Mountain Goat Management Report and Plan, Game Management Unit 5:

Report Period 1 July 2013–30 June 2018, and

Plan Period 1 July 2018–30 June 2023

Roy Churchwell

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Alaska Department of Fish and Game Division of Wildlife Conservation

Mountain Goat Management Report and Plan, Game Management Unit 5:

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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 Stephen Bethune, Acting Management Coordinator for the Division of Wildlife Conservation.

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Purpose of this Report

This report provides a record of survey and inventory management activities for mountain goats (*Oreamnos americanus*) in Unit 5 for the 5 regulatory years 2013–2017 and plans for survey and inventory management activities in the following 5 regulatory years, 2018–2022. A regulatory year (RY) begins 1 July and ends 30 June (e.g., RY10 = 1 July 2010–30 June 2011). 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 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 2 years.

I. RY13–RY17 Management Report

Management Area

The Unit 5 management area is 5,800 mi^2, including the mainland Gulf of Alaska coast from Cape Fairweather to Icy Bay and inland to the Canadian border (Fig. 1). The unit has 2 administrative units, 5A and 5B. Unit 5A covers Cape Fairweather to Yakutat Bay. Unit 5B covers Yakutat Bay to Icy Bay and is remote and mostly accessed by aircraft or boat. Yakutat is the only municipality in Unit 5 (population 579; U.S. Census Bureau 2020), and the major economic drivers are fishing, logging, and jobs with tribal, municipal, state, and the federal government. Nearly all of Unit 5A is within Tongass National Forest, Glacier Bay National Park, or the Glacier Bay National Preserve. The park was established in 1925. Almost all of Unit 5B is within Wrangell–St. Elias National Park and Preserve, which was designated as a provision of the Alaska National Interest Lands Conservation Act (ANILCA) legislation in 1980.

Much of the Unit 5 mainland is comprised of glaciers, but between the icefields and the coast are rocky cliffs, upland alpine areas, and steep coniferous forest slopes that drop down to the Yakutat Forelands. The alpine supports grasses, sedges, and forbs important to mountain goats as summer forage. In the winter goats feed on these same plants where the wind has scoured the snow away or they feed on shrubs and ferns protected from deeper snow under the coniferous canopy. Unit 5 has a subarctic climate with temperate rainforests. The average daily high temperature in January is 36°F and in August is 57°F (NOAA 2018). Yakutat is considered one of the wettest towns in the state, recording average annual precipitation of 130 inches, including 150 inches of snow that falls between November and April (NOAA 2018).

Summary of Status, Trend, Management Activities, and History of Mountain Goats in Unit 5

The first ADF&G mountain goat management information for Unit 5 can be found in the unit's first species management report on 1971 goat management (Zimmerman 1973). At that time much of the unit was considered inaccessible to hunters. Surveys conducted at this time found

