Species Management Report and Plan ADF&G/DWC/SMR&P–2022–2

Mountain Goat Management Report and Plan, Game Management Units 14A and 14B:

Report Period 1 July 2013–30 June 2018, and

Plan Period 1 July 2018–30 June 2023

Tim C. Peltier

2022

Alaska Department of Fish and Game Division of Wildlife Conservation

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PREPARED BY:

Tim C. Peltier
Palmer Area Wildlife Biologist

APPROVED BY:

Todd Rinaldi
Management Coordinator

PUBLISHED BY:

Sky M. Guritz
Technical Reports Editor

Alaska Department of Fish and Game
Division of Wildlife Conservation
PO Box 115526
Juneau, AK 99811

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Species management reports and plans provide information about species that are hunted or trapped and management actions, goals, recommendations for those species, and plans for data collection. Detailed information is prepared for each species every 5 years by the area management biologist for game management units in their areas, who also develops a plan for data collection and species management for the next 5 years. This type of report is not produced for species that are not managed for hunting or trapping or for areas where there is no current or anticipated activity. Unit reports are reviewed and approved for publication by regional management coordinators and are available to the public via the Alaska Department of Fish and Game's public website.

This species management report and plan was reviewed and approved for publication by Todd Rinaldi, Management Coordinator for the Division of Wildlife Conservation.

Species management reports and plans are available via the Alaska Department of Fish and Game's public website (www.adfg.alaska.gov) or by contacting Alaska Department of Fish and Game's Division of Wildlife Conservation, PO Box 115526, Juneau, Alaska 99811-5526; phone: (907) 465-4190; email: dfg.dwc.publications@alaska.gov. The report may also be accessed through most libraries, via interlibrary loan from the Alaska State Library or the Alaska Resources Library and Information Services (www.arlis.org). To subscribe to email announcements regarding new technical publications from the Alaska Department of Fish and Game, Division of Wildlife Conservation please use the following link: http://list.state.ak.us/mailman/listinfo/adfgwildlifereport.

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Please contact the authors or the Division of Wildlife Conservation at (907) 465-4190 if you have questions about the content of this report.

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Purpose of this Report

This report provides a record of survey and inventory management activities for mountain goat in Game Management Units 14A and 14B for the 5 regulatory years 2013–2017 and plans for survey and inventory management activities in the next 5 regulatory years, 2018–2022. A regulatory year (RY) begins 1 July and ends 30 June (e.g., RY14 = 1 July 2014–30 June 2015). This report is produced primarily to provide agency staff with data and analysis to help guide and record agency efforts but is also provided to the public to inform it of wildlife management activities. In 2016 the Alaska Department of Fish and Game's (ADF&G, the department) Division of Wildlife Conservation (DWC) launched this 5-year report to report more efficiently on trends and to describe potential changes in data collection activities over the next 5 years. It replaces the mountain goat management report of survey and inventory activities that was previously produced every 3 years.

I. RY13–RY17 Management Report

Management Area

Game Management Unit 14A is in Southcentral Alaska, north of Anchorage. The total area of Unit 14A is 2,685 mi^2 and consists of all land from the east bank of the Susitna River beginning at the mouth at Cook inlet heading north to the mouth of Willow Creek then south of the north bank of Willow and Peters Creek to the headwaters, and south of the hydrologic divide separating the Susitna River and the Knik Arm drainages to the outlet creek at Lake 4408, then southeast in a straight line to the northern most fork of the Chickaloon River then south along the east bank of the Chickaloon River to the bridge on the Glenn Highway at milepost 77.7, then following the hydrologic divide separating Carbon and Coal creeks to the hydrologic divide between the waters of the Matanuska River and the Knik Glacier across the face of the glacier south to the south bank of the Knik River to Cook Inlet, following Cook Inlet to the mouth of the Susitna River (Fig. 1). Goat habitat in Unit 14A is found above timberline in steep alpine country and rugged terrain.

Unit 14B covers approximately 2,512 mi^2 of the Talkeetna Mountains. It consists of all land east of the Susitna River to its confluence with the Talkeetna River south and west to its headwaters, and north of the north bank of Willow Creek and Peters Creek to the headwaters, and the hydrologic divide separating the Susitna River and the Knik Arm Drainages to the outlet creek at Lake 4408 (Fig. 1). Much of the area is above timberline or is heavily forested with birch (*Betula* spp.), aspen (*Populus* spp.), and spruce (*Picea* spp.).

