

Mountain Goat Management Report and Plan, Game Management Unit 14C:

Report Period 1 July 2018–30 June 2023, and
Plan Period 1 July 2023–30 June 2028

Cory Stantorf



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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 Jeff Selinger, Management Coordinator for Region II for the Division of Wildlife Conservation.

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Cover Photo: Mountain goat on rocky slope in Alaska. ©2000 ADF&G. Photo by ADF&G.

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Purpose of this Report

This report provides a record of survey and inventory management activities for goat *Oreamnos americanus* in Game Management Unit 14C for the 5 regulatory years 2018–2022 and plans for survey and inventory management activities in the next 5 regulatory years, 2023–2027. A regulatory year (RY) begins 1 July and ends 30 June (e.g., RY15 = 1 July 2015–30 June 2016). 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 more efficiently report on trends and to describe potential changes in data collection activities over the next 5 years. It replaces the goat management report of survey and inventory activities that was previously produced every 3 years.

I. RY18–RY22 Management Report

Management Area

Unit 14C is in Southcentral Alaska and encompasses approximately 1,961 mi². The boundaries of Unit 14C closely approximate those of the Municipality of Anchorage (MOA), a mosaic of wildlife habitat and human development. Most of MOA is characterized by large tracts of natural lands, including Chugach State Park, Chugach National Forest, the Anchorage Coastal Wildlife Refuge, and Joint Base Elmendorf-Richardson (JBER; a 131 mi² military base).

Summary of Status, Trend, Management Activities, and History of Mountain Goats in Unit 14C

The goat population in the western Chugach Mountains has increased slightly in the last decade. In 2011, 764 goats were observed during a survey of Unit 14C, while in 2015, 877 goats were counted in a complete survey covering the same areas. Goats observed incidental to recent sheep surveys suggest a range expansion in parts of Unit 14C and, overall, the population appears to be stable to increasing.

Seasons and bag limits for goats in Unit 14C have varied since statehood. Most of the unit was closed to goat hunting in the early 1960s, except for during 1969–1972, when all of Unit 14C was open to hunting. In 1973, Chugach State Park, at that time only recently created and encompassing most of the mountains west of the Lake George and Twentymile River drainages, was closed to goat hunting. Historically, these closed areas have not included a substantial segment of the goat population in Unit 14C; however, more goats have been observed in the park in recent years and drawing permit hunts have been established in drainages with a harvestable surplus of goats.

The Lake George Area is the most popular goat hunting area in Unit 14C and supports the largest number of goats in the unit. Most hunting in this area has been managed by registration permits; however, since 2002 there have been numerous changes to hunting regulations governing the area in attempts to reduce overharvest while maximizing hunting opportunity. Beginning in

2002, participation in goat registration hunts in Unit 14C, specifically the Lake George area, increased dramatically. This increase occurred a year after goat hunts on the Kenai Peninsula were moved to a later time frame, with drawing hunts 10 August–15 October and a late season registration hunt 1–30 November. As a result, the only early season registration goat hunts available in the area were in Units 14A and 14C. Hunter participation, specifically by guided nonresident hunters, increased rapidly for these registration hunts. By 2005, most registration hunts in the Lake George Area closed within 2 weeks of opening due to harvest quotas being met at a rapid pace. In 2005 and 2006, harvest exceeded desired quotas in Unit 14C.

As a result, in 2007 the Board of Game (BOG, board) approved a department proposal to change the registration goat hunts in Unit 14C to drawing permit hunts, to be followed by late season registration permit hunts if quotas were not met. The new hunts began in the 2008–2009 season. Then, in 2009, BOG changed the drawing permit hunts in the Lake George area to a drawing hunt for nonresident hunters and a registration hunt for residents. In 2011, the board converted the nonresident drawing permit hunt to a registration permit hunt with a separate quota from the resident registration permit hunt. This harvest regime began in the fall of 2012. Since 2012 the harvest in Lake George continued to exceed desired quotas and, as a result, ADF&G proposed a change to the hunt structure. In 2016, BOG created a drawing hunt for nonresidents only which was implemented in the fall of 2017.

Management Direction

EXISTING WILDLIFE MANAGEMENT PLANS

Direction for the management of Unit 14C mountain goat was outlined in *Alaska wildlife management plans: A public proposal for the management of Alaska's wildlife: Southcentral Alaska* (ADF&G 1976) and has been reviewed and modified through public comments, staff recommendations, and board actions over the years. A record of these changes can be found in DWC's management report series. The plan portion of this report contains the current management plan for mountain goat in Unit 14C.

GOALS

None.