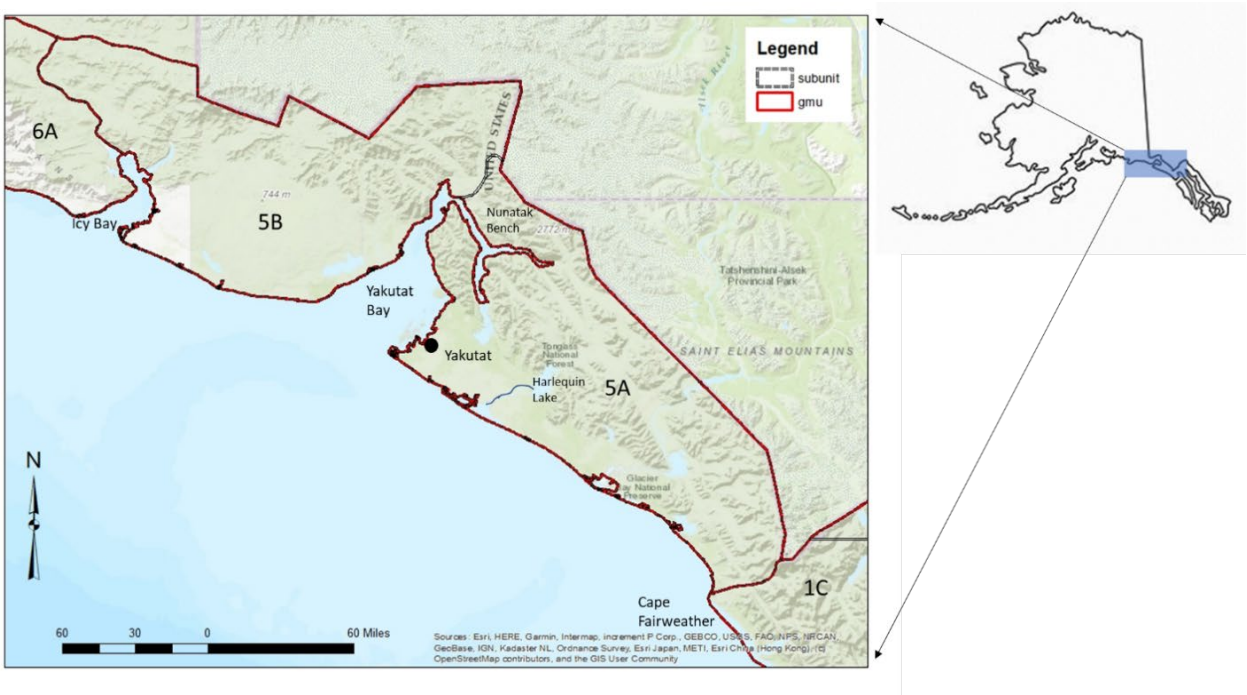

Figure 1. Map of Game Management Unit (GMU) 5, Southeast Alaska.

healthy goat populations, but then populations declined after a hard winter in 1972 (Ballard and Merriam 1975). In part due to this decline, the harvest quota for goats was decreased from 2 to 1 goat in 1975 (Quimby 1977). Goat harvest started to decline because of lower hunter participation. This was in part because the Yakutat moose season was closed, and hunters were not able to participate in multi-species hunts (Ballard and Pegau 1976). In 1980, the use of registration permits began for goat hunts across the state and reporting on goat harvest became more consistent (Ball 1981). In 1981, the creation of Wrangell–St. Elias National Park closed much of Unit 5B to recreational hunting with only subsistence hunting allowed in portions of the park. This created more hunting pressure for goats in Unit 5A closer to Yakutat (Ball 1983). By the mid-1980s goat populations had recovered from low numbers that originated during the hard winters of the early 1970s. Biologists think populations continued to increase through the 1990s even though few surveys were conducted due to changes in staffing (Robus 1996). Around 2000, hunting participation increased in part due to illegal guiding that was occurring on the Nunatak Bench (Barten 2000). Possibly due to the illegal guiding, goat numbers on the Nunatak Bench declined and the area was closed by Emergency Order (EO; Barten 2002). In the early 2000s, the Federal Subsistence Board voted that at least 2 goats from Unit 5 should be reserved for subsistence hunters. Furthermore, hunter participation in Unit 5 decreased again because of the closure of the Nunatak Bench, which in 2005 was made permanent until goat numbers recover (Barten 2006). By 2010 the area west of Harlequin Lake also had low numbers of goats and that area has been under an EO prior to the season opening since that time (Scott 2010, 2012). Mountain goat numbers on the east side of Harlequin Lake remained strong enough to support a hunt in that area even though hunter participation declined to the point where there were less than 5 goat hunters during some years (Scott 2012).

Nearly all Unit 5 hunting effort is concentrated in Unit 5A for several reasons (Scott 2014). Much of Unit 5B is in Wrangell–St. Elias National Park and closed to hunting for mountain goats (the associated national preserve remains open to hunting). The primary Unit 5B goat habitat open to hunting is at Icy Bay and is difficult to access.

