Species Management Report and Plan ADF&G/DWC/SMR&P–2022–11

# Wolf Management Report and Plan, Game Management Unit 6:

Report Period 1 July 2015–30 June 2020, and

Plan Period 1 July 2020–30 June 2025

**Charlotte Westing**

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Alaska Department of Fish and Game Division of Wildlife Conservation

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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 the Division of Wildlife Conservation.

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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 wolves (*Canis lupus*) in Unit 6 for the 5 regulatory years 2015–2019 and plans for survey and inventory management activities in the following 5 regulatory years, 2020–2024. 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 more efficiently report on trends and to describe potential changes in data collection activities over the next 5 years. It replaces the wolf management report of survey and inventory activities that was previously produced every 3 years.

# I. RY15–RY19 Management Report

## Management Area

Unit 6 covers approximately 10,140 $mi^2$ of land including Prince William Sound, the Copper River Delta, and the North Gulf Coast of Alaska (Fig. 1). Unit 6 is divided into 4 administrative units (6A, 6B, 6C and 6D.) Unit 6A is referred to as the "lost coast" extending from the Ragged Mountains to Icy Bay. It contains the Bering Glacier, the largest glacier in North America. Unit 6B contains the Martin River and other eastern drainages of the Copper River Delta. Unit 6C contains the west Copper River Delta and Unit 6D comprises Prince William Sound. Terrain includes rugged mountains, old-growth forest, coastal wetlands, and muskeg meadows.

## Summary of Status, Trend, Management Activities, and History of Wolves in Unit 6

Gray wolves are endemic to the mainland areas of Unit 6. During the early twentieth century, wolves occurred at low densities (Nelson 1934) with unknown distribution. Heller (1910) reported tracks in Nelson Bay in eastern Unit 6D, and locals indicated wolves were present east of Nelson Bay in Unit 6C. Railroad, oil, and coal development projects on the Copper and Bering River deltas during the early 1900s may have reduced or eliminated wolves as human access into these areas increased. Mountain goats were the only ungulate prey available during this period. However, coastal wolves supplement their diet with salmon, beaver, marine mammals (Watts et al. 2010) and other seasonally abundant prey. Carnes (2004) observed that wolves in Unit 6 ate "everything from voles to gray whales."

The successful introductions of Sitka black-tailed deer and moose brought additional ungulate prey to Unit 6 during the mid-1900s (Paul 2009). Deer were introduced during 1916–1923 to islands of Prince William Sound and subsequently established populations on the mainland of eastern Unit 6D (Nelson 1932). Moose calves were released on the west Copper River Delta in Unit 6C during 1949–1958. The moose herd grew rapidly and expanded eastward into Units 6B and 6A toward Cape Yakataga, creating ideal conditions for wolf colonization. Wolves, however,