CODIFIED OBJECTIVES

None.

Amounts Reasonably Necessary for Subsistence Uses

None.

Intensive Management

None.

MANAGEMENT OBJECTIVES

Maintain a population of at least 500 goats, which will sustain an annual harvest of 25 goats, comprising at least 60% males.

MANAGEMENT ACTIVITIES

1. Population Status and Trend

ACTIVITY 1.1 Conduct annual late summer minimum counts in Twentymile and Lake George hunt areas and, when funding is available, conduct minimum counts in all goat hunt areas in Unit 14C.

Data Needs

Goat hunting in Unit 14C is popular, particularly in the Twentymile and Lake George hunt areas. Minimum population counts in these areas are needed to allow managers to set permit numbers, which ensure populations are not overharvested.

Methods

Every July through early August, the department attempts to conduct minimum population counts via fixed winged aircraft. The Twentymile and Lake George registration hunt areas are counted every year, as the majority of the Unit 14C goat harvest comes from these hunt areas. Additionally, when there are available pilots, funding, and when weather permits, we attempt to conduct counts in the Glacier Creek, Bird Creek, Eagle River, and east Eklutna goat hunt areas.

Results and Discussion

- In RY18, the department was unable to fly goat surveys.
- In RY19, the department staff flew the Lake George mountain goat survey area on 18 and 19 July. Twentymile was not flown due to poor weather conditions. Surveys were completed using fixed-wing super cub airplanes with an observer for both days. Given the size of the Lake George survey area, we split it into 2 smaller areas with Lake George Glacier chosen as the split point. Temperatures ranged from 54°F to 60°F over the 2 days.

Goat numbers in the Lake George area increased in RY19 as compared to RY18. A total of 360 goats (20% kids) were counted in the Lake George survey area (Table 1).

- During RY20–RY22, the department was unable to fly goat surveys.

Table 1. Unit 14C minimum count mountain goat survey numbers, 2019, Southcentral Alaska.

| Survey area | Adults | Kids | Percent kids | Total |
|-------------|--------|------|--------------|-------|
| Lake George | 288 | 72 | 20 | 360 |

Recommendations for Activity 1.1

Continue.

2. Mortality-Harvest Monitoring and Regulations

ACTIVITY 2.1 Monitor mortality and harvest in Unit 14C annually.

Data Needs

Monitoring harvest data is vital to determine if management objectives are being met.

Methods

The department monitors harvest via reports on ADF&G's Wildlife Information Network (WinfoNet), sealing, and in-person reporting.

Season and Bag Limit

Season dates and hunt areas for all Unit 14C goat hunts for RY18–RY19.

| Hunt number | Hunt area | Season date |
|--|---------------|----------------------------|
| DG852 | East Eklutna | Day after Labor Day–15 Oct |
| DG854 | Eagle River | Day after Labor Day–15 Oct |
| DG856 | Glacier Creek | Day after Labor Day–15 Oct |
| DG858 | Bird Creek | Day after Labor Day–15 Oct |
| RG878 ^a | Twentymile | 16 Aug–31 Aug |
| RG868/RG881 | Twentymile | 1 Sep–15 Oct |
| RG862 ^b | Twentymile | 1 Nov–15 Nov |
| RG879 ^a /DG888 ^a | Lake George | 16 Aug–31 Aug |
| RG869/DG889 | Lake George | 1 Sep–15 Oct |
| RG865 ^b | Lake George | 1 Nov–15 Nov |

^a Archery only.

^b Hunts only held when there are remaining goat points available from fall hunt.

Season dates and hunt areas for all Unit 14C goat hunts for RY20–RY22.

| Hunt Number | Hunt Area | Season Date |
|--------------------|---------------|----------------------------|
| DG852 | East Eklutna | Day after Labor Day–15 Oct |
| DG854 | Eagle River | Day after Labor Day–15 Oct |
| DG856 | Glacier Creek | Day after Labor Day–15 Oct |
| DG858 | Bird Creek | Day after Labor Day–15 Oct |
| RG878 ^a | Twentymile | 16 Aug–31 Aug |
| RG868/RG881 | Twentymile | 1 Sep–15 Oct |
| RG862 ^b | Twentymile | 1 Nov–15 Nov |
| RG879 ^a | Lake George | 16 Aug–31 Aug |
| RG869/DG889 | Lake George | 1 Sep–15 Oct |
| RG865 ^b | Lake George | 1 Nov–15 Nov |

^a Archery only.

^b Hunts only held when there are remaining goat points available from fall hunt.