Management Direction

Existing Wildlife Management Plans

- Southeast mainland goat management plan in the 1976 Alaska wildlife management plans (ADF&G 1976).

Management objectives and harvest management strategies have changed since the plan was written based on public comment, staff recommendations, and Alaska Board of Game actions. These periodic changes in management planning have been reported through the years in the division's previous mountain goat management reports for Unit 5.

Goals

Management goals for mountain goats in Unit 5 are to provide for the following:

1. A sustainable harvest of mountain goats in Unit 5.
2. The greatest opportunity to participate in hunting of mountain goats in Unit 5.
3. Recovery of goat populations that have shown reduced populations at Nunatak Bench and west of Harlequin Lake.

Codified Objectives

Amounts Reasonably Necessary for Subsistence Uses

The Alaska Board of Game has made a positive finding for customary and traditional use of mountain goats in in Unit 5 and set 1–2 goats as the amount necessary for subsistence (ANS; 5 AAC 99.025(a)(7)).

Intensive Management

Not applicable.

Management Objectives

- Maintain goat densities so at least 30 goats per hour are seen during fall surveys.
- Use pamphlets, videos, and other educational materials to ensure a male:female harvest of at least 2:1.
- Identify discrete geographic areas and manage within these areas.
- Conduct aerial surveys at least every 3 years in areas of high harvest.

- Maintain a guideline harvest not to exceed 6 points (males = 1 point and females = 2 points) per 100 goats observed.
- Continue to monitor the west Harlequin Lake and Nunatak Bench goat populations through aerial surveys.

MANAGEMENT ACTIVITIES

1. Population Status and Trend

ACTIVITY 1.1. Monitor the population of mountain goats in Unit 5.

Data Needs

Information about the mountain goat population is essential to managing for sustainable harvest opportunity. Data obtained from aerial surveys is used to establish harvest objectives for specific mountain goat populations within each registration hunt area.

Methods

Population estimates are not available for Unit 5 mountain goats; however, minimum count surveys that cover much of the commonly hunted goat populations were conducted intermittently in several study areas back to 1971.

As possible, department biologists have flown aerial surveys within established trend count areas to obtain the minimum number of goats and the percentage of kids in the population.

Results and Discussion

No surveys were flown during RY13–RY17. Historically, it has been possible to document goat population declines and recoveries in Unit 5 using aerial surveys. The first documented decline occurred in the mid-1970s, from which the population did not recover until the 1980s. Then in the early-2000s another decline occurred, from which the west Harlequin Lake and Nunatak Bench goat populations are still recovering (Table 1). The ability to survey Unit 5 has been an issue since the wildlife biologist was moved from that office to Douglas around 1995. No surveys were conducted through the 1990s, and it was not until there was anecdotal information about declines on the Nunatak Bench that surveys occurred more regularly. The last survey conducted by the department was in 2012, and there were no surveys conducted during this reporting period. At the time of this report, a survey was conducted by the U.S. Forest Service during the summer of 2019 that showed modest recovery, but not enough to open any of the closed hunt areas.

Recommendations for Activity 1.1

Aerial surveys should continue, and great effort should be put into conducting these surveys at least on a 3-year schedule especially for areas with low populations like Nunatak Bench and west of Harlequin Lake.

Table 1. Mountain goat surveys, Unit 5, Southeast Alaska, 2000–2012.

