Species Management Report and Plan ADF&G/DWC/SMR&P–2024–7

# Wolf Management Report and Plan, Game Management Unit 19:

Report Period 1 July 2015–30 June 2020, and

Plan Period 1 July 2020–30 June 2025

**Jonathan S. Barton**

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Alaska Department of Fish and Game Division of Wildlife Conservation

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Hunters are important founders of the modern wildlife conservation movement. They, along with trappers and sport shooters, provided funding for this publication through payment of federal taxes on firearms, ammunition, and archery equipment, and pay state hunting license and tag fees. These taxes and fees fund the federal Wildlife Restoration Program and the State of Alaska's Fish and Game Fund, which provided funding for the work reported on in this publication.

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 Jason Caikoski, Management Coordinator for Region III for the 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 wolf (*Canis lupus*) in Game Management Unit 19 for the 5 regulatory years RY15–RY19 and plans for survey and inventory management activities in the next 5 regulatory years, RY20–RY24. 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, or 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 19 includes the portion of the Kuskokwim River drainage above the community of Lower Kalskag and is further subdivided into Units 19A, 19B, 19C, and 19D, totaling approximately 36,486 $mi^2$.

## Summary of Status, Trend, Management Activities, and History of Wolves in Unit 19

Wolves play multiple roles in the economy and ecology of the upper Kuskokwim River drainage. Trappers seek wolf pelts for both personal use and commercial sale. Hunters consider wolves both trophy big game animals and competitors for moose. Wolves are an important predator of moose and caribou and can regulate populations to a low-density dynamic equilibrium (Gasaway et al. 1992, Boertje et al. 1996, Hayes et al. 2003). Wolf harvest regulations in Unit 19 have changed frequently in response to public controversies. Wolf harvest declined after cessation of bounties in 1967 and after the Federal Airborne Hunting Act of 1972 eliminated the common practice of shooting wolves from airplanes. However, ADF&G issued aerial shooting permits to members of the public until 1983 as part of specific management programs. Hunting of wolves using land-and-shoot methods continued as a legal means of hunting until regulatory year 1992 when all same-day-airborne (SDA) hunting was prohibited. Beginning in RY94, the same-day-airborne taking of wolves was permitted for holders of a trapping license if trappers landed and moved more than 300 feet from the aircraft before shooting a wolf. A public ballot initiative in November 1996 repealed that regulation beginning in late February 1997, again prohibiting all same-day-airborne shooting of wolves.

During 1980–1995, area biologists and residents recognized that moose densities were low in the upper Kuskokwim drainage. The primary limiting factor was believed to be predation aggravated during 1989–1995 by 4 severe winters with deep, persistent snow. In Unit 19D, an intensive research project (2003–2010) identified that wolves, black bears, and grizzly bears were significant predators of moose (Keech et al. 2011). This understanding has focused management on efforts to reduce predation in Unit 19. In the early 1990s, local residents in Unit 19 requested

that ADF&G initiate a management program to aid the moose population. In 1994, with the aid of the Tanana Chiefs Conference, Inc., these residents met with officials from ADF&G to discuss predation control options. In 1995 the Alaska Board of Game (board) adopted a wolf control implementation plan for eastern Unit 19D (known as Unit 19D East), which encompasses 8,513 mi$^2$ of Unit 19D upriver of, but not including, the drainages of the Black and Selatna rivers (Fig. 1). The board reauthorized and updated this plan in January 2000, March 2001, March 2003, January and May 2006, March 2009, and March 2014. The March 2014 update continued this plan through 30 June 2020.

