have harvestable populations. Amchitka Island provides the best opportunity for such studies. Populations in all other parts of the state are either increasing in density or expanding into unpopulated areas. Large scale removal of animals from these areas would hinder the recovery of sea otter populations from the low levels of the early 1900's.

The Prince William Sound population is expected to provide more opportunity for public viewing as the area's recreational potential is developed and as more otters move onto the Kenai Peninsula from the Sound. This population also provides a potential source of transplant stock. The proposed oil pipeline and potential development of the immediate area may pose a threat to the population. More intensive studies should be directed toward this area to recognize and minimize the effects of this development.

Submitted by: Karl Schneider, Game Biologist III

## HARBOR SEAL

### SURVEY-INVENTORY PROGRESS REPORT - 1970

#### Game Management Units 1-16 - Coastal Waters

##### Seasons and Bag Limits

Units 1 through 7 and 9 through 16	June 20 - July 31 Oct. 15 - April 30	) No limit, provided that ) seals may not be taken ) from Tugidak Island or ) from within the area
Unit 8	June 20 - July 31 Oct. 15 - June 30	) from Cape Menshikof to ) Cape Leontovitch prior ) to June 20.

##### Harvest and Hunting Pressure

During the 1970 hunting seasons, 7009 seal pups were known to have been harvested by commercial hunters on the Alaska Peninsula, and around Kodiak Island and Prince William Sound. Major hunting areas with corresponding kill figures are as follows: Tugidak Island, 1160; Kodiak Island area, 1858; Port Heiden, 804; Port Moller, 858; Resurrection Bay area, 1150; and Yakutat, 589. A random check of hunters in several southeastern towns and villages indicated an estimated kill of 740 seals. Ketchikan had the highest kill of 240 seals and Sitka followed with 150. An additional 467 seals were killed in incidental hunting. Tugidak Island and Game Management Unit 8 were closed to hunting by emergency regulation on July 10 and July 13, respectively, when it was determined that the pup harvest had exceeded 50 percent of the estimated total pup production for the islands.

##### Composition and Productivity

Surveys made in June and July, 1970, indicated a seal population that fluctuated between 2000 and 7000 animals at Port Heiden, and between 2000 and 3000 at Port Moller. At Tugidak Island, ten aerial surveys were flown. The seal population ranged between 2000 and 6000 animals.

##### Management Summary and Conclusions

Pup/adult ratios and harvest information indicate that seal populations in the aforementioned areas are not being overharvested. Harvest operations at Tugidak Island and Ugak Island will be closely monitored during the 1971 hunting season.

The use of nets for taking marine mammals became illegal throughout Game Management Units 1 through 16 as of July 1, 1970. This did not significantly influence the pup harvest at Port Moller, where netting has been the primary method of obtaining seal pups. The pup harvest was affected more this year by the lack of buyers for hides than by any other factor.

#### Recommendations

It is recommended that current seasons and bag limits remain unchanged provided that the annual pup harvest does not exceed one-half of the pup production.

Submitted by: Carl A. Divinyi, Game Biologist II

## BISON

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 11 - Wrangell Mountains-Chitina River

#### Season and Bag Limits

By Commissioner's announcement.

#### Harvest and Hunting Pressure

Copper River Herd. The 1970-71 registration hunt was held October 12, 1970. Ninety-six hunters registered to hunt for the 15 bison allowed. Fourteen bison were taken the first day and the season was terminated at midnight to prevent further harvest. Harvest data since 1964 are shown in Appendix I.

Blood samples were collected from eight of the harvested animals and jaws were collected from 12. Analysis of the blood samples showed no Brucella reactors. Age data for bison harvested during the past three years' hunts are shown in Appendix II.

Chitina River Herd. No hunting allowed.

#### Composition and Productivity

Copper River Herd. The 1970 aerial survey was conducted in July when the animals were concentrated on the Dadina and Chetaslina Rivers. One hundred and nineteen bison were counted of which 17.7 percent were calves of the year. That is the greatest number of bison that has been counted but the percentage of calves is slightly lower than in past years even though the total number of calves was the highest ever. Population data since 1950 are shown in Appendix III.

The parent herd of the Alaska bison, in the National Bison Range, Moiese, Montana possesses a genetic trait for albinism that occasionally expresses itself in Alaska's bison. There are apparently some lethal factors involved since no albinos appear to have survived to maturity in Alaska. (An albino calf was produced by the Copper River herd in 1970, and observed many times in early summer, but has not been seen since mid-September.)

The time of parturition in bison is normally early May. Calves are reddish-brown at birth but by early summer they have developed the dark coat of adult bison. During the 1970 survey in July, calves were of all sizes and colors, varying from very small and reddish-brown to large with adult colors. This indicated that the rutting period and subsequent parturition period in these bison herds (also see 1969 S & I Bison Report) may be changing due to some unknown circumstances.

Chitina River Herd. The Chitina River herd was surveyed August 4, in conjunction with sheep S & I surveys. Only 15 bison, including 2 calves of the year, were observed. At that time, it was still possible to identify the calf that was born late in the winter of 1969 (reported in the 1969 S & I Report). On August 17, Mike Stone, a local bush pilot observed 16 bison on the Chitina River,

including 2 calves of the year. There is one large bull that is frequently observed alone so he had apparently joined the group of 15 that I observed on August 4.

#### Management Summary and Recommendations

Copper River Herd. Hunter interest in this herd is adequate to allow for a harvest which will keep the herd at an estimated 125 animals. Limited access, ease of census, and excellent control over hunting makes this the most easily managed herd of game animals in Alaska and one on which we can effect complete management.