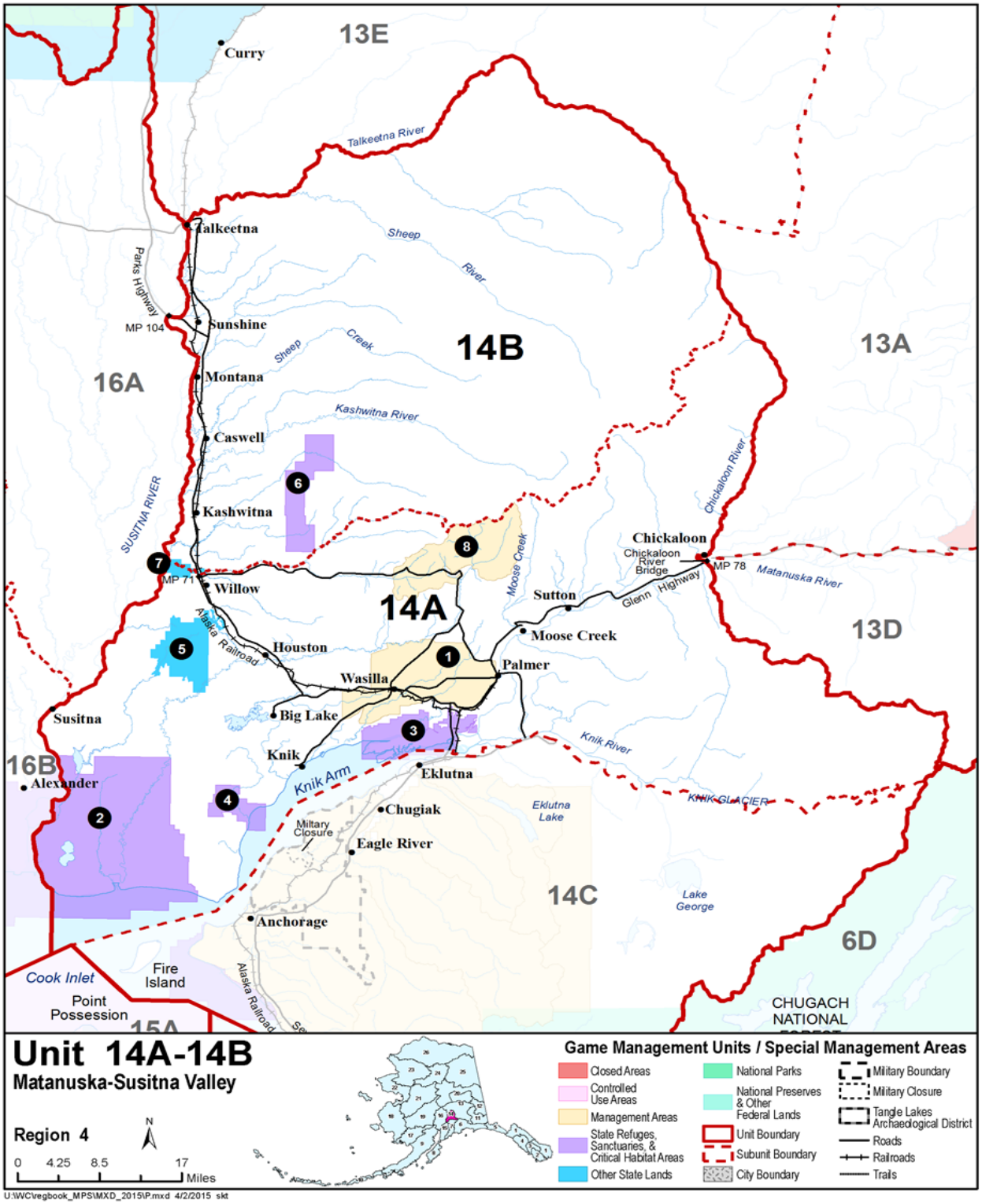


Figure 1. Map showing Game Management Units 14A and 14B, Special Management Areas, and federal lands; including state refuges, sanctuaries, and critical habitat areas (black numbered circles), for Unit 16 in Southcentral Alaska as found in the Alaska Hunting Regulations.