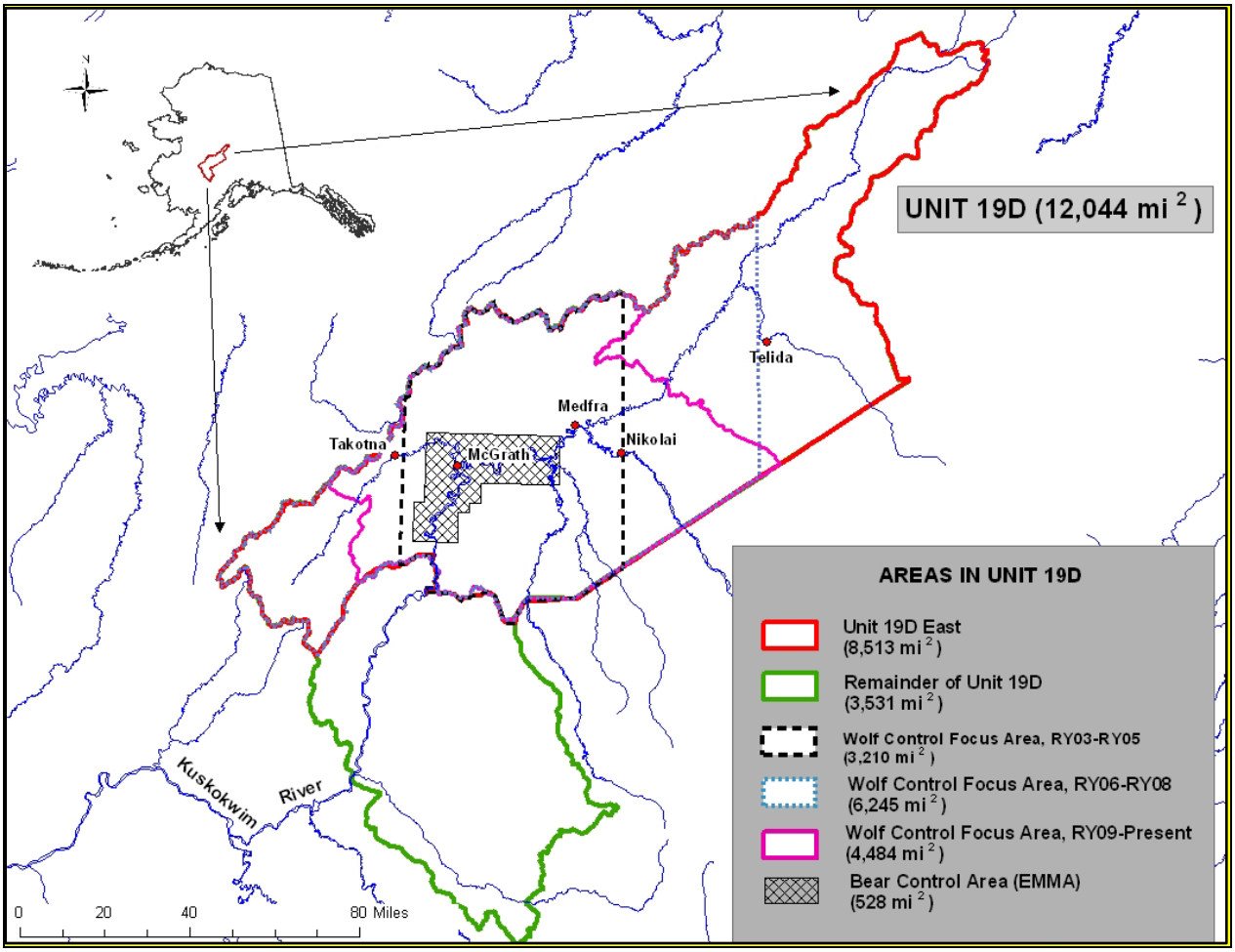


**Figure 1. Unit 19D wolf management activity areas and bear Experimental Micro Management Area (EMMA) prior to March 2020, Alaska.**

