

ALASKA DEPARTMENT OF FISH AND GAME

JUNEAU, ALASKA

STATE OF ALASKA
Bill Sheffield, Governor

DEPARTMENT OF FISH AND GAME
Don W. Collinsworth, Commissioner

DIVISION OF GAME
W. Lewis Pamplin, Jr., Director
Robert A. Hinman, Deputy Director

ANNUAL REPORT OF
SURVEY-INVENTORY ACTIVITIES

PART II. MOUNTAIN GOAT AND SHEEP

Edited and Compiled by
Joann A. Barnett, Publications Technician

Volume XIV

Federal Aid in Wildlife Restoration

Project W-22-2, Job 12.0 and 6.0

Persons intending to cite this material should obtain prior permission from the author(s) and/or the Alaska Department of Fish and Game. Because most reports deal with preliminary results of continuing studies, conclusions are tentative and should be identified as such. Due credit would be appreciated.

(Printed April 1984)

CONTENTS

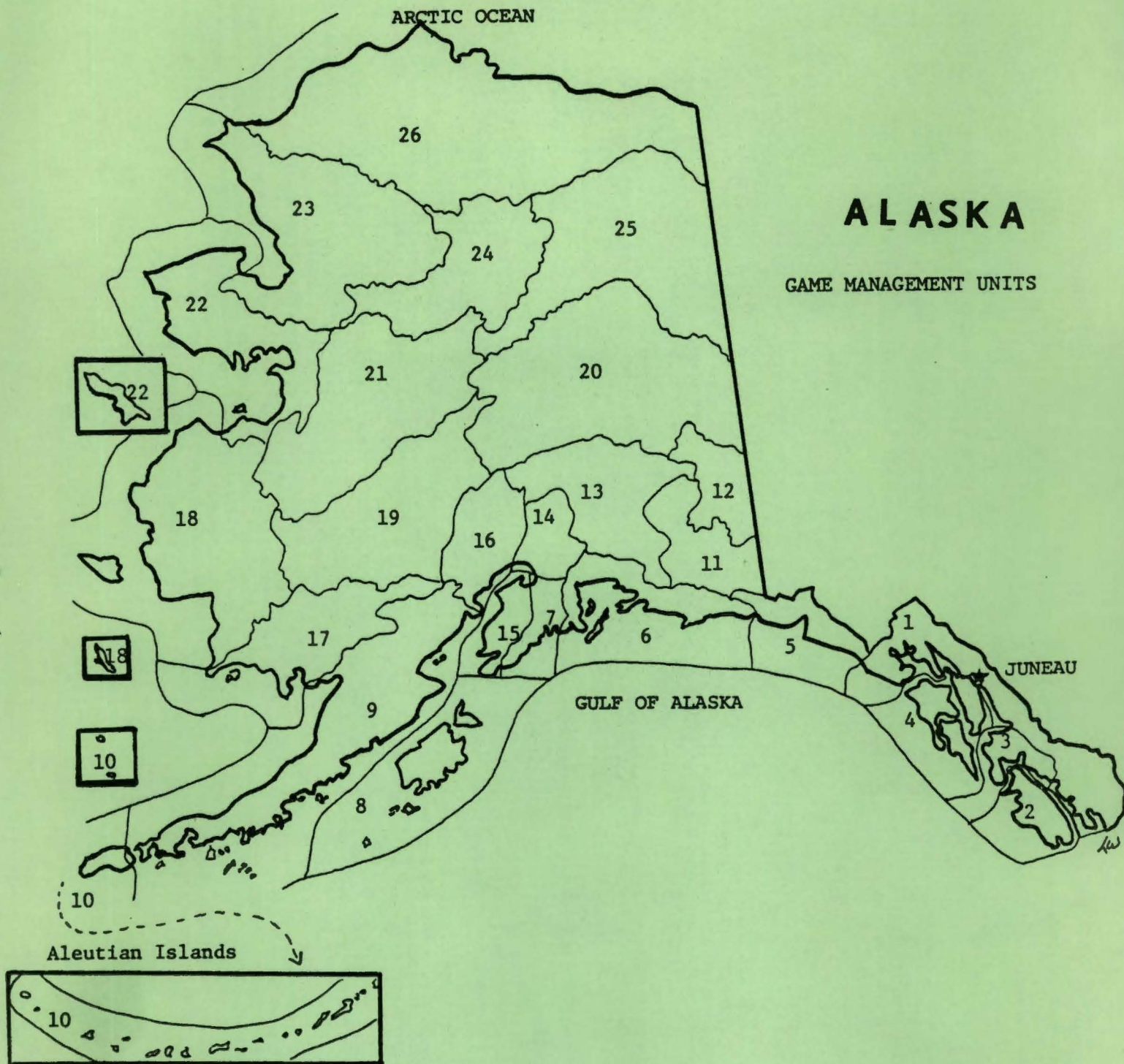
Game Management Unit Map.....	ii
Statewide Harvest and Population Status.....	iii
Game Management Unit/Geographical Description	

Mountain Goat

GMU 1A - Southern Southeast Mainland.....	1
GMU 1B - Southeast Mainland from Cape Fanshaw to Lemesurier Point.....	5
GMU 1C - Southeast Mainland from Cape Fanshaw to the Latitude of Eldred Rock.....	11
GMU 1D - Haines-Skagway.....	15
GMU 4 - Admiralty, Baranof, Chichagof, and Adjacent Islands.....	21
GMU 5 - Yakutat.....	25
GMU 6 - Prince William Sound, North Gulf Coast.....	29
GMU 7 and 15 - Kenai Peninsula.....	34
GMU 8 - Kodiak and Adjacent Islands.....	36
GMU 11 - Wrangell Mountains.....	41
GMU 13 and 14 - Talkeetna and Northwestern Chugach Mountains.....	42

Sheep

GMU 7 and 15 - Kenai Mountains.....	44
GMU 11, 13, and 14 - Chugach Mountains.....	47
GMU 12 - Mentasta, Nutzotin, and North Wrangell Mountains.....	49
GMU 12, 13, and 20 - Tok Management Area.....	51
GMU 13 and 14 - Talkeetna Mountains and Chulitna/Watana Hills.....	53
GMU 13 and 20 - Delta Controlled Use Area.....	57
GMU 16, 17, and 19 - Alaska Range West of Denali National Park.....	59
GMU 20 - Alaska Range East of Denali Park Excluding Tok Management Area and Delta Controlled Use Area.....	61
GMU 20 - Tanana Hills-White Mountains.....	65
GMU 23 - Kotzebue Sound.....	67
GMU 23 through 26 - Brooks Range.....	71



Statewide Harvest and Population Status

Mountain Goat

Mountain goat populations in most Units are reported to be stable or increasing with but 2 exceptions. Goat numbers in the Copper River to Bering Glacier area and the Resurrection Peninsula region of Prince William Sound appear to have declined due to heavy winter losses in 1980-81.

Statewide harvest was 493 goats. Unit 6 provided the greatest harvest (118 goats), followed by Units 7 and 15 (89 goats), Sub-unit 1A (80 goats), and Unit 4 (75 goats).

<u>Unit</u>	<u>Aerial count</u>	<u>Kids/100 adults</u>	<u>Harvest</u>	<u>% hunter success</u>
1A	682	32	80	49
1B	138	23	21	24
1C	613	26	43	36
1D	109	33	25	24
4	506	20	75	34
5	NA	NA	14	31
6	NA	NA	118	NA
7 and 15	594	33	89	21-46
8	249	34	14	45
11	58	29	8	38
14C	336	29	6	18

Sheep

The 1982-83 Statewide harvest of Dall sheep was 1,028, slightly lower than the 1981-82 harvest of 1,049. The largest harvest of Dall sheep was in the Wrangell Mountain Range (305), Brooks Range (178), and Alaska Range East (157). A summary of harvest by mountain range is as follows:

<u>Area</u>	<u>Harvest</u>
Wrangell Mountains	305
Brooks Range	178
Alaska Range East	157
Chugach Mountains	86
Alaska Range West	70
Chulitna-Watana/Talkeetna Mountains	63
Delta Controlled Use Area	41
Tok Management Area	38
GMU 24, Late season hunt	30
Kenai Mountains	23
GMU 26C, Late season hunt	15
Tanana Hills/White Mountains	14
GMU unknown	6
GMU 25A, Late season hunt	2
GMU 23, Late season hunt	0

Robert A. Hinman
Deputy Director

MOUNTAIN GOAT

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 1A

GEOGRAPHICAL DESCRIPTION: Southern Southeast Mainland

PERIOD COVERED: 1 July 1982-30 June 1983

Season and Bag Limit

See Hunting Regulations No. 23.

Population Status and Trend

The Subunit 1A goat population appears to be at a fairly stable, moderately high level. The relatively severe winter of 1981-82 did not seem to have a major impact on goat numbers or production as reflected by results of the September 1982 composition surveys (Table 1). The 1982-83 winter was mild, resulting in minimal winter mortality, and 1983 kid production should be excellent.

Population Composition

Seven survey areas were flown between 29 August and 18 September 1982 (Table 1). Total survey time was 6.9 hours, and 682 goats were seen (99 goats/hour). There were 32 kids/100 adults in the sample.

Mortality

The 1982-83 winter was mild; overwinter mortality was minimal. Spring surveys in the Chickamin River to Rudyerd Bay areas indicated almost the same adult:kid ratios as in fall 1982, indicating excellent overwinter survival. In addition, only 1 of 37 radio-collared goats in the Cleveland Peninsula and Smeaton Bay areas died, and its death was not caused by excessive snow.

Goat hunting in Southeast has been on a registration permit system for 3 years. This year a 2nd permit was available for portions of GMU's 1A and 1B. Hunters who had killed a goat and returned their 1st permit hunt report could obtain a 2nd permit. There were 277 1st permits and 19 2nd permits issued from the Ketchikan office for the 1982 season. One hundred sixty-two hunters killed 80 goats (41 males and 39 females) in GMU 1A in 469 hunter-days. Success was 49%, and 5.9 hunter-days were expended/goat taken (Table 2).

The number of hunters remained essentially the same as in 1981, but the kill increased 14%. Only 1 hunter reported taking 2 goats. Of the 296 permits issued (1st and 2nd permits), all but 7 hunt reports have been returned. Several late reporting or nonresponding hunters were cited.

Thirty-nine percent of the harvest occurred in September, 30% in October, and 21% in August. November and December had the smallest portion of the harvest, with 3% and 7%, respectively.

Primary means of transportation to the hunting area was about the same as last year. Air transportation was used by 82% of both successful and unsuccessful hunters; boats were used for the remaining 18%. Most of the boat use occurs in November and December.

The harvest distribution was similar to 1981 except for the Rudyerd Bay to Smeaton Bay area which dropped from 21% to 10%. The Yes Bay to Eagle River area accounted for 26% of the harvest compared to 20% last year. The Unuk River to Chickamin River area was the same as 1981, with 21% of the harvest; the Chickamin River to Rudyerd area harvest rose from 24% in 1981 to 30% this year. The remainder of Subunit 1A accounted for 13% of the harvest.

Management Summary and Recommendations

Subunit 1A goat populations appear to be at excellent levels. The harvest remains relatively low and is fairly well distributed over the Unit.

The mild winter of 1982-83 allowed excellent overwinter survival, and good production is expected.

The only problems foreseen for the goats in Subunit 1A are in the lower Cleveland Peninsula and the Quartz Hill molybdenum mine area. The lower Cleveland Peninsula supports few goats, and current USFS plans call for roading and logging of the area in the near future. In addition, the USFS is in the process of granting outfitter-guide permits which could greatly increase the hunting pressure in the area.

The road to the Quartz Hill area will be completed by fall 1983. It will provide easy access to much of the goat habitat in that area, and the goat harvest is expected to increase because of the large number of people employed on the project.

