ALASKA DEPARTMENT OF FISH AND GAME
JUNEAU, ALASKA

STATE OF ALASKA
Keith H. Miller, Governor

DEPARTMENT OF FISH AND GAME
Wallace H. Noerenberg, Commissioner

DIVISION OF GAME
James A. Harper, Director

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

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Volume I
Federal Aid in Wildlife Restoration
Project W-17-2, Jobs No. 3, 4, 6, 7, 8, 9, 12, 14, and 17

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MEMORANDUM OF TRANSMITTAL

July 8, 1970

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

FROM: James A. Harper, Director
Division of Game
Alaska Department of Fish and Game

SUBJECT: Annual Report of Survey-Inventory Activities

Contained herein (in three parts) is the initial attempt to report specifically on game survey and inventory activities carried out by the Game Division staff in Alaska. These activities are reported on the basis of game species by Game Management Units. Because some species are not found in all Game Management Units or because no survey and inventory work was accomplished within certain of these Units for some species, these reports may appear incomplete. As effort is extended to obtain additional information on little-understood species and regions of the State, it is felt that the Annual Survey and Inventory Reports will become more complete and comprehensive.

I feel that these reports eventually will provide information on Alaska's game species which will be easily accessible and extremely useful for management purposes. This initial attempt to report on survey and inventory activities will serve primarily to point out areas and species which will require additional work. In some instances the quality of reports submitted by individual biologists could be greatly improved. I feel that this initial survey and inventory report will provide both incentive and guidelines which will result in better reports in future years.

CARIBOU

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 9 - Alaska Peninsula

Seasons and bag limits:

Aug. 10 - March 31 3 caribou

Harvest and Hunting Pressure:

No information is available at this time.

Composition and Productivity

No information is available at this time.

Management Summary and Conclusions

In 1968, a direct extrapolation census was conducted on the Alaska Peninsula caribou herd. The result of that census indicated that there was a population of 12,500 caribou on the Peninsula proper. During the fall of 1968, a minor hoof rot epidemic (Bacteroides fundiliformis) infected the herd, causing many "limpers" to lag behind during the northward migration. These animals were easy prey to hunters, predators, or the rigors of the winter elements. By late winter, the epidemic was over and the infected caribou had either recovered or died.

During the summer of 1969, several "die-off pockets" of caribou were found by Protection Officer Dan France. These animals had probably died as a direct or indirect result of hoof rot. A survey made of these areas located the remains of about 20 animals. A maximum of 2,000 caribou may have been lost from the Alaska Peninsula caribou herd as a result of the disease, but natural reproduction in the spring more than compensated for this loss. The size of the herd appears to be at least equal to that reported by Hemming and Glenn (Federal Aid Segement Report - Caribou - 1969).

It is recommended that the present seasons and bag limits be maintained. However, should the herd continue to grow or further disease problems appear, liberalizations may be in order.

Recommendations:

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

Submitted by: James B. Faro, Game Biologist III

CARIBOU

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 10 - Aleutian Islands

Seasons and bag limits:

Unit 10; Unimak Island only	Aug. 10 - March 31; 4 caribou
Unit 10; Adak Island only	Aug. 10 - March 31; 2 caribou
Unit 10; except Unimak and Adak Island	No closed season; no limit

Harvest and Hunting Pressure:

The 1969 reported harvest for Adak Island was 51 animals or one over the management objective of 50 (Appendix I). No harvest data are available for other areas.

Composition and Productivity:

No data are available.

Management Summary and Conclusions:

A census conducted by Bob Jones, Refuge Manager, Aleutian Wildlife Refuge, in 1968, indicated 1,500 caribou were present on Unimak Island. This herd is considered as part of the Alaska Peninsula caribou herd but receives only light hunting pressure. Access to the island is controlled by the Refuge system.

Harvest on the Adak caribou herd is entirely the result of recreational hunting by military personnel stationed on the island. The management policy is to maintain this herd at approximately 200 animals, a level well within the carrying capacity of the range yet within the potential of existing hunting pressure to prevent undesired further growth of the herd. The winter 1968-69 census, conducted by U. S. Navy personnel, recorded 167 caribou. Reproduction the following spring was reported at 55 calves so this fall's harvest of 51 animals will maintain the herd at the desired level. The harvest level should be maintained at approximately 50 animals.

Recommendations:

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

Submitted by: James B. Faro, Game Biologist III

Caribou - GMU 10 - Aleutian Islands

Appendix I. Adak caribou herd, population and mortality 1958 - 1969.

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**	1,967	0	51

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

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

CARIBOU

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 11 - Wrangell Mountains - Chitina River (Mentasta and Nelchina Herds)

Seasons and bag limits:

Aug. 10 - March 31 3 caribou

Harvest and Hunting Pressure:

Because caribou from at least two recognized herds, Mentasta and Nelchina, use portions of this Unit, and since there may be some interchange between the herds, information from hunter harvest tickets is confusing to analyze.

Data for the Nelchina herd have been reported for Unit 13. The Mentasta herd, based on harvest ticket returns through December 1968, supported a harvest of 168 animals. The extent of hunting pressure is not known.

Composition and Productivity:

No data are available.

Management Summary and Conclusions:

Due to limited access, minimal hunting pressure is exerted on caribou in this Unit.

Recommendations:

No changes in seasons or bag limits are recommended.

Submitted by: Loyal J. Johnson, Game Biologist III

CARIBOU

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 13 - Nelchina Basin (Nelchina Herd)

Seasons and bag limits:

Aug. 10 - March 31 3 caribou

Harvest and Hunting Pressure:

Harvest tickets became mandatory for the 1968-69 season. However, considerable difficulty has been encountered in obtaining satisfactory interpretation of the data. A preliminary tabulation based on the return of about one-half of the issued harvest tickets shows that about 1,500 hunters harvested about 2,500 caribou. The total harvest is estimated to be 5,954 animals. The sex ratio of the kill was about 60 percent male and 40 percent female.

Of the reporting hunters, 777 took one caribou each (55 percent of all successful hunters), 305 hunters took two caribou each (22 percent of all successful hunters), and 322 hunters took the full bag limit of three animals each (23 percent of all successful hunters).

Eighty-four percent (2,100 animals) of the reported harvest occurred before December 31 and 16 percent (400 animals) occurred from January 1 through March 31. The largest kill by month was in September when 699 caribou were reported taken.

Hunting pressure and harvest are, of course, largely governed by caribou availability. A good indicator of hunting pressure is provided by the Denali Highway Checking Station which has been maintained for ten years. The annual number of hunters and the average number of caribou taken per hunter are given in Appendix I. The number of hunters has increased by about 25 percent since 1966 but is considerably below the number using the area in the early 1960's. The number of caribou taken per hunter is decreasing.

Ages of 440 caribou harvested during the 1969-70 season and collected at the Denali Highway Checking Station were determined by reading annuli on sectioned incisiform teeth under ultraviolet light. The average age of bulls was 4.1 years and the average age of cows was 4.4 years. A complete breakdown of the age analysis is shown in Appendix II.

Composition and Productivity:

Herd composition counts have been conducted for the past three years during the rut when the animals presumably are randomly distributed. These data are summarized in Appendix III. For the second year, the bull:cow ratio

was unexplainably low. Inadequate sample size, segregation by sex and age groups, and indefinite sex and age differentiation criteria are possible causes.

Management Summary and Conclusions:

An aerial census in 1966 revealed in excess of 61,000 animals by actual tally. Sex composition data taken in October, 1969 indicate that yearlings comprised 15 percent of the herd. The estimated sport kill of less than 6,000 is thus well below the estimated annual increment of 9,000 caribou. There are no records of excessive winter losses or predation. Age analysis indicates at least a stable population with high representation of adult animals. It is therefore concluded that present seasons and bag limits are commensurate with current caribou populations and harvest levels.

Recommendations:

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

Submitted by: Loyal J. Johnson, Game Biologist III

Appendix I. Denali Highway Check Station, 1960-69.

Year	Number of Hunters	Caribou per Hunter
1960	1,892	1.04
1961	3,694	.71
1962	5,271	.47
1963	4,814	.47
1964	5,052	.37
1965	3,088	.40
1966	2,799	.31
1967	2,977	.29
1968	3,238	.32
1969	4,031	.26

Appendix II. Age analysis of caribou checked through Denali Check Station, August - October, 1969.

Age*	Percentage	(N)
Calf	8	(37)
Yearling	10	(46)
2	19	(81)
3	10	(44)
4	9	(40)
5	13	(58)
6	11	(51)
7	5	(24)
8	4	(20)
9	5	(25)
10	2	(6)
11	T	(2)
12	1	(4)
13	T	(22)
		440

* Age determinations made by reading annuli of sectioned first incisiform tooth under ultraviolet lighted microscope.

Appendix III. October caribou composition counts, Nelchina herd - Unit 13.

	1967	1968	1969
Calf:Cow Ratio	57:100	49:100	39:100
Yearling:Cow Ratio	22:100	17:100	28:100
Bull:Cow Ratio	47:100	11:100	21:100
Sample Size	4,219	3,214	3,007

CARIBOU

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Units 17 and 19 - (Mulchatna Herd)

Seasons and Bag Limits:

August 10 - March 31 3 caribou

Harvest and Hunting Pressure:

The following comments apply to the Unit 19 portion of this herd's range only.

Hunting pressure is very similar to that found in the western Kuskokwim Mountains. A few hunters go out by airplane from the Sleetmute area in the winter. They hunt mainly in the upper Holitna - Hoholitna drainage and between there and the Stony River, when portions of the herd move into these areas. Caribou are hunted on the ground by the people of Lime Village, but the harvest is unknown. Caribou are sometimes taken by people of Stony River Village when portions of the herd winter on the flats between Stony River and Holitna River, or in the Swift River - Cheeneetnuk River area. Since the winter movements in these areas are variable the harvest is usually small.

Caribou wintering along Big River south and east of McGrath may be part of the Mulchatna herd. My impression is that only a few hundred caribou winter in that area. Harvest is mainly accomplished by hunters from McGrath using airplanes, but usually does not exceed twenty caribou per year. Trappers from Nikolai occasionally take caribou in the Big River area, but none were taken in 1969-70.

Composition and Productivity:

No data have been gathered. Winter distribution of these groups has been documented, but it has not been determined if these groups are actually part of the Mulchatna herd, although it seems likely.

Management Summary and Recommendations:

The liberalization of bag limits from 3 to 5 animals recommended to the Board applied to all of Units 18, 19, and 21, including the area discussed above.

Submitted by: Richard Bishop, Game Biologist III

CARIBOU

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 18 and the Western Portion of Unit 19 - (Western Lower Kuskokwim Mountain - Kelbuck Mountain Herd)

Seasons and Bag Limits:

Aug. 10 - March 31	3 caribou

Harvest and Hunting Pressure:

Hunting pressure in this general area is known to be very light and sporadic. Except for occasional hunters using airplanes, contact with caribou is limited to rare hunting trips on the ground from various villages, or contact with caribou incidental to other activities.

The actual harvest is unknown, but is probably negligible.

Composition and Productivity:

Data on herd composition, production, movements and identity have not been gathered in this area.

Management Summary and Recommendations:

A liberalization of the bag limit from three to five caribou was recommended to the Board of Fish and Game because of the very light hunting pressure and mainly incidental contact with caribou. A larger, legal harvest may be encouraged in this manner.

Submitted by: Richard Bishop, Game Biologist III

CARIBOU

SURVEY-INVENTORY PROGRESS REPORT - 1969

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

Seasons and Bag Limits:

August 10 - March 31 3 caribou

Harvest and Hunting Pressure:

Caribou in this area winter on the flats and foothills of the Kuskokwim and its southern tributaries in variable patterns. Their relation to known or described herds is unknown, although it seems most likely they are part of the Rainy Pass herd. Again, the harvest is small and erratic in pattern. Guided hunts accounted for some harvest this year but the data are not yet available. None were taken by village residents in the area.

Composition and Productivity:

No data were gathered.

Management Summary and Recommendations:

The liberalization of bag limits from 3 to 5 animals recommended to the Board included this group of caribou also.

Submitted by: Richard Bishop, Game Biologist III

CARIBOU

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Units 19, 20, 20C - (Central and Eastern Kuskokwim Mountain Herds)

Seasons and Bag Limits:

August 10 - March 31 3 caribou

Harvest and Hunting Pressure:

Caribou listed here include those found from the Ophir area eastward. Their relationships with the Beaver Mountains herd are unknown. Harvest is limited almost entirely to the Nixon Flats where hunters from McGrath take 10 to 20 per year, mostly with the aid of airplanes.