In 2001, the Experimental Micro Management Area (EMMA) was established. This 528 mi$^2$ area, renamed the Bear Control Focus Area (BCFA) in 2009, encompassed the highest density of moose in Unit 19D East and was established as a treatment area to test and implement predator population manipulations and other management actions (Fig. 1). ADF&G established aerial Wolf Control Focus Areas (WCFAs) surrounding McGrath: 1,728 mi$^2$ (RY03, 2 weeks only), 3,210 mi$^2$ (remainder of RY03–RY05), 6,245 mi$^2$ (RY06–RY08), and 4,484 mi$^2$ (RY09–RY19). In these areas, permitted pilots were allowed to conduct aerial wolf control within this portion of Unit 19D East to reduce wolf predation only (Fig. 1). Note that none of the WCFAs included all of Unit 19D East. In 2020, the board expanded the Unit 19D WCFA to include an additional

1,095 mi$^2$ to aid intensive management goals, as terrain and timber in large portions of the original area were not conducive to aerial predator control practices. As of 2020, the Unit 19D WCFA totaled 5,579 mi$^2$ (Fig. 2).

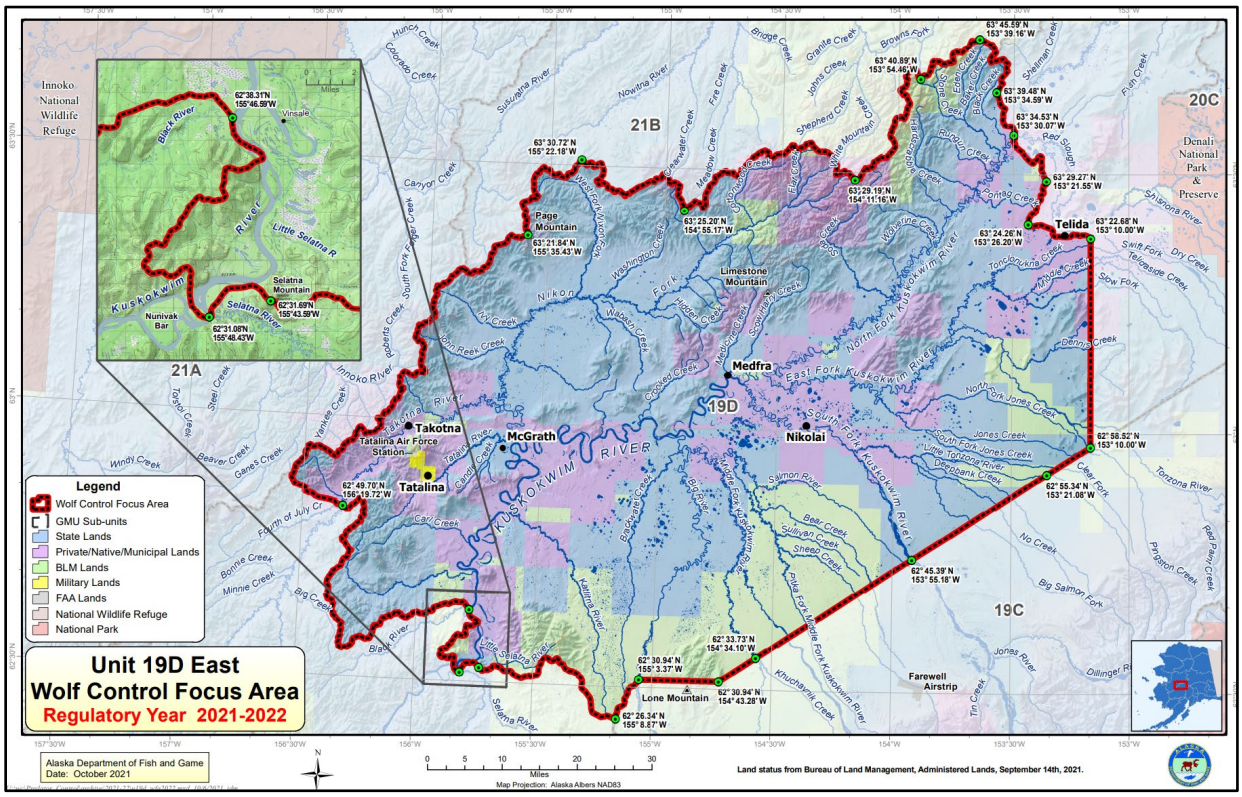


**Figure 2. Unit 19D Wolf Control Focus Area, new wolf control management boundary (5,579 mi$^2$) implemented in March 2020, McGrath area, Alaska.**