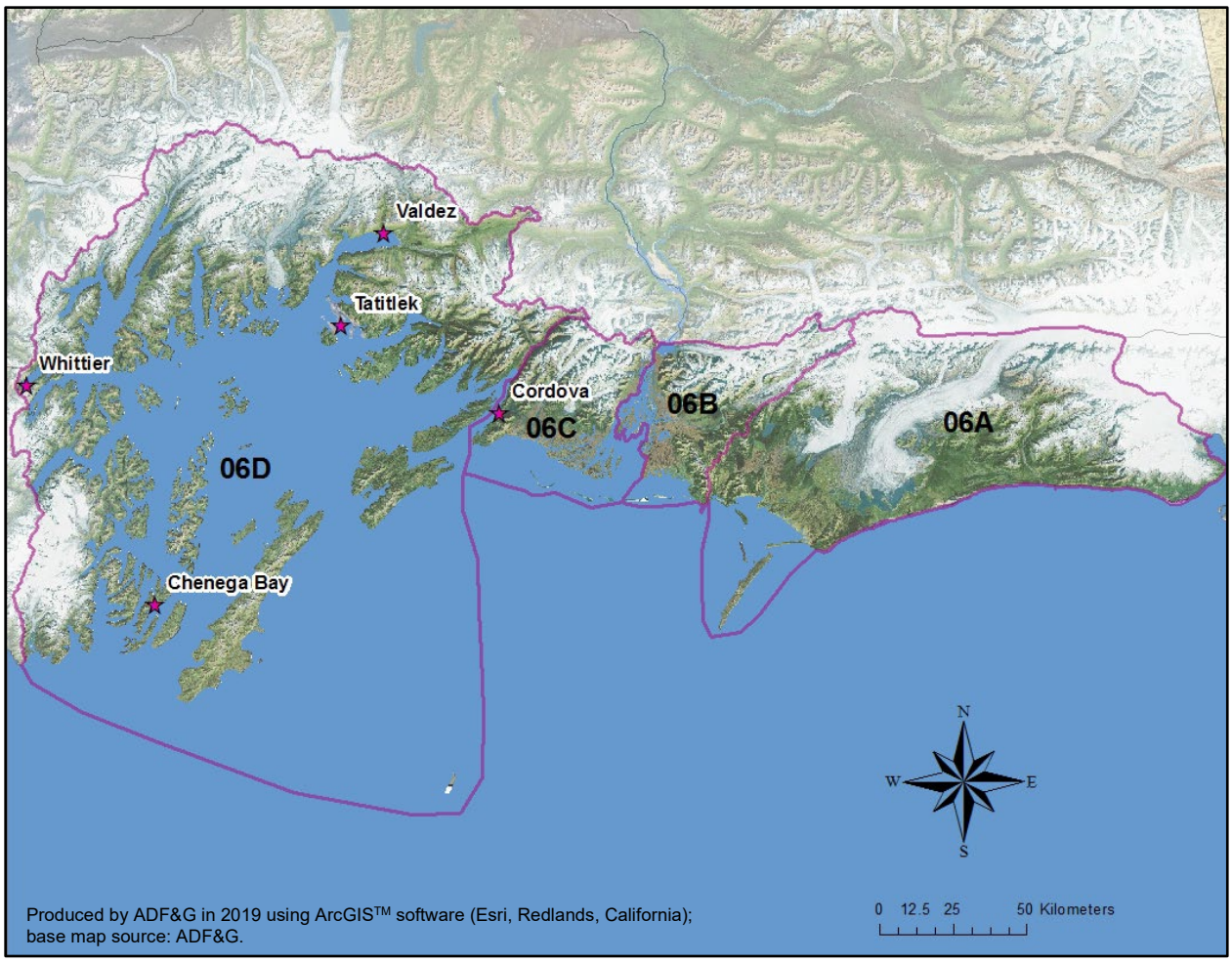


**Figure 1. Game Management Unit 6 and its administrative units (subunits), Alaska.**

remained rare to nonexistent in Unit 6 through the 1950s and 1960s (Robards 1955; Reynolds 1975). Federal predator control on interior wolf populations probably contributed to the delay in colonizing Unit 6, as did formidable geographic barriers between interior and coastal wolf habitat (Carnes 2004; Peterson et al. 1984). The first pack was observed in 1972–1973 in northwestern Unit 6B, indicating that the Copper River was the most probable dispersal corridor (Reynolds 1975). Wolves began to increase and disperse during the 1970s in areas of Unit 6 where moose were established. Wolf numbers apparently peaked in the late 1980s (Griese 1990), then declined and stabilized at a lower density during the 1990s (Carnes 2004; Nowlin 1997). Between 1992 and 1997, density estimates by unit and year ranged 2.3–15.0 wolves per 1,000 $km^2$ (2.3–15.0 wolves per 386 $mi^2$; Carnes 2004).

Average annual wolf harvest in Unit 6 during the past 20 years (RY95–RY14) was 7 wolves (SD ± 3.25). Wolf packs remained and supported harvest although Carnes (2004) reported that during the 1990s the wolf population in Unit 6C was reduced to a nonbreeding sink population as a result of human harvest. Unit 6C hunters and trappers had easy access to a geographically limited wolf range (approximately 1,025 $km^2$), creating a rare situation in which sport harvest and recreational trapping reduced, and to date, controlled a wolf population (Carnes 2004).