Both the Quartz Hill and Cleveland Peninsula areas will require additional hunting restrictions if goat populations are to be maintained.

PREPARED BY:

SUBMITTED BY:

Robert E. Wood
Game Biologist III

Donald E. McKnight
Regional Supervisor

Table 1. Subunit 1A mountain goat composition surveys,
August-September 1982.

Area	Date	No. adults	No. kids	No. goats	Total survey (hr)	Goats/ hour	Kids/ 100 adults
K-3 ^a	9/15/82	26	10	36	.5	69	38
K-4	9/18/82	64	23	87	1.0	84	36
K-5	9/17/82	118	48	166	1.6	105	41
K-6	No survey						
K-7	No survey						
K-8 ^a	9/3/82	52	13	65	.7	89	25
K-9	9/13/82	104	25	129	1.4	96	24
K-10	9/16/82	99	26	125	1.2	106	26
K-11	8/29/82	20	8	28	.2	129	40
K-11	9/12/82	32	14	46	.3	184	44
Totals		515	167	682	6.9		
Means						99	32

^a Partial surveys.

Table 2. GMU 1A goat harvest and hunter success, 1972-1982.

Season	M	F	Unk.	Total	Taking 2 goats	% harvest by nonres.	No. succ. hunters	No. total hunters	% hunter success
1972	23	23	2	48	6	--	42	117	36
1973	36	20	4	60	10	22	50	133	38
1974	26	19	2	47	10	13	37	109	34
1975	8	0	--	17	^a	24	17	93	18
1976	10	5	--	15	--	0	15	55	27
1977	19	16	2	37	--	14	37	80	46
1978	10	13	0	23	--	0	23	55	42
1979	19	10	0	29	--	Unk.	29	39	74
1980 ^b	23	37	0	60	--	7	60	131	46
1981	36	34	0	70	--	27	70	158	44
1982 ^c	41	39	0	80	1 ^c	23	80	162	49

^a Bag limit reduced from 2 to 1 in 1975.

^b Registration permit system; mandatory reporting required (started 1980).

^c Second permit issued to reporting, successful hunters; 2nd permits treated as separate hunters.

MOUNTAIN GOAT

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 1B

GEOGRAPHICAL DESCRIPTION: Southeast Mainland from Cape Fanshaw
to Lemesurier Point

PERIOD COVERED: 1 July 1982-30 June 1983

Season and Bag Limit

See Hunting Regulations No. 23.

Population Status and Trend

Surveys indicate that Subunit 1B goat populations are stable. Some herds are relatively untouched because of poor accessibility, while accessible populations are subjected to heavy hunting pressure.

Population Composition

Population surveys were conducted during August using fixed-wing aircraft (Cessna 170 or Piper Super Cub). Clear days or high overcast days were normally selected for survey flights. Surveys were initiated just after sunrise to reduce the probability of air turbulence. The count on 16 August followed several days of warm temperatures and sunshine, and no goats were seen (Table 1). A subsequent flight over the same area followed a series of cool, overcast days; 27 goats were observed.

Five hours were spent surveying goat ranges in Subunit 1B from Baird Glacier to the Stikine River. Budget limitations did not permit census of the entire GMU 1B goat range. The combined August count showed a ratio of 24.6 kids:100 adults ($N = 183$) as compared to an average of 21 kids:100 adults in 1981.

In 1982, 186 mountain goat registration permits were issued, 6.1% fewer than in 1981 (Table 2). Of the hunters obtaining permits, 98 (53%) did not hunt mountain goats in 1982. Twenty-four percent of those hunting killed a mountain goat, a decrease from an impressive 40% in 1981. The percentage of females in the harvest decreased from 42% in 1981 to 33% in 1982.

Several factors influence the timing of the Subunit 1B goat harvest. After September, storm systems from the southeast and north preclude air or boat travel to goat ranges. The hunting season is purposely long to permit hunters to take advantage of brief periods of calm, clear weather which are dispersed throughout the 5-month season. Alpine lakes can usually be used as floatplane landing sites until late fall, when they freeze.

November and December hunts usually originate from saltwater areas. Snow accumulates in the alpine areas by mid-October, and goats begin to utilize spruce-hemlock forests at lower elevations.

Thirty-eight percent of the harvest occurred during August, 52% during September, and 10% during October (Table 3). No goats were killed in November or December. Successful hunters averaged 1.3 days of hunting, and unsuccessful hunters averaged 2.6 days. Hunting effort for successful and unsuccessful hunters combined in 1982 was 2.3 days/hunter as compared to 3.3 days and 2.6 days in 1981 and 1980, respectively.

The majority of the hunters (61%) in Subunit 1B used boats to get to hunting areas, while 39% used aircraft. Of the hunters who succeeded in taking a goat, however, 58% used aircraft and only 42% used boats as a transportation means.

Hunting pressure was proportional to accessibility. The Horn Cliffs area, which is easily reached by skiff from Petersburg, received 30.5% of the hunting pressure but contributed only 4.5% of the harvest. The Stikine-LeConte Wilderness Area, which received 24.5% of the hunting effort, contributed 42.5% of the total goat harvest. Hunting effort by area is displayed in Table 4. The total number of excursions by goat hunters in Subunit 1B was 94.

Management Summary and Recommendations

The Horn Cliffs area continued to be the most popular hunting site in Subunit 1B. August surveys indicated a minimum population of 31 goats in the Horn Cliffs area (Table 1), but only 1 goat was taken there. The Stikine-LeConte Wilderness Area and Swan Lake were the most productive harvest areas.

The percentage of females in the harvest decreased from 42% in 1981 to 33% in 1982. A total of 21 goats was harvested in 1982, a decrease of 43% from the 37 goats harvested in 1981. Most of this decline can be attributed to the lack of success at Horn Cliffs.

Late summer surveys should be continued, and spring goat surveys should be completed in 1984 to more adequately determine overwinter kid survival. The mild 1982-83 winter should have been a stimulus to goat production.

PREPARED BY:

SUBMITTED BY:

E. L. Young, Jr.
Game Biologist III

Donald E. McKnight
Regional Supervisor

Table 1. Subunit 1B mountain goat population composition data, 1982.

Area ^a	Date	Adults	Kids	Undet.	Total	Kids/100		Count time (hr)
						adults	% kids	
1	8/8/82	18	9	4	31	50.0	33.3	.7
1	8/19/82	12	5	4	21	41.7	29.4	.3
2&3	8/16/82	0	0	0	0	0	0	.7
2	8/19/82	13	3	1	17	23.1	18.8	.4
3	8/19/82	8	1	1	10	12.5	11.1	.3
4	8/19/82	30	1	1	32	3.3	3.2	.8
5	8/19/82	6	0	0	6	0	0	.2
6	8/12/82	51	15	0	66	29.4	22.7	2.3
Totals		138	34	11	183			5.7
Means						24.6	19.8	

^a Area 1, Horn Cliffs; Area 2, Swan Lake and Cascade Creek drainages; Area 3, West side of Patterson River and Ruth Lake drainage; Area 4, East side of Patterson River to Muddy River drainage; Area 5, Bussy Creek drainage and north side of LeConte Bay; and Area 6, South side of Stikine River including Andrews Creek and Goat Lake drainages.

Table 2. Subunit 1B mountain goat harvest data, 1980-82.

Year	Permits issued	% not hunting	% success.	Goats killed	% males	% females	% unk.
1980	178	41	35	30	67	33	0
1981	198	53	40	37	50	42	8
1982	186	53	24	21	57	33	10

Table 3. Chronology of Subunit 1B mountain goat harvest, 1982.^a

Harvest	August		September		October	
	1-15	16-31	1-15	16-30	1-15	16-31
No. taken	6	2	5	6	0	2
% of total	28.6	9.5	23.8	28.6	0	9.5
% by month	38		52		10	

^a No goats harvested in November or December.

Table 4. Mountain goat hunting effort in Subunit 1B, 1982.

Area	% total trips (<u>N</u>) ^a	% Unsucc. (<u>N</u>)	% Succ. (<u>N</u>)
Horn Cliffs	30.9 (29)	38.4 (28)	4.8 (1)
Stikine-LeConte	24.5 (23)	19.2 (14)	42.8 (9)
Swan Lake	21.3 (20)	16.4 (12)	38.1 (8)
Cape Fanshaw	8.5 (8)	9.6 (7)	4.8 (1)
Muddy River	5.3 (5)	6.9 (5)	0
DeBoer Lake	3.2 (3)	4.1 (3)	0
Cleveland Peninsula	2.1 (2)	2.7 (2)	0
Marten Lake	2.1 (2)	0	9.5 (2)
Aaron Creek	2.1 (2)	2.7 (2)	0
Totals	100 (94)	100 (73)	100 (21)

^a N = number of hunting excursions; total trips include both successful and unsuccessful efforts.

MOUNTAIN GOAT

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 1C

GEOGRAPHICAL DESCRIPTION: Southeast Mainland from Cape Fanshaw
to the Latitude of Eldred Rock

PERIOD COVERED: 1 July 1982-30 June 1983

Season and Bag Limit

See Hunting Regulations No. 23.

Population Status and Trend

Results of surveys conducted in the Whiting River-Endicott Arm area suggest a stable goat population with a moderately high density.

Survey results for the area between the Antler/Gilkey Rivers and Annex Lake indicates this population remains about a third below levels observed in 1961. The fall 1982 kid:adult ratio averaged 11.5 kids/100 adults for this area, 2.5 kids below that observed in 1981. Substantial improvements cannot be expected for this population in the next few years if hunting is not curtailed, particularly for those segments located adjacent to the Juneau road system.

Population Composition

A total of 613 goats (128 kids and 485 adults) was observed during aerial surveys flown in portions of Subunit 1C in September and October 1982. The ratio of kids:100 adults was 26.4.

Of these 613 goats, 136 animals (14 kids and 122 adults) were counted in the area between Gilkey-Antler Rivers and Annex Lake. The ratio of kids:100 adults for this area was 11.5.

Mortality

Goat hunting in Subunit 1C has been conducted under 2 registration permit hunts since 1980 (Table 1). During 1982, 60% of the effort was spent in Hunt Area 803, compared to 72% and 60% in 1980 and 1981, respectively. Hunter success continues to be high (48%) in Hunt Area 803, as it has been since 1980, but low (21%) for Hunt Area 802, which is nearly equal to that in 1981.

The 1982 goat harvest for all of Subunit 1C was 43 animals (20 males, 22 females, and 1 of unknown sex), 11 goats above the previous 4-year annual harvest average of 35 animals (Table 2). In 1982, 120 hunters spent 313 days hunting goats in Subunit 1C to take these 43 animals, averaging 7.3 hunter-days/goat.

Management Summary and Recommendations

The harvest and hunting pressure in Subunit 1C in 1982 of 43 goats and 120 hunters were higher than the previous 4-year average (1978-1981) of 35 animals and 79 hunters, respectively.

Hunting pressure in Hunt Area 802 (Juneau mainland) has increased 56% since 1980 (from 34 hunters to 53), while the success per unit of effort (number of goats killed per hunter-day) has declined from 0.1 goats/day (1980) to 0.09 goats/day (1982). For the remainder of the GMU (Hunt Area 803), the success per unit of effort stayed the same (1980-1983, 0.17) for this period with a 43% increase in hunter pressure.

Based on harvest data and survey information, it is recommended that the area between Eagle River/Glacier and Gold Fork/Carlson Creek be closed to hunting for the 1983-84 season. Populations in the remainder of Hunt Area 802 should be closely monitored to assure that the desired harvest is not exceeded. The harvest level will be determined by preseason aerial surveys.

No season or bag limit changes are recommended for the remainder of Subunit 1C (Hunt Area 803).

PREPARED BY:

SUBMITTED BY:

David W. Zimmerman
Game Biologist II

Donald E. McKnight
Regional Supervisor

Table 1. Mountain goat registration permit hunt data for GMU 1C, 1981.