In Units 19A and 19B, moose numbers had declined by the late 1990s, and a working group was established to consider moose management there. The Central Kuskokwim Moose Management Working Group developed the Central Kuskokwim Moose Management Plan (Central Kuskokwim Moose Management Planning Committee 2004), which the board endorsed in June 2004. The plan included a wolf control implementation plan (5 AAC 92.123), which authorized wolf control throughout Unit 19A during RY04–RY08, and then only in the Stony and Holitna drainages from RY09–RY14 (Fig. 3). Wolf control in Unit 19B was originally authorized by the board from RY04–RY09; however, in January 2006, the board adopted a revised implementation plan that limited wolf control to Unit 19A.

In Unit 19B, 3 wolves were taken under an intensive management program instituted out of Region IV for Mulchatna caribou herd management. A small portion of Unit 19B overlapped with the intensive management area from this plan, and as a result 3 wolves were taken during SDA hunting activities in RY15–RY19. DWC's Region IV operational plans for intensive management of caribou in Units 9B, 17, 18, and 19B contains more information on these activities (ADF&G 2018).

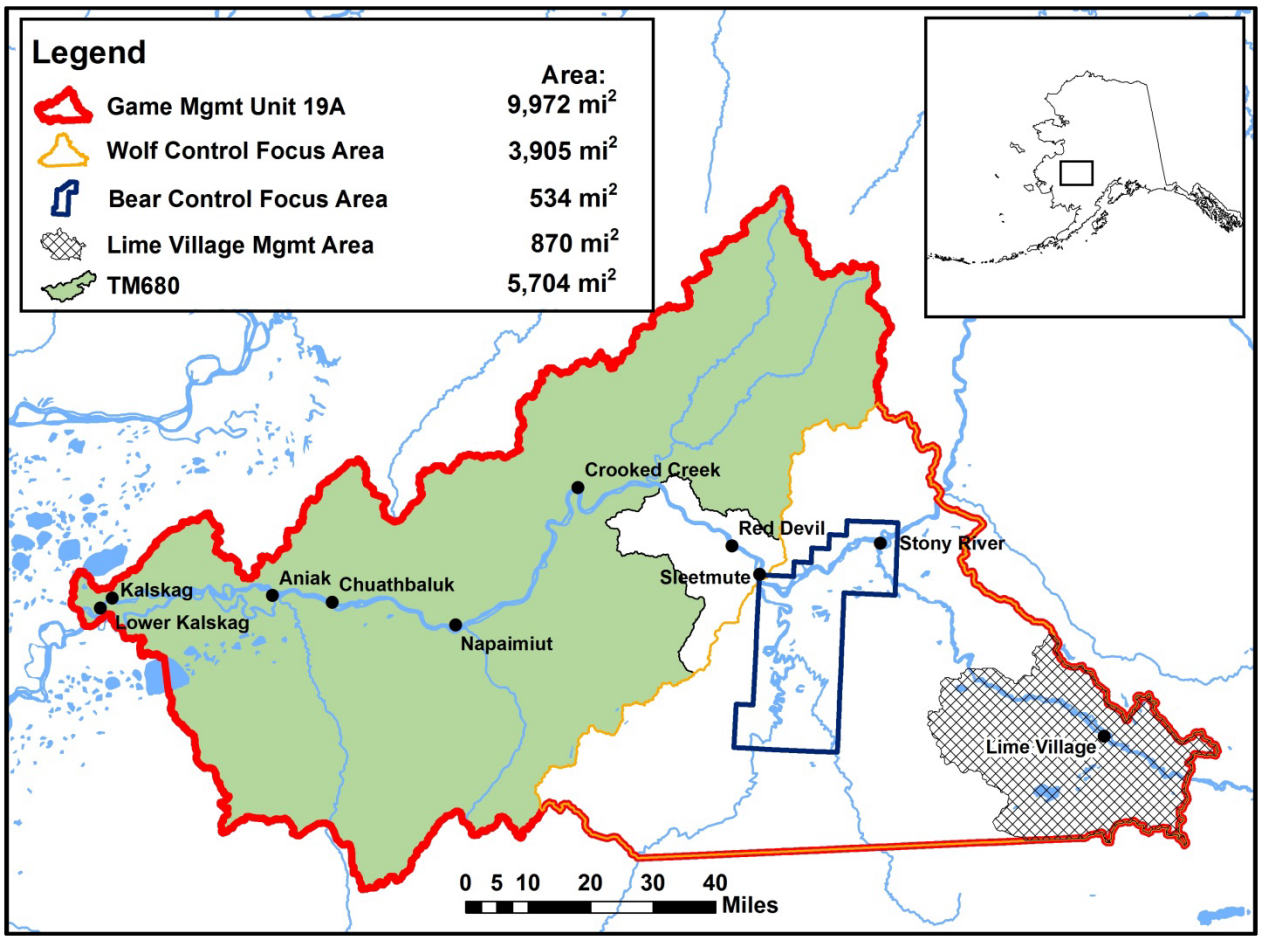


**Figure 3. Game Management Unit 19A, Alaska, aerial wolf control area permitted throughout Unit 19A during regulatory years 2004–2008. Note that beginning in regulatory year 2009, aerial wolf control was limited to the Wolf Control Focus Area.**

Predation control programs in Unit 19 are instrumental in moose management and are critical if ADF&G is to comply with intensive management statutes and regulations. Local support for these programs remains high, particularly in Units 19A and 19D.

# Management Direction

Wolf populations are managed to provide for human uses and to ensure that wolves remain an integral part of Interior Alaska's ecosystems. Compatible human uses include hunting and trapping, photography, viewing, listening, and scientific and educational purposes. Other aesthetic values of wolves are also recognized.