Composition and Productivity:

No data have been gathered. Distribution data have been gathered as a first step in studying these caribou. At present these caribou are known to winter on the flats adjacent to the Nixon Fork, the upper Nowitna River, and rarely near the Kuskokwim River between McGrath and Medfra. A few hundred animals are involved. Calving groups and other animals are found in the Cloudy Mountains and Sunshine Mountains in the spring, and probably range as far eastward as suitable habitat is available.

Management Summary and Recommendations:

The liberalization of the harvest from 3 to 5 animals recommended to the Board applies to these caribou also. Present utilization is negligible.

Submitted by: Richard Bishop, Game Biologist III

CARIBOU

SURVEY-INVENTORY PROGRESS REPORT - 1969

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

Seasons and Bag Limits:

August 10 - March 31 3 caribou

Harvest and Hunting Pressure:

Hunting pressure is negligible. Five caribou were known to have been taken in the Beaver Mountains in the fall of 1969. None are known to have been taken on their wintering grounds (Dishna River - Innoko River flats).

Composition and Productivity:

On 14 June 1969 I made a reconnaisance flight of the Beaver Mountains and adjacent areas to find caribou calving areas. I found about 450 caribou with about 80 calves (about 18 percent) in the Beaver Mountains area. Since this flight was rather late, some dispersal as well as early calf mortality had probably occurred. Groups of caribou with calves were found mainly on the west and southwest sides of the Beaver Mountains near the summits of the treeless foothills. Caribou had moved back into this area by 10 March 1970.

Management Summary and Recommendations:

The more liberal bag limit recommended to the Board for other Unit 19 herds applied to this herd also. This herd is scarcely touched by hunting presently.

Submitted by: Richard Bishop, Game Biologist III

CARIBOU

SURVEY-INVENTORY PROGRESS REPORT - 1969

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

Seasons and Bag Limits:

Aug. 10 - March 31 3 Caribou

Harvest and Hunting Pressure:

The partial harvest ticket returns for the 1968-69 season indicate a very light harvest of caribou from the Steese-Fortymile herd. Total reported harvest of 292 caribou was comprised of 191 males (65.4%), 96 females (32.8%), and 5 (1.7%) of unknown sex. The harvest from the 1967-68 hunting season was estimated at 500 caribou. Harvest of this herd depends upon its movement into an accessible area during the hunting season. In the last few years the movements of this herd have not permitted a substantial harvest.

Composition and Productivity:

Several attempts to gain information on sex and age composition for the Steese-Fortymile herd have been unsuccessful. Intensive sampling was planned for fall 1969, however the widely scattered distribution of this herd made it impossible to conduct a reliable, unbiased survey at that time.

Management Summary and Recommendations:

The harvest of this herd has been insignificant. The lengthy season and liberal bag limit on this herd should be maintained to facilitate a substantial harvest if the herd should become available.

Submitted by: Oliver Burris, Game Biologist IV

CARIBOU

SURVEY-INVENTORY PROGRESS REPORT - 1969

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

Seasons and Bag Limits:

Subunit 20A	Aug 10 - March 31	3 caribou

Harvest and Hunting Pressure:

Based on harvest ticket returns, the 1968-69 caribou harvest for the Delta Herd was 147 animals. This was comprised of 119 males (81%), 25 females (17%), and 3 unknown. Although these figures represent the total reported kill for the Delta Herd, the estimated harvest is 160 (the estimated harvest is based on a 10% increase over the reported harvest which allows for late and unreturned harvest tickets).

If the sex composition of the harvest as reported above is a true indication of the actual harvest for the Delta Herd, there is a sharp contrast with harvest figures for two other heavily hunted herds in the state. Harvest figures for the Steese-Fortymile Herd indicate that 65 percent of the kill was comprised of bulls, and in the Nelchina Herd, 62 percent were bulls. It appears that hunting pressure in the Delta Herd is biased toward trophy, rather than subsistence, hunting.

Composition and Productivity:

Only fragmentary information is available on sex and age composition for the Delta Herd. Intensive on-the-ground counts were initiated in fall 1969. This survey indicated a bull:cow ratio of 40 males per 100 females, a yearling: cow ratio of 20 per 100 females, and a calf:cow ratio of 28 per 100 females.

These sex and age structure data tend to support the harvest data, indicating selective hunting for bulls by most of the guides who operate in the area. Sex ratios for the Arctic Herd, where predominantly subsistence hunting occurs, indicate a bull:cow ratio of 62:100, as opposed to 40:100 in the Delta Herd.

Management Summary and Recommendations:

Productivity of the herd does not appear to be adversely affected by current hunting pressure; it is recommended that seasons and bag limits remain unchanged.

Submitted by: Mel Buchholtz, Game Biologist II

CARIBOU

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 22 - (Seward Peninsula Herd)

Seasons and Bag Limits:

No closed season No limit

Harvest and Hunting Pressure:

The harvest has been low this year because of lack of snow which has made the herd relatively inaccessible to hunters from Koyuk, Shaktoolik or Unalakleet.

Composition and Productivity:

The only caribou in Unit 22 occur along the extreme eastern portion of the Unit in the foothills east of Koyuk, Shaktoolik and Unalakleet. This is a small localized population, very likely feral reindeer, which can be reached during the winter by snow machine. A small segment of the Arctic caribou herd occasionally winters in this area but this year none entered Unit 22.

Management Summary and Recommendations:

Due to the low harvest and inaccessibility of caribou in this Unit, it is recommended that seasons and bag limits remain unchanged.

Submitted by: Bob Pegau, Game Biologist II

CARIBOU

SURVEY-INVENTORY PROGRESS REPORT - 1969

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 these Units. Generalizations about the harvest are obtained from contacts with the people living in the villages. The harvest is directly related to the migration route of the caribou each year. Unseasonably warm periods in August and September 1969 caused the Arctic caribou herd to remain in inaccessible localities until late October when a group moved into the hills between Noatak and Kivalina. The largest concentration moved into the Kobuk River valley, passing near Kobuk, Shungnak, and Ambler and continuing on to the Purcell Mountain area where they are accessible to the people of Selawik. Consequently Kotzebue, Noorvik, and Kiana have had a poor year as no caribou passed near their villages. Total harvest is down this year because of the low harvest in the previously mentioned three villages and because snow machines are replacing dogs and less caribou are required for dog food.

Composition and Productivity:

Counts on the Arctic caribou calving grounds in June showed 3,798 cows and 2,187 calves; for a cow:calf ratio of 100:56. In comparison the cow:calf ratio in 1968 was 100:41.

No herd composition counts were conducted during the rut as caribou were inaccessible at that time.

Management Summary and Recommendations:

Harvest was down this year because of the route the caribou used migrating to their winter range and reduced requirements for dog food. Based on an estimate of 300,000 caribou in the Arctic herd and a harvest of less than the average of 25,000, it is recommended that seasons and bag limits remain unchanged.

Submitted by: Bob Pegau, Game Biologist II

CARIBOU

SURVEY-INVENTORY PROGRESS REPORT - 1969

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

Seasons and Bag Limits:

No closed season No limit

Harvest and Hunting Pressure:

Harvest tickets are not required north of the Yukon River; therefore, there is no formal harvest reporting system on either the Arctic or Porcupine Caribou Herds. Casual observations indicate that the harvest in 1969 may have been lighter than in past years.

Composition and Productivity:

Herd movement, composition, and production information is being presented in the Caribou Research Project Segment Report.

Management Summary and Recommendations:

The fall 1969 harvest of the Porcupine Herd appears to have been lighter than in previous years. Season and bag limit changes are not recommended at this time.

Submitted by: Oliver Burris, Game Biologist IV

BROWN-GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 1 - Southeast Mainland

Seasons and bag limits:

Sept. 1 - Nov. 30 April 1 - June 10	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 sport kill for brown-grizzly bears during calendar year 1969, as indicated by hides presented for sealing, was 21 animals (spring season 3, fall season 18); three more than were killed in 1968. The average kill over the past four years (1966-1969) has been 20 animals. Since 1961 the harvest has averaged 16 animals. Nonresident take in Management Unit 1 has averaged 20% for the past five years.

No significant changes in sex composition and male hide size have occurred during the past five years. Sex composition of the 1969 harvest was 65% males (13) and 35% females (7); the five year average was 59% males (10), and 41% females (7). Average male hide size was 14.0 feet; the five year average was 13.6 feet; and the nine year average was 13.4 feet. Mean age of seven brown-grizzly bears harvested in Game Management Unit 1 in 1969 was 5.4 years.

Composition and Productivity:

No data available.

Management Summary and Recommendations:

Even though the harvest has increased somewhat during the last four years, harvest information indicates that brown-grizzly bear populations in Game Management Unit 1 have remained relatively stable for the past nine years. In light of this information, it is recommended that seasons and bag limits remain unchanged.

Submitted by: David Zimmerman, Game Biologist II

BROWN-GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1969

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

Seasons and Bag Limits:

Sept. 1 - Nov. 30 April 1 - June 10	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 sport kill for brown-grizzly bears during calendar year 1969, as indicated by hides presented for sealing, was 66 animals (spring season 44, fall season 22); 16 more than were killed in 1968. This represents 13.1% of the total State harvest. The average kill over the past four years (1966-1969) has been 63 animals. Since 1961 the harvest has averaged 47 animals. Nonresidents took 52% of the 1969 harvest. Nonresident take in Game Management Unit 4 has averaged 52% for the past five years.

Composition and Productivity:

Sex composition of the 1969 harvest was 51 (75%) males and 15 (23%) females (2 unknown). This compares to the five year average of 44 (75%) males and 15 (25%) females.

Average hide size was 13.7 feet; this compares to the five and nine year averages of 13.3 and 13.8 feet, respectively. Mean age of 43 brown-grizzly bears harvested in Unit 4 in 1969 was 6.1 years (Appendix I). This compares with the 1968 mean age of 8.3 years for a sample of 13 animals.

Management Summary and Recommendations:

Harvest information indicates that brown-grizzly bear populations in Unit 4 have been relatively stable for the past nine years. In light of this information it is recommended that seasons and bag limits remain unchanged.

Submitted by: David Zimmerman, Game Biologist II

Appendix I. Age Composition of Brown Bears Harvested in Unit 4 during the Spring and Fall Seasons - Based on Tooth Cementum Layering

Year	Season	Sex	Number of Bears by Age Class 1	2	3	4	5	6	7	8	9-10	11	Mean Age & Range	Sample Size
1968	Spring	M			1	2	1		1		1	2	8.2(3-24)	8
		F							1	1		1	9.7(7-14)	3
	Fall	M					1				1		7.0(5-9)	2
		F												
	Total				1	2	2		2	1	2	3		
1969	Spring	M				3	6	3	2		3	6	7.6(4-14)	21
		F				1	1		1			1	7.2(4-13)	4
	Fall	M			3	1		2	3		1	1	6.1(3-11)	11
		F				2	1	2					5.0(4-6)	5
	Total				3	7	8	7	6		4	8	7.2	41

BROWN-GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 5 - Yakutat

Seasons and Bag Limits:

Sept. 15 - Nov. 30 April 1 - June 10	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 sport kill for brown-grizzly bears during calendar year 1969, as indicated by hides presented for sealing, was 20 animals (spring season 10; fall season 10); two more than were killed in 1968. The average kill over the past four years (1966-1969) has been 19 animals. Since 1961 the harvest has averaged 14 animals. Nonresidents took 45% of the 1969 harvest, most of which were taken during the spring season. Nonresident take in Unit 5 has averaged 51% for the past five years.

Sex composition of the 1969 harvest was 50% males (10) and 50% females (10); the five year average was 61% males (11) and 39% females (7). Average male hide size in 1969 was 13.8 feet, comparable to the five year average of 14.4 feet and to the nine year average of 14.7 feet.

Mean age of 16 brown-grizzly bears harvested in Game Management 5 was 6.0 years. This compares with the 1968 mean age of 7.0 years.

Composition and Productivity:

No data available.

Management Summary and Recommendations:

Harvest information indicates that brown-grizzly bear populations have been relatively stable for the past nine years. In light of this information it is recommended that seasons and bag limits remain unchanged.

Submitted by: David Zimmerman, Game Biologist II

BROWN-GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 6 - Prince William Sound

Seasons and bag limits:

Jan. 1 - June 10 Sept. 15 - 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 had increased yearly from 13 bears in 1961 to 63 bears in 1968. The 1969 harvest of 23 bears was the first decrease since 1961 (Appendix I).

The 1969 season was about six weeks shorter than prior seasons (Appendix II). Hunting pressure decreased in 1969, probably because of increased patrolling by the Protection Division, changing of seasons in other Units, and inclement weather. The loss of two weeks at the beginning of the season, as compared with previous years, may have contributed to the reduced harvest. However, the omission of the month of December was probably of little significance since that month was not utilized by hunters in the past.