Summary of Status, Trend, Management Activities, and History of Mountain Goats in Units 14A and 14B

Since the early 1990s, the goat population in the Chugach Mountain portion of Unit 14A has increased from 111 goats observed in the 1992 survey to 298 goats observed in the 2017 survey. The mountain goat population in the Talkeetna Mountain portion of Units 14A and 14B has historically been low with a total of 28 goats observed in 1974 (Alaska Wildlife Management Plan, 1976). Currently, it is believed that no more than 50 goats are present (Peltier 2014).

Seasons and bag limits for goats in Unit 14 have varied since statehood. Regulations for Unit 14 were most liberal during the mid-1960s, with a 144-day hunting season (10 August–31 December) and a 2-goat bag limit, until RY67 when the bag limit for Unit 14 was lowered to 1 goat. In the 1970s the hunting season in Unit 14 began in early, in either August or September, and ran until 15 November. From RY84 to RY07 most of the goat hunting opportunity in Unit 14 required a registration permit. The harvest was limited to billies (males) during RY87 and RY88 but was liberalized to either sex in RY89. Goat hunting has been closed in the Talkeetna Mountain portion of Unit 14A since RY86 but remains open in the Chugach Mountain portion of Unit 14A. Goat hunting in Unit 14B (the remainder of the Talkeetna Mountains) has been closed since RY90 (Peltier 2014).

Mountain goat hunting on the Kenai Peninsula became restricted by drawing permit in 2001. Beginning in RY02, participation in goat registration hunts in the Chugach Mountain portion of Unit 14 (Units 14A and 14C) increased dramatically. Many of the hunters participating in the registration hunts were guided residents who were hunting mountain goats with a combination of mountain goat and Dall sheep hunt permits. By RY05, most registration hunts were closing within 2 weeks of opening due to harvest quotas being met quickly. Both the mountain goat and Dall sheep hunts in the Chugach portion of 14A changed to draw hunting permits in 2007. A draw hunt system was implemented in RY08 (Albertson 2012), and harvest declined precipitously. In 2011 the Board of Game (BOG) implemented a registration hunt in conjunction with the draw hunt. During that first season (RY11) the harvest was well over quota; however, a combination of increasing the number of draw permits with either a limited number of registration permits or no registration permits offered has brought harvest and quota in alignment.

The calculation of the number of permits issued each year is based on surveys of the goat population and the age composition of goats observed using a 3-year rolling average of the population. The number of permits is also adjusted following a review of harvest statistics from previous years. Points are assigned based on the sex of the harvested animal; a female is counted as 2 goats toward the allowable harvest guideline, while a male is counted as one. Goats can be susceptible to overharvest, especially when the female component of the harvest is high (Hamel 2006). Hunters are encouraged to harvest only male goats.

Management Direction

EXISTING WILDLIFE MANAGEMENT PLANS

- Alaska Wildlife Management Plans: Upper Cook Inlet Goat Management Plan (1976).
- ADF&G Division of Wildlife Conservation Strategic Plan (2002).

GOAL

To provide a sustainable opportunity to hunt mountain goats under aesthetically pleasing conditions.

CODIFIED OBJECTIVES

None.

Amounts Reasonably Necessary for Subsistence Harvest

The Alaska Board of Game made a negative finding for customary and traditional uses for mountain goats in Unit 14.

Intensive Management

Mountain goats have not been identified by the BOG as important for providing high levels of harvest for human consumptive use. Intensive management predation control programs implemented for moose or caribou may affect predation levels on goats.

MANAGEMENT OBJECTIVES

Unit 14A (Chugach Mountains)

- Maintain a minimum observable population of 60 goats annually.
- Maintain an annual harvest of 7% of the observable adult goats.
- Maintain an annual sex ratio in the harvest of at least 70% males annually.

Units 14A and 14B (Talkeetna Mountains)

- Allow the population to reach an observable minimum of 50 goats before allowing harvest, at which time annual harvest should not exceed 5% of observable goats and should comprise at least 60% males.