Results and Discussion

Harvest by Hunters-Trappers

The bulk of the goat harvest during RY18–RY22 came from the Lake George, Eagle River, and Twentymile drainages (Table 2). Lake George has seen the most goat harvest over the last couple of reporting periods, given the number of permits and size of the population.

During this reporting period the annual average harvest was 26 goats with males comprising 69% of the harvest, which is a slight decrease from RY13–RY18 (Stantorf 2022). The management harvest objective was met every year of this reporting period with the exception of RY20 and RY22, when the annual harvest was 24 and 23 animals, respectively.

Table 2. Unit 14C harvest and hunter participation for drawing and registration goat hunts, regulatory years 2018–2022, Southcentral Alaska.

| Area and hunt number | Regulatory year | Permits or tags issued | Number of hunters | Percent successful | Males harvested | Females harvested | Total harvested |
|------------------------|-----------------|------------------------|-------------------|--------------------|-----------------|-------------------|-----------------|
| DG852 East Eklutna | 2018 | 4 | 4 | 50% | 1 | 1 | 2 |
| | 2019 | 3 | 3 | 33% | 1 | 0 | 1 |
| | 2020 | 3 | 1 | 100% | 1 | 0 | 1 |
| | 2021 | 3 | 3 | 66% | 0 | 2 | 2 |
| | 2022 | 3 | 3 | 66% | 0 | 2 | 2 |
| DG854 Eagle River | 2018 | 10 | 7 | 71% | 5 | 0 | 5 |
| | 2019 | 10 | 6 | 100% | 6 | 0 | 6 |
| | 2020 | 10 | 8 | 63% | 4 | 1 | 5 |
| | 2021 | 10 | 8 | 25% | 1 | 1 | 2 |
| | 2022 | 10 | 6 | 33% | 1 | 1 | 2 |
| DG856 Glacier Creek | 2018 | 5 | 5 | 40% | 1 | 1 | 2 |
| | 2019 | 5 | 2 | 0% | 0 | 0 | 0 |
| | 2020 | 5 | 3 | 33% | 1 | 0 | 1 |
| | 2021 | 5 | 5 | 0% | 0 | 0 | 0 |
| | 2022 | 5 | 3 | 33% | 1 | 0 | 1 |
| DG858 Bird Creek | 2018 | 5 | 4 | 0% | 0 | 0 | 0 |
| | 2019 | 4 | 2 | 0% | 0 | 0 | 0 |
| | 2020 | 4 | 4 | 25% | 0 | 1 | 1 |
| | 2021 | 4 | 4 | 25% | 1 | 0 | 1 |
| | 2022 | 4 | 2 | 50% | 1 | 0 | 1 |
| RG862 Twentymile | 2018 | — | — | — | — | — | — |
| | 2019 | — | — | — | — | — | — |
| | 2020 | — | — | — | — | — | — |
| | 2021 | — | — | — | — | — | — |
| | 2022 | — | — | — | — | — | — |

Table 2 continued below.

Table 2 cont.

| Area and hunt number | Regulatory year | Permits or tags issued | Number of hunters | Percent successful | Males harvested | Females harvested | Total harvested |
|----------------------|-------------------|------------------------|-------------------|--------------------|-----------------|-------------------|-----------------|
| RG878 | 2018 | 12 | 5 | 0% | 0 | 0 | 0 |
| Twentymile | 2019 | 9 | 3 | 0% | 0 | 0 | 0 |
| Archery only | 2020 | 5 | 3 | 0% | 0 | 0 | 0 |
| | 2021 | 5 | 0 | 0% | 0 | 0 | 0 |
| | 2022 | 6 | 2 | 0% | 0 | 0 | 0 |
| RG868 | 2018 | 48 | 10 | 50% | 2 | 3 | 5 |
| Twentymile | 2019 | 59 | 17 | 24% | 3 | 1 | 4 |
| Residents only | 2020 | 80 | 20 | 10% | 0 | 2 | 2 |
| | 2021 | 80 | 29 | 13% | 3 | 1 | 4 |
| | 2022 | 58 | 14 | 14% | 1 | 1 | 2 |
| RG881 | 2018 | 1 | 1 | 0% | 0 | 0 | 0 |
| Twentymile | 2019 | 0 | 0 | 0% | 0 | 0 | 0 |
| Nonresidents | 2020 | 0 | 0 | 0% | 0 | 0 | 0 |
| | 2021 | 1 | 1 | 0% | 0 | 0 | 0 |
| | 2022 | 3 | 0 | 0% | 0 | 0 | 0 |
| RG879 | 2018 ^a | 7 | 2 | 50% | 0 | 1 | 1 |
| Lake George | 2019 ^a | 7 | 4 | 0% | 0 | 0 | 0 |
| Archery only | 2020 ^b | 6 | 2 | 0% | 0 | 0 | 0 |
| | 2021 ^b | 5 | 0 | 0% | 0 | 0 | 0 |
| | 2022 ^b | 11 | 4 | 25% | 0 | 1 | 1 |
| DG888 | 2018 | 3 | 1 | 0% | 0 | 0 | 0 |
| Lake George | 2019 | 4 | 2 | 50% | 1 | 0 | 1 |
| Nonresidents | 2020 | — | — | — | — | — | — |
| Archery only | 2021 | — | — | — | — | — | — |
| | 2022 | — | — | — | — | — | — |
| RG869 | 2018 | 61 | 21 | 33% | 6 | 1 | 7 |
| Lake George | 2019 | 84 | 25 | 36% | 5 | 4 | 9 |
| Residents only | 2020 | 82 | 21 | 52% | 7 | 4 | 11 |
| | 2021 | 84 | 29 | 41% | 7 | 5 | 12 |
| | 2022 | 71 | 32 | 28% | 5 | 4 | 9 |
| DG889 | 2018 | 7 | 6 | 100% | 6 | 0 | 6 |
| Lake George | 2019 | 15 | 10 | 90% | 8 | 1 | 9 |
| Nonresidents | 2020 | 6 | 4 | 75% | 3 | 0 | 3 |
| | 2021 | 6 | 6 | 66% | 4 | 0 | 4 |
| | 2022 | 6 | 5 | 100% | 4 | 1 | 5 |