Hide size of 23 male bears taken in 1969 averaged 14.8 feet, whereas the eight-year average has been 14.2 feet. Average male skull size for 1967 was 22.4 inches; for 1968, 23.5 inches; and for 1969, 23.4 inches (Appendix I).

Composition and Productivity:

An early morning brown bear survey was flown around Montague Island on August 9, 1969 without observing a single bear. Salmon were present in most of the Montague streams when the survey was flown. Very few tracks were observed.

Another survey was flown August 12, 1969 from Okalee Spit to Icy Bay. Sixteen brownies (13 single bears and a sow with 2 large cubs) were observed in this 100-mile beach strip.

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

Management Summary and Conclusions:

Analysis of the harvest data indicates that the brown bear population in Unit 6 is not being adversely affected under the present regulations. The limited survey data suggest a rather low bear population, which probably warrants the maintenance of relatively low hunting pressure.

Brown-Grizzly Bear - GMU 6 - Prince William Sound

Recommendations:

It is recommended that current seasons, which have recently been shortened by the Board (Appendix II) be continued for a period of several years so their effects on harvest and population abundance can be evaluated.

Submitted by: Julius L. Reynolds, Game Biologist III

Brown-Grizzly Bear - GMU 6 - Prince William Sound

Appendix I. Brown bear harvest data, Unit 6.

Year	Total Kill	% Males	Male Hide Size	Male Skull Size	% Nonresident Hunters
1961	13	62	13.2 ft.		23
1962	24	71	13.3 ft.		38
1963	34	50	14.0 ft.		15
1964	32	76	14.6 ft.		28
1965	34	53	15.4 ft.		24
1966	38	53	14.6 ft.		18
1967	56	70	14.2 ft.	22.4 in.	46
1968	63	67	14.4 ft.	23.5 in.	52
1969	23	52	14.8 ft.	23.4 in.	26

Brown-Grizzly Bear - GMU 6 - Prince William Sound

Appendix II. Brown bear hunting seasons, Unit 6.

Year	Spring Season	Fall Season
1966*	January 1 - June 30	September 1 - December 31
1967	January 1 - June 20	September 1 - December 31
1968	January 1 - June 10	September 1 - December 31
1969	January 1 - June 10	September 15 - November 30
1970	April 1 - May 31	October 10 - November 30
1971	May 10 - May 15	?

* The 1961-1966 seasons were the same.

BROWN-GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 7 - Seward

Seasons and bag limits:

Oct. 15 - Nov. 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 bear sealing records show that only two brown bears (males) were sealed in Unit 7 during 1969. Since 1961, when brown bear sealing was initiated, six bears have been sealed from Unit 7 (Appendix I).

Composition and Productivity:

No data are available.

Management Summary and Conclusions:

Since harvest data are insufficient for meaningful analysis, assumptions must be made from general observations and information supplied by local residents.

The brown bear population in Unit 7 is not sufficient to spark interest in bear hunting. Generally, brown bears are scarce over most of the Unit, with the Russian and Resurrection River drainages being the only areas where bears are seen regularly. Little is known about brown bears in the coastal area east of Resurrection Bay. Over the remainder of Unit 7, bear populations do not seem to be established and only occasional observations of bears are made.

Apparently Unit 7 was never inhabited by large numbers of brown bear, but bear populations there are now lower than in past years. Increased human activity resulting from road construction appears to have been a contributing factor to this decline.

The brown bear harvest over the past nine years has been too low to have any effect on the population. In order to simplify the regulations for the hunter, the brown bear season in Unit 7 should be adjusted to coincide with the proposed season in Unit 15.

Recommendations:

It is recommended that the hunting season for brown bear run from September 20 to October 15 in Unit 7. No change is recommended for the bag limit.

Submitted by: Paul A. Le Roux, Game Biologist III

Appendix I. Brown bear harvest statistics, Unit 7.

Year	Male Kill	Female Kill	Total Kill	Aver. Male Hide Size*	Aver. Female Hide Size*	Aver. Male Skull Size**	Aver. Female Skull Size**	Aver. Male Age	Aver. Female Age	Percent Taken by Resident Hunters
1961	0	1	1	-	11.8	***	***	***	***	100
1962	0	1	1	-	11.1	***	***	***	***	100
1963	-	-	1	***	***	***	***	***	***	***
1964	0	0	0	-	-	-	-	-	-	-
1965	0	0	0	-	-	-	-	-	-	-
1966	0	0	0	-	-	-	-	-	-	-
1967	1	0	1	***	-	27.2	-	***	***	0
1968	0	0	0	-	-	-	-	-	-	-
1969	2	0	2	15.0	-	24.1	-	***	***	50

* Hide size given in feet
** Skull size given in inches
*** Information not available

BROWN-GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 8 - Kodiak and Adjacent Islands

Seasons and bag limits:

Unit 8, Kodiak National Wildlife Refuge	Nov. 1 - Dec. 31 Oct. 1 - May 20 1 bear
Kodiak Is. except refuge	Sept. 1 - June 30 1 bear
Unit 8, Raspberry, Afognak and Shuyak Is.	Oct. 1 - May 31 1 bear

Harvest and Hunting Pressure:

The total 1969 bear harvest, as indicated by sealing information, was 98. Seventy-seven of these bears were taken during the spring season. The remaining 21 bears were taken during the fall season. Fifteen percent of the harvested bears were female. Fifteen bears were taken from Chiniak, Afognak and Shuyak Islands. No estimate of the number of hunters can be given for these areas. The U. S. Fish and Wildlife Service did issue 260 refuge land-use permits to hunters (195 in the spring, 65 in the fall). One hundred eighty-five permit holders hunted and took 83 bears for a 45 percent success rate.

Composition and Productivity:

No composition or production figures were determined in areas other than the National Wildlife Refuge. Karluk, Sturgen, Red and Dog Salmon Rivers were surveyed in July by refuge personnel. Forty-seven percent of the 93 bears observed were singles. Five percent were cubs and average litter size was 2.5. Yearling animals comprised 30 percent of these bears.

Management Summary and Conclusions:

Annual harvest of bear increased from 88 in 1968 to 98 in 1969. Hunter success was 45 percent on the refuge.

Recommendations:

Trend counts indicate an increase in population numbers. It is therefore recommended that refuge proposals for an increase in season length be adopted.

Submitted by: Jack E. Alexander, Game Biologist II

BROWN-GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 9 - Alaska Peninsula

Seasons and bag limits:

Spring season	Sept. 15 - May 10; one bear every four regulatory years; provided that the taking of cubs or females accompanied by cubs is prohibited.
Fall season: that portion north of Katmai National Monument, Naknek Lake and Naknek River	Sept. 15 - Oct. 30; one bear every four regulatory years; provided that the taking of cubs or females accompanied by cubs is prohibited
Remainder of Unit 9	Oct. 1 - 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:

Records of the bear sealing program show that 91 bears were reported killed in Unit 9 during 1969 (Appendix I). This represents the lowest reported harvest since the program was initiated in 1961. As in past years, the kill was predominantly males and the majority of the successful hunters were nonresidents. The average hide size has remained basically unchanged since 1965 and the average skull size has shown a slight increase. The mean age, as determined by cross-sectioning teeth, was 8.4 years in the spring harvest and 7.1 years in the fall.

Brown bear hunters and guides utilizing aircraft for transportation in Unit 9 have been required to preregister the exact location of their hunting camps since the fall of 1967. During both the spring and fall of 1969, approximately 100 individuals had preregistered camps for each season. This does not, however, represent a true index of hunting pressure since not all individuals so registered hunted, and guides frequently conducted several hunters out of a single camp.

Also, during the fall of 1969, the "four bear law" was in effect. This regulation limited every registered or master guide to four successfully guided brown and/or grizzly hunts during a regulatory year. Furthermore, only two of these four successful hunts could be made in Unit 9.

Brown-Grizzly Bear - GMU 9 - Alaska Peninsula

Composition and Productivity:

The only available data on sex and age composition of brown bears in Unit 9 have been from the aerial trend surveys conducted by the brown bear research program (Appendix II). Because many variables affect the total number of bears observed from year to year, it is impossible at this time to draw conclusions concerning changes in actual bear abundance.

Although yearly abundance, as measured by aerial surveys, has been highly variable, the sex and age composition of those bears observed probably accurately represents the population as a whole. These data indicate a decline in the percentage of single bears present in the population since 1958. Also, there has been a corresponding increase in the percentage of sows with young and the number of young in the population.

Management Summary and Conclusions:

Spring of 1969 arrived late on the Peninsula and, in general, few bears were available to hunters until the last two weeks of the season. Outside of short periods of inclement weather, hunting conditions were good during the entire fall season.

The recorded harvest of 91 bears from Unit 9 is undoubtedly low; particularly the small kill of 38 bears reported for the fall. "Bootlegging" of unsealed bear hides has always occurred to some degree, but, this fall several factors encouraged this practice. The "four bear law", which limited the number of successful hunts a guide could participate in yearly, also seriously reduced his opportunity to make money. Unit 9 is one of the two major brown bear producing areas in the state, and the additional restriction that only two of the four bears could be taken from this Unit further encouraged "bootlegging". Many guides with hunters in camp stated that they were not hunting brown bears this fall but saving their bears for the spring season. Undoubtedly this did occur, but frequently guides were in fact guiding and producing bears for their hunters. Each bear so taken that successfully left the state unsealed was in effect a financial bonus. Court action after the close of the fall season ruled the "four bear law" unconstitutional and removed it from the regulations.

Also in effect was a regulation requiring that either the guide or hunter personally present the bear hide and skull for sealing. In a few cases, this regulation may have caused a distinct inconvenience to a nonresident hunter leaving the state and therefore encouraged "bootlegging" of the hide. A review of the records of four taxidermist shops outside of the state revealed that 37 percent of all Alaska brown and grizzly bears received for mounting in the past two years were unsealed. Far more unsealed bears from the fall season of 1969 were being received than for any prior season.

Brown-Grizzly Bear - GMU 9 - Alaska Peninsula

Including "bootlegged" hides not recorded in the bear sealing data, an estimated 60 brown bears were taken by sport hunters during the fall of 1969. If accurate, this estimate would raise the total harvest for the year to approximately 120 bears. This would be the lowest reported kill since 1961 and is well below the management objective of 150 bears per year.

Unit 9 has an excellent brown bear population and appears to be sustaining a harvest within the species' biological potential. Reproduction has responded to harvest, and even long-time residents of the area freely admit that there are more sows with cubs than in past years. However, the decrease in the percentage of single bears has meant that there are fewer legal bears in the population available to the hunters.

The Peninsula should continue to be managed with both a spring and fall brown bear season. However, the majority of the harvest should come during the fall season when many of the sows are no longer accompanied by cubs and therefore are legal. The present trend of harvesting primarily males has resulted in a low percentage of single bears in the population. Also, in order to obtain the maximum biological data from the harvest, every effort should be made to keep the bear sealing program as effortless as possible for the hunters and guides.

Recommendations:

No changes in seasons or bag limits are recommended.

Submitted by: James B. Faro, Game Biologist III

Brown-Grizzly Bear - GMU 9 - Alaska Peninsula

Appendix I. Brown bear harvest, Unit 9, Alaska Peninsula, 1961-1969.

Year	Total Kill	No. of Males	Percent of Males	No. of Nonres.	Percent of Nonres.	Male Hide Size	Male Skull Size	Male Mean Age
1961	120	85	73	71	59	16.4	-	-
1962	155	109	70	97	63	16.4	-	-
1963	164	100	65	114	70	16.1	-	-
1964	155	103	70	108	70	16.1	-	-
1965	208	136	67	137	66	15.7	-	-
1966	230	157	71	173	75	15.7	-	-
1967	211	143	68	163	77	15.8	23.5	6.6 Fall
1968	158	111	73	134	85	15.5	24.3	9.1 Spring 5.2 Fall
1969	91	67	75	67	74	15.8	24.5	8.4 Spring 7.1 Fall

Appendix II. Brown bear aerial survey data, all areas combined, Unit 9 - Alaska Peninsula.

Year	Sow w/Young		Cubs		Yearlings		Cubs and Yearlings		Single Bears		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1958	133	17	167	21	115	15	282	36	364	47	779	100
1959	50	19	72	27	26	10	98	37	119	44	267	100
1962	439	26	512	30	376	22	888	52	391	23	1718	100
1965	90	26	102	30	86	25	188	55	65	19	343	100
1966	62	22	92	33	45	16	137	49	80	29	279	100
1967	138	24	180	31	101	18	281	49	157	27	576	100
1968	76	24	114	36	54	17	168	53	76	24	320	100
1969	187	22	236	28	193	23	429	51	219	26	835	100

BROWN-GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 10 - Aleutian Islands

Seasons and bag limits:

Spring season	Sept. 15 - May 20;one bear every four regulatory years; provided that the taking of cubs or females accompanied by cubs is prohibited.
Fall season	Oct. 1 - 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:

Four bears were reported in the sport harvest from Unit 10 in 1969; two bears were taken in the spring, and two in the fall. Three of the four bears were males.