MANAGEMENT ACTIVITIES

1. Population Status and Trend

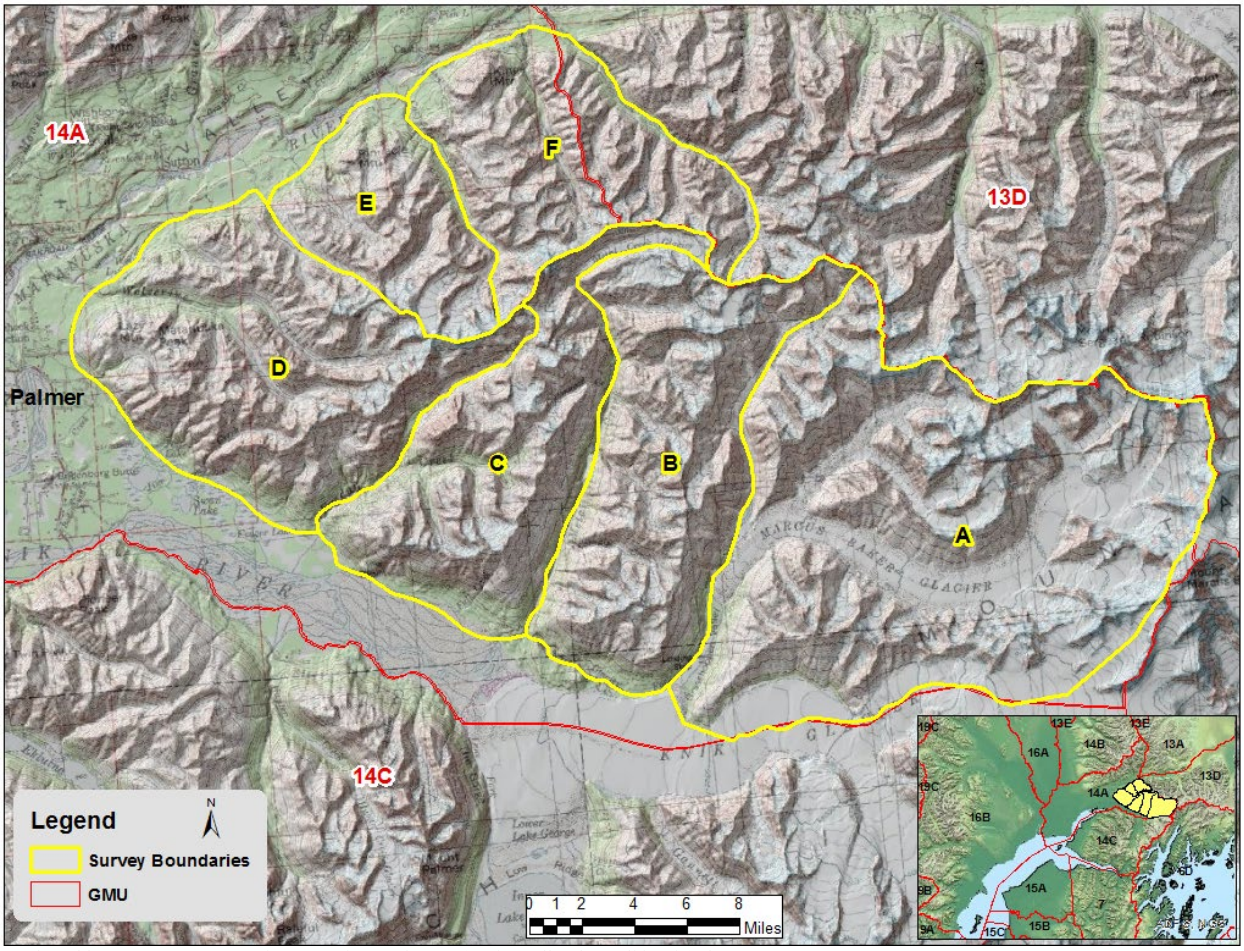
ACTIVITY 1.1. Conduct aerial surveys in count areas (CAs) to determine population size, age composition, productivity, and trends.

Data Needs

Mountain goat abundance is a basis from which sustainable harvest may be estimated and provides a density context for interpreting nutritional condition relative to habitat conditions. Age composition information can be used to determine appropriate harvest levels as well as recruitment into the population.

Methods

Aerial surveys using fixed-wing aircraft are intended to provide both a minimum count and age composition for mountain goats in the Unit 14A Chugach Range (Fig. 2). While goats do occur in the Talkeetna Mountains and are tallied during Talkeetna sheep surveys, the population is very small, and no surveys specifically directed towards mountain goats were conducted in RY13–RY17. Surveys flown in established count areas also allow for comparisons across years and aid staff in setting appropriate harvest quotas. Pilot-observer teams fly CAs following elevational contours to record observations of both individuals and groups of goats. Aerial surveys are planned to be completed annually or biennially as time and funding allows. Surveys are conducted when most of the previous winter's snow has melted (typically July), prior to the sheep hunting season (10 August).