Hunt No.	Year	No. permits issued	No. hunters hunting	No. days hunted	Chronology of harvest						Harvest				% hunter success	Success/ unit of effort ^b
					Aug	Sep	Oct	Nov	Unk.	Total	M	F	Unk.	Total		
802	1980	117	34 ^a	67	NA	NA	6	2	0	8	2	4	2	8	23.5	0.12
	1981	111	44 ^a	87	NA	NA	6	3	0	9	3	6	--	9	20.5	0.10
	1982	101	53 ^a	124	NA	NA	5	6	0	11	4	6	1	11	20.8	0.09
803	1980	140	47	166	6	7	7	8	0	28	9	8	11	28	59.6	0.17
	1981	129	46	129	1	2	6	13	0	22	8	14	--	22	47.8	0.17
	1982	140	67	189	6	0	5	21	0	32	16	16	--	32	47.8	0.17

^a Includes 2 hunters with permits for Hunt 803 but who hunted in Hunt 802.

^b Number of goats taken per day hunted.

Table 2. Subunit 1C goat harvest statistics for 1972-1982 as derived from hunter reports from the harvest ticket system (1972-1979) and the registration permit system (1980-1982).

Year	Chronology of harvest								Sex composition				No. hunters	% hunter success	Success/ unit of effort
	Aug	Sep	Oct	Nov	Dec	Jan	Unk.	Total	M	F	Unk.	% male			
1972 ^a	18	10	7	6	4	16	5	70	36	34	0	51	149	40.3 ^b	
1973 ^a	30	32	11	21	17	NA	1	112	56	56	0	50	177	52.5 ^c	
1974 ^a	19	18	7	15	30	NA	5	94	40	51	3	44	159	44.0 ^d	
1975 ^e	7	8	20	15	13	NA	5	68	42	25	1	63	138	49.3	
1976	2	0 ^f	12 ^f	5 ^f	16 ^f	NA	6	41	13	28	0	32	107	38.3	
1977	8	0 ^f	8 ^f	8 ^f	3 ^f	NA	3	30	19	9	2	68	72	41.6	
1978 ^e	3	3	6	17	NA	NA	6	35	24	11	0	69	80	43.8	
1979 ^e	7	3	13	15	NA	NA	0	38	21	17	0	55	65	58.5	
1980 ^e	6	7	13	10	NA	NA	0	36	12	12	12	50	81	44.4	0.16
1981 ^e	1	2	12	16	NA	NA	0	31	11	20	0	36	90	34.4	0.14
1982 ^e	6	0	10	27	NA	NA	0	43	20	22	1	46	120	35.8	0.14

^a Bag limit, 2 goats.

^b Based on 60 successful hunters of which 10 took 2 goats each.

^c Based on 93 successful hunters of which 19 took 2 goats each.

^d Based on 70 successful hunters of which 24 took 2 goats each.

^e Bag limit, 1 goat.

^f Revised in 1979 from figures reported in survey-inventory report, 1978, Table 2.

MOUNTAIN GOAT
SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 1D

GEOGRAPHICAL DESCRIPTION: Haines-Skagway

PERIOD COVERED: 1 July 1982-30 June 1983

Season and Bag Limit

See Hunting Regulations No. 23.

Population Status and Trend

An aerial survey was conducted between Ferebee and Chilkoot Rivers and, to a lesser extent, between Chilkoot and Chilkat Rivers on 16 August 1982 (Table 1). A total of 56 goats (42 adults and 14 kids) were enumerated in 5.3 hours. Kids accounted for 25%, and 10.6 goats were observed per survey hour. All goats were between 2,500-4,000 ft elevation.

Goat populations on Takhin Ridge (between the Takhin, Tsirku, and Chilkat Rivers) and Tsirku Ridge (between Tsirku and Klehini Rivers) were surveyed on 23 June 1983. Sixty-seven adults and 23 kids were counted in 4.7 hours. Kids composed 25.6% of the total, and 31.1 goats were seen per hour of survey. All sightings were made from 3,000 to 5,300 ft above sea level.

Mortality

Two hundred fifty-eight hunters applied for mountain goat permits for Hunts 804, 805, and 806 (Table 2). One hundred forty-four (56%) did not hunt, 78 (30%) hunted unsuccessfully, and 11 (4%) did not comply with reporting requirements. Of the unsuccessful hunters, 72 reported spending a total of 167 days hunting ($\bar{x}$ = 2.3 days/hunter); 6 respondents failed to report hunting effort.

Thirteen male, 11 female, and 1 unspecified-sex goats were taken in 37 days of hunting effort ($\bar{x}$ = 1.5 days/hunter; Table 3). Six, 16, and 3 goats were harvested from Hunt Areas 804, 805, and 806, respectively. The number of unsuccessful hunters by Hunt Area was 804, 7; 805, 39; and 806, 32. Twenty-one (84%) of the goats harvested were taken in October and November.

Transportation methods used by successful hunters were the following: boats (56%), automobiles (36%), snowmachines (4%), and unknown (4%). Unsuccessful hunters traveled via automobiles (58%), boats (34%), snowmachines (6%), and unknown (2%).

The 1982 harvest of 25 mountain goats in GMU 1D falls within the range of the historical harvest (Table 4), yet is well below the

10-year mean of 35.3. The hunter success rate of 24.3% is well below the 10-year mean of 42.3% and represents the lowest success rate recorded for this Unit.

No natural mortality was documented during the reporting period.

Management Summary and Recommendations

No changes in seasons or bag limits were recommended.

PREPARED BY:

SUBMITTED BY:

W. Bruce Dinneford
Game Biologist III

Donald E. McKnight
Regional Supervisor

Table 1. Game Management Unit 1D aerial survey data, 1982-83.

Area	Date	Adults	Kids	Total	Kids/ 100 adults	% kids	Count time (hr)
SW Ferebee Ridge drainages	8/16/82	13	9	22	69.2	40.9	1.1
NE Chilkoot Ridge drainages	8/16/82	20	5	25	25.0	20.0	3.6
SW Chilkoot Ridge drainages	8/16/82	9	--	9	--	--	.6
Subtotal		42	14	56	33.3	25.0	5.3
Takhin Ridge	6/23/83	23	8	31	34.8	25.8	1.1
Tsirku/Klehini Ridge	6/23/83	44	15	59	34.1	25.4	2.0
Subtotal		67	23	90	34.3	25.6	3.1
Totals		109	37	146			8.4
Means					33.9	25.3	

Table 2. Residency and success status for 258 GMU 1D mountain goat hunt permittees, 1982.

Hunt No.	Success status	Resident	Nonresident	Alien nonresident	Total
804	Did not hunt	19	--	--	19
	Unsuccessful	7	--	--	7
	Successful	6	--	--	6
	No response	1	--	--	1
	Subtotals	33	0	0	33
805	Did not hunt	61	3	--	64
	Unsuccessful	36	1	2	39
	Successful	16	--	--	16
	No response	6	--	--	6
	Subtotals	119	4	2	125
806	Did not hunt	59	2	--	61
	Unsuccessful	30	2	--	32
	Successful	3	--	--	3
	No response	4	--	--	4
	Subtotals	96	4	--	100
Totals		248	8	2	258

Table 3. GMU 1D mountain goat harvest by chronology, number of days hunted, and kill location, 1982.

Hunt No.	Number of goats harvested/category		
	Chronology	No. days hunted	Kill locations
804	6/October	4/1	3/Clifton Mt.
		2/2	3/Mine Mt.
805	2/September	12/1	10/Taiya Inl.
	2/October	2/2	2/Chilkoot R.
	12/November	1/4	1/Iron Mt.
		1/5	1/Halutu Rdg.
			1/Warm Pass V.
806	1/August	2/1	1/Salmon R.
	0/September	1/2	2/Chilkat L.
	1/October		
	0/November		
	1/December		

Table 4. Historical GMU 1D goat harvest, 1973-1982.

Year	Male	Female	Unknown	Total	No. hunters	% success
1973	44	39	3	86	109	78.9
1974	25	29	0	54	90	60.0
1975	21	12	1	34	77	44.2
1976	8	9	0	17	65	26.2
1977	15	9	1	25	69	36.2
1978	7	10	0	17	52	32.7
1979	14	8	0	22	40	55.0
1980	11	10	9	30	103	29.1
1981	24	19	0	43	127	33.9
1982	13	11	1	25	103	24.3

MOUNTAIN GOAT

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 4

GEOGRAPHICAL DESCRIPTION: Admiralty, Baranof, Chichagof, and
Adjacent Islands

PERIOD COVERED: 1 July 1982-30 June 1983

Season and Bag Limit

See Hunting Regulations No. 23.

Population Status, Composition, and Trend

An aerial count was conducted from an Alouette II helicopter in September covering all drainages of Baranof Island north of the Vodopad River. Counting conditions were excellent, and a total of 506 goats was counted. Kids made up 17% of the sample (19.7 kids/100 adults).

Since 1972, more goats have been seen on each succeeding count, and the 1982 survey was no exception. There was a small reduction in the percentage of kids observed in 1982. That was probably a response to the severe wintering conditions of 1981-82. An opposite response was noted following the very mild winter of 1976 when an abnormally high representation of kids was observed.

Because more animals are seen on each succeeding count (including a count which followed a severe winter), it is assumed that there has been a slow but steady increase in the goat population.

Mortality

Registration Hunt 815 required that all persons intending to hunt goats on Baranof Island obtain a permit. This system has been in effect since 1976. In 1982, 370 permits were issued, and 221 persons actually hunted. These hunters took 73 goats. It is known that 2 additional goats were taken illegally. Of the known 75 goats taken, 42 were males and 33 were females. Horn annuli counts of those specimens brought in for aging (not a legal requirement of Hunt 815) showed males to average 3.4 years of age ($N = 28$) and females to average 4.5 ($N = 26$). These ages are comparable to previous years, as are other harvest statistics. The 1982 kill was similar to that in 1981 (75 vs. 74), as was the number of persons who participated (Table 1).

Management Summary and Recommendations

The 1981 and 1982 harvests represented about 15% of the observed population. Experiences with mountain goat harvests of this magnitude elsewhere indicate that they may be excessive. However, survey data indicate that ample numbers of young have entered the Unit 4 population to replace those removed through harvest or natural losses.

The 1982 survey suggests that the population is still increasing. Therefore, the regulations covered by Hunt 815 seem appropriate with the population.

No changes in season or bag limit were recommended.

PREPARED BY:

SUBMITTED BY:

Loyal J. Johnson
Game Biologist III

Donald E. McKnight
Regional Supervisor

Table 1. GMU 4 mountain goat survey and harvest data, 1954-1982.

Date	Survey data						Harvest data				
	Total goats	Goats/hour	No. kids	No. adults	Kids/100 adults	Data source (aircraft type)	Total kill	No. males	No. females	No. hunters	Data source
1923	18 goats introduced										
1937	41					Alaska Game Comm.	--	--	--	--	--
1954	263	--	41	222	18.5	USFWS	--	--	--	--	--
9/1/60	116	38.4	26	90	28.9	Merriam-ADF&G	--	--	--	--	--
9/11/61	118	--	20	98	20.4	Merriam-ADF&G	--	--	--	--	--
9/3/70 ^a	154	--	15	139	10.8	Courtright-ADF&G (Helio Courier)	16			48	Hunter intrvw.
9/29/70	121	--	13	108	12.0	Courtright-ADF&G (Helio Courier)				75	Hunter intrvw.
1971	--	--	--	--	--	--	20				
1972	--	--	--	--	--	--	10	5	5	50	Harvest ticket
9/12-9/13/73	253	36.1	50	203	24.6	Johnson-ADF&G (Piper PA-18)	24	11	13	45	Harvest ticket
1974	--	--	--	--	--	--	10	7	3	39	Harvest ticket
1975	--	--	--	--	--	--	28	18	10	65	Harvest ticket
8/24-8/25/76 ^b	242	62.0	47	195	24.1	Johnson-ADF&G (Piper PA-18)	28	18	10	100 ^c	Harvest ticket
1977	541	73.1	148	393	37.7	Johnson-ADF&G (Hughes 500 helic.)	40	22	18	97 ^c	Regist. permit
1978	--	--	--	--	--	--	32	17	14	85 ^c	Regist. permit
1979 ^d	397	79.4	76	321	23.7	Johnson-ADF&G (Hughes 500 helic.)	59	30	27	151	Regist. permit
1980 ^e	473	70.9	106	367	28.9	Johnson-ADF&G (Alouette II helic.)	49	25	23	147 ^c	Regist. permit

Table 1. Continued.