Composition and Productivity:

No information is available at this time.

Management Summary and Conclusions:

Brown bear hunting in Unit 10 is restricted to Unimak Island. Access to the island is controlled by a permit system regulated by the U. S. Fish and Wildlife Service since it is part of the Aleutian Islands Refuge System. At present, the number of permits issued is the major factor limiting the magnitude of the harvest during any given year. In the past, under more liberal access policies, the sport harvest from the Unit has been as high as 15 bears. As long as the U. S. Fish and Wildlife Service continues to control hunter access, it will determine at what level the brown bear population will be harvested.

Recommendations:

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

Submitted by: James B. Faro, Game Biologist III

BROWN-GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 11 - Wrangell Mountains - Chitina River

Seasons and bag limits:

May 15 - June 10 Sept. 1 - Sept. 30	1 bear every four regulatory years, provided that taking of cubs or females accompanied by cubs is prohibited.

Harvest and Hunting Pressure:

Harvest ticket returns for 1969 have not yet been tabulated so data on hunting pressure are unavailable. Harvest data and skull/hide size as shown by sealing records from 1965 to 1969 are shown in Table 1.

Table 1. Brown/Grizzly Bear Harvest Data - Unit 11.

Year	Kill Spring	Kill Fall	Total	Percent Males	Average Male Hide Size	Average Male Skull Size	Average Male Age	Percent Nonresident Hunters
1965	2	16	18	49	13.3	NA	NA	77
1966	0	12	12	91	12.4	NA	NA	75
1967	3	17	20	50	12.4	23.2	10.3*	75
1968	3	12	15	42	12.0	20.9	7.0	58
1969	2	7	9	66	15.3	22.8	7.2	22

* Includes Game Management Unit 12 data.

Composition and Productivity:

No data

Management Summary and Conclusions:

The harvest has remained relatively stable since 1965 in Unit 11. The effects of hunting on the bear populations appear to be minimal as average hide and skull sizes have not changed markedly. Hunting pressure and harvest are light in Unit 11 since there are more favorable places in Alaska to hunt grizzly bears.

Recommendations:

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

Submitted by: Loyal J. Johnson, Game Biologist III

BROWN-GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 12 - Upper Tanana-White River

Seasons and Bag Limits:

Sept. 1 - Sept. 30 May 15 - June 10	1 bear every four regulatory years; provided that the taking of cubs or females accompanied by cubs is prohibited.

Harvest and Hunting Pressure:

The sport harvest of grizzly bear in Unit 12 has shown no significant trends through the period 1961 to 1968. The greatest number of bears reported killed in any one year was in 1963 when the harvest was 23. The lowest number of bears reported in this period was 12 in 1966. Only the data for the 1969 spring hunt is available, and the harvest was 1 female. Sex composition of the harvest in 1967 and 1968 was approximately 50% males.

Composition and Productivity:

No data are available at this time.

Management Summary and Recommendations:

The spring harvest of bear in Unit 12 during 1969 was similar to the spring harvest in the previous 8 years. Fall information is not yet available; but, from the rather low but static harvest which has been obtained over the previous 8 years in Unit 12, it can be surmised that an annual harvest of about 20 to 25 bears will not exceed the capacity of the bear population in Unit 12.

Submitted by: Oliver Burris, Game Biologist IV

BROWN-GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 13 - Nelchina Basin

Seasons and bag limits:

Sept. 20 - Oct. 20	1 bear every four regulatory years, provided that taking of cubs or females accompanied by cubs is prohibited.

Harvest and Hunting Pressure:

Harvest ticket returns for 1969 have not yet been tabulated so data on hunting pressure are unavailable. However, hunting pressure and harvest are known to be light in Unit 13. The sport kill since 1965 is summarized in Table 1. There have been no spring seasons in Unit 13 since 1958.

Table 1. Brown-Grizzly Bear Harvest Data - Unit 13.

Year	Kill	Percent Males	Average Male Hide Size	Average Male Skull Size	Average Male Age	Percent Nonresident Hunters
1965	44	58	12.8	NA	NA	48
1966	63	56	13.6	NA	NA	65
1967	29	55	12.4	21.5	6.5	45
1968	38	49	12.7	22.2	5.9	50
1969	17	88	13.4	22.5	6.9	53

Composition and Productivity:

Specific composition and production data are unavailable. Hunters checking out through the Denali Highway were asked for brown-grizzly bear observations. During the period of August 20 to October 12, 1969, when the check station was operated, 4,031 hunters reported observations of 170 bears. These included 11 sows with 2 cubs, 6 sows with 1 cub, and 125 individual bears. Many of these were probably duplicate observations. No bear sightings were reported after September 29. The opinion of those persons who have observed this area for several years is that the population is increasing.

Brown-Grizzly Bear - GMU 13 - Nelchina Basin

Management Summary and Conclusions:

The harvest has fluctuated somewhat since 1961. The percentage of males in the harvest, average male age, hide and skull size, and participation by nonresident hunters has remained very constant.

Presumably because of more favorable areas to collect a bear trophy, deliberate hunting pressure in Unit 13 is light. Many of the bears harvested are taken incidentally to other hunting in Unit 13. The late opening of the bear season makes them unavailable to nearly all sheep hunters and early-season moose and caribou hunters. Thus, bear harvest is low in view of the size of the Unit. The current seasons and bag limits appear commensurate with bear populations.

Recommendations:

No changes in seasons or bag limits are recommended for Game Management Unit 13.

Submitted by: Loyal J. Johnson, Game Biologist III

BROWN-GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 14 - Upper Cook Inlet

Seasons and bag limits:

Sept. 20 - Oct. 29	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 has varied from a high of 15 animals in 1961 and 1965 to a low of 3 animals in 1969 (Appendix I).

During the 1967 season (Sept. 1 - Sept. 30), 12 brown bears were taken in Unit 14, with all but 2 of them taken prior to September 20. In 1968, 11 bears were killed with only 1 of these being taken after September 20. In 1969, the season was altered to September 20 to October 20, a total of 31 days, and the harvest dropped to three animals.

It appears that brown bears harvested in this Unit are usually taken by individuals who are moose or sheep hunting. The sheep season in this Unit was closed after September 20, as was the moose season in Subunit 14(A),[14(B) and 14(C) moose seasons were open until September 30)]. Although the brown bear harvest ticket information does not reveal hunter pressure during 1969 or previous years, it is highly probable that the elimination of all sheep and most moose hunter pressure resulted in the low harvest of brown bear in Unit 14.

Composition and Productivity:

No data are available at this time.

Management Summary and Conclusions:

It appears that the elimination of incidental brown bear harvest by manipulation of the season chronology can and did lower the brown bear harvest in Unit 14 in 1969.

Recommendations:

It is proposed that a season of September 15 to October 15 for Unit 14 be considered to allow an increased harvest of brown bear for the 1970-71 season.

Submitted by: Jack C. Didrickson, Game Biologist III

Appendix I. Brown bear harvest - Unit 14.

Year	Total Kill	No. Males	% Males	No. Nonres.	% Nonres.	Male Hide Size	Male Skull Size	Mean Age Males	Seasons
1961	15	7	47	7	47	12.6 ft.			9/1-9/30
1962	8	4	50	0	0	13.1 ft.			Same
1963	13	8	67	5	38.4	12.9 ft.			Same
1964	12	9	75	1	8	12.9 ft.			Same
1965	15	7	47	7	47	12.7 ft.			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 in.		Same
1968	11	3	30	6	55	14.5 ft.	22.0 in.	5.7 (3)*	Same
1969	3	3	100	0	0	11.7 ft.	18.7 in.	2.0 (3)*	9/20-10/20

* Number in parentheses is tooth sample size.

BROWN-GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 15 - Kenai Peninsula

Seasons and bag limits:

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

Harvest and Hunting Pressure:

Brown bear sealing records indicate that six brown bear were harvested in 1969 (Appendix I). Over the past five years, the average annual kill has been 5.6 bears per year.

The 1969 harvest was comprised of four males and two females, compared to a harvest of seven males and four females in 1968.

The 1969 harvest was 45 percent below the record harvest of 1968 and 7 percent above the average for the past five years.

One hundred percent of the 1969 harvest was taken by residents. This compares with 91 percent in 1968. The five-year average has been 82 percent.

There is no apparent trend in hide size of either males or females. Skull size data have only been available for the past two years and no trend is discernable.

Composition and Productivity:

No data are available at this time.

Management Summary and Conclusions:

Because the annual harvest of bears is so low in Unit 15, it is impossible to draw any reliable conclusions from the harvest data. It is therefore necessary to make assumptions and recommendations based on general observations.

In 1969, the U. S. Fish and Wildlife Service closed two landing strips and several lakes on the Kenai Moose Range to aircraft use. This may have contributed to the lower harvest in 1969.

It is generally agreed by most guides and hunters that the brown bear population in Unit 15 is on the increase. Since there appears to have been high numbers of bears in this Unit at one time, it is recommended that the annual harvest be held approximately at its present level to insure continued

growth of the population. A later hunting season opening date would shift hunting toward a period when pelts are more prime. Having the season coincide with that in Unit 7 would benefit the bear population as well as the public by reducing confusion over differing seasons in adjacent areas.

Recommendations:

It is recommended that the hunting season be extended from September 20 to October 15 in Unit 15. No changes in bag limits are recommended.

Submitted by: Paul A. Le Roux, Game Biologist III

Appendix I. Brown bear harvest statistics, Unit 15.

Year	Male Kill	Female Kill	Total Kill	Aver. Male Hide Size*	Aver. Female Hide Size*	Aver. Male Skull Size**	Aver. Female Skull Size**	Aver. Male Age	Aver. Female Age	Percent Taken by Resident Hunters
1961	3	1	4	15.8	14.3	***	***	***	***	100
1962	3	2	5	11.6	11.3	***	***	***	***	40
1963	2	2	4	13.2	12.0	***	***	***	***	100
1964	2	0	2	13.2	-	***	***	***	***	0
1965	1	2	3	13.2	11.9	***	***	***	***	67
1966	1	3	4	17.3	13.3	***	***	***	***	75
1967	2	2	4	15.5	11.0	***	***	***	***	75
1968	7	4	11	14.0	11.7	25.2	20.1	2	4.7	91
1969	4	2	6	14.3	24.8	24.8	***	7	8	100

* Hide size given in feet
** Skull size given in inches
*** Information not available

BROWN-GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 16 - West Side of Cook Inlet

Seasons and bag limits:

Sept. 1 - Oct. 15 May 15 - June 10	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 16 was 37 animals (Appendix I). The harvest of 37 animals was equaled in 1965; but during the past five years, the average harvest has been 30 brown bears.

The percentage of male bears taken in the harvest during 1969 stands at 62. The percentage is somewhat lower than in 1968, when 70 percent of the bears taken were male; but it is above the 1967 male harvest, which was 50 percent. Hide and skull sizes of bears taken in Unit 16 are shown in Appendix I.

Composition and Productivity:

No data are available at this time.

Management Summary and Conclusions:

The increase in harvest from 23 bears in 1968 to 37 bears in 1969 was probably due to increased pressure by hunters rather than an increase in numbers of bears present. Hide and skull sizes reflect very little change from previous years' data (see Appendix I), indicating the bear population in Unit 16 is not overharvested. The season did not change in Unit 16 until 1969 (Appendix 1), when the fall hunting season was reduced by 67 days, from September 1 - December 31 to September 1 - October 15. Undoubtedly, the various restrictive regulations (i.e.: camp registration, transportation of bear hides) applicable to brown bear hunting in Unit 9 caused some sportsmen to hunt in Unit 16.

In addition, the possibility that bears were taken out of season in Unit 14 (where three bears were reportedly taken in 1969) or other Units, and claimed to have been taken in Unit 16, must not be overlooked.

Recommendations:

No changes in seasons or bag limits are recommended for Unit 16.

Submitted by: Jack C. Didrickson, Game Biologist III

Appendix I. Brown bear harvest - Unit 16.

Year	Total Kill	No. Males	% Males	No. Nonres.	% Nonres.	Male Hide Size	Male Skull Size	Mean Age Males	Seasons
1961	28	12	43	18	64	13.0			9/1-12/31 5/15-6/15
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)*	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)*	9/1-10/15 5/15-6/15

* Number in parenthesis is tooth sample size.