Produced by ADF&G, 2007 using ArcView software (Esri, Redlands, California); base map source: USGS.

Figure 2. Map of Dall sheep and goat survey count areas, Unit 14A, Chugach Range, Alaska.

Results and Discussion

The mountain goat population in the Chugach Range of Unit 14A appears to be stable or increasing (Table 1). Surveys were conducted each year during RY13–RY17 except for in RY15. Survey conditions were not good in RY16, and the minimum count probably reflects a lower probability of detection than an actual decrease in the population.

Only 1 survey of the entire portion of the Talkeetna Mountains encompassing Units 14A and 14B was completed in 2015. At that time surveys detected 31 adults and 5 kids.

Recommendations for Activity 1.1.

Continue.

Table 1. Aerial mountain goat composition counts in Unit 14A during regulatory years 2008–2017, Chugach Mountains, Alaska.

Regulatory year	Adults (%)	Kids (%)	Kids:100 adults	Total goats observed
2008	170 (79)	45 (21)	26	215
2009[c]	100 (80)	25 (20)	25	125
2010	173 (79)	47 (21)	27	220
2011	163 (75)	54 (25)	33	217
2012[b]	107 (82)	23 (18)	21	130
2013	153 (81)	35 (19)	23	188
2014	173 (80)	42 (20)	24	215
2015[a]	– –	– –	–	–
2016[b]	102 (82)	22 (18)	22	124
2017	218 (73)	81 (27)	37	299

[a] No surveys conducted.
[b] Poor survey conditions.
[c] Incomplete survey conducted.

2. Mortality-Harvest Monitoring and Regulations

ACTIVITY 2.1. Monitor mountain goat mortality through field observations, sealing, hunter harvest reports, contact with hunters, and reports of other causes of mortality.

Data Needs

Monitoring, collecting, and analyzing harvest data are critical for sustained yield management. Information collected from harvest reports and through the sealing process can inform management decisions regarding season length, permit levels, and appropriate methods of take.

Methods

In Unit 14A, Chugach Range, mountain goat hunting effort data is obtained through the harvest report portion of hunt permits submitted by individual hunters participating in the draw hunt. Registration permits also offer this information during years that they are offered.

Season and Bag Limit

Mountain goat hunting is only allowed in the Chugach Range of Unit 14A. This area is divided into 2 hunt areas based on historical survey data. These data indicate that 60% of the mountain goat population occurs in the area east of Metal Creek, and 40% of the population occurs in the remainder of Unit 14A. Under the current regulations, there are 2 different permits available for the area: 1) a draw permit with season dates of 1 September–31 October, and 2) a registration hunt which may occur from 1–31 October. The western portion of Unit 14A is included in draw hunt DG890 and registration permit RG890, and the eastern portion is covered under draw hunt DG891 and registration permit RG891. A quota system determines whether registration permits are offered and the length of hunting seasons. It uses 7% of a 3-year average of the adult population as the projected harvest. Under this system, each billy (male) taken counts as 1 goat point, and each nannie (female) taken counts as 2 goat points.

Results and Discussion

Harvest by Hunters

Harvest varied between 8 and 14 goat points during RY13–RY17 (Table 2). This is not significantly different from historical harvest. Harvest did trend with the population during this period. Males comprised an average of 63% of the harvest which is below the management goal of 70%; however, at this time there is no concern for the population or need to change the current harvest strategy.

Hunter Residency and Success

Most successful and unsuccessful hunters were local residents (Table 3). During RY13–RY17 only 6 nonresidents received a draw permit to hunt in Unit 14A, and only 1 nonresident hunted.

Transport Methods

Most hunters access the area by fixed-wing aircraft (Table 4). A few hunters access the area by all-terrain vehicle (ATV) or off-road vehicle (ORV). Goat habitat is very remote, high in elevation, and typically inaccessible by means other than aircraft.

Table 2. Mountain goat harvest data by permit hunt, regulatory years 2013–2017, Unit 14A, Chugach Mountains, Alaska.