## Existing Wildlife Management Plans

Operational plans for intensive management of moose in Units 19A and 19D during RY14–RY20 include wolf control and are designed to increase moose numbers for human harvest (5 AAC 92.123).

## GOALS

G1. Ensure the long-term conservation of wolves throughout their historic range in Alaska in relation to their prey and habitat.

G2. Provide for the broadest possible range of human uses and values for wolves and their prey populations that meet wildlife conservation principles and that reflect the public's interest.

G3. Increase public awareness and understanding of the uses, conservation, and management of wolves, their prey, and habitat in Alaska.

## CODIFIED OBJECTIVES

### Amounts Reasonably Necessary for Subsistence Uses

C1. Unit 19 has a positive customary and traditional use finding for wolves, as determined by the board, with an amount necessary for subsistence uses of 90% of the harvestable portion.

### Intensive Management

C2. In Unit 19A, maintain a population of at least 25–30 wolves annually after wolf control.

C3. In Unit 19D East, maintain a population of at least 40 wolves annually after wolf control.

## MANAGEMENT OBJECTIVES

### Units 19A and 19D

M1. Within the Unit 19A WCFA, reduce the number of wolves to the lowest level possible.

M2. Within the Unit 19D WCFA, reduce the number of wolves to the lowest level possible.

### Units 19B, 19C, and remainder of 19D

M3. Provide for an annual harvest of up to 30% of the combined wolf population.

M4. Provide for an annual harvest of up to 150 wolves.

## MANAGEMENT ACTIVITIES

### 1. Population Status and Trend

ACTIVITY 1.1 Conduct aerial wolf population surveys within the WCFAs in Units 19A and 19D East every 3 years (objectives C2, C3, M1, M2).

*Data Needs*

Population estimates ensure the minimum number of wolves remains.