Chitina River Herd. Stable numbers, minimal production and survival which are probably the result of marginal range and competition with horses, characterize this herd. This is probably a good example to examine when transplants are proposed.

#### Recommendations

Copper River Herd. Examination of past years' hunter registration forms shows that several individuals annually participate and are successful each year. To allow a greater number of persons the opportunity to collect a bison trophy, a limit of one bison every five regulatory years is proposed.

Chitina River Herd. No recommendations at this time.

Submitted by: Loyal Johnson, Game Biologist III

# APPENDIX I

## Harvest by Sex and Number of Registrants, Copper River Bison - Unit 11

<u>Year</u>	<u>Males</u>	<u>HARVEST Females</u>	<u>Total</u>	<u>Number of Registrants</u>
1964	10	3	14 (1 unk.)	43
1965	9	2	11	42
1966		NO OPEN SEASON		
1967		NO OPEN SEASON		
1968	6	7	13	74
1969	7	9	16	74
1970	6	8	14	96

# APPENDIX II

## Ages of Bison Harvested From Copper River Herd - Unit 11 (Tooth cementum technique)

Age	1968		1969		1970	
	MM	FF	MM	FF	MM	FF
Unk	-	1	1	-	1	1
1	1	2	-	-	-	-
2	-	-	1	1	1	3
3	-	1	1	2	-	1
4	-	1	1	1	-	1
5	3	-	-	-	-	-
6	-	-	-	1	1	-
7	1	1	-	-	-	-
8	-	-	-	-	1	-
9	-	-	1	-	1	-
10	-	-	-	1	-	-
11	1	-	1	1	1	-
12		-	1	-		1
13		-		-		-
14		-		-		-
15		-		-		-
16		-		-		-
17		-		-		-
18		-		-		-
19		-		1		-
20		1 (tagged)		-		1
21				1 (tagged)		
<hr/>						
	6	7	7	9	6	8



# APPENDIX III

## Population Data on Copper River Bison Herd, Unit 11

Date	Total Bison Observed	Percent Calves	Hunting Kill	Data Source
1950	17	Transplanted to Nabesna Road near Slana		
3/61	29		No Season	Robert Rausch - ADF&G
7/62	74	21.0	No Season	Robert Rausch - ADF&G
1963	No data		No season	
7/64	97	17.5	14	Loren Croxton - ADF&G
7/65	84	22.6	11	William Griffin - ADF&G
8/66	79	11.3	No Season	William Griffin - ADF&G
8/67	51	27.5	No Season	William Griffin - ADF&G
7/68	102	18.6	13	Julius Reynolds - ADF&G
7/69	100	18.0	16	Loyal Johnson - ADF&G
7/70	119	17.7	14	Loyal Johnson - ADF&G

## BISON

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 19 - McGrath (Farewell Herd)

#### Seasons and Bag Limits

No Open Season

#### Harvest and Hunting Pressure

None

#### Composition and Productivity

On August 31, 1970, 61 bison were seen on the South Fork, Kuskokwim River, including 13 (21 percent) calves. A guide in the area reported seeing 73 total about the same time.

In December the main herd consisted of 30 to 35 animals. Singles and small groups were scattered along the South Fork. Bison were feeding on windblown low hillsides and around pond and lake margins in up to 2 feet of snow. In late winter most of the bison had moved to the Farewell Lake - Submarine Lake area and were feeding on sedges around ponds and lakes.

In late April 1971, 56 bison were seen including some 6 or 7 calves.

#### Management Summary and Recommendations

The Farewell Herd seems to be holding its own, and apparently did not suffer greatly from a winter of relatively deep snow. However, the available range appears severely limited. A permit hunt for 5 to 10 bison is recommended for 1972.

Submitted by: Richard H. Bishop, Game Biologist III

## BISON

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 20 - Fairbanks, Central Tanana-(Big Delta and Healy Lake Herds)

#### Seasons and Bag Limits

To be announced

One bison (a limited number of mature bison will be taken)

Permits will be issued upon determination that reproduction and survival will allow the removal without endangering the herd. Conditions governing the hunt will be issued by Commissioner's announcement.

#### Harvest and Hunting Pressure

The 1970 legal harvest of the Delta Bison Herd consisted of 20 mature animals (13 males and 7 females). These were harvested during the managed hunt conducted from September 21-27. The legal sport harvest has varied annually depending on reproduction and survival. Hunting and other mortality figures are not available, but are presently significant enough to stabilize herd numbers. Hunts were not conducted on the Healy Lake Herd.

#### Composition and Productivity

Parturition counts were conducted on the calving grounds of the Big Delta Herd on May 21 and June 9, 1970. These aerial surveys indicated 31 (16% calves) and 33 (19% calves), respectively. Calf percent had dropped from 1969 counts, when 49 new calves (24% of the herd) were observed. Total population figures for the Delta Herd are difficult to obtain; however, 200 bison were observed in the Clearwater area on November 24, 1970, suggesting herd numbers to be somewhere near 250 animals. Attempts to locate the Healy Lake Herd were unsuccessful.

#### Management Summary and Recommendations

Natural mortality, road kills and illegal harvest by residents appear to limit herd numbers to some 250 animals. Managed hunts should be continued to stabilize herd numbers based on calf production and survival.