Regulatory year	Hunt number	Permits issued	Percent did not hunt	Percent unsuccessful hunters	Percent successful hunters	Males (%)	Females (%)	Total harvest
2013	DG890	10	20	50	30	2 (67)	1 (33)	3
	DG891	20	65	20	15	3 (100)	0 (0)	3
	RG890	5	0	60	40	1 (50)	1 (50)	2
	RG891	10	80	10	10	1 (100)	0 (0)	1
2014	DG890	20	45	50	5	1 (100)	0 (0)	1
	DG891	30	57	26	17	3 (60)	2 (40)	5
2015	DG890	20	80	15	5	1 (100)	0 (0)	1
	DG891	30[a]	58	21	21	3 (50)	3 (50)	6
2016	DG890	20	55	40	5	1 (100)	0 (0)	1
	DG891	30	54	23	23	3 (43)	4 (57)	7
2017	DG890	20	60	30	10	2 (100)	0 (0)	2
	DG891	30	46	27	27	4 (50)	4 (50)	8

[a] 29 permittees reported out of 30 permits

Table 3. Mountain goat hunter residency and success, regulatory years 2013–2017, Unit 14A, Chugach Mountains, Alaska.

		Unsuccessful				Successful				
Regulatory year	Hunt number	Local resident	Nonlocal resident	Nonresident	Total (%)	Local resident	Nonlocal resident	Nonresident	Total (%)	Total hunters[a]
2013	DG890	5	0	0	5 (63)	3	0	0	3 (37)	8
	DG891	4	0	0	4 (57)	3	0	0	3 (43)	7
	RG890	3	0	0	3 (60)	2	0	0	2 (40)	5
	RG891	1	0	0	1 (50)	0	0	1	1 (50)	2
2014	DG890	10	0	0	10 (91)	1	0	0	1 (9)	11
	DG891	5	3	0	8 (62)	5	0	0	5 (38)	13
2015	DG890	3	0	0	3 (75)	1	0	0	1 (25)	4
	DG891	5	1	0	6 (50)	6	0	0	6 (50)	12
2016	DG890	8	0	0	8 (89)	1	0	0	1 (11)	9
	DG891	7	0	0	7 (50)	6	0	1	7 (50)	14
2017	DG890	6	0	0	6 (75)	2	0	0	2 (25)	8
	DG891	7	1	0	8 (50)	8	0	0	8 (50)	16

[a] Includes hunters with unspecified residency or who failed to report.

Table 4. Successful mountain goat hunter transport methods, regulatory years, 2013–2017, Unit 14A, Chugach Mountains, Alaska.

Regulatory year	Hunt number	Percent of harvest								
		Airplane	Horse	Boat	ATV	Snowmachine	ORV	Highway vehicle	Unknown	*n*
2013	DG890	34	0	0	33	0	0	33	0	3
	DG891	100	0	0	0	0	0	0	0	3
	RG890	0	0	0	50	0	50	0	0	2
	RG891	100	0	0	0	0	0	0	0	1
2014	DG890	100	0	0	0	0	0	0	0	1
	DG891	100	0	0	0	0	0	0	0	5
2015	DG890	100	0	0	0	0	0	0	0	1
	DG891	100	0	0	0	0	0	0	0	6
2016	DG890	100	0	0	0	0	0	0	0	1
	DG891	100	0	0	0	0	0	0	0	7
2017	DG890	34	0	0	33	0	33	0	0	2
	DG891	100	0	0	0	0	0	0	0	8

Alaska Board of Game Actions and Emergency Orders

Due to the harvest nearing the quota in RY13, an emergency order was issued closing the season for both the draw and registration hunts on 24 October 2013, 7 days prior to the regular end of the season. An emergency order was also issued in RY14 prior to the start of the registration hunt period announcing that registration permits would not be offered for that season. While the registration hunts were not offered in RY15–RY17, emergency orders were not issued announcing the registration hunt season closure.

Recommendations for Activity 2.1.

Continue.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Data Recording and Archiving

- Harvest data are stored on ADF&G's internal Wildlife Information Network (WinfoNet; http://winfonet.alaska.gov/index.cfm).

Field data sheets are scanned and stored on the Palmer network server (O:\WC\Palmer Area Office Folder\Species\Sheep\Scanned Archive Files for survey forms). Field data sheets are stored in the Region IV ADF&G office in Palmer in either the area biologist's office or the assistant area biologist's office.

Agreements

None.

Permitting

None.