# Management Direction

Wolves in Unit 6 will be managed to provide for human uses and ensure that wolves remain an integral part of Alaska's ecosystems. Compatible human uses include hunting and trapping (both for personal use and commercial sale of furs), photography, viewing, listening, and scientific and educational uses (ADF&G 2002).

## Existing Wildlife Management Plans

There are no applicable specific wildlife management plans for wolves in Unit 6 or the species on which they depend. Although deer is a species that is identified as an "intensive management species," most deer range in Unit 6 does not contain wolves and predation is virtually, if not completely, nonexistent. Moose are not an intensive management species in Unit 6.

Previously identified management objectives and harvest management strategies for wolves in Unit 6 and changes to those based on public comment, staff recommendations, and Board of Game actions have been reported in the division's previous species management reports. The plan portion of this report contains the current management plan for wolves in Unit 6.

## Goals

- Ensure long-term conservation of wolves throughout their historic range in Alaska in relation to their prey and habitat.
- Provide for the broadest possible range of human uses and values of wolves and their prey populations that meet wildlife conservation principles and which reflect the public's interest.
- Increase public awareness and understanding of uses, conservation, and management of wolves, their prey, and habitat in Alaska.

## Codified Objectives

None.

### Amounts Reasonably Necessary for Subsistence Uses

Not applicable.

### Intensive Management

Not applicable.

## Management Objectives

Maintain a wolf population in a minimum of 5 packs that will sustain an annual harvest of 10 wolves.

## MANAGEMENT ACTIVITIES

### 1. Population Status and Trend

ACTIVITY 1.1. Record observations of wolves seen incidentally during other survey work and anecdotal reports from the public.

*Data Needs*

Incidental observations are insufficient for estimating the population or detecting changes that would trigger management action. A statistical estimate of the wolf population derived from a sample-based estimator including a measure of the precision is needed to detect change in the population.

*Methods*

Global Positioning System (GPS) locations, pack size, and characteristics are recorded during aerial survey flights. Most observations occur during moose surveys when sightability is ideal. Anecdotal reports are recorded to the maximum level of detail available.

*Results and Discussion*

Reports of wolves in Unit 6A were numerous (30 wolves in RY15, 4 in RY16, 22 in RY17, and 3 in RY19) in some years of RY15–RY19. This result was probably highly influenced by the effort of a few individuals that shared their findings with ADF&G, and whether or not a moose survey was being conducted in the area. In other areas, in most years (since 2000 where records begin) 0–10 wolves were reported. No wolves were seen in either Unit 6C or 6B during the moose survey in RY17. Very few wolves are believed to exist in Unit 6D. Those that do, occur primarily near the Lowe River.

*Recommendations for Activity 1.1*

Continue.

### 2. Mortality-Harvest Monitoring and Regulations

ACTIVITY 2.1. Monitor harvest through sealing records.

*Data Needs*

Harvest must be assessed to understand the potential impact of wolf harvest on both predator and prey populations.

*Methods*

We collected harvest data by sealing hides of wolves taken by trappers and hunters. We recorded location and date of harvest, method of take, transportation mode, sex, and observed pack size. Sealing must occur by an authorized ADF&G staff member or a state-appointed sealer within 30 days of the close of the season. These data are entered into ADF&G's Wildlife Information Network (WinfoNet) database. Harvest data were summarized by regulatory year (RY).