Submitted by: Mel Buchholtz, Game Biologist II

## MOUNTAIN GOAT

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 4 - Admiralty, Baranof, Chichagof and adjacent islands

#### Seasons and Bag Limits

Unit 4 Chichagof Island	No open season	
Remainder of Unit 4	Aug. 1 - Jan. 31	Two goats

#### Harvest and Hunting Pressure

Most goats taken in Unit 4 are harvested by residents of Sitka. The amount of hunting pressure varies greatly depending on the weather. During a survey of Sitka hunters following the 1970 season (conducted primarily to obtain information on deer harvests and hunting pressure), interviews disclosed that six of 150 licensed hunters had hunted goats for a total of 21 days, and took two goats. By extension, 48 of Sitka's estimated 1,200 licensed hunters expended 168 days hunting goats and took 16 animals. The last figure agrees exactly with the tally of the harvest kept during the season from hunter contacts.

Of the 16 goats reported taken, two (12.5%) were not retrieved. Five animals were taken in the Blue Lake area, eight in the Katlian Bay drainages, two near Rosenberg Lake, and one in Red Bluff Bay. Of five animals whose sex was reported, three were females. One of the reported 16 goats was taken in August, three in September, five in October and the first day of November, four in November, and two were killed in December.

The reported harvest was far below the previous year's report of 40 animals taken, probably due to inclement weather conditions. The winter of 1969-70 was very open, with comparatively little snow; the winter of 1970-71, in contrast, was characterized by much bad weather, low temperatures, high winds, and much snow.

#### Composition and Productivity

Two aerial surveys of Baranof Island were made during the summer of 1970, one on July 25 and the second on August 26. The earlier count, partial and preliminary, resulted in a tally of 106 animals. Of these, 25 were kids, giving a kid-adult ratio of 31:100. Group sizes during this first count ranged from one to 12, and averaged 4.42.

The second survey, much more complete on the northern part of Baranof Island but which did not include south Baranof, resulted in a count of 154 goats, of which only 15 were positively identified as kids. The earlier count is regarded as more accurate for the purposes of estimating productivity, while the later count provided much more reliable information on distribution.

These counts indicated that the drainages into Katlian Bay contain more goats than any other area on Baranof. Observations by a reliable observer who flew over the Red Bluff Bay area on August 25 indicate that the latter area supports approximately 30-40 goats. The distribution of 154 goats counted on August 26 is given in Appendix I.

Given optimum conditions, I estimate that thorough counts on Baranof would disclose some 250 to 275 goats.

Attempts to find goats on Chichagof Island on August 26 were unproductive, but turbulence prevented extensive coverage and the possibility that goats exist there, as is occasionally reported, cannot be disclosed.

#### Management Summary and Recommendations

Goat populations on Baranof Island are sufficiently large to support the present magnitude of harvest. No changes in seasons or bag limits are recommended. Baranof Island is an excellent area to study differences between exploited and unexploited goat populations. The largest concentration is in the Katlian area - the most heavily hunted area on Baranof.

Counts during the report period revealed a previously unobserved concentration of animals in the Red Bluff Bay area, which is virtually unhunted; if these animals remain there, comparative studies of the Katlian and Red Bluff areas could provide much useful information. It is recommended that an analysis be made of the feasibility and desirability of conducting such a study.

Submitted by: Alan Courtright, Game Biologist III

# APPENDIX I

Goat counts, N. Baranof Island (Blue Lake and north), August 26, 1970.

Drainage	Adults	Kids	Total
Katlina Bay*	64	6	70
Nakwasina Sound	27	5	32
Rodman Creek	6	1	7
Middle Arm Kelp Bay	7	1	8
S. Arm Kelp Bay	17	2	19
Cosmos Cove-Takatz Bay	6	0	6
Blue Lake	12	0	12
TOTAL	139	15	154

\*Cold Storage Lake and slopes on back side thereof not checked.

## MOUNTAIN GOAT

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 6 - Prince William Sound

#### Seasons and Bag Limits

Aug. 1 - Jan. 31

Two goats

#### Harvest and Hunting Pressure

The actual harvest and hunting pressure exerted in Unit 6 during 1970 are unknown. A crude indication was obtained from interviewing 100 Cordova hunters and multiplying their kill by six (approximately 600 licensed hunters in Cordova). Based upon these hunter interviews, approximately 42 goats were taken in 1970, an unknown number in 1969, 42 in 1968 and 114 in 1967. Results from the 1969 hunter questionnaire indicate a harvest for 1969 of 37 goats in Unit 6, 23 males and 14 females. The chronology of the 1969 harvest indicated little hunting pressure in the latter part of the season: August - 5, September - 14, October - 9, November - 2, December - 6 and January - 1. Five of the reporting hunters indicated that they had bagged two goats each.

#### Composition and Productivity

An aerial survey was flown over the Suckling Hills August 26, 1970. Survey conditions were good and 83 mountain goats were observed: 25 young and 58 adults. The high ratio of 43 kids per 100 adults possibly indicates a population that is hunted hard with the result that reproduction has been stimulated.

#### Management Summary and Conclusions

Basically the goat population in Unit 6 is an untouched resource. The Suckling Hills and the Chugach Mountains along the Copper River Highway are the only two areas that receive appreciable hunting pressure. Judging from the estimated harvest and prior survey data (Appendix I), hunting under the present regulations is not adversely affecting Unit 6 goats.

#### Recommendations

No change in the present regulation is recommended.

Submitted by: Julius L. Reynolds, Game Biologist III

# APPENDIX I

## Mountain Goat Composition Data, Game Management Unit 6.

Survey Area	Date	Young	Adults	Total	Kids per 100 Adults
Rude River- Copper River	9/16/69	67	240	307	27.9
Ragged Mts.	9/17/69	28	131	159	21.4
Suckling Hills	8/26/70	25	58	83	43.1



## MOUNTAIN GOAT

### SURVEY-INVENTORY PROGRESS REPORT - 1970

#### Game Management Unit 7 - Seward

##### Seasons and Bag Limits

Unit 7; that portion draining into salt water south and east of Fourth of July Creek	Aug. 10 - Dec. 31	Two goats
Remainder of Unit 7	Aug. 10 - Nov. 15	One goat

##### Harvest and Hunting Pressure

Harvest questionnaire returns from 1969 indicate a minimum harvest of 78 goats of which 52 were male, 24 were female, and two were of unknown sex. Since this is the first year of the harvest questionnaire, comparative data are not available.