Date	Survey data						Harvest data				
	Total goats	Goats/hour	No. kids	No. adults	Kids/100 adults	Data source (aircraft type)	Total kill	No. males	No. females	No. hunters	Data source
1981	--	--	--	--	--	--	74	30	44	211 ^c	Regist. permit
1982 ^b	506	76.9	84	422	19.7	Johnson-ADF&G (Alouette II helic.)	75	42	33	221	Regist. permit

^a Incomplete coverage.

^b North of Vodopad River only.

^c These numbers have been readjusted from the 1981-82 report because of the reworking of the information.

^d North of Medvejie Lake-Baranof River only.

^e North of Lake Dianne only.

MOUNTAIN GOAT
SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 5

GEOGRAPHICAL DESCRIPTION: Yakutat

PERIOD COVERED: 1 July 1982-30 June 1983

Season and Bag Limit

See Hunting Regulations No. 23.

Population Status and Trend

No data were available. However, general reconnaissance flights made in May 1983 indicated good numbers of goats in the Chaix Hills complex, while a fair number were observed on the 5A side of the Unit.

Mortality

The 1982 registration permit goat hunt in Game Management Unit 5 attracted 91 permittees, similar to the 1981 season (Table 1). A total of 42 permittees did not hunt. Of 45 permittees who reported hunting, 9 residents and 5 nonresidents (31%) took goats in an average of 2.3 days; the 31 unsuccessful hunters spent a total of 142 days in the field. Four resident permittees did not return their permits.

Five female and 8 male goats were harvested, and the sex of 1 carcass was not identified due to its falling to an inaccessible location. Six animals were harvested from the Chaix Hills in Subunit 5B. Other kill locations were reported as follows: Akwe Lake (4), Tanis Lake (2), Southeast (0), and Brabazon Range (2). Twenty-one and 9 unsuccessful permittees hunted in Subunits 5A and 5B, respectively, and 1 person hunted in an unspecified location in the Unit.

Chronology of the 1982 harvest was as follows: August (1), September (5), October (2), November (4), and December (2). Of the 14 successful goat hunters in Unit 5, 5 hunted 1 day, 5 hunted 2 days, 3 hunted 4 days, and 1 hunted 5 days.

Three successful hunters used the services of the same guide. All but 1 hunter used an airplane to reach his hunting areas; walking was the transportation method used by the other hunter.

The harvest of 14 goats falls below the 11-year average of 16 (Table 2). Harvest chronology indicated that September and November were the most popular months for hunting goats (36% and 29%, respectively). No natural mortality was documented.

Management Summary and Recommendations

No changes in season or bag limit were recommended. The 1982 harvest falls within the range of the recorded harvest in other years.

The distribution of the goat harvest in 1982 indicates that overharvest of any portion of the Unit 5 population was unlikely. Sixty-four percent of all permittees who hunted did so in Subunit 5A, while 33% hunted in 5B (1 hunter's location was unknown). In 1981, 40 of 53 hunters (75%) hunted in Subunit 5A; thus, an apparent shift in hunting pressure to 5B was noted in 1982 despite National Park Service regulations prohibiting hunting in a large portion of the Chaix-Karr-Guyot Hills area. The Division of Game should work with the National Park Service in changing the land classification in this area to allow for a more even dispersal of hunting pressure. Current land status precludes responsible management of the goat population of Icy Bay.

PREPARED BY:

W. Bruce Dinneford
Game Biologist III

SUBMITTED BY:

Donald E. McKnight
Regional Supervisor

Table 1. Residency and success status for 91 Yakutat mountain goat hunt permittees, 1982.

Success status	Resident	Nonresident	Alien nonresident	Total
Did not hunt	35	7	0	42
Unsuccessful	12	15	4	31
Successful	9	5	0	14
No response	4	0	0	4
Totals	60	27	4	91

Table 2. Historical GMU 5 goat harvest, 1972-1982.

Year	Male	Female	Unk.	Total
1972	18	13	1	32
1973	10	3	--	13
1974	14	5	--	19
1975	10	3	--	13
1976	4	3	--	7
1977	4	2	--	6
1978	2	8	--	10
1979	12	6	1	19
1980 ^a	?	?	?	24
1981	12	8	--	20
1982	8	5	1	14
Totals	94	56	3	177

^a Error on hunter report form; sex ratio indeterminate.

MOUNTAIN GOAT

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 6

GEOGRAPHICAL DESCRIPTION: Prince William Sound, North Gulf Coast

PERIOD COVERED: 1 July 1982-30 June 1983

Season and Bag Limit

See Hunting Regulations No. 23.

Population Status and Trend

Mountain goat populations in Unit 6 appear to be stable except for the areas from Copper River to Bering Glacier where small isolated herds are well below the desired level.

Population Composition

No data were available.

Mortality

The mountain goat harvest in Unit 6 was 118 animals: 73 males, 44 females, and 1 unknown sex (Table 1). The area from Valdez Arm to Rude River produced the largest harvest: 42 animals. The Valdez Arm area followed with a harvest of 29 goats.

Goat Hunt 830 consisted of a drawing hunt and a registration hunt. Thirty drawing permits were issued for the 10 August-30 September season. Six persons hunted, but no animals were taken. Sixteen permits were issued during the 15 October-30 November registration hunt. Six goats (2 males and 4 females) were harvested.

Mountain goat Hunt 878 was not open to hunting during the 1982 season. Hunt 879, the remaining portion of Unit 6, was a registration permit hunt area; 706 permits were issued. The harvest in this area was 112 goats: 71 males, 40 females, and 1 unknown sex. Chronology of the harvest was as follows: August (42), September (25), October (18), November (10), December (7), January (9), and 1 unknown.

Management Summary and Recommendations

The 1982 mountain goat harvest of 118 goats compares favorably with previous harvests (Table 2). Analysis of harvest data by area and sex (Tables 2, 3) shows annual fluctuations. Most of the goats were taken from Valdez Arm to Rude River.

Increasing the season length by 1 month, January, had little effect upon the total harvest. All 9 goats taken in January were killed by local residents who probably could have hunted in December.

Mountain goat populations in Unit 6 appear to be withstanding the current level of harvest without detrimental effects. No regulatory changes were therefore recommended.

PREPARED BY:

Julius L. Reynolds
Game Biologist III

SUBMITTED BY:

Leland P. Glenn
Survey-Inventory Coordinator

Table 1. Unit 6 mountain goat harvest by area and sex, 1982.

Unit/ area no.	Area description	Male	Female	Unk.	Total	%
6-01	East of Suckling Hills to Icy Bay	9	5	0	14	12.5
6-02	Bering Lake-Burg Lake area	0	0	0	0	0
6-03 ^a	Suckling Hills	--	--	--	--	--
6-04 ^a	Ragged Mountain	--	--	--	--	--
6-05 ^a	Goat Mountain	--	--	--	--	--
6-06	Rude River to Copper River	13	3	0	16	14.3
6-07	Valdez Arm to Rude River	24	18	0	42	37.5
6-08	Valdez area	18	11	0	29	25.9
6-09	Port Wells to Columbia Glacier	3	2	0	5	4.5
6-10	Unit 6, unknown	0	0	0	0	0
6-11	Whittier-Port Wells	0	0	0	0	0
6-12	Kings Bay to Cape Fairfield	4	1	0	5	4.5
6-13	Prince William Sound, unknown	0	0	1	1	0.9
Hunt No. 879 totals		71	40	1	112	100.1
% of total		63.4	35.7	0.9	100.0	
Hunt No. 878, closed to goat hunting.						
Hunt No. 830 totals		2	4	0	6	
Unit 6 totals		73	44	1	118	
% of total		61.9	37.3	0.9	100.1	

^a Closed to goat hunting.

Table 2. Unit 6 mountain goat harvest by area and year, 1976-82.

Unit/ area	Area description	1976	1977	1978	1979	1980	1981	1982	Avg.
6-01	East of Suckling Hills to Icy Bay	6	6	17	18	19	29	14	15.6
6-02	Bering Lake-Burg Lake area	11	7	5	12	3	1	0	5.6
6-03	Suckling Hills	0	3	4	3	1	a	a	2.2
6-04	Ragged Mountain	9	7	6	5	1	a	a	5.6
6-05 ^a	Goat Mountain	--	--	--	--	--	--	--	--
6-06	Rude River to Copper River	10	10	10	9	9	10	16	10.6
6-07	Valdez Arm to Rude River	28	30	34	24	41	48	42	35.3
6-08	Valdez area	6	10	20	23	17	19	29	17.7
6-09	Port Wells to Columbia Glacier	11	9	8	6	8	0	5	6.7
6-10	Unit 6, unknown	11	5	5	8	0	0	0	4.1
6-11	Whittier-Port Wells	6	0	0	2	3	8	0	2.7
6-12 ^b	Kings Bay to Cape Fairfield	24	14	23	20	14	11	11	16.7
6-13	Prince William Sound, unknown	1	8	3	3	4	2	1	3.1
Totals		123	109	135	133	120	128	118	
Mean									123.7

^a Not open to hunting.

^b Includes the Cape Fairfield to Tiger Glacier area which was restricted to drawing permit holders in 1980 and 1981.

Table 3. Unit 6 mountain goat harvest by year and sex, 1976-82.

Year	Males		Females		Unknown		Total	
	<u>N</u>	%	<u>N</u>	%	<u>N</u>	%	<u>N</u>	%
1976	74	60.2	49	39.8	0	0.0	123	100.0
1977	66	60.6	41	37.6	2	1.8	109	100.0
1978	87	64.4	45	33.3	3	2.2	135	99.9
1979	91	68.4	41	30.8	1	0.8	133	100.0
1980	71	59.2	49	40.8	0	0.0	120	100.0
1981	70	54.7	55	43.0	3	2.3	128	100.0
1982	73	61.9	44	37.3	1	0.9	118	100.1
7-year average	76	61.8	46	37.4	1	0.8	123	100.0

MOUNTAIN GOAT
SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 7 and 15

GEOGRAPHICAL DESCRIPTION: Kenai Peninsula

PERIOD COVERED: 1 July 1982-30 June 1983

Season and Bag Limit

See Hunting Regulations No. 23.

Population Status and Trend

Approximately 20-40% of the mountain goat habitat on the Kenai Peninsula has been surveyed annually since the early 1970's. Information from these aerial surveys has indicated that mountain goat populations have been steadily increasing in most portions of the range since 1978. One notable exception is the Resurrection Peninsula region of Prince William Sound, where goat numbers appear to have declined due to heavy losses during the winter of 1980-81.

The density of mountain goats in most count areas is thought to be near carrying capacity at this time. Population gains during the last 5 years have been attributable to more restrictive hunting regulations and mild winter conditions.

Population Composition

Aerial surveys were flown in 8 count areas in 1982, and 594 mountain goats were counted and classified. The composition of these counts was 438 adults, 149 kids, and 7 unclassified goats. There was an average of 33 kids/100 adults in the classified sample. Spraker (1981) gave the most recent account of historical survey data for Kenai Peninsula mountain goats.