*Season and Bag Limit*

**Unit 6 hunting and trapping seasons and bag limits during regulatory years 2015–2019.**

| | Open season | |
|---|---|---|
| Bag limit | Resident | Nonresident |
| Hunting: 5 wolves | 10 August–30 April | 10 August–30 April |
| Trapping: No limit | 10 November–31 March | 10 November–31 March |

*Results and Discussion*

Harvest by Hunters-Trappers

Reported annual unitwide harvest during RY15–RY19 ranged between 2 and 14 wolves (28 total) and was composed of 0–67% females (Table 1). The RY15 harvest was large but less than the previous year. It is impossible to know if this larger harvest was indicative of a larger than usual wolf population or a highly motivated trapper. Most of the take in the 2 largest harvest years was by 1 person. Trapping was the most used method in the 2 years with largest harvest. In many years, 1–4 wolves are "ground shot," most likely as an incidental harvest while hunting other species.

**Table 1. Unit 6, Alaska reported wolf harvest by sex and method of take, regulatory years 2015–2019.**

| | Reported harvest | | | | Method of take | | | |
|---|---|---|---|---|---|---|---|---|
| Regulatory year | Male | Female | (%) Female | Total | Trap or snare | (%) Trap or snare | Shot | Successful trappers and hunters |
| 2015 | 9 | 5 | (36) | 14 | 13 | (93) | 1 | 2 |
| 2016 | 2 | 0 | (0) | 2 | 0 | (0) | 2 | 2 |
| 2017 | 3 | 2 | (40) | 5 | 3 | (60) | 2 | 4 |
| 2018 | 1 | 2 | (67) | 3 | 0 | (0) | 3 | 3 |
| 2019 | 2 | 2 | (50) | 4 | 0 | (0) | 4 | 2 |

Hunter Residency and Success

As in most years, hunters from Unit 6 (i.e., local residents) harvested nearly all wolves taken. (Table 2). A few wolves were shot opportunistically each year by nonresident hunters, primarily in Unit 6A (Table 2). Unit 6A has recently been the focus of a few determined trappers and harvest there was larger than usual as a result. Harvest in Unit 6B has become less frequent since a bridge and road failure made access more challenging. Regular harvest usually comes from Unit 6C, where access is easiest. Harvest in Unit 6D is almost entirely from the Richardson Highway area near the edge of the boundary and is variable depending on wolf movement.

**Table 2. Unit 6, Alaska wolf harvest by residency, regulatory years 2015–2019.**

| Unit | Regulatory year | Local[a] resident | Nonlocal resident | Nonresident | Total hunters and trappers |
|---|---|---|---|---|---|
| 6A | 2015 | 13 | 0 | 1 | 2 |
| | 2016 | 0 | 0 | 1 | 1 |
| | 2017 | 1 | 2 | 0 | 3 |
| | 2018 | 1 | 0 | 1 | 2 |
| | 2019 | 0 | 0 | 0 | 0 |
| 6B | 2015 | 0 | 0 | 0 | 0 |
| | 2016 | 0 | 0 | 0 | 0 |
| | 2017 | 1 | 0 | 0 | 1 |
| | 2018 | 0 | 0 | 0 | 0 |
| | 2019 | 1 | 0 | 0 | 1 |
| 6C | 2015 | 0 | 0 | 0 | 0 |
| | 2016 | 0 | 0 | 0 | 0 |
| | 2017 | 1 | 0 | 0 | 1 |
| | 2018 | 1 | 0 | 0 | 1 |
| | 2019 | 3 | 0 | 0 | 1 |
| 6D | 2015 | 0 | 0 | 0 | 0 |
| | 2016 | 0 | 1 | 0 | 1 |
| | 2017 | 0 | 0 | 0 | 0 |
| | 2018 | 0 | 0 | 0 | 0 |
| | 2019 | 0 | 0 | 0 | 0 |
| Unit 6 total | 2015 | 13 | 0 | 1 | 2 |
| | 2016 | 0 | 1 | 1 | 2 |
| | 2017 | 3 | 2 | 0 | 4 |
| | 2018 | 2 | 0 | 1 | 3 |
| | 2019 | 4 | 0 | 0 | 2 |

[a] Local residents are residents of Unit 6.