##### Composition and Productivity

Sex and age composition counts have been conducted on two selected trend count areas since 1968 (Appendix I). A third area was added in 1970. Data from the combined areas indicate a downward trend in production and an upward trend in population size, indicating that hunting is not affecting these herds.

Survey data for Cooper Mountain since 1963 indicate a rather sharply declining trend (Appendix II) in numbers and production. Survey counts made in 1969 were conducted under poor counting conditions and probably do not reflect a true image of the total Cooper Mountain goat population. Attempts to make goat surveys of Cooper Mountain and two other areas in 1970 were thwarted by bad weather.

##### Management Summary and Conclusions

Goat numbers on Cooper Mountain appear to be declining rapidly. Since this area is also heavily hunted for sheep, it is believed that a significant number of goats is taken incidental to sheep hunting. This same condition may exist in the Gilpatrick Mountain area. The remainder of the unit appears to have a healthy goat population which is apparently unaffected by hunting; this is indicated by a low harvest, a declining production trend and a rising population trend.

### Recommendations

It is recommended that the area west of the Hope Road and Seward Highway from Hope to Ptarmigan Creek north of a line from the mouth of Ptarmigan Creek to Porcupine Island in Kenai Lake and a line from Porcupine Island to the south end of Upper Russian Lake and east of the National Forest boundary be opened on September 21 instead of August 10 to reduce the harvest of goats taken incidental to sheep and bear hunting.

No other changes are recommended.

Submitted by: Paul A. LeRoux, Game Biologist III

# APPENDIX I

Sex and Age Ratios, Unit 7, 1968-70.

Year	Trend Area 1		Trend Area 2		Trend Area 3		Combined Trend Areas 1, 2 & 3	
	Kids/ 100 Ad.	Total Animals	Kids/ 100 Ad.	Total Animals	Kids/ 100 Ad.	Total Animals	Kids/ 100 Ad.	Total Sample
1968	35.2	207	22.4	60	38.2	170	34.5	437
1969	28.5	144	37.8	102	*	*	32.3	246
1970	27.0	155	23.5	105	32.3	217	28.5	476

\* No survey conducted.

## APPENDIX II

### Goat Sex and Age Ratios, Cooper Mountain, Unit 7.

Year	Kids/100 Ad.	Total Animals
1963	34.7	66
1964	30.0	39
1968	16.7	21
1969	0	7

## MOUNTAIN GOAT

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 8 - Kodiak and Adjacent Islands

#### Seasons and Bag Limits

Sept. 1 - Sept. 30

15 permits

#### Harvest and Hunting Pressure

The 1970 goat harvest consisted of 6 females, all taken from the Crown Mountain area.

Eight of the 15 permit holders did not hunt.

#### Composition and Productivity

Eighty-one goats were observed during the 1970 aerial census. Twenty of these animals were kids; this is the largest number of young seen on the Island since goats were introduced in 1952-53. Count conditions were poor, with considerable snow cover making the animals difficult to see; it is conceivable that as many as 20 animals were missed.

#### Management Summary and Conclusions

Although kid production appeared high, the lowered number of large animals in the census indicated either that the census data were incomplete, or considerable natural mortality occurred during the year. From 1956 until now, goats were recorded only as being either "adult" or "kid". It is obvious that future observations should include a "subadult" (yearling) category. This information would give an indication as to whether variance in the trend count was caused by natural mortality in a particular age segment of the population, or was due to inadequate trend counts.

#### Recommendations

Fifty-three percent of the 1970 permit holders did not hunt, thus the desired harvest level was not achieved. Therefore it is recommended that the regulations be amended to permit the taking of up to 15 goats by permit. It is also recommended that the season be extended to a two-month period, from September 1 through October 31.

Submitted by: Jack Alexander, Game Biologist II

## MOUNTAIN GOAT

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 11 - Wrangell Mountains-Chitina River

#### Season and Bag Limit

Aug. 10 - Dec. 31

Two Goats

#### Harvest and Hunting Pressure

Hunter reports for the 1969-70 regulatory year indicate that 12 male and 6 female goats were harvested from Unit 11. Twelve of these animals were taken during September. Only one hunter reported taking the legal limit of two goats. There are no data available on hunting pressure but it is known to be light in relation to the suspected size of the goat population and size of the area.

Harvest data are not available for the 1970-71 regulatory year.

#### Composition and Productivity

No surveys have been made to specifically enumerate goats. However, on sheep surveys conducted during August, 1970, all goats seen were recorded. These observations are shown in Appendix I. As it was not always possible to classify these goats as to sex and age, the only significance of these observations is to note the formerly unrecorded distribution of goats in the eastern Wrangell Mountains.

#### Management Summary and Conclusions

The hunter kill is known to be low. Goats are a renewable resource that could withstand a much higher degree of utilization, but there is just not sufficient hunter interest at this time to achieve additional utilization in spite of the liberal seasons and bag limits.

#### Recommendations

No changes recommended.

Submitted by: Loyal J. Johnson, Game Biologist III

# APPENDIX I

Goat Observations, Unit 11 - Wrangell Mountains-Chitina River. 1970.