Year	No. adults	No. kids	Total goats	Kids:100 adults	Percent kids	Goats/hour
			Nunatak Bench			
2000	69	13	82	19	16	91
2001	37	11	48	30	23	20
2002	25	4	29	16	14	19
2003	29	14	43	48	33	40
2006	26	7	33	27	21	48
2007	17	6	23	35	2	31
2008	35	9	42	25	20	25
2010	22	6	28	27	21	25
2011	18	2	20	11	10	22
			East Harlequin Lake			
2000	55	16	71	29	23	70
2001	119	31	150	26	21	52
2007	55	5	60	8	21	103
2008	164	25	189	15	13	145
2010	126	31	157	25	20	87
			West Harlequin Lake			
2003	63	21	84	33	25	126
2007	57	9	66	16	14	33
2008	38	14	52	37	27	29
2010	10	2	12	0	0	0
2011	32	6	38	19	16	21
2012	25	8	33	32	24	66

2. Mortality-Harvest Monitoring and Regulations

ACTIVITY 2.1. Monitoring mountain goat harvest through registration permit.

Data Needs

Harvest monitoring allows for in-season management of goats. Harvest limits are set prior to the initiation of each hunt based on the number of goats counted during surveys and a harvest quota of 6 points per 100 goats observed. To avoid localized depletion of goats, the point-based harvest quota may be applied to small discrete areas within larger registration hunt areas.

Methods

Department biologists monitored hunter harvest through a registration permit system. All permit holders are required to report. Those who hunt, report that they hunted, their location and duration of their hunt, if they harvested an animal, date of kill, sex, and transportation used. Biologists also recorded anecdotal information from hunters and guides.

Harvest data were summarized by regulatory year (RY), which begins 1 July and ends 30 June (e.g., RY11 = 1 July 2011–30 June 2012).

Season and Bag Limit

Season and Bag Limit	Resident and Nonresident Hunters
1 goat by registration permit only; the taking of nannies with kids is prohibited	1 August–31 December

Results and Discussion

Harvest by Hunters

All the harvest during this reporting period has occurred in Unit 5A wildlife analysis area (WAA) 4503, which is the area between Harlequin Lake and the Alsek River. Like the previous reporting period, 1 goat per season was the highest harvest (Table 2), with some years receiving zero harvest. A total of 3 three goats were harvested over this entire reporting period. This is the lowest goat harvest that Unit 5 has ever recorded. The last year more than 1 goat was harvested was in 2008, when there were 4 harvested.

Permit Hunts

The decline in harvest in Unit 5 is mostly due to a decline in the number of hunters. The number of permits issued during this reporting period was also the lowest that it has ever been. On average 6 permits were issued annually during this reporting period (RY13–RY17) compared to an average of 16 permits issued each year for the previous 5-year period (RY08–RY12). Furthermore, the number of permit holders who hunted is even lower and averaged 2 hunters each year.

Table 2. Unit 5, Alaska, mountain goat harvest by sex, regulatory years 2008–2017.

Regulatory year	Males	Females	Percent females	Unknown	Total
2008	4	0	0	0	4
2009	0	1	100	0	1
2010	1	0	0	0	1
2011	0	0	0	0	0
2012	1	0	0	0	1
2013	0	1	100	0	1
2014	0	0	0	0	0
2015	1	0	0	0	1
2016	1	0	0	0	1
2017	0	0	0	0	0

Hunter Residency and Success

No goats were harvested by local residents during this reporting period (Table 3). One of the goats harvested was by a nonlocal Alaska resident and the other 2 by nonresidents. Other hunters who were unsuccessful included 2 nonlocal Alaska residents and 4 nonresidents. During the previous reporting period about half of the hunt participants were local residents and so it is unusual that they did not hunt during this reporting period.

Table 3. Unit 5, Alaska, mountain goat hunter residency, regulatory years 2008–2017.

		Successful Hunters			Unsuccessful Hunters		
Year	Percent successful	Unit resident	Other AK	Non-resident	Unit resident	Other AK	Non-resident
2008	44	3	0	1	2	1	2
2009	17	0	0	1	1	1	3
2010	50	1	0	0	1	0	0
2011	0	0	0	0	0	0	0
2012	25	0	0	1	0	2	1
2013	25	0	1	0	0	2	1
2014	0	0	0	0	0	0	2
2015	50	0	0	1	0	0	1
2016	100	0	0	1	0	0	0
2017	0	0	0	0	0	0	0

Note: AK = Alaska

Harvest Chronology

One of the goats was harvested in October and the other 2 were harvested in November. This is typical for Unit 5 where most of the harvest has occurred in October and November. On average hunters hunted for 2.5 days (Table 4).