BROWN-GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 17 - Bristol Bay

Seasons and bag limits:

Spring season	May 15 - June 15; 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:

During 1969, five brown bears were reported taken in Unit 17. One of these bears was taken in the spring and the remaining four in the fall. Two of the five bears were males.

Composition and Productivity:

No information is available at this time.

Management Summary and Conclusions:

Residents of Unit 17 report that the area has a good bear population but is difficult to hunt with any degree of success. Because of this, and the close proximity of Unit 9 with its more widely known bear populations, Unit 17 has not received heavy hunting pressure in the past. The records of the bear sealing program show a gradual increase in harvest to a maximum of 9 bears in 1966, 11 bears in 1967 and 10 bears in 1968. The lower kill of only five bears in 1969 may be the result of reduced hunting effort or perhaps the reduced fall season; in 1961 through 1968 the fall season closed on December 31, but in 1969 it closed on October 15. Insufficient information is available to pinpoint the cause of the reduced kill, but it is probably a combination of these factors.

Recommendations:

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

Submitted by: James B. Faro, Game Biologist III

BROWN-GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 18 - Yukon-Kuskokwim Delta

Seasons and Bag Limits:

Sept. 1 - Nov. 30 May 15 - 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:

There has been no harvest of grizzly bear reported from Unit 18 since 1960. To the best of our knowledge there has been no sport hunting of bear in that Unit. Any bears taken in Unit 18 we assume have been taken for subsistence purposes and not sealed.

Composition and Productivity:

No data are available at this time.

Management Summary and Recommendations:

It is recommended that regulations be devised for Unit 18 which would be sufficiently flexible to restrict the harvest in the future if necessary. We anticipate increased interest in guided hunts for brown and grizzly bear in this area as more restrictive regulations are adopted for other more popular bear hunting areas in the state.

Submitted by: Richard Bishop, Game Biologist III

BROWN-GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 19 - McGrath

Seasons and Bag Limits:

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

Harvest and Hunting Pressure:

There have been no significant increases in the bear harvest in Unit 19. In the period 1961 to 1968 the annual bear harvest has varied from 11 to 19 bears per year. The 1969 spring harvest was 1 bear, which is about average for this Unit. Harvest figures from guiding operations are being sought as an aid to the interpretation of the meager harvest data from Unit 19. Data from bear sealing documents and interviews for fall of 1969 are not yet available.

Composition and Productivity:

No data have been obtained.

Management Summary and Recommendations:

It is recommended that regulations be devised for Unit 19 which would be sufficiently flexible to restrict the harvest in the future if necessary. We anticipate increased interest in guided hunts for brown and grizzly bear in this area as more restrictive regulations are adopted for other more popular bear hunting areas in the state.

Submitted by: Richard Bishop, Game Biologist III

BROWN-GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 20 - Fairbanks - Central Tanana

Seasons and Bag Limits:

Unit 20A	Sept. 15 - Oct. 15	1 bear
Unit 20B, C	Sept. 15 - Dec. 31	1 bear

Harvest and Hunting Pressure:

Based on sealing records, the 1968 bear harvest in Unit 20 was 23 animals, 8 more than the 1967 harvest. The average kill over the past 5 years has been 34 bears.

The harvest in 1968 was comprised of 17 males and 6 females. Figures for sub-Units of Unit 20 are not available.

Only fragmentary information is available on the age composition of the harvest. Three bears aged from the fall season averaged 14.7 years (range 11-19 years), while 2 bears aged from the spring season averaged 16 years.

Average male hide size for the 1968 harvest was 13.4 feet. This compares to the 5-year average of 13.3.

Composition and Productivity:

No surveys were made in Unit 20 to determine composition and productivity.

Management Summary and Recommendations:

There have been no decisive trends in the bear harvest and there are no supporting survey data. If the age of the 5 bears that had been aged from the 1968 harvest is representative of the bear population for Unit 20 as a whole, there does not appear to be overexploitation of the brown bear population. It is recommended that seasons and bag limits remain unchanged.

Submitted by: Mel Buchholtz, Game Biologist II

BROWN-GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 21 - Middle Yukon

Seasons and Bag Limits:

Sept. 1 - Nov. 30 May 15 - 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:

Since 1960 Unit 21 has had a very low reported bear harvest which has varied from 0 to a maximum of 7 bears. No bears were reported harvested in the spring of 1969, and the information from the fall of 1969 is not yet available. There does not appear to be any significant increase in hunting pressure in Unit 21.

Composition and Productivity:

No data have been obtained.

Management Summary and Recommendation:

It is recommended that regulations be devised for Unit 21 which would be sufficiently flexible to restrict the harvest in the future if necessary. We anticipate increased interest in guided hunts for brown and grizzly bear in this area as more restrictive regulations are adopted for other more popular bear hunting areas in the state.

Submitted by: Richard Bishop, Game Biologist III

BROWN-GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 22 - Seward Peninsula

Seasons and Bag Limits:

Sept. 1 - Nov. 30 May 15 - 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:

Harvest of brown and grizzly bear in Unit 22 has been very slight since 1961. The highest harvest reported was 6 in 1968. Bear numbers have been continuously depressed for many years in this area because of the activities of reindeer herders and predator control agents. In Unit 22, there is very little interest in harvesting brown and grizzly bear which are available.

Composition and Productivity:

The population is obviously very low; however, there are no composition and production information available.

Management Summary and Recommendations:

Because of the traditionally low interest in harvesting the few bears that are available in Unit 22, no changes in the season or bag limit are recommended.

Submitted by: Oliver Burris, Game Biologist IV

BROWN-GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 23 - Kotzebue Sound

Seasons and Bag Limits:

Sept. 1 - Nov. 30 May 15 - May 30	One bear every four regulatory years; provided that the taking of cubs or females with cubs is prohibited.

Harvest and Hunting Pressure:

The 1968 harvest of 29 bears from Unit 23 was the highest recorded since 1961. The previous high was 27 taken in 1965. The average number of bear taken from 1961 to 1967 has been 12.5 bear per year. The spring 1969 sport harvest in Unit 23 was 9 bears (7 males and 2 females). There was a spring harvest of 18 bears in 1968. In addition to the 9 bears reported on the bear seal forms, there were 5 others taken both illegally and legally (in defense of life and property). There is a very strong possibility that at least 4 others were also harvested which did not appear on the sealing certificates. The age composition of the harvest, as determined by tooth cementum layering, indicates that the sport harvest is comprised of mostly old bears.

Composition and Productivity:

No composition or productivity information on grizzly bears is available from this area.

Management Summary and Recommendations:

The 1969 spring harvest in Unit 23 was half of the reported spring harvest in Unit 23 in 1968. Information from the fall harvest for Unit 23 in 1969 is not yet available. If the total 1969 harvest approaches the 1968 total harvest, it will be imperative that all efforts be expended to obtain the actual bear kill for Unit 23. The previous rather low annual harvest of 12.5 bears did not not justify a great deal of effort in determining the actual annual kill. If the present level of harvest proves to be beyond the potential of the bear population in Unit 23, it may be necessary to curtail the spring season when the bears are considerably more vulnerable to aircraft hunting.

Submitted by: Oliver Burris, Game Biologist IV

BROWN-GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 24 - Koyukuk

Seasons and Bag Limits:

Sept. 1 - Dec. 31	1 bear
May 15 - June 15	

Harvest and Hunting Pressure:

Based on sealing information, the 1968 bear harvest in Unit 24 was 5 bear. This was 6 below the 5-year average of 11, and 8 less than the 1967 harvest of 13 bears.

The harvest was comprised of 4 boars and 1 sow. The 1969 spring harvest in Unit 24 was 2 bears. The fall harvest is not yet known.

Average male hide size in 1968 was 13.3 feet (length plus width), the same as the 5-year average.

No bears from Unit 24 were aged.

Composition and Productivity:

No herd composition or productivity information were collected in Unit 24.

Management Summary and Recommendations:

Based on what little information we have available, it is recommended the seasons and bag limit remain unchanged.

Submitted by: Oliver Burris, Game Biologist IV

BROWN-GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 25 - Fort Yukon

Seasons and Bag Limits:

Sept. 1 - Dec. 31	1 bear
May 15 - June 15	

Harvest and Hunting Pressure:

Based on sealing information the 1968 bear harvest in Unit 25 was 10 animals; 5 below the 5-year average of 15, and 7 less than the 1967 harvest of 17 bears.

The harvest was comprised of 8 boars and 2 sows.

Average male hide size was 12.5 feet; slightly less than the 5-year average of 12.8 feet.

Four of the 10 bears were aged. Two boars were 2 and 6 years old and the two sows were 7 and 14 years old. Only one bear was harvested in the 1969 spring season and the results of the fall season are not available.

Composition and Productivity:

No herd composition or productivity information were collected in Unit 25.

Management Summary and Recommendations:

Based on the little information we have available, it is recommended the seasons and bag limits remain unchanged.

Submitted by: Mel Buchholtz, Game Biologist II

BROWN-GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 26 - Arctic Slope

Seasons and Bag Limits:

Sept. 1 - Nov. 30 May 15 - 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:

The reported 1969 sport harvest of grizzly bear in Unit 26 was 4 bears. Three were females, and 1 was of unknown sex. 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 1969 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:

Numerous bear sightings were made in September and October 1969, mostly in the vicinity of the Sagavanirktok River. These sightings were limited in scope and did not provide sufficient information on which to estimate the composition or production of the bear population in Unit 26.

Management Summary and Recommendations:

It is recommended that the season be closed or curtailed sharply 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: Oliver Burris, Game Biologist IV

SHEEP

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 7 - Seward

Seasons and bag limits:

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

Harvest and Hunting Pressure:

Based on harvest ticket returns, the kill of rams has been as follows over the past five years:

1965	1966	1967	1968	1969*
22	18	21	52	41

* The harvest reported for 1969 is based on incomplete harvest ticket returns through March 13, 1970 and may be somewhat higher when all returns are in.

Three hundred and fifty-eight hunters reported hunting in the Unit during the 1968 season, of which 52 (14.5 percent) were successful. No data are available at this time for hunting pressure or success for the 1969 season.

Composition and Productivity:

All known sheep habitat in the Unit was covered by an aerial inventory in 1968, and 928 sheep were counted. No classification was attempted of the overall herd.

Classification counts have been conducted on two sample areas within the Unit: Crescent Lake Mountains and Cooper Mountain. The results of these counts were as follows, with sex and age classes shown as ratios to the ewe segments:

Cooper Mountain

Date	Legal MM:FF	Young MM:FF	All MM:FF	Yearl.:FF	Lambs:FF	Total
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

(count not completed due to inclement weather)

Sheep - GMU 7 - Seward

Crescent Lake Mountains

Date	Legal MM:FF	Small MM:FF	All MM:FF	Yearl.:FF	Lambs:FF	Total
6/56	47:100	33:100	80:100	41:100	78:100	136
6/68		(classification incomplete)				296
3/70	4:100	23:100	27:100	31:100	-	255

Results of those surveys which were completed indicate an upward trend in both populations through 1968. The trend in legal rams was down in both areas. There are insufficient data by which to draw conclusions regarding trends in lambing success and survival. The census conducted on Crescent Lake Mountains in March, 1970 indicated a 14 percent decrease in total population since 1968. This decrease may be real or may be due to counting error caused by difficulty in conducting winter counts. In addition, it was conducted before the annual increment of lambs was produced.

Management Summary and Conclusions:

Inventory and classification surveys indicate that the sheep population in Unit 7 had been increasing up until 1968. No adequate data were obtained in 1969, but there is no reason to believe there was any significant change in the trend. Harvest data through 1968 also indicate a population increase as well as a probable increase in hunting pressure.

Counts of a sample area in early 1970 point to a possible decline of its population during the winter of 1969-70. The decline does not appear extensive at this time. Summer counts, when survey conditions are best, are needed to confirm the population status.

Recommendations:

No changes are recommended in seasons and bag limits for the Unit as a whole. An experimental ewe sheep hunt has been proposed for the Crescent Mountains. At this time, it is recommended to continue with plans for this hunt. It can be cancelled at a later date if summer surveys show that a significant natural herd reduction has occurred.

Submitted by: Lyman Nichols, Game Biologist III

SHEEP

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 9 - Alaska Peninsula

Seasons and bag limits:

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

Harvest and Hunting Pressure:

Based on harvest ticket returns, the kill of rams has been as follows over the past five years:

1965	1966	1967	1968	1969*
0	0	6	10	6

* The harvest reported for 1969 is based on incomplete harvest ticket returns through March 4, 1970 and may be somewhat higher when all returns are in.

A total of 15 hunters reported hunting in Unit 9 in 1968, of which 10 (67 percent) were successful. No data are yet available for hunting pressure or success during the 1969 season.

Composition and Productivity:

No information has been obtained during the year.