Area	Adults	Goats Kids	Total
Canyon Creek-Bernard Glacier	20	8	28
Bernard Glacier-Anderson Glacier	3	-	3
MacCall Ridge	-	-	-
Chitina River	1	-	1
West Fork Glacier	-	-	50
			110

MOUNTAIN GOAT  
SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 13 - Nelchina Basin

Season and Bag Limits

Aug. 10 - Dec. 31

Two goats

Harvest and Hunting Pressure

The reported harvest for the 1969-70 regulatory year was 12 male and 5 female goats. Eleven of these were taken during September. No hunter took more than one goat. The degree of hunting pressure is not known.

Harvest data are not available for the 1970-71 regulatory year.

Composition and Productivity

No new data available.

Management Summary and Conclusions

The hunter kill is known to be very low. Goats could stand a much higher degree of utilization but hunter interest is not sufficient to produce additional utilization.

As time and monies permit, surveys should be initiated to inventory goat ranges in the Talkeetna Mountains. The presence of these populations has been known for some time but no attempts have been made to inventory them.

Recommendations

No changes recommended.

Submitted by: Loyal J. Johnson, Game Biologist III



## MOUNTAIN GOAT

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 15 - Kenai Peninsula

#### Seasons and Bag Limits

Aug. 10 - Dec. 31

Two goats

#### Harvest and Hunting Pressure

Harvest questionnaire returns from 1969 indicate a minimum harvest of 39 goats of which 31 were male and 8 were female. Six hunters took the full bag limit of two goats. This is the first year of the harvest questionnaire and no data for comparison are available.

#### Composition and Productivity

No data collected during 1970.

#### Management Summary and Conclusions

Since harvest and composition data are not available for comparison, trends cannot be established. A count conducted in 1968 located a minimum of 507 goats; 117 of these were kids, for a ratio of 30 kids per 100 adults. Therefore it is considered doubtful that hunting can be influencing this population (considering the harvest of only 39 goats in 1969). With access very limited in this unit, goat herds in the vicinity of access points should be closely watched.

#### Recommendations

No change in seasons or bag limits is recommended.

Submitted by: Paul A. LeRoux, Game Biologist III

## WOLF

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 11 - Wrangell Mountains-Chitina River

#### Seasons and Bag Limits

No closed season

No limit

#### Harvest and Hunting Pressure

There is currently no method by which harvest or hunting pressure can be measured except for those persons who indicate their kill upon submission of their aerial permits.

The number of aerial permits issued is not known. Ten wolves, five male and five female were reported taken by aerial shooting.

#### Composition and Productivity

Meaningful data are not available.

#### Management Summary and Conclusions

Without adequate data, valid conclusions cannot be drawn regarding the wolves in Unit 11, except to say, wolves are present and some are taken.

#### Recommendations

It is recommended that wolves be afforded the same protection from unlimited hunting that any animal deserves. It is recommended that there be a limit of 2 wolves per year imposed and that there be a closed season from May 1-August 31.

Submitted by: Loyal Johnson, Game Biologist III

## WOLF

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 13 - Nelchina Basin

#### Seasons and Bag Limits

September 1 - April 30; except no closed season south of the Glenn Highway	No limit
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#### Harvest and Hunting Pressure

According to preliminary data obtained from a portion of the aerial wolf permit reports the 1970 reported harvest was 40 wolves by 166 aerial permit holders. Aerial shooting and trapping account for the majority of the wolf kill. Harvest data, where known since 1966 are shown in Appendix I.

#### Composition and Productivity

Meaningful data are not available. Rausch (1967) reports that pack size is an accurate indicator of wolf abundance. While doing other game surveys in 1970, a number of wolf observations were made: the average size of those packs seen was 9.2. The largest pack observed was 23, which was observed on two separate occasions. While doing 1970 moose sex and age composition surveys, 72 wolves were observed. Dates of observations, color combinations and locations of observations indicated that about 52 different wolves were seen. However, upon completion of the moose survey one of the charter pilots killed or trapped over 40 wolves, mostly from Unit 13. As reported by that pilot, 44 percent of the kills were pups of the year.

#### Management Summary and Conclusions

From the numbers of wolves observed and pack sizes, it appears that wolves are once again relatively abundant in Unit 13. This apparent increased abundance has been noticed by several wolf hunters who, in view of the very high price attainable for a wolf pelt (\$150.00 or more), have been hunting them persistently. Partly as a result of these pressures a policy was adopted effective January 1, 1971, which limited hunters with aerial permits to two wolves per Unit for Region II with an overall statewide limit of 10 wolves. An examination of the aerial shooting permits shows that most of the harvest is taken by a few dedicated wolf hunters.

#### Recommendations

It is recommended that a restrictive hunting limit of 2 wolves per year statewide, regardless of the Unit taken, be imposed. It is also recommended that a mandatory sealing program be initiated to give more precise data on the annual harvest and sex and age composition. No restrictions need be imposed on trapping at this time. At the present time, recreational and professional trapping does not appear to exert significant pressures on the wolf population in this unit, but at the same time allows for utilization, which hopefully will pacify those persons who advocate control.

# Literature Cited

Rausch, R. A. 1967. Some Aspects of the Population Ecology of Wolves in Alaska. Am. Zool. VII (2): 253-265.

## APPENDIX I

Wolf Harvest Data From Bounty, Aerial Permits, and Fur Export Permits, Unit 13

Fiscal Year	Male	Female	Unk.	Total	Aerial Permits Issued	Aerial Shooting Kill
1966**	43	20	1	64	Not allowed	
1967	20	11	-	31		
1968	67	52	1	120	107	70
1969	-	-	13	13**	88***	13
1970****	15	25	0	40*****	166***	Unk.