Transport Methods

All the harvest occurred with the use of aircraft as transportation to the hunting location (Table 5). Furthermore, all the hunters were guided (Table 6).

Other Mortality

Documentation of other mortality events is rare. There is anecdotal information that wolves depredated some mountain goats. Also, hard winters are thought to have the greatest negative impact on goat populations and goats are found deceased in avalanche chutes in other areas. However, we have not documented any winter mortality events that occurred during this reporting period.

Alaska Board of Game Actions and Emergency Orders

There were no Board of Game actions during this reporting period. The Nunatak Bench was closed to goat hunting in 2005. Since 2010, the Brabazon Range west of Harlequin Lake has been closed by EO before the season starts.

Recommendations for Activity 2.1

The department will continue collecting mountain goat harvest information through registration permits. Weather permitting, biologists will also conduct aerial surveys every 3 years in that portion of RG170 that is open to hunting and, in the area closed annually by EO west of Harlequin Lake. Department biologists will continue to monitor the goat population on the Nunatak Bench.

3. Habitat Assessment-Enhancement

Currently, there are no projects to manage mountain goat habitat in Unit 5.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Data Recording and Archiving

Harvest data back to 1986 are archived on ADF&G's Wildlife Information Network database (WinfoNet). Management survey data are archived in hard copy in the survey files in the Douglas office, and the most recent surveys are archived on the office network drive (S:\Region1Shared-DWC\Offices \Douglas\Management\Management Data\Mountain Goats).

Agreements

No agreements.

Permitting

None.

Table 4. Unit 5, Alaska, mountain goat hunter success, regulatory years 2008–2017.

		Successful Hunters			Unsuccessful Hunters			Total Hunters		
Year	Permits issued	Number hunters	Total days	Avg days	Number hunters	Total days	Avg days	Number hunters	Total days	Avg days
2008	23	4	15	3.8	5	21	4.2	9	36	4.0
2009	23	1	1	1.0	5	19	3.8	6	20	3.3
2010	11	1	1	1.0	1	1	1.0	2	2	1.0
2011	15	0	0	0.0	0	0	0.0	0	0	0.0
2012	10	1	1	1.0	3	7	2.3	4	8	2.0
2013	9	1	5	5.0	3	10	3.3	4	15	3.8
2014	5	0	0	0.0	2	4	2.0	2	4	2.0
2015	7	1	3	3.0	1	5	5.0	2	8	4.0
2016	3	1	3	3.0	0	0	0.0	1	1	1.0
2017	6	0	0	0.0	0	0	0.0	0	0	0.0

Table 5. Unit 5, Alaska, mountain goat hunter transport methods, regulatory years 2008–2017.

	Airplane		Boat		Snowmachine		Highway vehicle		Foot	
Year	Total	%	Total	%	Total	%	Total	%	Total	%
2008	0	0	4	100	0	0	0	0	0	0
2009	0	0	1	100	0	0	0	0	0	0
2010	0	0	1	100	0	0	0	0	0	0
2011	0	0	0	0	0	0	0	0	0	0
2012	1	100	0	0	0	0	0	0	0	0
2013	1	100	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0	0
2015	1	100	0	0	0	0	0	0	0	0
2016	1	100	0	0	0	0	0	0	0	0
2017	0	0	0	0	0	0	0	0	0	0

Table 6. Commercial services used by Unit 5, Alaska, mountain goat hunters, regulatory years 2008–2017.