Mortality

A total of 89 mountain goats was killed by hunters in 1982. Seventy-one goats (80%) and 18 goats (20%) were taken during the drawing permit hunt and registration permit hunt, respectively. The sex ratio of the drawing permit harvest was 50 (70%) males, 20 (28%) females, and 1 (2%) goat of undetermined sex; 6 (33%) males, 11 (61%) females, and 1 (6%) goat of undetermined sex composed the registration permit harvest.

Forty-six percent of the drawing permit hunters and 21% of the registration permit hunters harvested a goat in 1982. The harvest represents a 187% increase over the number of goats that were taken by sport hunters in the previous year. The substantial increase was attributed to the following: a 73% increase

in the number of available drawing permits in 1982; favorable traveling and hunting conditions (i.e., clear, sunny weather) in August; and a marked increase in hunter participation provided by the registration hunt.

Management Summary and Recommendations

Mountain goat management on the Kenai Peninsula has undergone some important refinements during the past several years. In 1980, the Board of Game adopted new regulations for the harvesting of Peninsula goats by drawing permit only. Permits are allocated by hunt area, which greatly facilitates the Department's efforts to control goat hunting pressure and hunter distribution. In 1982, further changes were introduced. Drawing permit allocations were increased, and an optional, late fall registration hunt was initiated in selected areas. The current system provides harvest control, allows greater hunter participation, and appears to have the capability of yielding desired harvest levels.

It should be noted that the 1982 registration permit hunt produced a harvest that was biased toward females. This tendency probably reflects the following: less selectivity by late fall hunters for a large-horned goat; and higher vulnerability of nannies in late fall. For instance, hunters reported groups of nannies, kids, and subadults of either sex moving into more accessible, south-facing winter ranges below 2,000 ft elevation during the latter half of October. Managers on the Kenai Peninsula should closely monitor the sex ratio of future harvest and, at the same time, attempt to gain insight into the effects of harvesting higher proportions of nannies.

Efforts to identify mountain goat winter range in Subunit 15C and to document goat numbers and habitat use on these ranges should continue in 1983-84.

Literature Cited

Spraker, T. H. 1981. Units 7 and 15 mountain goat survey-inventory progress report. Pages 212-214 in R. A. Hinman, ed. Annual report of survey-inventory activities. Part II, Vol. XII. Alaska Dep. Fish and Game. Fed. Aid in Wildl. Rest. Prog. Rep. Proj. W-19-1 and W-19-2, Job 3.0, 1.0, and 12.0. Juneau. 224pp.

PREPARED BY:

David A. Holdermann
Game Biologist II

SUBMITTED BY:

Leland P. Glenn
Survey-Inventory Coordinator

MOUNTAIN GOAT

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 8

GEOGRAPHICAL DESCRIPTION: Kodiak and Adjacent Islands

PERIOD COVERED: 1 July 1982-30 June 1983

Season and Bag Limit

See Hunting Regulations No. 23.

Population Status and Trend

The mountain goat population continued to increase with dispersal of goats into previously uninhabited areas. The total number of goats observed during late summer composition counts has increased for the past 3 years (Table 1).

An increasing trend in the population size was indicated by high kid:adult ratios observed during the 1980-82 period. This trend was further supported by results of a March 1983 survey which indicated excellent survival of kids.

The largest population increase occurred in the upper Terror River and Uganik River drainages. There were 115 goats counted in that area compared to only 60 and 58 goats in 1980 and 1981, respectively. The increase, however, was somewhat less dramatic than the count indicated since much of the area west of Terror Lake was not surveyed in 1981.

Although the 1982 surveys did not cover areas south of Kiliuda Bay and Uganik River, reports from local pilots indicated that the population continued to increase in the southcentral part of Kodiak Island. Several observations of goats were made in the northeastern corner of Kodiak Island which has been closed to hunting for several years.

Population Composition

In June 1982, a postkidding survey was done by helicopter as part of a research project investigating the impacts of the Terror Lake hydroelectric project on goats. In August 1982, a composition survey was done by fixed-wing aircraft; in March 1983, the Terror Lake investigations also funded a winter composition survey done by helicopter. The 3 surveys covered all or part of the Kizhuyak Bay, Terror Bay, and Ugak Bay drainages. The August survey by fixed-wing aircraft was considered the most complete. Results of the 3 surveys are presented in Table 2.

Mortality

A total of 14 goats (7 males, 6 females, and 1 animal of unknown sex) was killed by hunters in 1982. Thirty-one of 57 permittees reported hunting, and hunter success was 45%. The 7 males ranged in age from 1 to 5 years, with a mean age of 3.4. Five females ranged in age from 2 to 4 years; mean age was 2.9. Table 3 shows the distribution of the harvest by hunt area.

Management Summary and Recommendations

An increased annual harvest of goats is recommended. The mean annual kill during the 5-year period (1978-1982) was 11 goats (range 9-14). During the same period, summer composition counts averaged 172 goats, ranging from a low of 129 in 1979 to a high of 249 in 1982. An annual harvest of 25-30 goats could be supported in areas presently open to hunting. The number of hunting permits should be increased to achieve this harvest level.

The Board of Game considers changes in goat seasons and bag limits only in alternate years. I recommended that the Board either consider changes in goat regulations annually or that a range in the number of permits be set. The latter recommendation would allow the manager to make annual adjustments in the number of permits issued.

PREPARED BY:

Roger B. Smith
Game Biologist III

SUBMITTED BY:

Leland P. Glenn
Survey-Inventory Coordinator

Table 1. Mountain goat late summer composition data from Kodiak Island, 1980-1982.

Year	Adults	Kids	Total	Kids/100 adults	% kids
1980	115	34	149	30	23
1981	158	44	202	28	22
1982	186	63	249	34	25

Table 2. Mountain goat composition surveys flown on Kodiak Island, 1982-1983.

Date	Adults	Kids	Total	Kids/100 adults	% kids
6/15-6/16/82	142	35	177	25	20
8/12, 8/18/82	186	63	249	34	25
3/10-3/11/83	61	24	85	39	28

Table 3. Kodiak Island mountain goat harvest by hunt area, 1982.

Hunt No.	Location	Males	Females	Unk.	Total
871	Wild Ck.-Center Mtn.	3	1	0	4
872	Crown Mtn.	2	2	0	4
873	Hidden Basin-Terror Lk.	2	0	1	3
874	West Ugak Bay	0	3	0	3
Totals (%)		7 (50)	6 (47)	1 (6)	14

MOUNTAIN GOAT
SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 11

GEOGRAPHICAL DESCRIPTION: Wrangell Mountains

PERIOD COVERED: 1 July 1982-30 June 1983

Season and Bag Limit

See Hunting Regulations No. 23.

Population Status and Trend

Results of surveys conducted in trend count areas have suggested little population change from last year. The Unit 11 mountain goat population appears to be stable or increasing slightly during years with mild winters.

Population Composition

Aerial surveys were flown in 2 count areas during 1982. Composition data from these surveys included 45 adults and 13 kids (29:100 adults) and were similar to figures from previous years.

Mortality

Eight mountain goats were reported killed by hunters in 1982, similar to the previous 2-year average for this registration hunt. The harvest was comprised of 4 males and 4 females. Twenty-nine registration permits were issued; 21 permittees reported hunting, resulting in a success rate of 38%. Aircraft were used by 19 (90%) of the permittees. Five goats were reported killed on MacColl Ridge, making it the most popular mountain goat hunting area in Unit 11.

Management Summary and Recommendations

Because Unit 11 is the northern limit of the mountain goat's range, densities are lower and mountain goats occur in pockets of favorable habitat. Overharvesting is possible; and therefore, harvest should be closely monitored to prevent the kill from exceeding 10% of the known population.

No changes in season dates or bag limits were recommended.

PREPARED BY:

SUBMITTED BY:

Robert W. Tobey
Game Biologist III

Leland P. Glenn
Survey-Inventory Coordinator

MOUNTAIN GOAT
SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 13 and 14

GEOGRAPHICAL DESCRIPTION: Talkeetna and Northwestern Chugach
Mountains

PERIOD COVERED: 1 July 1982-30 June 1983

Season and Bag Limit

See Hunting Regulations No. 23.

Population Status and Trend

Three hundred and thirty-six goats were counted during an aerial survey within the Subunit 14C portion of the Chugach Mountains. The survey was conducted in August, and approximately 80% of the habitat known to support goats was flown. A projected estimate of goat numbers in the entire Subunit was 400. Goat surveys were not conducted in the remainder of the Chugach Mountains within Units 13 and 14. However, 8 goats were observed incidentally to a sheep survey. These goats were located in drainages of Metal Creek, south of the Matanuska River.

Goat surveys were not flown in the Talkeetna Mountains (Subunits 13E, 14A, and 14B). Department biologists, however, made 2 notable observations of goats in the northernmost extension of the Talkeetna Mountains (Subunit 13E). Eight goats of undetermined composition were observed in December in the Portage Creek drainage of the Chulitna Hills. Four adult goats were also observed in March in close proximity to the original sighting. Goats had been reported near this location by hunters and guides during the 1960's and early 1970's, but remained unverified by biologists. This group of mountain goats represents the most northerly extension of mountain goat range recorded in Alaska.

Population Composition

The composition of 336 goats observed in Subunit 14C was 260 adults and 76 kids (29 kids:100 adults). The composition of 8 goats observed in drainages of Metal Creek were 6 adults and 2 kids.

Mortality

Hunters killed 6 goats, 4 males and 2 females, in Unit 14. Four goats were killed in Subunit 14C and 1 each in Subunits 14A and 14B. There were 100 drawing permits issued for the 1982 goat season, but only 33 permittees participated in the hunt and only 18% were successful.

Management Summary and Recommendations

The number of goats counted in Subunit 14C was more than double the number of goats observed during similar surveys conducted in 1972. The significant increase in population size was attributed to 6 years of hunting restrictions and recent mild winters.

Goat hunting restrictions in Subunit 14C should be liberalized based on our knowledge of the observed increase in population size. Over 300 goats were counted in the Lake George and Twentymile River drainages. For this reason, I recommend a return to a registration permit system in the Lake George and Twentymile River area. Registration permits in this high-density goat area are expected to increase the harvest by 20 and will provide more hunting opportunity than the more restrictive drawing permit system.

In the Subunit 13D portion of the Chugach Mountains, goat population data are lacking. An extensive goat survey is needed. Hunting has not been allowed since 1977-78, and the last survey specifically for goats was conducted in 1976.

I also recommend a thorough goat survey of Subunits 14A and 14B. Results of that survey would be used to influence the direction of future goat management decisions within each Subunit. These Subunits apparently offer marginal conditions for goats as populations showed no clear increase while under current hunting restrictions.

PREPARED BY:

SUBMITTED BY:

Herman J. Griese
Game Biologist II

Leland P. Glenn
Survey-Inventory Coordinator

SHEEP

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 7 and 15

GEOGRAPHICAL DESCRIPTION: Kenai Mountains

PERIOD COVERED: 1 July 1982-30 June 1983

Season and Bag Limit

See Hunting Regulations No. 23.

Population Status and Trend

Sheep surveys were conducted in portions of the Kenai Mountains, and results were compared to counts from previous years (Table 1). Analysis of these data suggests an increase in the size of the sheep population.

Population Composition

A total of 599 sheep, including 133 lambs, 111 rams, and 355 ewes and unidentified sheep, were counted. Rams were classified according to legal ($>7/8$ -curl horn) and sublegal ($<7/8$ -curl horn) horn sizes in 3 of 6 count areas. Of the 111 rams for which classification was attempted, 23 were legal, 22 were sublegal, and horn size could not be determined for 66.

Mortality

There were 23 rams killed during the hunting season, compared to 11 killed the previous year. The mean age and mean horn length of harvested rams was 7.7 years and 33.7 inches, respectively. Harvest chronology was consistent with previous years, 68% occurring during the 1st 5 days of the season and 82% prior to 1 September. Of the hunters who specified their residency, 95% were residents and 5% were nonresidents.