\* First year for open hunting season since 1952.

\*\* No bounty, no sealing required, aerial permittees only.

\*\*\* Incomplete

\*\*\*\* November 1969 - April 1970

\*\*\*\*\* Aerial permittees only and incomplete.

Submitted by: Loyal J. Johnson, Game Biologist III

## WOLF

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 20 - Fairbanks, Central Tanana

#### Seasons and Bag Limits

Hunting Season - Sept. 1 - April 30

Trapping Season - Oct. 1 - April 30

No limit, except under terms  
of aerial permits issued by  
the Department

#### Harvest and Hunting Pressure

Reliable harvest data are no longer available since the bounty system was abolished. Aerial wolf permit returns and fur export reports provide an index to the harvest; only the former can be reliably reported here. Wolves taken by aerial shooting from November, 1969 - April, 1970 numbered 40 (16 males and 24 females) in Unit 20. This compares to 26 wolves taken by aircraft in 1968-69 (through July 18), and 48 wolves were taken by aircraft in 1967-68. No figures are available on wolves shot from the ground; however, it can be assumed that these are taken incidental to other hunting and the take is small. The take from trapping is not known at this time.

#### Composition and Productivity

No data are available from Unit 20 since the termination of the wolf research project. Wolf observation forms furnished by Department personnel provide some insight into wolf distribution and numbers. Reliable observations from Unit 20 date back to November 8, 1969, and indicate sightings of 9 separate packs of wolves, ranging in size from 2-15. Total numbers of wolves seen on these observations constitute some 45 animals. Obviously, some duplication exists among different observers in the same area; however, considering the difficulty of observing wolves in much of the forested area of Unit 20, it can be assumed that wolves have managed to survive intensive trapping and aerial hunting in most of Unit 20.

#### Management Summary and Recommendations

In the absence of reliable data, it is difficult to evaluate the status of wolves in Unit 20. Aerial hunting should be closely regulated to further the sustained yield principle.

Submitted by: Mel Buchholtz, Game Biologist II

## WOLF

### SURVEY-INVENTORY PROGRESS REPORT - 1970

#### Game Management Unit 22 - Seward Peninsula

##### Seasons and Bag Limits

Hunting - September 2 - April 30	No Limit
Trapping - October 1 - April 30	No Limit

##### Harvest and Hunting Pressure

There is no sealing program required for wolves. Wolves in this unit are relatively scarce as the Seward Peninsula has been used primarily for a reindeer industry since the turn of the century. Predator control has been in effect since the introduction of reindeer. Currently there is a predator control agent in Kotzebue who restricts his activities to the reindeer ranges. Wolves are uncommon throughout most of this unit except in that portion around Unalakleet. There were no wolves taken on aerial permits.

##### Composition and Productivity

Aerial surveys have revealed only one wolf to date in the western portion of the Unit.

##### Management Summary and Recommendations

Wolf numbers are reduced on the Seward Peninsula and will remain so as long as there is a reindeer industry on the Peninsula. It is recommended that the trapping season and bag limit remain unchanged.

Submitted by: Robert E. Pegau, Game Biologist II

## WOLF

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 23 - Kotzebue Sound

#### Seasons and Bag Limits

Hunting - September 1 - April 30	No Limit
Trapping - October 1 - April 30	No Limit

#### Harvest and Hunting Pressure

Most of the harvest of wolves in this Unit is taken by persons with permits to take wolves from aircraft and by predator control agents. Trapping by local villages accounts for a few and the one serious bounty hunter has taken only a minimal number of wolves this year. The reported take of wolves by the use of aircraft in Unit 23 was 27 males and 15 females. About 12 wolves were taken by the predator control agent.

#### Composition and Productivity

Wolf distribution in this unit seems to be related to the movements of the Arctic caribou herd. As much of this unit is the principal winter range of the Arctic caribou herd, wolves become more prevalent during the fall migration and winter time.

#### Management Summary and Recommendations

An auction of seven wolf hides taken by the predator control agent in Kotzebue brought bids ranging from \$42.32 to \$120 for an average of \$86.90 per raw wolf pelt.

The wolves in this Unit are a valuable resource and are eagerly sought after by trophy hunters, primarily nonresident polar bear hunters. It is recommended that the hunting and trapping season remain the same.

Submitted by: Robert E. Pegau, Game Biologist II

## WOLVERINE

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 22 - Seward Peninsula

#### Seasons and Bag Limits

Hunting - September 1 - March 31  
Trapping - November 1 - April 15

One Wolverine  
No Limit

#### Harvest and Hunting Pressure

There are no sealing programs currently for wolverine. Therefore, an accurate estimate of the harvest cannot be obtained. From contacts with several different villages, it appears that the harvest of wolverine in Unit 22 has been low this year.

#### Composition and Productivity

Through contact with hunters in the various villages and during aerial surveys, it has been apparent that wolverine in this unit are not abundant. It appears that tracks are less numerous than in prior years, especially within the vicinity of villages.

#### Management Summary and Recommendations

The harvest of wolverine is light in this unit and it appears that the total number of wolverine is also rather small. With the increase of mobility of hunters with snowmachines, it is quite common for hunters to go out and track down a wolverine with the aid of a snowmachine. If they can get on a group of fresh tracks they can usually be assured of a successful hunt. This increased mobility is placing a heavy hunting pressure on a species of limited numbers. Therefore, it is recommended that the trapping bag limit be reduced to two wolverine and the hunting bag limit remain at one wolverine.