Regulatory year	Unit Residents		Other AK[a] Residents		Nonresidents		Total Use	
	Yes	No	Yes	No	Yes	No	Yes	No
2008	3	2	1	0	0	3	4	5
2009	0	1	0	1	4	0	4	2
2010	0	2	0	0	0	0	0	2
2011	0	0	0	0	0	0	0	0
2012	0	0	0	2	2	0	2	2
2013	0	0	3	0	1	0	4	0
2014	0	0	0	0	2	0	2	0
2015	0	0	0	0	2	0	2	0
2016	0	0	0	0	1	0	1	0
2017	0	0	0	0	0	0	0	0

[a] AK = Alaska.

II. Project Review and RY18–RY22 Plan

Management Direction

The existing management and goals appropriately direct the management of mountain goats in Unit 5. The management direction, including the protection of low populations in Unit 5, ensures that mountain goats will persist as part of the natural ecosystem and ensures continued hunting and viewing opportunities. The 6 goat points per 100 goats counted harvest strategy is allowing for sustainable harvest in Unit 5 goat management areas.

GOALS

Management goals for mountain goats in Unit 5 are to provide for the following:

1. for a sustainable harvest of mountain goats in Unit 5.
2. the greatest opportunity to participate in hunting of mountain goats in Unit 5.
3. for the recovery of goat populations that have shown reduced populations at Nunatak Bench and west of Harlequin Lake.

CODIFIED OBJECTIVES

Amounts Reasonably Necessary for Subsistence Uses

The Alaska Board of Game has made a positive finding for customary and traditional use of mountain goats in in Unit 5 and set 1–2 goats as the amount necessary for subsistence (ANS; 5 AAC 99.025(a)(7)).

Intensive Management

Not applicable.

MANAGEMENT OBJECTIVES

- Maintain goat densities so at least 30 goats per hour are seen during fall surveys.
- Use pamphlets, videos, and other educational materials to ensure a male:female harvest of at least 2:1.
- Identify discrete geographic areas and manage within these areas.
- Maintain a guideline harvest not to exceed 6 points (billy = 1 pt, nanny = 2 pt) per 100 goats observed.
- Conduct aerial surveys at least every 3 years in areas of high harvest.
- Continue to monitor the west Harlequin Lake and Nunatak Bench goat populations through aerial surveys.

REVIEW OF MANAGEMENT ACTIVITIES

1. Population Status and Trend

ACTIVITY 1.1. Monitor the population of mountain goats in Unit 5.

Data Needs

No change.

Methods

Department biologists plan to continue minimum count aerial surveys at least every 3 years in high-use hunt areas. The regional goat biologist and statistician are working on a sightability model that will allow for adjustments to be made to minimum counts that improve their estimation of the goat population. When the regional goat sightability model is completed they will test its use first on previously completed surveys and then with future surveys. Population models will help biologists better understand annual trends and control for variation in survey conditions as well as differences among observers and aircraft. Using population estimates instead of minimum counts will require an evaluation of the 6 goat points per 100 goats counted harvest quota allocation, which can be reviewed when the model is implemented.

2. Mortality-Harvest Monitoring

ACTIVITY 2.1. Monitoring mountain goat harvest through registration permit.

Biologists plan to continue the use of registration hunts with required reporting during the upcoming plan period.

Data Needs

The department must continue to monitor harvest through reporting on registration permits to understand the potential impact of harvest on the Unit 5 mountain goat population.

Methods

Biologists collect harvest data when hunters report on their registration hunt. Hunters record location and date of harvest, method of take, transportation mode, and sex. These data are entered into ADF&G's Wildlife Information Network database (WinfoNet). Harvest data are summarized by regulatory year.

3. Habitat Assessment-Enhancement

There are no plans for projects to manage mountain goat habitat in Unit 5.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Data Recording and Archiving

Species wildlife management reports and plans and the management operational plan for mountain goats – Unit 5 will be made available online at: http://www.adfg.alaska.gov/index.cfm?adfg=librarypublications.wildlifemanagement. Memos, dataforms, and additional hard copies will be stored in the Juneau/Douglas Area Biologist files in Douglas.

Agreements

None.

Permitting

None.

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