The effects of other sources of mortality, such as predation, disease and weather-related causes of death, are not well understood.

Management Summary and Recommendations

A comparison of sheep survey data for the past 5 years suggest the sheep population in the Kenai Mountains is increasing. These data indicate lamb production and survival have steadily increased since 1979. It is suspected that this growth generally reflects the beneficial effects of a recent series of mild winters on the adult ewe and lamb segments of the population. The proportion of legal rams counted during surveys has remained stable over the last 5 years, ranging between 5.3 and 8.3% of

the total sample. The percentage of sublegal rams dropped substantially; however, this decline could be sampling bias since only 40% of all rams counted were classified. For this reason, an attempt should be made to identify sublegal rams during the 1983-84 field season.

No changes in sheep seasons or bag limits were recommended.

PREPARED BY:

David A. Holdermann
Game Biologist II

SUBMITTED BY:

Leland P. Glenn
Survey-Inventory Coordinator

Table 1. Composition of sheep observed in the Kenai Mountains from Kenai River to Sheep Creek, 1978-82.

Date	% legal rams of total observ.	% sublegal of rams total observ.	Sublegal/100 legal rams	% lambs of total observ.	Lambs/100 unclass.	Sheep/ hour	Sample size
1978 ^a	7.2	13.9	193	18.9	31.6	32	417
1979 ^b	8.3	16.0	191	14.0	22.6	45	551
1980 ^b	6.6	10.0	150	16.6	24.8	41	452
1981 ^b	5.3	16.2	305	17.5	28.6	36	395
1982 ^b	6.2 ^c	5.9 ^c	96 ^c	22.0	36.4	87 ^c	599

^a Minimum requirement for a legal ram was 3/4 curl.

^b Minimum requirement for a legal ram was 7/8 curl.

^c Based on a sample of 372 sheep.

SHEEP

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 11, 13, and 14

GEOGRAPHICAL DESCRIPTION: Chugach Mountains

PERIOD COVERED: 1 July 1982-30 June 1983

Season and Bag Limit

See Hunting Regulations No. 23.

Population Status and Trend

Sheep surveys were conducted within Subunits 14A and 14C portions of the Chugach Mountains during 1982. A total of 559 sheep were observed in 14A, comparable to the 502 seen in 1980. Within 14C, 1,470 sheep were seen, a 14% increase over 1981 and a 53% increase over 1978. These data indicate that the population has remained relatively stable within Subunit 14A and has increased in Subunit 14C by approximately 10% per year over the past 5 years.

The Chugach Mountain Range contains portions of 4 Game Management Units or Subunits. From west to east, these include Subunit 14C which extends from Anchorage to Knik River, Subunit 14A from the Knik River to the Coal Creek drainage, Unit 13 from Coal Creek to the Copper River near Chitina, and Unit 11 from the Copper River to the Yukon border. The Unit 11 portion is within the Wrangell-St. Elias National Park and is entirely closed to sport hunting. The Unit 13 and Subunit 14A portions have an open season (10 Aug-20 Sep) of 40 days. Within 14C, the season runs from the day after Labor Day until 30 September, with hunting allowed by permit only. The greatest densities of sheep are found within Subunits 14A and 14C which represent only about 25% of the sheep range, yet contain approximately 45% of the sheep population.

Population Composition

Survey data revealed that 5.8% of the sheep were legal rams and 15.4% were lambs. The percentage of lambs illustrates continued excellent lamb production evident over the past 5 years, while the relatively low percentage of legal rams reflects a young, growing population within the 14C portion of the range. The large number of young rams (296 or 14.6% of the population) foretells a substantial increase in the number of legal rams over the next 3-4 years.

Mortality

Eighty-eight legal rams were killed by 316 sport hunters (28% successful) in 1982, 13 less than 1981 and 28 less than the

1977-1981 mean harvest. Of those taken in 1982, 3 were killed in Unit 11, 61 in Unit 13, 11 in Subunit 14A, and 13 in Subunit 14C. Mean horn size of the 1982 harvest was 35.2 inches, nearly identical to the mean horn size of the previous 3 years. Three ewes were killed by permit holders within the 14A portion of the Chugach Mountains. The reduced take reflects the substantial harvest decline in Subunit 14C, where under the newly implemented drawing permit system only 70 hunters participated compared to as many as 170 in recent years. Adverse weather during most of the 14C season probably caused poor hunter turnout.

Management Summary and Recommendations

Harvest information throughout the Chugach Mountain Range, together with aerial survey data from Subunits 14A and 14C, suggest a stable or slightly increasing trend in the sheep population. The newly implemented 14C permit drawing hunt resulted in a disappointly low harvest, far less than the area can support. Should the harvest remain low in 1983, a proposal should be presented to either increase the number of permits, lengthen the season, or both. No regulatory changes are warranted within the remainder of the sheep ranges.

PREPARED BY:

SUBMITTED BY:

David B. Harkness
Game Biologist III

Leland P. Glenn
Survey-Inventory Coordinator

SHEEP

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 12

GEOGRAPHICAL DESCRIPTION: Mentasta, Nutzotin, and North
Wrangell Mountains

PERIOD COVERED: 1 July 1982-30 June 1983

Season and Bag Limit

See Hunting Regulations No. 23.

Population Status and Trend

Limited sheep surveys were conducted in the Mentasta Mountains during the period 14-15 July 1982. With the exception of the previously unsurveyed Boyden Hills, surveys were considered inadequate because extreme turbulence prevented their completion.

In the 36 mi² Boyden Hills area, a total of 296 sheep was classified (140 rams; 134 ewes, yearlings, and young rams; and 22 lambs). The rams could not be classified as to horn size. As expected given the severity and length of winter 1981-82, only 7.4% of the sheep observed were lambs. Incidental observations and hunter reports indicated that production and survival of lambs was poor throughout the Mentasta, Nutzotin, and north Wrangell Mountains during 1982.

Sheep populations in this area probably declined 10-20% as a result of high adult mortality during winter 1981-82 and poor production and survival of lambs in 1982. I believe this is solely attributable to weather during winter 1981-82 and, as such, it will probably be of short duration. Based on 1981 surveys, the north Wrangell, Mentasta, and Nutzotin Mountains sheep population was estimated at 12,000. Following winter 1981-82, I estimate this population at 10,000.

Mortality

As stated previously, overwinter mortality of adult sheep was high based upon reports from U.S. Army personnel on maneuvers in the Nabesna Glacier area and from sheep hunters and pilots who observed carcasses. Because of deep, crusted, and persistent snow cover on winter ranges, wolf predation on sheep was more noticeable and probably greater than in the recent past.

Hunting pressure increased 8% in 1982 (431 hunters) over that in 1981 (399 hunters). Total reported harvest remained essentially the same with 228 and 227 rams harvested in 1981 and

1982, respectively. Overall hunter success in fall 1982 was 53%; hunter success for nonresident guided hunters was 84%. The reported hunter harvest amounted to 2.3% of the estimated population of approximately 10,000 sheep.

Management Summary and Recommendations

Although sheep numbers in this area probably declined 10-20% during this reporting period, they remain relatively dense. Even with an 8% increase in hunting pressure, harvest changed little over that reported in 1981.

No specific changes in hunting regulations are necessary; however, an increase to a 4/4 (or full curl) minimal legal horn size would increase average age of rams in the population and would increase the trophy value of rams harvested. It is doubtful that overall harvest would be reduced significantly after the 1st 2 years following the implementation of such a regulation. Because of the easy road access and the existence of a high-density sheep population, the Mentasta Mountains would be a logical area to investigate the possibilities of significant ewe harvests as a sheep management technique.

PREPARED BY:

SUBMITTED BY:

David G. Kelleyhouse
Game Biologist III

Jerry D. McGowan
Survey-Inventory Coordinator

SHEEP

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 12, 13, and 20

GEOGRAPHICAL DESCRIPTION: Tok Management Area

PERIOD COVERED: 1 July 1982-30 June 1983

Season and Bag Limit

See Hunting Regulations No. 23.

Population Status and Trend

No extensive aerial surveys were conducted in the TMA during this reporting period; however, ground composition surveys were done by research personnel at the Sheep Creek mineral lick.

Based upon observations of known-age marked ewes, the sheep population experienced 25% mortality during winter 1981-82. Most of the loss was in the older age classes. Reports were received from sheep hunters that old-age rams were in shorter supply during the 1982 season than in previous years. Some hunters also reported finding carcasses of winter-killed mature rams. The 1982 lamb crop was lower than normal, presumably the result of a late spring. Overall, the sheep population, previously estimated at 2,000, probably declined slightly during the reporting period. Most of the decline is attributed to loss of adults and the low 1982 lamb crop. There is no indication that the decline will continue.

Population Composition

No standardized aerial surveys were conducted during the reporting period because of unsuitable weather. As stated above, many sheep ≥ 10 years old were lost from the population during the moderately severe winter of 1981-82, and lamb production and survival during 1982 was lower than normal because of unfavorable weather during the lambing period. Survival of the 1981 lamb crop was high, however.

Mortality

Natural factors including old age, predation, and winter kill were responsible for most sheep mortality during the reporting period.

The 1982 harvest in the TMA was 38 rams. The ewe season was canceled because of higher than normal mortality during the previous winter. Thus, total human-caused mortality during the reporting period was less than 3% of the estimated population of about 1,800 sheep.

Of 120 permittees in 1982, only 81 hunted. Hunter success was 47% compared to 59% for 1981. The harvest of 38 rams represented a 22% reduction from the 49 rams taken in 1981. Mean horn length of the 38 rams taken in 1982 was 36.0 inches compared to 37.1 in 1981 and 36.9 in 1980. The mean age of rams harvested in 1982 was 8.7 years, the same as the previous 3-year mean.

Perhaps of greatest significance is the fact that only 7.9% of the rams taken in 1982 had horns ≥ 39 inches in length. Since 1975, the percentage of 39-inch rams (trophy quality) in the population has averaged 19.8%. The TMA was established as a trophy management area for Dall sheep. This objective was not achieved by as many hunters during the reporting period as in past years.

Management Summary and Recommendations

The sheep population in the TMA declined an estimated 10-20% during the moderately severe winter of 1981-82. Because of unfavorable weather during lambing in 1982, the 1982 cohort of lambs was approximately 50% lower than normal.

Poor lamb production and survival during the early to mid-1970's may result in a lower availability of trophy rams during the mid-1980's. To meet the TMA management objective of providing hunters opportunity to take trophy Dall rams, a reduction in total number of permits from 120 to 100 is recommended. The registration ewe hunt should be retained as population status allows.

PREPARED BY:

David G. Kelleyhouse
Game Biologist III

SUBMITTED BY:

Jerry D. McGowan
Survey-Inventory Coordinator

SHEEP

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 13 and 14

GEOGRAPHICAL DESCRIPTION: Talkeetna Mountains and
Chulitna/Watana Hills

PERIOD COVERED: 1 July 1982-30 June 1983

Season and Bag Limit

See Hunting Regulations No. 23.

Population Status and Trend

The Talkeetna Mountains and Chulitna/Watana Hills sheep ranges (TCW) are located in portions of 4 Game Management Subunits. The Talkeetna Mountains sheep range includes Subunit 14A north of the Matanuska River and Subunits 14B and 13E south of the Susitna River. The Chulitna/Watana Hills sheep range includes that portion of Subunit 13E located between the Susitna, Chulitna, and Nenana Rivers.

Sheep composition surveys were flown in the Talkeetna Mountains in Subunits 13A and 13E. During these surveys, 1,354 sheep were counted (1,029 in Subunit 13A and 325 in Subunit 13E). In the Subunit 13A surveys, 8.5% fewer sheep were observed than a comparable survey (1,125) conducted in 1977. A sheep survey flown in the Watana Hills (Subunit 13E) resulted in the classification of 200 sheep. In that survey, 4.4% fewer sheep were observed than in a comparable survey (209) conducted in 1981.