Submitted by: Robert E. Pegau, Game Biologist II



## WOLVERINE

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 23 - Kotzebue Sound

#### Seasons and Bag Limits

Hunting - September 1 - March 31	1 Wolverine
Trapping - November 1 - April 15	No Limit

#### Harvest and Hunting Pressure

There are no sealing programs required for wolverine, and an accurate estimate of the harvest cannot be obtained. Periodic visits to villages in this unit indicate that the wolverine harvest is above normal in several of the villages. This seems to be related with the snow conditions which have allowed the use of snowmachines extensively this winter.

#### Composition and Productivity

Aerial surveys indicate that wolverine tracks do not appear to be more numerous than previous years. Tracks are noticeably less abundant within 20 to 30 miles of villages as compared to several of the more remote areas in this unit.

#### Management Summary and Recommendations

The harvest of wolverine has been heavy in some villages in this unit due to the increased mobility of the hunters. There does not appear to be a corresponding increase in total numbers of wolverine. There are some areas in this unit in which hunting by snowmachine would be very difficult and possibly, these areas will always contain normal amounts of wolverine. However, due to the increased hunting pressure, it is recommended that the trapping season have a bag limit of two wolverine and the hunting bag limit remain at one wolverine.

Submitted by: Robert E. Pegau, Game Biologist II

## BLACK BEAR

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 6 - Prince William Sound

#### Seasons and Bag Limits

September 1-June 30

One bear; provided that the taking of cubs or females accompanied by cubs is prohibited.

#### Harvest and Hunting Pressure

The actual harvest and hunting pressure exerted in Unit 6 are unknown. The results of the first Harvest Questionnaire on black bear are believed to be incomplete. The questionnaire indicated a Unit 6 harvest for 1969-70 of only 45 bear: 40 males, 4 females and 1 unknown. Only 5 persons reported hunting in the Unit unsuccessfully. The chronology of this harvest was 3 in September and 3 in October of 1969, 33 in May and 6 in June of 1970. Thus 73 percent of the recorded harvest occurred in May.

#### Composition and Productivity

A black bear survey was flown May 26, 1970 from the Copper River to Port Fidalgo. General survey conditions were good and 31 bears were observed. Composition of the bears surveyed was 8 single adults, one sow with 2 small cubs, four sows with 2 large cubs and two sows with three large cubs. Based upon this survey and other incidental observations throughout 1970, reproduction appeared good and black bears appeared to be abundant from Cordova to Icy Bay.

The general status of black bears in Prince William Sound was not determined.

#### Management Summary and Conclusions

Lack of harvest and general abundance data on black bear in Prince William Sound makes it impossible to determine their status.

General abundance of black bear south of Cordova indicates the present regulations are not adversely affecting the population.

#### Recommendations

No recommendations can be made at this time.

Submitted by: Julius L. Reynolds, Game Biologist III

## BLACK BEAR

### SURVEY-INVENTORY PROGRESS REPORT 1970

Game Management Unit 7 - Seward

#### Seasons and Bag Limits

August 10 - June 30

Three bears; provided that not more than one may be a blue or glacier bear and that the taking of cubs or females accompanied by cubs of the blue color phase is prohibited.

#### Harvest and Hunting Pressure

Harvest questionnaire returns from 1969 indicate that 32 black bears were harvested in Unit 7. Of these, 17 were boars, 13 were sows and 2 were of unknown sex. No hunter reported taking more than one bear. Due to poor public response in answering the multi-species questionnaire it is believed that the reported harvest is minimal.

#### Composition and Productivity

Black bear composition and productivity surveys are not conducted as such in this Unit. Records are kept of black bears observed incidental to other work. During 1970 seventy-three black bear were observed incidental to other survey work. Of these, there were 6 sows with 1 cub; 4 sows with 2 cubs, and 5 sows with 3 cubs.

#### Management Summary and Conclusions

Harvest questionnaire returns indicate a very light harvest of 32 black bear in Unit 7 during the 1969-70 season. Although there is no information available by which to judge normal black bear reproduction in Alaska, the limited observations made suggest very high production in this Unit.

#### Recommendations

No changes are recommended.

Submitted by: Paul A. LeRoux, Game Biologist III

## BLACK BEAR

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 11 - Wrangell Mountains-Chitina River

#### Seasons and Bag Limits

No closed season

3 bears, provided that not more than one may be a blue or glacier bear and that the taking of cubs or females accompanied by cubs of the blue color phase is prohibited.

#### Harvest and Hunting Pressure

Analysis of harvest reports for the 1969-70 regulatory year showed that 8 black bears, all males, were harvested in Unit 11. Six of these were killed during August and September, presumably by sheep and moose hunters. No persons reported as hunting unsuccessfully in the Unit.

#### Composition and Productivity

Bears are present throughout the timbered and sub-alpine portions of the Unit though data other than casual observations are lacking. One casual observation worthy of note is the rather high incidence of the brown or cinnamon color phase in this region.

#### Management Summary and Conclusions

Most black bears and their various color phases are taken incidentally to other hunting activities in this Unit. The effect of hunting or other depredation on black bear populations, even near human population centers, is certainly minimal.

#### Recommendations

To create a more favorable or sporting appreciation of the black bear as a trophy animal, we might soon consider closure on all sows accompanied by cubs and perhaps closure during summer months when hides are of little trophy value. These recommendations are based on aesthetic rather than biological considerations.

Submitted by: Loyal J. Johnson, Game Biologist III

## BLACK BEAR

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 12 - Upper Tanana-White River

#### Seasons and Bag Limits

No closed season

3 Bears; provided that not more than one may be a blue or glacier bear and that the taking of cubs or females accompanied by cubs of the blue color phase is prohibited.