**Table 3. Unit 6, Alaska wolf harvest, regulatory years 2015–2019.**

| Regulatory year | Unit 6A | Unit 6B | Unit 6C | Unit 6D | Unit 6 total |
|---|---|---|---|---|---|
| 2015 | 14 | 0 | 0 | 0 | 14 |
| 2016 | 1 | 0 | 0 | 1 | 2 |
| 2017 | 3 | 1 | 1 | 0 | 5 |
| 2018 | 2 | 0 | 1 | 0 | 3 |
| 2019 | 0 | 1 | 3 | 0 | 4 |

Harvest Chronology

February and March were the most successful months for wolf harvest during RY15–RY19 (Table 4). However, incidental harvest of wolves in the fall was more popular when spring harvest was not (<6 wolves in all but 1 year; Table 4). Many recent winters were marked with poor snow conditions and that may have affected distribution, access, and success more than any other factor.

**Table 4. Unit 6, Alaska wolf harvest chronology percent, regulatory years 2015–2019.**

| Regulatory | Harvest periods | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| year | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | *n* |
| 2015 | 0 | 0 | 7 | 0 | 0 | 0 | 64 | 29 | 0 | 14 |
| 2016 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 2017 | 0 | 0 | 20 | 0 | 0 | 0 | 60 | 20 | 0 | 5 |
| 2018 | 0 | 33 | 33 | 0 | 0 | 0 | 0 | 33 | 0 | 3 |
| 2019 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 4 |

Transport Methods

The lack of snow in RY15 and RY16 is reflected in the transportation statistics for wolf harvest (Table 5). In previous years, harvest by snowmachine was predominant. During RY15–RY19 most of the harvest occurred using an airplane. The use of highway vehicles is dependent on wolf distribution. Wolves were present near the highway in RY17, and some were harvested.

**Table 5. Unit 6, Alaska wolf harvest percent by transport method, regulatory years 2015–2019.**

| | Percent of harvest | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Regulatory | | Dogsled/ | | | | | Highway | | |
| year | Airplane | ski/snowshoe | Boat | Snowmachine | ATV | ORV | vehicle | Other | *n* |
| 2015 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| 2016 | 50 | 0 | 0 | 0 | 0 | 0 | 50 | 0 | 2 |
| 2017 | 40 | 0 | 0 | 20 | 0 | 0 | 40 | 0 | 5 |
| 2018 | 33 | 0 | 33 | 33 | 0 | 0 | 0 | 0 | 3 |
| 2019 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 4 |

*Alaska Board of Game Actions and Emergency Orders*

The Board of Game met in 2019 but had no proposals and took no actions regarding wolves in Unit 6. No emergency orders were issued during RY15–RY19.

*Recommendations for Activity 2.1*

Continue.

3. Habitat Assessment-Enhancement

There are currently no habitat related projects for wolves or their prey in Unit 6.

### NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Fur quality has been poor on some animals likely due to lice or follicular dysplasia and will serve as a deterrent for some participants. Samples of poor-quality wolf hides were sent to Dr. Beckmen, DVM (ADF&G wildlife veterinarian, Fairbanks) in 2015 for assessment.

Data Recording and Archiving

Data collected during aerial surveys is recorded on datasheets and transcribed into the wolf observations spreadsheet located on the Cordova server.

Wolf management reports and plans for Unit 6 are made available via the ADF&G website: www.wildlifepublications.adfg.alaska.gov.

Memoranda, data forms, and additional hard copies are stored in the area biologist's files in the ADF&G office in Cordova.

Agreements

None.

Permitting

None.

## Conclusions and Management Recommendations

Historical records suggest that few wolves existed south of the Bremner River before the introduction of moose on the Copper River Delta. Those that did venture down were probably food limited and had a diet of salmon and goats (Carnes 2004). By the 1970s, regular but small harvest was occurring in the Bering River area. In the mid-1980s a pack of about 15 wolves was observed in Unit 6A west of the Suckling Hills (Unit 6A West; H. Griese, former ADF&G management biologist, personal communication). No large packs (>10 wolves) existed in the area during RY93–RY96 (Carnes 2004). Since at least the mid-2000s, stakeholders have expressed concerns of a growing population of wolves in Unit 6A West. No wolf population estimates exist for this area and harvest has been light. From RY95 to RY13, an average of 4 wolves were taken from Unit 6A West annually. However, in RY14 and RY15, 20 and 14 wolves, respectively, were sealed from this area. This may represent about 50% of the wolves in that area, based on biweekly aerial tracking by a local trapper. It is unclear if this harvest pressure has affected the wolf population. The subsequent return to normal harvest rates is likely more indicative of effort than population size.