Note: En dashes indicate no data.

^a Residents only and nonresident archery converted to DG888.

^b Nonresidents combined with residents under RG879.

Hunter Residency and Success

Table 3 depicts goat hunter success by residency during RY18–RY22.

Table 3. Unit 14C goat hunter success by residency for regulatory years 2018–2022, Southcentral Alaska.

| Regulatory year | Successful | | | Unsuccessful | | |
|--------------------|------------|--------------|-------|--------------|--------------|-------|
| | Residents | Nonresidents | Total | Residents | Nonresidents | Total |
| 2018 | 21 | 7 | 28 | 35 | 3 | 38 |
| 2019 | 20 | 10 | 30 | 42 | 2 | 44 |
| 2020 | 21 | 3 | 24 | 41 | 1 | 42 |
| 2021 | 21 | 4 | 25 | 57 | 3 | 60 |
| 2022 | 18 | 5 | 23 | 47 | 1 | 48 |

Transport Methods

Given the lack of all-terrain vehicle trails into the goat habitat of Unit 14C, accessing the unit continues to be primarily by aircraft, boat, and highway vehicle.

Other Mortality

Wounding loss occurs on occasion. Every couple of years, 1–2 goats are reported to management staff by hunters as wounded or killed and unrecovered.

Alaska Board of Game Actions and Emergency Orders

- RY18: No BOG action. RG868 was closed by emergency order (EO) on 5 September 2018 and RG869 was closed by EO on 16 September 2018.
- RY19: DG888 was converted back to a registration hunt. This allowed adding nonresidents back to the registration tag RG879. RG868 was closed by EO on 6 September 2019 and RG869 was closed by EO on 11 October 2019.
- RY20: No BOG action. RG868 was closed by EO on 6 October 2020 and RG869 was closed by EO on 22 September 2020.
- RY21: No BOG action. RG868 was closed by EO on 12 October 2021 and RG869 was closed by EO on 8 October 2021.
- RY22: No BOG action. RG868 was closed by EO on 18 September 2022 and RG869 was closed by EO on 6 October 2022.

Recommendations for Activity 2.1

Continue.

3. Habitat Assessment-Enhancement

No habitat assessment or enhancement was completed during RY18–RY22.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Helicopter-assisted winter and summer recreational activities have increased in the Lake George area. In summer 2010, a dogsled tour operation was permitted to maintain a helicopter-accessible dogsled camp from 1 May through 30 September on Colony Glacier. ADF&G biologists worked with the tour operator to establish a flight path which would reduce potential impacts of helicopter overflights on goats. However, in 2013 the dogsled operation was moved to Troublesome Glacier. The Troublesome Creek drainage is too narrow for aircraft to stay the recommended 4,923 ft (1,500 m) away from goats, including areas where nanny groups concentrate to give birth and raise kids. In 2014, the operation returned to Colony Glacier but will be returning to Troublesome Glacier later in 2018. Continued expansion of dogsled tours as well as other summer activities may lead to significant impacts on goats in the area.