#### Harvest and Hunting Pressure

Harvest data for 1970 are not yet available. No prior data are available. The black bear is a popular game animal in the Interior, particularly with military and non-resident hunters. It is anticipated that the popularity and demand for this animal will increase in the future.

#### Population and Productivity

There was a high bear population throughout interior Alaska during 1970, presumably because of good cub survival during the past several years. Black bear populations are regulated by natural factors (food, winter denning conditions, etc.), and it appears that hunting has little or no effect on Interior black bear populations.

#### Management Summary and Recommendations

There is little we can do at present to manipulate black bear populations. Therefore no changes in seasons or bag limits are recommended.

Submitted by: Larry Jennings, Game Biologist III

## BLACK BEAR

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 13 - Nelchina Basin

#### Seasons and Bag Limits

No closed season

3 bears, provided that not more than one may be blue or glacier bear and that the taking of cubs or females accompanied by cubs of the blue color phase is prohibited.

#### Harvest and Hunting Pressure

Analysis of harvest reports for the 1969-70 regulatory year showed that 41 black bears (31 males, 10 females) were harvested in Unit 13. Twenty-eight of these were killed during August and September presumably by sheep and moose hunters. Sixteen persons reported as hunting unsuccessfully in the unit.

#### Composition and Productivity

Bears are present throughout the timbered and sub-alpine portions of the Unit though data other than casual observations are lacking. One casual observation worthy of note is the rather high incidence of the brown or cinnamon color phase in this region.

#### Management Summary and Conclusions

Most black bears and their various color phases are taken incidentally to other hunting activities in this Unit. The effect of hunting or other depredation on black bear populations, even near human population centers, is certainly minimal.

#### Recommendations

To create a more favorable or sporting appreciation of the black bear as a trophy animal, we might soon consider closure on all sows accompanied by cubs and perhaps closure during summer months when hides are of little trophy value. These recommendations are based on aesthetic rather than biological considerations.

Submitted by: Loyal J. Johnson, Game Biologist III

## BLACK BEAR

### SURVEY-INVENTORY PROGRESS REPORT - 1970

#### Game Management Unit 15 - Kenai Peninsula

##### Seasons and Bag Limits

Aug. 10 - June 30

Three bears; provided that not more than one may be a blue or glacier bear and that the taking of cubs or females accompanied by cubs of the blue color phase is prohibited.

##### Harvest and Hunting Pressure

Harvest questionnaire returns from 1969 indicate that 50 black bears were harvested in Unit 15. Of these, 33 were boars, 15 were sows and two were of unknown sex. Five hunters reported harvesting two bears during 1970 and none reported taking the full bag limit of three. Due to poor public response in answering the multi-species questionnaire it is believed that this reported harvest is minimal.

##### Composition and Productivity

Black bear composition and productivity surveys are not conducted as such in this unit. However, records are kept of black bears observed incidental to other work. During 1970, thirty black bears were observed incidental to other surveys. Of these, there were three sows with one cub, one sow with two cubs and one sow with three cubs.

##### Management Summary and Conclusions

Harvest questionnaire returns indicate that 50 black bears were harvested in Unit 15 during the 1969-70 season. Considering the abundance of black bears and the size of the unit, the black bear population is probably completely unaffected by a harvest of this magnitude. Adequate interpretation of these data is not possible at this time, however, since data for comparison are not available.

##### Recommendations

No changes are recommended.

Submitted by: Paul A. LeRoux, Game Biologist III

## BLACK BEAR

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 19 - McGrath

#### Seasons and Bag Limits

No Closed Season

3 Bears

#### Harvest and Hunting Pressure

Hunting pressure is generally light throughout the Unit. Utilization is influenced by variations in bear abundance and distribution and in cultural patterns.

The harvest is unknown.

#### Composition and Productivity

Surveys to assess these parameters have not been done. In Unit 19, the number of bears seemed greater in 1970 compared to 1969, based on general observation.

#### Management Summary and Recommendations

No changes in seasons or bag limits are recommended.

Submitted by: Richard H. Bishop, Game Biologist III



## BLACK BEAR

### SURVEY-INVENTORY PROGRESS REPORT - 1970

Game Management Unit 20 - Fairbanks, Central Tanana

#### Seasons and Bag Limits

No closed season

3 bears; provided that not more than one may be a blue or glacier bear, and that the taking of cubs or females accompanied by cubs of the blue color is prohibited

#### Harvest and Hunting Pressure

No data are available on the legal sport harvest of black bears. Personal observations by Department employees as well as a high incidence of nuisance complaints by residents indicate a large black bear population inhabiting most of the Interior. Although bears are usually taken through a chance encounter, or incidental to other hunting, the high numbers of bears undoubtedly resulted in a large harvest, as indicated by the number of hides received for tanning and mounting by a local taxidermist. In 1970, 147 black bears were processed, the highest total for the past 6 years, which ranged from 79 in 1965 to 120 in 1968 and 1969. These figures may reflect the increased harvest statewide, rather than just interior Alaska.

#### Composition and Productivity

No data are available; however, the number of small bears shot and reports of depredations by sows with cubs indicate a growing population of bears in central Unit 20. The severe winter of 1970-71 may result in a decrease in bear numbers the following spring.

#### Management Summary and Recommendations

The trophy and sport values of spring black bear hunting should be encouraged, along with proper garbage disposal near residential areas. Hopefully, the incidence of bears shot in defense of life and property will be reduced. No changes in seasons and bag limits are recommended.

Submitted by: Mel Buchholtz, Game Biologist II