Conclusions and Management Recommendations

The combination of draw and registration permit hunting in Unit 14A Chugach Mountains area has allowed managers to more closely match harvest and quota objectives than has been historically possible. Beginning in RY13, the management strategy used to determine harvest quotas has changed slightly from using only 7% of the total observed population to using 7% of the adult population in combination with a 3-year average of survey results. This change brought stability to the harvest quota in 2 ways: 1) it compensates for years when goats are surveyed in less-than-ideal conditions, resulting in an underestimation of the population, and 2) it compensates for a year of low kid production that can unduly influence the total population estimation. As a result, the harvest regime is more predictable and also follows trends in the mountain goat population.

II. Project Review and RY18–RY22 Plan

Review of Management Direction

MANAGEMENT DIRECTION

GOALS

The existing management direction and goals appropriately direct management of mountain goats in Units 14A and 14B. The management direction for Units 14A and 14B ensures that mountain goats will persist as part of the natural ecosystem and continued sustainable hunting and viewing opportunities. There is no indication that the long-term sustainability of the goat populations or that statewide goals (ADF&G 1976) for human uses cannot be met. As mountain goats have persisted at very low levels in the Talkeetna Mountains over the past 50 years it is unlikely that they will reach the minimum population of over 50 animals any time soon; however, habitat and climatic changes may make population increases possible, and therefore hunting opportunity may increase sometime in the future.

CODIFIED OBJECTIVES

None.

Amount Reasonably Necessary for Subsistence Uses (ANS)

The Alaska Board of Game made a negative finding for customary and traditional uses for mountain goats in Unit 14.

Intensive Management

Mountain goats have not been identified by the BOG as important for providing high levels of harvest for human consumptive use. Intensive management predator control programs implemented for moose or caribou may affect predation levels on goats.

MANAGEMENT OBJECTIVES

Unit 14A (Chugach Mountains)

Objectives for the Chugach Mountains area of Unit 14A have been modified from RY13–RY17 as follows:

- Maintain a minimum observable population of 60 goats annually.
- Maintain an annual harvest of 7% of observable adult goats.
- Maintain an annual sex ratio in the harvest based on a 3-year average of the minimum observed population and at least 70% males.

Units 14A and 14B (Talkeetna Mountains)

Continue. No change from RY13–RY17.

- Allow the population to reach an observable minimum of 50 goats before allowing harvest, at which time annual harvest should not exceed 5% of observable goats and should comprise at least 60% males.

REVIEW OF MANAGEMENT ACTIVITIES

1. Population Status and Trend

ACTIVITY 1.1. Conduct aerial surveys in count areas (CAs) to determine population size, age composition, productivity, and trends.

Data Needs

Mountain goat abundance is a basis from which sustainable harvest may be estimated and provides a density context for interpreting nutritional condition relative to habitat conditions. Age composition information can be used to determine appropriate harvest levels as well as recruitment into the population.

Methods

Aerial surveys using fixed-wing aircraft are intended to provide both a minimum count and age composition for mountain goats in the Unit 14A Chugach Range. While goats do occur in the Talkeetna Mountains and are tallied during Talkeetna sheep surveys, the population is very small, and no surveys specifically directed towards mountain goats are planned for RY18–RY22. Goats will continue to be counted during sheep surveys in this area. Surveys flown in established count areas also allow for comparisons across years and aid staff in setting appropriate harvest quotas. Pilot-observer teams will fly CAs following elevational contours to record observations of both individuals and groups of goats. Aerial surveys are planned to be completed annually or biennially as time and funding allowed. Surveys are conducted when most of the previous winter's snow had melted (typically July), prior to the sheep hunting season (10 August).

2. Mortality-Harvest Monitoring

ACTIVITY 2.1. Monitor mountain goat mortality through field observations, sealing, hunter harvest reports, contact with hunters, and reports of other causes of mortality.

Data Needs

Monitoring, collecting, and analyzing harvest data are critical for sustained yield management. Information collected from harvest reports and through the sealing process can inform management decisions regarding season length, permit levels, and appropriate methods of take.

Methods

In Unit 14A, Chugach Range, mountain goat hunting effort data obtained through the harvest report portion of hunt permits submitted by individual hunters participating in the draw hunt. Registration permits also offer this information during years that they are offered.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Data Recording and Archiving

- Harvest data are stored on an internal database housed on a server (http://winfonet.alaska.gov/index.cfm).

Field data sheets are scanned and stored on the Palmer network server (O:\WC\Palmer Area Office Folder\Species\Sheep\Scanned Archive Files). Field data sheets are stored in the Region IV ADF&G office in Palmer in the either the area biologist's office or the assistant area biologist's office.

Agreements

None.

Permitting

None.

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