In addition to the dogsled activity in the Lake George area, a heliskiing company has been operating in the area since at least 2009. Unfortunately, because helicopter overflights and landings are considered general use on state land, there is no mechanism to control such operations. ADF&G biologists are currently working with Alaska Department of Natural Resources (DNR) staff to ascertain a way to regulate helicopter activity in the Lake George area, due to the sensitivity of goats to aircraft disturbance, especially during the winter (poor food quality) and spring (kidding) seasons. Currently, DNR continues to maintain the stance that they have no authority to restrict helicopter usage in Lake George.

Data Recording and Archiving

All hardcopy goat survey datasheets are stored in Anchorage ADF&G building in office 2006.

Electronic copies of goat survey datasheets are stored on ADF&G servers at
O:\DWC\common\Anch_Wildlife_Management\BGDIF\Goat\Surveys.

Goat harvest reports for all Unit 14C hunts are stored in the WinfoNet database.

Agreements

None.

Permitting

ADF&G collection permit.

Conclusions and Management Recommendations

The goat population in Unit 14C appears to be stable; however, due to the lack of survey data, the department should continue to harvest conservatively. Additionally, because of a relatively

large harvest and increasing recreational activity in the winter through the goat kidding period in early summer, dedicated, comprehensive surveys should be conducted at least biennially. The maximum allowable harvest should not exceed 7% of the number of goats observed during surveys in the Chugach Mountains.

Increased unregulated helicopter-based recreational activity is occurring during winter and the kidding period in the Lake George Area, which is one of the most popular goat hunting areas in the state. Aircraft overflights can alter both goat and sheep behavior and incite negative physiological responses, which may ultimately lead to reduced survivorship (MacArthur et al. 1979, 1982; Foster and Rahe 1983; Bleich et al. 1994; Côté 1996; Krausman et al. 1998; Frid 2000a, b; Frid 2002; Goldstein et al. 2005).

Further, no findings as of yet indicate that consistent exposure to helicopter activity over time will lead to habituation of goats or Dall sheep to these disturbances (Frid 2003, Hurley 2004, Côté et al. 2013). Repeated exposure to adverse stimuli, such as helicopter overflights, may increase vigilance and lead to quicker reaction times when fleeing. This will result in increased stress on mountain ungulates (Frid and Dill 2002). Therefore, it is recommended that helicopter activity be no closer than 4,923 ft (1,500 m) from any goats or goat habitat (Hurley 2004).

We also recommend that a statewide memorandum be drafted with department guidelines for helicopter use around goats and Dall sheep and sent to DNR. Current efforts by ADF&G to communicate with DNR have not been effective and, as a result, helicopter usage continues in goat and Dall sheep habitat with little to no oversight. This memorandum will ensure that the department's message to DNR and helicopter outfits is consistent and clear.

As the department still retains insufficient data on Unit 14C goats, we recommend that all goats, and in particular the Lake George population, continue to be monitored. Additionally, a goat project was initiated in RY21 to examine the basic life history characteristics (survival, reproduction, recruitment rates, home range, and habitat use) for goats in Unit 14C.

II. Project Review and RY23–RY27 Plan

Review of Management Direction

MANAGEMENT DIRECTION

No change from RY18–RY22.

GOALS

None.

CODIFIED OBJECTIVES

None.

Amounts Reasonably Necessary for Subsistence Uses

None.

Intensive Management

None.

MANAGEMENT OBJECTIVES

No change from RY18–RY22.

REVIEW OF MANAGEMENT ACTIVITIES

1. Population Status and Trend

ACTIVITY 1.1 Conduct annual late summer minimum counts in Twentymile and Lake George hunt areas and, when funding is available, conduct minimum counts in all goat hunt areas in Unit 14C.

Data Needs

No change from RY18–RY22.

Methods

No change from RY18–RY22.

2. Mortality-Harvest Monitoring

ACTIVITY 2.1 Monitor mortality and harvest in Unit 14C annually.

Data Needs

No change from RY18–RY22.

Methods

No change from RY18–RY22.

3. Habitat Assessment-Enhancement

No change from RY18–RY22.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Data Recording and Archiving

All hardcopy goat survey datasheets are stored in the Anchorage ADF&G building in office 2006.

Electronic copies of goat survey datasheets are stored on ADF&G servers at O:\DWC\common\Anch_Wildlife_Management\BGDIF\Goat\Surveys.

Goat harvest reports for all Unit 14C hunts are stored in WinfoNet.

Agreements

None.

Permitting

ADF&G collection permit.

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