Management Summary and Conclusions:

Sheep hunting pressure is light for this Unit. There are insufficient data from which to draw further management conclusions.

Recommendations:

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

Submitted by: Lyman Nichols, Game Biologist III

SHEEP

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 11 - Wrangell Mountains - Chitina River

Seasons and bag limits:

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

Harvest and Hunting Pressure:

Based on harvest ticket returns, the kill of rams has been as follows over the past five years:

1965	1966	1967	1968	1969*
131	125	149	215	54

* The harvest reported for 1969 is based on incomplete harvest ticket returns through March 13, 1970 and may be somewhat higher when all returns are in.

A total of 384 hunters reported hunting in Unit 11 in 1968, of which 215 (56 percent) were successful. No data are yet available for hunting pressure or success during the 1969 season.

Composition and Productivity:

No information has been obtained during the year.

Management Summary and Conclusions:

No summary or conclusions can be made at this time.

Recommendations:

No changes in hunting season or bag limit are recommended.

Submitted by: Lyman Nichols, Game Biologist III

SHEEP

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 13 - Nelchina Basin

Seasons and bag limits:

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

Harvest and Hunting Pressure:

Based on harvest ticket returns, the kill of rams has been as follows over the past five years:

1965	1966	1967	1968	1969*
143	154	152	159	153

* The harvest reported for 1969 is based on incomplete harvest ticket returns through March 13, 1970 and may be somewhat higher when all returns are in.

A total of 449 hunters reported hunting in Unit 13 in 1968, of which 159 (35 percent) were successful. No data are yet available for hunting pressure or success during the 1969 season.

Composition and Productivity:

Inventory surveys conducted in 1968 and 1969 covered the north slope of the Chugach Range between Coal Creek and Chitina, which includes almost all known sheep habitat in the Chugach Mountains in Unit 13. A total of 1160 sheep was counted. No classification was attempted during these surveys, and no composition data are available.

A portion of the area between Tazlina and Klutina Lakes was counted in 1960; 122 sheep were recorded. In the 1969 inventory, 312 sheep were observed in the same area, a two and one-half fold increase during the nine-year period. It is not known whether such an increase occurred over the entire area, but observations in other Units do point to a general population rise in the Chugach Mountains.

No surveys were conducted in other portions of Unit 13 in 1969, but past counts of sheep in the Boulder Creek drainage of the Talkeetna Mountains indicate a similar increase as follows:

Year	Total Sheep
1949	45
1951	115
1967	430
1968	460

Sheep - GMU 13 - Nelchina Basin

Management Summary and Conclusions:

Inventory surveys indicate an increasing sheep population in Unit 13. No data on the trend in hunter success are available for the Unit, but the annual harvest of rams has remained relatively constant at about 150-160 animals.

Recommendations:

No changes in season or bag limit are presently recommended.

Submitted by: Lyman Nichols, Game Biologist III

SHEEP

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 14 - Upper Cook Inlet

Seasons and bag limits:

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

Special controls:

West Chugach Management Area: The drainages of the Chugach Range in Game Managements 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 kill of rams has been as follows over the past five years:

1965	1966	1967	1968	1969*
62	49	72	76	93

* The harvest reported for 1969 is based on incomplete harvest ticket returns through March 13, 1970 and may be somewhat higher when all returns are in.

A total of 496 hunters reported hunting in Unit 14 in 1968, of which 76 (15 percent) were successful. No data pertaining to hunting pressure or success are yet available for the 1969 season.

During 1968, 31 rams were reported taken by 282 hunters in the West Chugach Management Area, for a success ratio of 11 percent. Preliminary reports show that at least 34 rams were taken in that area during the 1969 hunt, but no further data are available at this time.

Composition and Productivity:

Inventory surveys conducted in 1967 and 1968 showed a minimum population of 1220 sheep in the Chugach Range of Unit 14 between Turnagain Arm and Coal Creek.

During a survey conducted in 1951, 477 sheep were estimated to inhabit that portion of the Chugach Range between Turnagain Arm and Knik River.

Sheep - GMU 14 - Upper Cook Inlet

During the 1967 survey, 868 sheep were counted in the same area. Scott (USFWS) estimated 185 sheep to be in the area between Knik River and Matanuska Glacier in 1951 (overlaps into Unit 13), while 476 sheep were counted in the same area during the 1968 survey.

A portion of sheep habitat in Unit 14 has been counted repetitively over a period of years. This area includes that habitat between Eagle River and Eklutna Glacier and Lake, and the counts (and early estimates) are as follows:

Year	Number	Source
1949	54	USFWS (Scott)
1950	165	USFWS (Scott)
1951	210	USFWS (Scott)
1955	265	USFWS (Scott)
1956	314	USFWS (Scott)
1967	298	ADF&G (Nichols)
1968	393	ADF&G (Nichols)
1969	403	ADF&G (Nichols)

Classifications of sheep by sex and age on this area (Peters Creek Study Area) in July 1968 and July 1969 are as follows:

Year	Unclas. MM	Young MM	Legal MM	All MM	FF & Yearl.	Lambs	Total
1968	38	14	12	64	242	87	393
1969	-	44	23	67	272	64	403

Data are insufficient to draw any valid conclusions regarding trends in available rams, production or survival on this area.

Classification by sex and age was also undertaken in that portion of the Chugach Mountains in Unit 14 formerly known as the Rainbow Closed Area. Results of these surveys in 1967 and 1969 are as follows:

Date	Unclas. MM	Young MM	Legal MM	FF & Yearl.	Lambs	Unid.	Total
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

Sheep - GMU 14 - Upper Cook Inlet

Management Summary and Conclusions:

The ram harvest in Unit 14 has been increasing gradually over the past five years but insufficient data are available to determine the trend in hunting pressure and success. The relatively low success ratio reported in 1968 is probably normal for the Unit and reflects the large number of resident walk-in hunters from the Anchorage vicinity whose success is generally low.

The West Chugach "walk-in" area appears to have won acceptance by local hunters and is used extensively. The low harvest success in the area is probably due to the ruggedness of the terrain combined with the general inexperience of many of the hunters.

Inventory surveys conducted in Unit 14 indicate an increasing sheep population in the Chugach Mts. No data are available for that portion of the Talkeetna Mts. lying in Unit 14.

Repetitive classification surveys on defined study areas will eventually provide information on the trends in ram abundance, production and survival of lambs, and overall numbers. Such surveys have not yet been conducted over long enough periods to provide very meaningful data.

The former Rainbow Closed Area was opened to sheep hunting for the first time in 1969. To date only six rams have been reported taken in this area. Surveys flown in 1967, and prior to and during the hunting season in 1969, have not provided comparable data because the area boundaries are not finite, topographically, and sheep are free to wander into and out of the area at will. The changes recorded in composition and numbers were probably due to such movement.

Recommendations:

Based on the harvest and population data available, there does not appear to be any reason to change the season or bag limit at this time.

Submitted by: Lyman Nichols, Game Biologist III

SHEEP

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 15 - Kenai Peninsula

Seasons and bag limits:

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

Harvest and Hunting Pressure:

Based on harvest ticket returns, the kill of rams has been as follows over the past five years:

1965	1966	1967	1968	1969*
35	48	47	52	28

*The harvest reported for 1969 is based on incomplete harvest ticket returns through March 13, 1970 and may be somewhat higher when all returns are in.

A total of 133 hunters reported hunting in Unit 15 in 1968, of which 52 (39.1 percent) were successful. No data are yet available for hunting pressure or success during the 1969 season.

Composition and Productivity:

All known sheep habitat in Unit 15 was covered by an aerial inventory survey in 1968, and 1,267 sheep were counted. No classification of the overall herd was attempted.

Classification counts have been conducted on one sample area within the Unit: Surprise Mountain. The results, shown as ratios of sex and age classes to 100 ewes, are as follows:

Surprise Mountain

Date	Legal MM:FF	Young MM:FF	All MM:FF	Yearl.:FF	Lambs:FF	Total
6/56	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)				275
5/69	-	12:100	12:100	29:100	-	207*
3/70	-	12:100	12:100	4:100	-	153*

*Conducted before lambing.

Sheep - GMU 15 - Kenai Peninsula

Survey results show a population increase on Surprise Mountain through 1968, and probably through 1969. The trend in legal rams declined until none were observed in later counts. There are insufficient data from which to draw conclusions regarding trends in lambing success and survival.

The survey conducted in March, 1970 indicated a 44 percent reduction in population from that in 1968 on Surprise Mountain. This is probably a real reduction, although the extent may not be as large as that indicated. Winter conditions appear to have been abnormally harsh on the mountain during the winter of 1969-70.

Management Summary and Conclusions:

Inventory and classification surveys indicate an increase in the Unit 15 sheep population through 1968, and probably through 1969. A harsh winter appears to have caused a herd reduction in at least part of the Unit (Surprise Mountain) during the winter of 1969-70. A summer, 1970 survey will be necessary to determine the extent of this reduction.

The decline in legal rams noted on Surprise Mountain probably does not accurately reflect the trend of this class in the Unit as a whole since Surprise Mountain, being easily accessible, receives higher than average hunting pressure. A number of young rams reaches legal status by hunting season each year even on this mountain, despite the fact that they have not been observed in early-season counts.

Recommendations:

No changes are recommended in seasons and bag limits for Unit 15.

Submitted by: Lyman Nichols, Game Biologist III

SHEEP

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 16 - West Side of Cook Inlet

Seasons and bag limits:

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

Harvest and Hunting Pressure:

Based on harvest ticket returns, the kill of rams has been as follows over the past five years:

1965	1966	1967	1968	1969*
16	6	4	9	13

* The harvest reported for 1969 is based on incomplete harvest ticket returns through March 13, 1970 and may be somewhat higher when all returns are in.

A total of 13 hunters reported hunting in Unit 16 in 1968, of which 9 (69 percent) were successful. Data concerning hunting pressure and success are not yet available for the 1969 season.

Composition and Productivity:

No information is available regarding sheep populations or distribution in Unit 16.

Management Summary and Conclusions:

No summary or conclusions can be made at this time.

Recommendations:

No changes in hunting season or bag limit are recommended.

Submitted by: Lyman Nichols, Game Biologist III

SHEEP

SURVEY-INVENTORY PROGRESS REPORT - 1969

Parts of Game Management Units 9, 16, 17 and 19 - Alaska Range West of McKinley Park (ARW)

Seasons and Bag Limits:

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

Harvest and Hunting Pressure:

The kill of sheep in the ARW does not show any pronounced trends in recent years. The 1962-1969 harvests are as follows (1969 figures incomplete and based on returns as of March 13, 1970):

1962	1963	1964	1965	1966	1967	1968	1969
37	44	60	71	81	65	95	93

Most sheep hunting in ARW is by guided non-residents. Most hunters are transported to hunting areas by aircraft; there are no roads connecting ARW with the main Alaska road system.

The average size of trophies, based on hunters' reports of longer horn length, is greater in ARW than in any other mountain area in Alaska.

Composition and Productivity:

Little information has been gathered on herd composition and productivity.

Management Summary and Recommendations:

The greatest present use of this sheep population and most probable use in the near future is as a source of trophy sheep. With the relatively low hunting pressure on the population, no changes in seasons or bag limits are needed to insure continued availability of good trophies.

Submitted by: James Erickson, Game Biologist II

SHEEP

SURVEY-INVENTORY PROGRESS REPORT - 1969

Parts of Game Management Units 12, 13, and 20 - Alaska Range East of McKinely Park (ARE)

Seasons and Bag Limits:

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

Harvest and Hunting Pressure:

The complete 1969 information is not available, but 1962-1968 figures may be found in Volume X, Alaska Department of Fish and Game Segment Report on Sheep. Hunting pressure increased from 1967 to 1968. The number of hunters rose from 310 to 578 and the kill from 120 to 195 rams from 1967 to 1968. Hunters' reports (as of March 13, 1970) indicate a kill of 164 rams in 1969.

Composition and Productivity:

Starting in 1967, blocks of several drainages at a time have been inventoried. Only one portion of the ARE remains uncounted. So far, the total number of sheep seen is 3668. In the uncounted area, I estimate that about 500 sheep will be seen. This will total about 4200 sheep counted for the entire ARE. Our estimations, based on ratio changes among seasonal counts, indicate that we see about 70 to 90 percent of the true number of sheep. These are, however, just semi-informed guesses, but they do put the number of sheep in the ARE at about 4700-6000 animals.

Lamb:ewe and yearling:ewe percentages as calculated from June 1969 observations at a mineral lick in Dry Creek were 63.5 and 31.4, respectively.