*Methods*

Unit 19A

An intensive aerial wolf survey (IAWS; Stephenson 1978, Gasaway et al. 1983, Hayes and Harestad 2000, Gardner and Pamperin 2014, and Keech et al. 2011) was conducted from 24–27 February 2019, in Unit 19A. The survey area consisted of the RY15–RY19 3,905 $mi^2$ wolf control zone. The survey was conducted by experienced aerial wolf trackers using 4 fixed-wing airplanes: 3 PA-18s and a PA-12. To ensure thorough observation, the survey area was done in transect-style line patterns spaced approximately 1 to 1.5 miles apart. Any observed wolf tracks were also followed until wolves were visually located or tracks could not be seen.

Unit 19D

IAWS were also used to estimate wolf density during 21–24 February 2001, 17–19 March 2005, 14–17 March 2006, 19–20 March 2009, 1–3 March 2017, and 9–11 March 2020. All IAWS were conducted within the 3,210 $mi^2$ wolf survey area, the same location in which wolf control was conducted in RY03–RY05. The survey area was covered using the same aircraft type, experienced aerial wolf trackers, and tracking methods as described for Unit 19A (previous paragraph).

*Results and Discussion*

Unit 19A

During the February 2019 survey, we visually observed 69 wolves in 13 packs and estimated the presence of 84 wolves in 14 packs, based on visual observations of wolves and tracks of unseen wolves. Given the time of year, some of the wolf packs which comprised of 2 wolves likely represented breeding pairs and were therefore suspected to represent larger packs. Of the total estimated 14 packs, 7 (an estimated 49 wolves) had tracks that crossed the border of the survey area and should be considered "border wolves" (Gardner and Pamperin 2014). Total counted wolves included all individuals found exclusively within the survey area and half of the total number of border wolves, due to their possible transiency. The sum population estimate totaled 60 wolves, or 1.6 wolves/100 $mi^2$ in the area surveyed (Table 1).

Unit 19D

In February 2001, we counted 42 individual wolves for a wolf density of 1.5 wolves/100 $mi^2$. In March 2005 and March 2006, we counted 11 individuals for a density estimate of 0.3 wolves/100 $mi^2$. In March 2009 we counted 16 individual wolves for a density estimate of 0.5 wolves/100 $mi^2$, and in March 2017 we counted 63 individual wolves for a density estimate of 2.0 wolves/100 $mi^2$ (Table 1). The most recent survey was conducted in March 2020 within the Unit 19D WCFA area. During this survey, we counted 21 individual wolves for a density of 0.7 wolves/100 $mi^2$. Each survey described was completed within the RY03–RY05 Wolf Control Focus Area (Fig. 1).

**Table 1. Units 19A and 19D, Wolf Control Focus Area (WCFA) wolf survey results, regulatory years 2001–2019, Alaska.**

| Regulatory year | Unit | Individual count | Density wolves per 100 $mi^2$ |
|---|---|---|---|
| 2001 | Unit 19D | 42 | 1.5 |
| 2005 | Unit 19D | 11 | 0.3 |
| 2006 | Unit 19D | 11 | 0.3 |
| 2009 | Unit 19D | 16 | 0.5 |
| 2017 | Unit 19D | 63 | 2.0 |
| 2018 | Unit 19A | 60 | 1.6 |
| 2020 | Unit 19D | 21 | 0.7 |
| All years | Unit 19D total | 224 | – |
| All years | Unit 19A total | 60 | – |

*Note*: Unit 19A is 3,905 $mi^2$ and Unit 19D is 3,210 $mi^2$.

*Recommendations for Activity 1.1*

Continue. The WCFAs in Units 19A and 19D are designed to ensure that even if all wolves from within the focus areas were removed, there would still be enough wolves in the remainder of the unit to meet minimum population objectives.

ACTIVITY 1.2 Continue to refine annual wolf population estimates, based on wolf survey results, incidental sightings, hunter interviews, trapper questionnaires, and evaluation of sealing documents (objectives C2, C3, M1, M2).

*Data Needs*

Post-control estimates help to evaluate the success of the control programs which have objectives to reduce wolf numbers by at least 60% of precontrol numbers.