Rigorous wolf monitoring has not been identified as a priority in Unit 6. Wolf location data will continue to be collected during aerial surveys for moose and goats. Reports from trappers using the area will also be recorded.

Increasing wolf harvests in Unit 6A will be limited by access and travel conditions. Almost all winter access is by plane. Harvest in Unit 6C is probably too large to maintain a population of wolves. A decreased local wolf population may result in higher numbers of coyotes and a lower likelihood of wolf viewing opportunity.

# II. Project Review and RY20–RY24 Plan

## Review of Management Direction

### MANAGEMENT DIRECTION

The existing management direction and goals appropriately direct management of wolves in Unit 6. The management direction for Unit 6 ensures that wolves will persist as part of the natural ecosystem and ensures continued wolf hunting, trapping, and viewing opportunities. There is no indication that the long-term sustainability of the wolf population or that statewide goals (ADF&G 2002) for human uses cannot be met; therefore, the Unit 6 management direction should continue to be that wolves will be managed in a manner that complements the statewide wolf management goals. There are no area-specific issues in Unit 6 that require a departure from statewide goals for wolf management, and wolves are currently managed on a unitwide scale.

### GOALS

Goals will remain as they were RY15–RY19:

- Ensure long-term conservation of wolves throughout their historic range in Alaska in relation to their prey and habitat.

- Provide for the broadest possible range of human uses and values of wolves and their prey populations that meet wildlife conservation principles and which reflect the public's interest.

- Increase public awareness and understanding of uses, conservation, and management of wolves, their prey, and habitat in Alaska.

### CODIFIED OBJECTIVES

Codified objectives are not expected to change in RY20–RY24.

Amounts Reasonably Necessary for Subsistence Uses

None.

### Intensive Management

Not applicable.

## MANAGEMENT OBJECTIVES

The management objective to maintain a viable wolf population that allows for sustainable annual harvest and other nonconsumptive uses will remain the same as during RY20–RY24.

## REVIEW OF MANAGEMENT ACTIVITIES

### 1. Population Status and Trend

ACTIVITY 1.1. Record observations of wolves seen incidentally during other survey work and anecdotal reports from the public.

*Data Needs*

Abundance data are necessary to understand changes in the wolf population and harvest pressure.

*Methods*

GPS locations, pack size, and characteristics will be recorded during aerial survey flights. Most observations occur during moose surveys when sightability is ideal. Anecdotal reports will be recorded to the maximum level of detail available.

### 2. Mortality-Harvest Monitoring

ACTIVITY 2.1. Monitor harvest through sealing records.

*Data Needs*

Harvest must be assessed to understand the potential impact of wolf harvest on both predator and prey populations.

*Methods*

We will collect harvest data by sealing hides of wolves taken by trappers and hunters. We will record location and date of harvest, method of take, transportation mode, sex, and observed pack size. These data will be entered into WinfoNet. We will continue to take samples from poor quality wolf hides for disease monitoring.

### 3. Habitat Assessment-Enhancement

There are currently no habitat related projects for wolves or their prey in Unit 6.

## NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

These are expected to remain the same as during RY20–RY24.

Data Recording and Archiving

Data collected during aerial surveys will be recorded on datasheets and transcribed into the wolf observations spreadsheet located on the Cordova server.

Wolf management reports and plans are available via the ADF&G website: www.wildlifepublications.adfg.alaska.gov. Memoranda, data forms, and additional hard copies will be stored at the ADF&G office in Cordova, in the area biologist's files.

Agreements

None.

Permitting

None.

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