About seven year-classes make up most of the "available" standing crop of legal rams in a sheep populations such as that found in the ARE (Year-class = all the sheep born in the same year.) A year-class will be in this "available" category from about age 5 years until all are dead. Sheep younger than 5 years old are seldom found in the available category. One or more consecutive years of poor lamb crops and/or poor survival to yearling age could result in a dearth of rams as these year-classes are passing through the "available" category. Conversely, several consecutive good lamb crops with good survival could significantly boost the number of available sheep as these year-classes pass through the available category. At Dry Creek (Alaska Range 45 miles east of McKinley Park) the 1968 year-class started out large, and a high percentage passed through the high-mortality-stage to reach yearling age. The 1969 year-class may do the same. Before this, the 1966 year-class did very poorly, and the 1967 year-class did not do much better. We expect then, that beginning in 1971 (1966 + 5), the available category may begin a decrease in

number, but that in 1973 (1968 + 5) the 1968 year-class will enter the available category and an increase may begin. The relative sizes of succeeding year-classes, tempered by mortality factors, govern the trend in number of available rams.

Management Summary and Recommendations:

Despite probable changes in size of the standing ram crop from year to year, I don't recommend altering season length or using other means to affect some specific changes in harvest potentials over the whole area.

Submitted by: James Erickson, Game Biologist II

SHEEP

SURVEY-INVENTORY PROGRESS REPORT - 1969

Parts of Game Management Units 20 and 25 - Tanana Hills-White Mountains

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:

The sheep inhabiting this area are widely scattered on remnants of a formerly larger area of sheep habitat. Hunting pressure in general is very light. According to harvest report cards, 58 people hunted in 1968 and killed 22 rams while 23 hunted in 1967 and killed 8 rams. The 1969 information is not yet available.

This is one of the few areas in the state where boats are important in the transportation of sheep hunters.

Composition and Productivity:

A distribution and abundance survey of this area, attempted in 1969, was unsuccessful because of mid-summer snow storms. A summary of available inventories from years past indicates a population of more than 850 sheep may be present in the Tanana Hills - White Mountains area.

Management Summary and Recommendations:

This is a very lightly hunted area, but the sheep are in small, widely scattered groups and are subject to harvest beyond annual trophy production capabilities of each group. To insure a sustained yield of trophies then, some regulation change may eventually need to be made. For now, no changes in seasons or bag limits are recommended.

Submitted by: James Erickson, Game Biologist II

SHEEP

SURVEY-INVENTORY PROGRESS REPORT - 1969

Parts of Game Management Units 23, 24, 25, and 26 - Brooks Range

Seasons and Bag Limits:

Aug. 1 - Sept. 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 relatively greater role in influencing hunting success in the Brooks Range than in other mountain areas. The weather during the 1969-70 hunting season was poor for sheep hunting and the reports of hunters (as of March 13, 1970) indicate a harvest of 66 rams in 1969. The 1962 - 1968 harvests were as follows:

1962	1963	1964	1965	1966	1967	1968
85	178	133	99	133	105	144

Reports indicate 156 people hunted sheep in the Brooks Range in 1967 and 201 in 1968.

Composition and Productivity:

No production or sex and age composition surveys, or any other thorough inventories have been made in the Brooks Range since 1963. However, as indicated by the average age of sheep taken, overall harvest is light and therefore the populations in general are affected little by hunting. The average age of 40 rams killed during the 1968 and 1969 seasons was 8.35 years compared with 7.46 years for 82 rams from the Alaska Range east of McKinley Park, and 5.97 years for 48 rams from the Kenai Mountains.

Management Summary and Recommendations:

No changes in the hunting season and bag limits are recommended. However, it is recommended that non-trophy sheep that have traditionally been hunted for food and clothing by the people of the eastern Brooks Range be made legal game for hunters under terms of a permit issued by the Commissioner of Fish and Game during a winter season. These non-trophy sheep are harvested on a sustained yield basis now, but illegally. The proposal is to accommodate the tradition within the law.

Submitted by: James Erickson, Game Biologist II

FUR BEARERS

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 8 - Kodiak and Adjacent Islands

Seasons and bag limits:

Beaver	Nov. 10 - May 15 no limit
Red fox	No closed season
Land otter	Nov. 10 - March 31 no limit

Harvest and Hunting Pressure:

The harvest of fur bearers in Unit 8, as indicated by beaver sealing records and personal interviews with local trappers, is estimated as follows: beaver - 174; otter - 206; fox - 167. Fox and beaver are taken primarily by recreational trappers and hunters.

Composition and Productivity:

No information is presently being gathered on these species.

Management Summary and Conclusions:

Harvest of fur bearers is relatively light, with most species except otter being taken by recreational trappers.

Recommendations:

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

Submitted by: Jack E. Alexander, Game Biologist II

HARBOR SEAL

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Units 1-16 - Coastal Waters

Seasons and bag limits:

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

Harvest and Hunting Pressure:

Completed reports indicated that, during the 1969 hunting season, 7,737 seal pups were known to be killed by commercial operators. Major hunting areas and known kill are as follows: Tugidak Island, 900; Port Heiden, 2,379; Port Moller, 1,230; Cinder River, 526; Kodiak Island area, 1,300; and Icy Bay, 1,000. The aforementioned figures do not include hunting losses due to sinking or wounding.

Composition and Productivity:

Pup/adult ratios observed during aerial surveys on the north side of the Alaska Peninsula ranged from 25 percent minimum to 35-40 percent maximum.

Surveys made in June and July indicated a seal population that fluctuated between 1,000 and 2,100 animals at Port Heiden and 1,900 to 3,300 animals at Port Moller. One aerial survey on Tugidak Island disclosed a seal population of approximately 7,800 animals. Inclement weather prohibited further surveys. Composition counts were not made at Tugidak Island due to inclement weather.

Management Summary and Conclusions:

Pup/adult ratios and harvest information indicate that seal populations in the aforementioned hunting areas are not being overharvested, although an increase in fur prices and favorable weather conditions can influence the harvest considerably as has already been documented. Some of the methods used in killing seal pups included clubbing, shooting with a .22 caliber rifle, and netting. Netting was used primarily in the Port Moller area with considerable success. Nets were also used in the Port Heiden area later in the season when seal pups become more wary.

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 Divinyi, Game Biologist II

SEA LION

SURVEY-INVENTORY PROGRESS REPORT - 1969

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:

Commercial operators harvested a total of 5,208 sea lion pups on two sea lion rookeries in the Kodiak Island area; 2,692 pups were pelted out at Sugarloaf Island during the period of June 2 to June 20; and 2,516 pups were taken at Marmot Island from June 14 to July 2. Total harvest from these islands in previous years was: 4,118 in 1968; 4,855 in 1967; 3,050 in 1966; 3,029 in 1965 and 1,500 in 1964. Six adult animals were reported taken for mink food at Sitkalidak Island.

Composition and Productivity:

The Steller sea lion population in Alaska is probably at the carrying capacity for its habitat. Although no complete surveys of sea lion rookeries have been made since 1959, there is no information to indicate that the population is either increasing or declining.

The population on Sugarloaf Island fluctuates from year to year, but does not appear to be affected by the pup harvest which has taken place there since 1964. The population at Marmot Island has remained fairly constant and annually produces between 5,000 and 6,000 pups.

Management Summary and Conclusions:

The harvest at Sugarloaf Island was closed by field announcement on June 20 when a survey of the island indicated that approximately 1,500 pups remained. The harvest of 2,516 pups at Marmot Island was less than 50 percent of the total pup production and the season was not closed. Commercial operators generally complete their harvest by July 1 because most of the pelts taken after that date are badly damaged.

Surveys of other pupping rookeries are being conducted to obtain information helpful for future harvest operations and to gather background data. Akutan Island and Ugamak Island were inventoried in 1969. Infrared sensing, as a method of enumerating sea lion populations, may be tested in the spring of 1970.

Recommendations:

No changes in seasons or bag limits are recommended.

Submitted by: John S. Vania, Game Biologist IV

SEA OTTER

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Units 1-16 - Coastal Waters

Seasons and bag limits:

Units 1 through 26 — No open hunting season

Harvest and Hunting Pressure:

No sea otters were harvested in 1969; however, 251 were removed from Amchitka Island during a transplant operation and scientific studies. Fifty-eight of these were released in southeastern Alaska, 29 in British Columbia, 29 in Washington, and 4 were given to the Tacoma Zoo.

Composition and Productivity:

Populations on islands from Amchitka Island to Atka Pass remain high, probably at or above the carrying capacity of the habitat. Substantial populations exist from Atka Pass to Sequam Island and appear to be increasing rapidly. These populations are still well below their potential size, however.

Scattered sea otters occur between Amukta and Unimak Passes. There appears to be a steady increase in this area but the population is still very low. Large populations continue to exist north of Unimak Island and in the southern Shumagin Islands. These populations are probably expanding, but more complete counts should be made in the future. Transplanted populations in the Pribilof Islands and Yakutat Bay appear to be established in at least small numbers. A well established transplanted population exists on the west side of Chichigof Island where a minimum of 41 sea otters, including 7 pups, was located.

Management Summary and Conclusions:

A usable age determination technique has been worked out. Much information on the reproductive cycle has been gathered; however, more late winter through early summer material is needed. Survey techniques have been compared. Infrared sensing and photography may be tested.

Recommendations:

Sea otters should be harvested from the islands between Kiska and Kagalaska Islands. The harvests should be controlled and conducted on a rotation basis with each island being hunted every three years. Amchitka will be hunted every year as a study area.

Submitted by: Karl B. Schneider, Game Biologist IV

BISON

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 11 - Wrangell Mountains-Chitina River (Copper and Chitina River Herds)

Seasons and bag limits:

by Commissioner's announcement.

Harvest and Hunting Pressure:

Copper River Herd. A limited hunt, requiring hunters to register in and out of the hunting area, has been held on the Copper River bison herd for the last six years. Each year has seen an increase in the number of registrants. The kill has been held to approximately 15 animals per year by terminating the hunt when that number has been taken. Overall interest in the hunt is minimal as indicated by the fact that last year's 74 registrants was the highest number of participants to date. Hunters using aircraft normally account for 90 percent or more of the kill.

The 1968-1969 season was open October 12 to 16, during which time 16 bison were taken. Nine of these animals were females and seven were males. Age determination of the harvested animals has not yet been made. Blood samples taken from 13 of the kills were tested for brucellosis with negative results.

One tagged animal was harvested during the 1969 season. It was a cow which was released as a 17 month-old animal in 1951.

Chitina River Herd. No hunting allowed.

Composition and Productivity:

Copper River Herd. Surveys, most successfully made in early summer when animals are on river bars, show the herd to be stable at about 125 animals. Calf representation at that time varies from 18 to 25 percent, which compares very favorably with that of the intensively managed herd at the National Bison Range in Montana. Surveys have been directed at total population estimates and calf production. These surveys will be expanded to include ground counts to segregate bison into age classes, particularly yearlings and adults. It is very difficult to segregate age classes from aircraft.

The 1969 surveys were conducted in July. One hundred and six bison were counted of which 20, or 18.9 percent, were calves.

Chitina River Herd. Surveys of this herd were also conducted in July. Only 15 bison were seen, none of which were calves. During a flight in February, 1970, 13 bison, including one very small calf of the year, were seen.

In addition to these observations, a sheep hunter recently reported that

while on a reconnaissance trip in May he observed and photographed a herd of bison, at the mouth of the Tana River, which contained five or six newborn calves. I have been unable to confirm the presence of bison there and find it difficult to believe. Jack Wilson, a veteran bush pilot who is more familiar with these animals than anyone, also questioned the latter observation.

Management Summary and Conclusions:

Copper River Herd. Scarcity of winter range apparently limits the Copper River bison herd to approximately 125 animals. Hunter interest and survey techniques are such that we can manage these animals on a sustained yield basis, allowing for an annual harvest of slightly less than the observed annual calf crop. The regulations governing past years' hunts allow this to be nicely accomplished.

Chitina River Herd. The Chitina River herd lives year-round on the bars of the upper Chitina River, which is an arid area that supports very little vegetation. Limited production, marginal range and potential competition with an active horse grazing lease make the outlook rather bleak for this group of bison.

Recommendations:

No management recommendations are made at this time.

Submitted by: Loyal J. Johnson, Game Biologist III

BISON

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 19 - McGrath (Farewell Herd)

Seasons and Bag Limits:

None

Harvest and Hunting Pressure:

None

Composition and Productivity:

An aerial survey in June revealed 49 bison, 11 of which were newly born calves.

Management Summary and Recommendations:

The animals appear healthy and calf production is normal. This herd was established in 1965 and is growing. No hunts should be allowed at present.

Submitted by: Richard Bishop, Game Biologist III

BISON

SURVEY-INVENTORY PROGRESS REPORT - 1969

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 1969 harvest of the Big Delta Bison herd consisted of 15 mature bison, 6 of which were females. There was no hunt of the Healy Lake herd.