*Methods*

Conduct interviews with wolf control pilots and permittees to gain detailed information on spring pack sizes and locations within the WCFAs.

*Results and Discussion*

Post-control spring estimates for Unit 19A during RY15–RY19 were not evaluated due to lack of information and low participation. A post-control estimate of 12 wolves within the control area in Unit 19D was evaluated during RY17. In conjunction with control area boundary wolves, the total estimated population was 31 remaining wolves in the Unit 19D East predation control area. This estimate was the result of direct observations from ADF&G staff and interviews with pilots participating in predator control efforts in this area.

*Recommendations for Activity 1.2*

Continue.

## 2. Mortality-Harvest Monitoring and Regulations

### ACTIVITY 2.1. Monitor harvests and trapper efforts through sealing records, trapper interviews, and trapper questionnaires. (Objectives C2, C3, M3).

*Data Needs*

Fur sealing data from ADF&G's Wildlife Information Network (WinfoNet) database are reviewed annually to assess harvest. This information is used for intensive management and annual reports to the board.

*Methods*

Wolves harvested by trappers, hunters, and control permittees were sealed to monitor harvest. Harvest data were archived in WinfoNet and are reported by regulatory year. Information recorded for each wolf included date of kill, name of person harvesting wolf, location, method of take, transportation, sex of the wolf, color of the pelt, and number of wolves thought to be in the pack. Pelts from harvested wolves are sealed with a Convention on International Trade in Endangered Species (CITES) locking tag that coincides with sealing certificate records. Wolves taken by SDA methods in predator control areas receive an additional locking tag in conjunction with the CITES locking tag.

*Results and Discussion*

Harvest by Hunter-Trappers

During RY15–RY19, 342 wolves ($\overline{x}$ = 68) were reported harvested by hunters, trappers, and wolf control permittees in Unit 19 (Table 2). Of these, control permittees took 180 wolves: 35 in Unit 19A, 142 in Unit 19D East, and 3 in Unit 19B (Tables 3a and 3b). Annual wolf harvests varied per year. These oscillations were likely unrelated to fluctuations in wolf numbers, but rather to other factors that affected trappers (e.g., weather, snow conditions, trapping pressure, and intensive management participation). In Unit 19D, during 2018, there was a large increase (n = 75) in the number of wolves taken during SDA hunting. This increase was most likely the result of increased effort from permittees in Unit 19D due to weather conditions. There was frequent, significant snow accumulation, which yielded conditions ideal for tracking.

SDA continues to be the primary method of take in Units 19A and 19D (Table 3a). Due to relatively low wolf trapping activities in Unit 19A, opportunistic ground shooting has come to represent the second-most common method of take. In Unit 19D, snaring is the most common method of targeting wolves, followed by traps, due to a snowmachine-friendly environment. Most other wolves are taken during hunting season opportunistically when hunters are engaged in other activities.

In Units 19B and 19C, ground shooting is the most common method of take (Table 3b), as a high volume of hunters take wolves opportunistically while engaged on other hunts. Trapping efforts in these units are comparatively low.

Males made up the highest percentage of total wolf harvest (Table 2). There were 192 male wolves taken (56%) and 143 females taken (42%) during this period.

**Table 2. Unit 19, wolf harvest and aerial wolf control take success by residency and sex, regulatory years 2015–2019, Alaska.**

| Regulatory year | Reported harvest | | | | | Harvest by residency | | | Number of trappers/ hunters | Average wolves/ trapper |
|---|---|---|---|---|---|---|---|---|---|---|
| | Male | Female | Unknown | % Male | Total | Nonresident | Resident | Unknown | | |
| 2015 | 20 | 18 | 1 | 51 | 39 | 0 | 39 | 0 | 8 | 4.8 |
| 2016 | 25 | 29 | 1 | 45 | 55 | 5 | 50 | 0 | 16 | 3.4 |
| 2017 | 38 | 31 | 1 | 54 | 70 | 6 | 64 | 0 | 19 | 3.7 |
| 2018 | 54 | 36 | 3 | 58 | 93 | 8 | 85 | 0 | 19 | 4.9 |
| 2019 | 55 | 29 | 1 | 65 | 85 | 14 | 71 | 0 | 26 | 3.3 |
| Total | 192 | 143 | 7 | 56 | 342 | 33 | 309 | 0 | 88 | 3.9 |
| % of Total | 56 | 42 | 2 | – | 100 | 10 | 90 | – | – | – |

*Note*: En dashes indicate not applicable.