Population Composition

Results of composition surveys flown in the Watana Hills, Chulitna Hills, and Talkeetna River (Subunit 13E) and the Talkeetna Mountains (Subunit 13A) are shown in Table 1.

Mortality

Two hundred forty-eight hunters reported killing 63 rams. Of these, 32 rams (51%) were killed in Subunit 13A, 11 rams (17%) in Subunit 13E, 12 rams (19%) in Subunit 14A, 7 rams (11%) in Subunit 14B, and 1 ram (2%) in an unknown area. The number of rams killed declined substantially from the 1981 harvest of 96 and was below the average (82) of the previous 11 years. Hunter success (25%) was 5% lower than the previous 11-year average (Table 2).

None of the ewe drawing hunt permittees harvested a ewe in the Talkeetna Mountains portion of Subunit 14A.

Management Summary and Recommendations

The sheep population in the TCW appears to be stable. The small fluctuations between years in the number of sheep counted was attributed to differences in survey conditions. The decline in harvest and hunter success may have resulted from poor weather conditions which existed during much of the sheep season.

No changes in season or bag limits were recommended.

PREPARED BY:

SUBMITTED BY:

Jack C. Didrickson
Game Biologist III

Leland. P. Glenn
Survey-Inventory Coordinator

Nicholas C. Steen
Game Biologist II

Table 1. Composition of sheep observed in portions of the Talkeetna Mountains and Chulitna/Watana sheep ranges, 1982.

Area	Legal rams	Sublegal rams	Lambs	Unclass.	Total	Lambs/100 unclass.	% lambs
Subunit 13A	61	138	188	642	1,029	29.3	18.3
Subunit 13E	2	22	67	234	325	28.6	20.6

Table 2. Reported harvest of Dall sheep rams, numbers of hunters, and % success of hunters in the Talkeetna Mountain Range, 1971-1982, as derived from harvest reports.

Year	All hunters ^a			Residents			Nonresidents		
	No. rams harvested	No. hunters	% success	No. rams harvested	No. hunters	% success	No. rams harvested	No. hunters	% success
1971	85	240	35	39	178	22	44	59	75
1972	81	304	27	41	227	18	34	61	56
1973	61	277	22	39	232	17	21	31	68
1974	114	312	37	83	259	32	26	40	65
1975	109	281	39	75	231	32	30	40	75
1976	77	300	26	55	267	21	20	29	69
1977 ^b	55	203	27	40	182	22	14	17	82
1978	77	304	25	56	256	22	19	38	50
1979 ^c	65	269	24	37	225	16	27	37	73
1980 ^c	80	244	33	48	187	26	31	51	61
1981 ^c	96	236	41	62	187	33	31	43	72
1982 ^c	63	248	25	40	205	20	15	27	56

^a Data included hunters of unknown residency.

^b No reminder letters were sent to sheep hunters.

^c Legal horn size increased from 3/4 to 7/8 curl from this year onward.

SHEEP

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 13 and 20

GEOGRAPHICAL DESCRIPTION: Delta Controlled Use Area

PERIOD COVERED: 1 July 1982-30 June 1983

Season and Bag Limit

See Hunting Regulations No. 23.

Population Status and Trend

The Dall sheep population in the Delta Controlled Use Area (DCUA) was estimated to number 1,500 in 1980. No estimates have been made since that time. Trend of the population is uncertain.

Population Composition

A composition survey was attempted at the Granite Creek mineral lick 22-24 July 1982. The survey was conducted from a blind erected near the lick. Composition data obtained from this survey were limited and are believed to inaccurately represent the makeup of the population. Therefore, no composition data on this population are presented.

Mortality

For the DCUA hunt, 570 applications were received for the 150 permits. Eighty-five hunters reported taking 41 rams, for a success rate of 48%. This is the 2nd highest success rate recorded since 1972; the highest was 55% in 1979.

The number of permits available for hunting sheep in the DCUA was increased from 120 in 1981 to 150 in 1982. As a result, 5 more hunters took part in the 1982 hunt than the previous year. Horn size averaged 34.7 inches. This represents a slight decline from 35.2 inches recorded the previous season.

The greatest hunter effort was concentrated along the mountains just east of the Richardson Highway, but no sheep were harvested there. Other areas receiving considerable hunter effort were Jarvis Creek, Johnson River, Gerstle River, and the Granite Mountains. Success this year was highest at Riley Creek and the Little Gerstle River drainages.

Among successful hunters, 62% walked in and 25% used aircraft for transportation. This is probably due to transportation restrictions during the early part of the season.

Other mortality remains unquantified. At least 2 wolf-killed sheep were found during the reporting period. Observations at a wolf den on Jarvis Creek, where a large quantity of sheep hair was found, suggest that at least 1 pack preyed heavily on sheep in the DCUA.

Management Summary and Recommendations

Horn size and harvest data suggest this population is stable or nearly so. Questionnaires distributed along with permits to sheep hunters indicate no decrease in satisfaction with the hunting quality in the DCUA. Each hunter saw an average of about 2 other hunters, and this was evidently acceptable. Therefore, season, bag limit, and number of permits should remain unchanged.

Composition surveys should again be attempted at the Granite Creek lick.

PREPARED BY:

SUBMITTED BY:

David M. Johnson
Game Biologist III

Jerry D. McGowan
Survey-Inventory Coordinator

SHEEP

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 16, 17, and 19

GEOGRAPHIC DESCRIPTION: Alaska Range West of Denali National Park

PERIOD COVERED: 1 July 1982-30 June 1983

Season and Bag Limit

See Hunting Regulations No. 23.

Population Status and Trend

No population data were gathered for the western Alaska Range during this reporting period, but surveys flown before 1979 indicated the sheep population in this area was stable or slightly increasing. Lamb production was reported to be low due to poor weather during the lambing period in the eastern Alaska Range. Weather conditions may have been similar in the western Alaska Range, causing low lamb numbers there as well.

Mortality

In the western Alaska Range in 1982, 149 hunters killed 71 rams. This is approximately the same number of hunters who reported hunting in this area during 1981. This may signal an end to the downward trend in hunter numbers for this area. Over 60% of the hunters were residents, an increase of 10% from 1981. Nonresident hunters composed only 30% of all hunters. The reason for these changes is uncertain, but poor economic conditions throughout the country may have contributed to the decline in number of nonresident hunters. Hunter success was 51% in 1982, which is in keeping with the average success rate recorded in recent years for the western Alaska Range. Resident hunter success rate was 34%, while the rate for nonresidents was 79%. Typically, nonresident hunters have a greater success rate than residents, probably due to the requirement of utilizing a guide. The average number of days hunted for all hunters was 4.7, with little difference between residents (4.5) and nonresidents (4.7). Eighty-nine percent of the hunters used aircraft for transportation to hunting areas. None of the hunters using other forms of transportation was successful.

The average horn length of rams taken was 35.3 inches, which is about the same as that for 1981 (35.4). Previously, horn size had increased annually by about 0.5 inches. The mean age of rams taken was 8.4 years (standard deviation of 1.6). This compares with the Statewide average of 8.0 years for rams harvested. This was the 1st year that age data have been compiled for sheep taken in the western Alaska Range.

Hunting pressure within Units 16 and 17 showed no significant changes. In Unit 19, where most hunting occurs, hunting pressure was more dispersed than in 1981. The area between Big River and the Windy Fork of the Kuskokwim River had the highest number of hunters (24 or 22% of the total) and the highest success (12 rams or 19% of the total). Since 1979, this area has consistently had the highest hunting pressure in the western Alaska Range.

Management Summary and Recommendations

The sheep harvest in the western Alaska Range appears to have stabilized, halting a decline which has occurred since the Alaska Native Claims Settlement Act in 1979. Mean horn size among sheep taken is no longer increasing and seems also to have stabilized.

No surveys have been flown during the last 3 years, and surveys should be conducted in summer 1983. The area between the Big River and the Middle Fork of the Kuskokwim should be surveyed because the area consistently receives high hunting pressure.

PREPARED BY:

SUBMITTED BY:

Sarah M. Watson
Game Technician III

Jerry D. McGowan
Survey-Inventory Coordinator

Wayne E. Heimer
Game Biologist III

SHEEP

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 20

GEOGRAPHICAL DESCRIPTION: Alaska Range East of Denali Park
Excluding the Tok Management Area
and the Delta Controlled Use Area

PERIOD COVERED: 1 July 1982-30 June 1983

Season and Bag Limit

See Hunting Regulations No. 23.

Population Status and Trend

The eastern Alaska Range contains a moderately dense and stable sheep population. Poor lamb production during 1982 precluded the population growth experienced since the early 1970's.

Population Composition

Composition and productivity data obtained at the Dry Creek mineral lick during June revealed that initial production was 31 lambs/100 ewes and that recruitment was 24.5 yearlings/100 ewes. These figures indicate decreased survival for both lambs and ewes with values about half those obtained for 1981, an unusually good year.

Mortality

According to reported harvest data, 112 sheep were taken in 1982. This is about the same as the 1981 harvest but marks a substantial increase over the 1979 and 1980 harvests of 86 and 88, respectively. The average harvest prior to the 7/8-curl regulation in 1979 was 110 sheep. Mean horn size of rams taken was 34.0 inches, a decline from the 1982 mean of 34.9 inches. In general, horn size was largest among harvested rams in the eastern portion of the Unit and smallest in the west. Successful hunts averaged 3.9 days, compared to 4.2 days for all sheep hunts in this area. The success rate was 45% for residents and 91% for nonresidents, about the same as in recent years.

Transportation patterns were essentially unchanged from those of recent years. Hunters using aircraft for access harvested the most sheep, but those using horses experienced the highest success rate (Table 1). Subunit 20A west of the Wood River drainage lies within the Yanert-Wood River Controlled Use Area where motorized vehicles (except aircraft) are prohibited, which accounts for the relatively low ORV use for hunters in this area. The Wood River again produced the area's largest harvest (Table 2).

Management Summary and Recommendations

After slowly increasing since the early 1970's, sheep numbers in the central Alaska Range probably stabilized in 1982. As a result of lowered survival of the 1981 and 1982 cohorts. Most ewes in this population exhibit alternate-year reproduction, and therefore recruitment is relatively low even when survival is normal. Without an increase in fecundity, recruitment will remain low and ram harvest levels will not increase significantly. Despite low numbers of large-horned rams and only average hunting success, the central Alaska Range continues to be a popular hunting area for residents.

PREPARED BY:

SUBMITTED BY:

Larry B. Jennings
Game Biologist III

Jerry D. McGowan
Survey-Inventory Coordinator

Table 1. Sheep harvest statistics by hunter transportation mode, Alaska Range east of Denali Park, 1982.

Transp. mode	No. succ.	No. unsucc.	Total	% succ.
Aircraft	65	41	106	61
Horse	25	9	34	74
Boat	1	1	2	50
Off-road vehicle	9	20	29	31
Highway vehicle	6	12	18	33

Table 2. Sheep hunter success for the Alaska Range east of Denali Park by drainage, 1982.

Drainage	No. succ.	No. unsucc.	Total	% succ.	Mean horn size (inches)
Yanert	7	12	19	37	33.0
Healy	20	36	56	36	32.7
Totatlanika	4	2	6	67	34.0
Tatlanika	6	12	18	33	33.7
Wood River	53	16	69	77	33.3
Dry Creek	5	9	14	36	35.8
Little Delta West Fork	6	9	15	40	34.3
Little Delta East Fork	8	5	13	62	38.5
Delta Creek	3	3	6	50	35.0
Totals	112	104	216		
Means				52	34.0

SHEEP

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 20

GEOGRAPHICAL DESCRIPTION: Tanana Hills-White Mountains

PERIOD COVERED: 1 July 1982-30 June 1983

Season and Bag Limit

See Hunting Regulations No. 23.