The managed Big Delta hunt was held on September 22 through September 27. Fifteen hunters were selected from 2,019 applicants. All hunters were successful.

Mortality from causes other than hunting was 16 bison for the Big Delta Herd.

Composition and Productivity:

An aerial survey of the Big Delta herd in June revealed 203 bison, 49 of which were newly born calves. In May, an aerial survey of the Healy Lake herd revealed 38 bison, 6 of which were calves.

Management Summary and Recommendations:

Calf production in the Big Delta herd was normal. The fall population in this herd was estimated to be 250 animals, which appears to be the optimum number for the present range conditions. Managed hunts should be continued to keep the population at the present level.

Counts of the Healy herd have varied from a high of 63 animals in 1964 to a low of 25 in 1968. This is attributed to the difficulty in observing these animals. The area occupied by this herd has a large percentage of spruce forest. The fall population was estimated to be 50 bison. A managed hunt of this herd should be considered for 1970.

Submitted by: Bill Griffin, Game Biologist III

GOAT

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 6 - Prince William Sound

Seasons and bag limits:

Aug. 1 - Jan. 31 2 goats

Harvest and Hunting Pressure:

The 1969-70 harvest is estimated at 100 goats in Unit 6. A more accurate picture of the harvest will be obtained for the first time with the aid of the Hunter Questionnaire. Hunters are not required to submit the questionnaire until April 15, 1970; however, so the 1969 harvest will be recorded in the 1970 report.

Hunting pressure is basically concentrated in two areas: the Copper River Highway to mile 27, and the Suckling Hills. In addition, a Forest Service cabin on Martin Lake provides limited hunting on Ragged Mountain for float plane hunters.

The Chugach Mountains north of the Copper River Highway are accessible to Cordova hunters for walk-in hunting. To a lesser degree, airplanes, air boats and snow machines are used. The Suckling Hills have become very popular within the last two or three years for ski-equipped airplane hunters. There are six or seven locations where a ski plane can land on top of the mountain for easy goat hunting.

Composition and Productivity:

Goat surveys were flown September 16 and 17, 1969 in two areas to obtain distribution and population data. The surveys were flown under excellent counting conditions by Lyman Nichols and Julius Reynolds. The first area was north of the Copper River Highway between Rude River and the Copper River. A total of 307 goats was counted of which 67 were kids and 240 were adults, for a ratio of 27.9 kids per 100 adults, or 21.8 percent of the herd. On the second area, Ragged Mountain, 159 goats counted (28 kids and 131 adults) revealed ratios of 21.4 kids per 100 adults or 17.6 percent of the herd.

Management Summary and Conclusions:

Considering the abundance, distribution and age ratios, neither area surveyed exhibits any problems associated with current hunting pressure.

Several hunters have expressed concern for the goat population on Suckling Hills which will warrant a survey in the near future.

Recommendations:

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

Submitted by: Julius L. Reynolds, Game Biologist III

GOAT

SURVEY-INVENTORY PROGRESS REPORT - 1969

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:

Very little is known about harvest or hunting pressure on goats in Unit 7. A method of measuring the harvest and hunting pressure was not available until the inception of the harvest ticket packet and questionnaire in 1969. Information from the questionnaire is not available at this time.

Composition and Productivity:

Composition counts were conducted in 1968 over all of Unit 7 except that portion south of Northwestern Glacier and the area north of Turnagain Arm and Portage Creek. Of the 1,101 goats observed, 764 were adults, 295 were kids and 42 were unclassified. The ratio of kids to adults was 38.7:100.

Two areas were selected to be counted annually as trend count areas. An annual count of the entire Unit is not practical because of budget limitations. No significant change was noted between the combined trend count areas from 1968 to 1969 (Appendix I).

In addition to the trend counts conducted in 1969, the area north of Turnagain Arm and Portage Creek was inventoried. A total of 101 goats was counted, with an observed age ratio of 38.4 kids to 100 adults.

Management Summary and Conclusions:

Productivity appears high, although there is almost no information available by which to judge normal goat productivity in Alaska. Ratios of 32 to 39 kids per 100 adults should indicate ratios of 64 to 78 kids per 100 adult females, assuming a balanced adult sex ratio.

Generally, goat populations in Unit 7 appear to be in good condition, though their status is difficult to assess with the limited data presently available. Two exceptions may be the herds on Cooper Mountain and in the area west of Six-mile Creek to the Seward Highway; Seward Highway to Sterling Highway,and north of the Sterling Highway. Both of these areas have small populations of goats and are accessible to the highway system. They bear careful watching to insure against overharvest.

Goat - GMU 7 - Seward

Recommendations:

No change is recommended in season or bag limits.

Submitted by: Paul A. Le Roux, Game Biologist III

Appendix I. Goat age composition and production data (Unit 7 trend count areas).

Year	Adults	Kids	Kids Per 100 Adults	Total Sample Size
1968	202	65	32.1	267
1969	186	60	32.2	246

GOAT

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 8 - Kodiak and Adjacent Islands

Seasons and bag limits:

Sept. 1 - Sept. 30 10 goats by permit

Harvest and Hunting Pressure:

The 1969 goat harvest equalled that of 1968. Six animals, 5 male and 1 female, were taken.

Fourteen persons were eligible to hunt. Of this number, 11 hunted.

Composition and Productivity:

Eighty-eight goats, 73 adults and 15 kids, were observed during the 1969 trend counts. This is 19 percent above the 1968 count.

Management Summary and Conclusions:

Trend information indicates goat numbers are increasing by approximately 20 percent annually despite limited hunting.

Recommendations:

It is recommended that the harvest remain approximately the same or be allowed to increase only slightly until further population data are collected.

Submitted by: Jack E. Alexander, Game Biologist II

GOAT

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 11 - Wrangell Mountains - Chitina River

Seasons and bag limits:

Aug. 10 - Dec. 31 2 goats

Harvest and Hunting Pressure:

No data are available.

Composition and Productivity:

No data are available.

Management Summary and Conclusions:

Goats are present in unknown numbers in the southern portion of the Unit. A limited amount of hunting pressure is exerted, mostly by sheep hunters. Surveys should be initiated to at least delineate areas occupied by goats.

Recommendations:

No changes in seasons or bag limits are recommended.

Submitted by: Loyal J. Johnson, Game Biologist III

GOAT

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 13 - Nelchina Basin

Seasons and bag limits:

Aug. 10 - Dec. 31 2 goats

Harvest and Hunting Pressure:

No data are available at this time.

Composition and Productivity:

During sheep inventory surveys in 1968 and 1969, 132 goats were counted on the north slopes of the Chugach Range between Coal Creek and Chitina in Unit 13. The area between Tazlina and Klutina Lakes was surveyed in 1959 and again in 1969, showing an increase from 15 (14 adults and 1 kid) to 110 (100 adults and 10 kids).

Management Summary and Conclusions:

Insufficient information is known about goats in Unit 13 to enable the drawing of meaningful conclusions about their status. Surveys should be initiated to further delineate areas occupied by goats and to determine trends in populations.

Recommendations:

No changes in season or bag limit are recommended.

Submitted by: Loyal J. Johnson, Game Biologist III

GOAT

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 14 - Upper Cook Inlet

Seasons and bag limits:

Aug. 10 - Nov. 15 1 goat

Harvest and Hunting Pressure:

Very little is known about hunter pressure on goats in Unit 14. In 1969-70, a harvest questionnaire was initiated to provide some information but the results are not yet available.

Composition and Productivity

A composition count was flown on July 16 and 17, 1969 in the area formerly described as the Rainbow Closed Area. Thirty adults and 9 kids were seen for a total of 39 goats present. On August 18, 1969, another flight was conducted and 21 goats were seen, 16 adults and 5 young. Twenty-one goats were also counted in the area on August 26, 1969.

Management Summary and Conclusions:

Although it appears that the goat population was reduced in a portion of Subunit 14(C), it is difficult to determine what movement, if any, occurred during the hunting season to areas contiguous with the former Rainbow Closed Area. Since the area does lie close to Alaska's largest human population center, excessive hunter pressure could be generated in the area, particularly by sheep hunters who take goats incidentally.

Recommendations:

In order to reduce incidental goat kill by sheep hunters, a season of September 21 to November 15 is proposed.

Submitted by: Jack C. Didrickson, Game Biologist III

GOAT

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 15 - Kenai Peninsula

Seasons and bag limits:

Aug. 10 - Dec. 31 2 goats

Harvest and Hunting Pressure:

As with other units, no measure of hunting pressure or harvest was available until the inception of the harvest ticket packet and questionnaire in 1969. Information from the questionnaire is not available at this time.

Composition and Productivity:

Goat surveys were conducted in Unit 15 during 1968 in all parts of the Unit except the area south of China Poot Bay. Of 507 goats observed, 390 were adults and 117 were kids. The ratio of kids per 100 adults was 30:100. No counts were conducted in Unit 15 during 1969.

Management Summary and Conclusions:

Thirty kids per 100 adults were observed on 1968 surveys. This level of productivity, although slightly lower than that observed in Unit 7, appears to be good. Without harvest or comparable census data, no meaningful conclusions can be drawn regarding utilization or population trends.

Goat ranges in Unit 15 are almost totally inaccessible except by aircraft or boat. Limitations on the use of aircraft on the National Moose Range further reduce access on a large part of the Unit's goat range. Because access is so limited, harvest of goats is thought to be very low.

Recommendations:

No change in seasons or bag limits is recommended.

Submitted by: Paul A. Le Roux, Game Biologist III

WOLF

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 13 - Nelchina Basin

Seasons and bag limits:

Oct. 1 - April 30 No limit

Harvest and Hunting Pressure:

Complete harvest data are no longer available in the absence of bounty records and there are no substitutes in the form of mandatory sealing or reporting. Only aerial permittees are required to report their kill. Data are incomplete for Fiscal Year 1970. Table 1 lists available harvest statistics from 1966, when the season was opened on wolves in Unit 13.

Table 1. Wolf harvest from bounty and aerial permit records, Unit 13.

Fiscal Year	Male	Female	Unknown	Total	Aerial Permits Issued	Aerial Shooting Kill
1966	43	20	-	64	-	-
1967	20	11	-	31	-	-
1968	67	52	1	120	107	70
1969	-	-	13	13*	88**	13
1970	-	-	2	2***	166	2

* No bounty, no sealing required. Reported kill from aerial permittees, only.
** Incomplete data.
*** No bounty, no sealing required. Reported kill from aerial permittees to date - incomplete.

Composition and Productivity:

Meaningful data are not available. One reliable trapper-guide, who has spent some time observing wolves in the area both in summer and in winter, believes wolves to be more abundant now than they have been for the past several years.

Wolf - GMU 13 - Nelchina Basin

Management Summary and Conclusions:

Without adequate data, valid conclusions cannot be drawn regarding the status of wolves in Unit 13.

Recommendations:

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

Submitted by: Loyal J. Johnson, Game Biologist III

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 19 - McGrath

Seasons and Bag Limits:

No closed season	3 bears; provided that not more than 1 should 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:

No harvest or hunting pressure information is available on black bear in this area.

Composition and Productivity:

No composition or productivity information on black bear are available in this area. Observations from hunters, trappers and others indicate that populations in Unit 19 seem to be increasing, after a definite decline reported in 1964.

Management Summary and Recommendations:

No recommendations relative to management can be made at this time.

Submitted by: Richard Bishop, Game Biologist III

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1969

Game Management Unit 20 - Fairbanks-Central Tanana

Seasons and Bag Limits:

No closed season	3 bears; provided that not more than 1 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:

Sport harvest of black bear in Unit 20 is not known. Based on the frequency of inquiries received at the Fairbanks office of the Department of Fish and Game and the incidental report of black bear on fur export reports, it appears that interest in hunting black bear, and probably hunting pressure on black bear, has slowly been increasing over the past years.

Composition and Productivity:

No composition and productivity information on black bear are available from this area. Numerous reports received at the Fairbanks office of the Department of Fish and Game in 1969 concerning nuisance complaints of black bear indicate an increase in complaints over previous years, and many of the complaints obviously involved young or small bears. It can safely be concluded that the bear population is increasing in Unit 20. The very mild winter of 1969 and 1970 should not adversely affect the population. An increased bear population is anticipated in 1970.

Management Summary and Recommendations:

With a potentially larger bear population in 1970, the sport hunting of black bear should be encouraged, particularly in the spring and particularly adjacent to popular recreational areas which will be used more extensively by the general public in the summer. Proper dump and garbage handling should be encouraged throughout the area to reduce the attractiveness to black bear and discourage the killing of black bear in defense of life and property. Changes in seasons and bag limits are not recommended at this time.

Submitted by: Oliver Burris, Game Biologist IV