Population Status and Trend

Sheep in the Tanana Hills-White Mountains are characterized by low-density, disjunct, relict populations. Distribution and abundance surveys conducted during 1982 indicated that a minimum of 419 sheep inhabit the area.

Population Composition

Sheep classification counts conducted from the ground in the Mt. Schwatka-Jefferson Creek area revealed 50 yearlings/100 ewes, but only 8 lambs/100 ewes. Subsequent aerial survey data confirmed the extremely low number of lambs in the population. Aerial sheep survey data obtained for 419 sheep in late June-early July in the area between the Taylor Highway and White Mountains are as follows: 38% rams ($N = 162$), 51% ewes ($N = 216$), and 10% lambs ($N = 41$).

The ram:ewe ratio was calculated at 75:100. This figure is thought to be high because it represents the maximum ram:ewe ratio expected for unhunted populations. Because the sheep surveyed are hunted, the true ram:ewe ratio was almost certainly lower. The high calculated ratio probably resulted from overlooking some ewes and lambs during the survey. Because sheep inhabit relatively brushy habitat in this area, it would not be unusual to miss some sheep, particularly lambs and ewes, during surveys. Omission of a few lambs and ewes could substantially influence the ram:ewe ratio, but would have little effect on the ewe:lamb ratio.

Mortality

Hunter reports disclosed 14 sheep were harvested in the Tanana Hills-White Mountains in 1982. This is a 55% increase over the 1981 harvest and an increase of 100% from the past 5-year mean. The number of hunters increased from 18 in 1981 to 35 in 1982. The hunter success rate was 40%. Hunts averaged 4.7 days (4.0 for successful), average horn length was 36.7 inches, and average age of rams killed was 9.4 years. Residents composed 64% of

successful hunters and 80% of all hunters. Nonresidents composed 14% of successful hunters; all nonresidents were successful. Residency of the remaining 22% could not be ascertained. Harvest locations were reported as Glacier Mountain (4), Mt. Harper (7), and Mt. Sorenson (3). No animals were reported taken from the White Mountains.

Management Summary and Recommendations

Low-density sheep populations exist in the Tanana Hills-White Mountains in inaccessible areas of suitable habitat. Hunting pressure and harvests are low, but increasing. Harvests are not expected to significantly increase in the near future.

PREPARED BY:

SUBMITTED BY:

Larry B. Jennings
Game Biologist III

Jerry D. McGowan
Survey-Inventory Coordinator

SHEEP

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 23

GEOGRAPHIC DESCRIPTION: Kotzebue Sound

PERIOD COVERED: 1 July 1982-30 June 1983

Season and Bag Limit

See Hunting Regulations No. 23.

Population Status and Trend

Surveys conducted in 1982 revealed no significant changes in the population since 1981. The winter of 1981-82 was generally favorable; temperatures were normal and snow accumulation was light. However, cold temperatures persisted much later into May than in the past 3 years, and breakup was delayed. Surveys conducted over the last 2 years indicate that the sheep population has increased slightly since 1977. In 1982, National Park Service researchers observed substantially more sheep in the Central Brooks Range than previous State surveys have revealed.

Population Composition

During summer 1982, the following 3 trend count areas were established in northwestern Alaska: a portion of the Wulik and Kivalina River drainages, an area where large-scale mineral development may occur; a portion of the Eli River drainage, an area which has been utilized for winter sheep hunting by local residents; and a portion of the Kugururok River drainage, an area which is primarily utilized by sport hunters. Each area was intensively surveyed 3 times during summer 1982. Population composition for each area was determined from the total of the 3 counts (Table 1).

The highest sheep density occurred in the Eli survey area where 91.6 sheep were observed per hour. Observation rates also indicate that sheep density in the Eli area exceeds that of the Wulik and Kugururok areas by a factor of 3. The difference in density is probably related to habitat. Legal rams composed 4% of all sheep observed, and lambs composed 16%.

Mortality

The special registration permit subsistence hunt was in effect for the 1st time last year. Prior to the Board of Game meeting in March 1983, subsistence resource specialist Greg Moore reported that residents of Noatak had killed 5 sheep in August along the Noatak Canyon. Four additional sheep (2 ewes and 2 rams)

were taken from the Agashashok River in early April, bringing the special subsistence harvest to 9 sheep. No sheep were reported taken by residents of Kivalina.

Twenty-one rams were reported harvested in Unit 23 during the regular season: 9 from north of the Noatak River, 10 from south of the Noatak River, and 2 from the upper Noatak River drainage. Horn length ranged from 28 to 39 inches and averaged 34 inches. The age of rams ranged from 5 to 14 years and averaged 8 years. Successful hunters reported spending an average of 3.5 days in the field.

Management Summary and Recommendations

Efforts should be continued to delineate trend count areas and to gather better information on composition and population size in portions of Unit 23.

Game Division should support efforts to change the status of the upper Noatak River drainage from park to preserve, thereby allowing sport hunters an opportunity to harvest sheep from that area. The boundaries of the Gates of the Arctic National Park now include all sheep residing in the upper Noatak River drainage.

We feel that changes in current Unit 23 subsistence sheep hunting regulations are desirable for the following reasons:

- a) The population of sheep in the Wulik and Kivalina drainages is fairly low. The highest of 3 surveys revealed 135 sheep, some of which were in the drainage of Wrench Creek, a tributary of the Noatak River. We believe that very few ewe sheep can be taken from this area on a sustained yield basis. A harvest of 50 ewes (now legally possible) would be detrimental to the population.
- b) The original proposal was designed to allow an incidental fall harvest of sheep by boat hunters in the Noatak Canyon, but was amended to allow winter hunting by selected residents on the grounds that it was occurring anyway. In 1982-83, 5 of the reported sheep were taken from the Noatak Canyon by fall boat hunters engaged in other activities.
- c) Neither local residents nor local fish and game advisory committees requested a winter sheep season. Apparently, winter sheep hunting is only done by a few people on an incidental basis and interest in the hunt is generally low.
- d) The determination of eligibility for the hunt was somewhat arbitrary. Reportedly, some residents of Kotzebue, Kiana, and possibly other villages have occasionally killed sheep during the winter, but are legally excluded from participating in the winter hunt.

e) Sheep research biologist Wayne Heimer has expressed serious biological concerns about hunting ewe sheep in this area; it may be more desirable to provide for people's nutritional needs by liberalizing seasons for species that are more secure than sheep. Moose are abundant in the Noatak valley and could sustain an increased harvest. In addition, caribou (usually present in the area) and arctic char (utilized extensively in late winter and spring) usually provide sufficient protein to meet local needs.

I recommend eliminating the winter sheep season but continuing to allow the incidental harvest of sheep by boat hunters in the Noatak Canyon area. Local people who need the meat should have the opportunity to take additional moose from the Noatak Valley.

PREPARED BY:

SUBMITTED BY:

Roland L. Quimby
Game Biologist III

David A. Anderson
Survey-Inventory Coordinator

Table 1. Sheep composition counts from the Wulik, Kugururok, and Eli trend count areas, 1982.

Area	Rams	% legal rams	Ewes ^a	Lambs	% lambs	Unid.	Total sheep	Survey time (hr)	Sheep/ hr	Rams: ewes: lambs:
Wulik ^b	72	3	218	70	19	4	364	10.93	33	33:100:32
Kugururok ^c	44	5	110	42	21	1	197	10.43	19	40:100:38
Eli ^d	196	4	668	146	14	0	1,010	11.03	92	29:100:22

^a Includes ewes, yearlings, and young rams.

^b Combined results of surveys flown on 6/15/82, 7/12/82, and 8/3/82.

^c Combined results of surveys flown on 6/19-6/20/82, 7/15/82, and 8/4/82.

^d Combined results of surveys flown on 6/16-6/17/82, 7/14/82, and 8/2-8/3/82.

SHEEP

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 23 through 26

GEOGRAPHICAL DESCRIPTION: Brooks Range

PERIOD COVERED: 1 July 1982-30 June 1983

Season and Bag Limit

See Hunting Regulations No. 23.

Population Status and Trend

Sheep populations in the Brooks Range vary in density. Numbers are low in Unit 23, central portions of Unit 24, and Unit 25. Western portions of Unit 24 support moderate sheep numbers, while high numbers exist in eastern Unit 24. Unit 26 populations decrease in density from high in the eastern portion to low at the western end.

Data gathered during this reporting period indicate sheep populations are generally stable across the Brooks Range. An intensive survey of the Hulahula River drainage was conducted, the National Park Service (NPS) surveyed much of Gates of the Arctic National Park and Preserve, and some surveys were flown in the western Brooks Range. The Hulahula River data were analyzed, and it was concluded that sheep populations in that portion of Subunit 26C have been stable since 1976. A report on the results from Gates of the Arctic National Park and Preserve is not yet available from NPS. However, preliminary reports indicate more sheep sighted there than in earlier surveys. Surveys in the lower portions of the Noatak River in Unit 23 established a population size for areas surveyed, but data are not adequate to identify population trend. Guides and hunters reported taking sheep in poor condition during the fall season and reported reduced population sizes on the north side of the Brooks Range in central Unit 26. These observations appear to be limited to this area.

Population Composition

Population composition gathered from the aerial survey data did not reveal anything unusual. Lamb production on the north side of the Brooks Range in Subunit 26C was poor (14 lambs/100 ewes as seen from aircraft), but production was seemingly fair-to-good on the south side of the range (35-40 lambs/100 ewes according to NPS). In Unit 23, the lamb:100 ewes ratio was 40:100, the highest lamb production reported for the area in recent years.

Ram composition data from Subunit 26C, the Hulahula drainage, showed a notable lack of very large rams in this drainage compared with past surveys. Hunting pressure and harvest of rams in this area have been low, and it is unlikely this situation resulted from sport hunting. The low number of large rams probably reflects poor recruitment during the early 1970's. No data exist to support or refute this suggestion, but harsh winters caused low lamb production in many other parts of Alaska during this period.

Mortality

Two approaches to harvest of Dall sheep are currently being practiced in the Brooks Range. An early fall season for 7/8-curl or larger rams occurs from 10 August through 20 September. A longer season opens in Units 23 and 24 on 1 August and extends through 30 April. The extended season in Subunit 26C opens 1 October. These late seasons are designed to provide the opportunity for local residents to hunt Dall sheep for local use. Aircraft use for transporting sheep meat or sheep hunters is strictly forbidden by conditions of the late season registration hunts.

During the early season, 313 hunters took 180 Dall rams. Resident hunters took 107, nonresident hunters took 58, and 15 rams were taken by hunters of undetermined residency. Overall success was 58%, compared with an overall success of 50% during the 1981 season. Success among nonresidents was 94%, compared to 48% for residents. Good weather prevailed in the Brooks Range during the sheep season for the 1st time in the last 3 years. This probably contributed to the high success. Depressed economic conditions were probably responsible for the 18% drop in overall participation.

During the late season, 15 sheep were reported killed in Subunit 26C, 2 in Subunit 25A, 30 in the Gates of the Arctic National Park (Unit 24), and none in Unit 23. To date, the number of hunters participating in the late season hunts is not known. Harvest data presented above include only sheep killed between the opening of the season and 5 April. Because a substantial harvest occurs in April, the actual harvest of sheep during late hunts is expected to be considerably higher than reported here.

Management Summary and Recommendations

Sheep populations in the Brooks Range appear to be generally stable. Data collected from the Hulahula River substantiate this. Local fluctuations probably occur, but populations are generally stable and secure. Still, a late season that allows hunters to take 3 sheep of either sex is considered a higher risk

to sheep populations than traditional early season harvest of mature rams. For these reasons, areas of localized harvest during the late season should be identified and populations in these areas surveyed annually.

PREPARED BY:

Wayne E. Heimer
Game Biologist III

SUBMITTED BY:

Jerry D. McGowan
Survey-Inventory Coordinator