**Table 3a. Wolf harvest and take method, regulatory years 2015–2019, Units 19A and 19D, Alaska.**

| Regulatory year | Unit 19A | | | | | | Unit 19D | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Shoot | Trap | Snare | SDA[a] | Unknown | Total | Shoot | Trap | Snare | SDA[a] | Unknown | Total |
| 2015 | 2 | 0 | 0 | 0 | 0 | 2 | 1 | 6 | 12 | 12 | 0 | 31 |
| 2016 | 6 | 3 | 1 | 14 | 0 | 24 | 1 | 0 | 14 | 8 | 0 | 23 |
| 2017 | 6 | 0 | 2 | 1 | 1 | 10 | 1 | 6 | 16 | 29 | 0 | 52 |
| 2018 | 0 | 1 | 1 | 8 | 0 | 10 | 5 | 1 | 6 | 63 | 0 | 75 |
| 2019 | 10 | 0 | 1 | 12 | 0 | 23 | 3 | 5 | 5 | 30 | 0 | 43 |
| Total | 24 | 4 | 5 | 35 | 1 | 69 | 11 | 18 | 53 | 142 | 0 | 224 |

[a] SDA refers to same-day-airborne wolf control and harvest method associated with predation control programs in Units 19A and 19D East.

**Table 3b. Wolf harvest method, regulatory years 2015–2019, Units 19B and 19C, Alaska.**

| Regulatory year | Unit 19B | | | | | Unit 19C | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Shoot | Trap | Snare | SDA[a] | Total | Shoot | Trap | Snare | Other/ unknown | Total |
| 2015 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6 |
| 2016 | 0 | 0 | 0 | 0 | 0 | 4 | 3 | 0 | 1 | 8 |
| 2017 | 1 | 0 | 0 | 1 | 2 | 4 | 0 | 1 | 0 | 5 |
| 2018 | 2 | 0 | 0 | 0 | 2 | 5 | 0 | 1 | 0 | 6 |
| 2019 | 4 | 0 | 0 | 2 | 6 | 10 | 0 | 4 | 0 | 14 |
| Total | 7 | 0 | 0 | 3 | 10 | 23 | 3 | 12 | 1 | 39 |

[a] SDA refers to the same-day-airborne wolf control and harvest method associated with predation control programs in Units 19B.

Hunter Residency and Success

In Unit 19, the number of successful hunters and trappers ranged from 8 to 26 per year during RY15–RY19 (Table 2). The number of wolves taken averaged 3.9 per hunter-trapper and varied little among years. Residents continued to harvest most of the wolves in Unit 19, at about 90% of total harvest during RY15–RY19. There were 88 hunters and trappers that contributed to the total harvest of 342 wolves during RY15–RY19. Nonresident take is mostly the result of guided hunts, when wolves are harvested incidentally while hunting other species such as moose or sheep.

Harvest Chronology

During RY15–RY19, 58% of the reported wolf harvest in Unit 19 and aerial wolf take occurred during February and March (Table 4). Winter wolf harvests and take by aerial control are dependent on adequate snow cover, which typically improves by mid-December. Additionally, adequate sunlight, which is best during late January through March, is necessary to efficiently track wolves. Although wolf season and control activities can occur through April, few trappers and control permittees participate due to deteriorating snow conditions and the resulting quality of wolf pelts. August and September wolf harvests are typically incidental to other big game hunts. Just 12% of total wolf harvest for the period occurred during fall months (August–October).

*Season and Bag Limit*

For Units 19A, 19B, 19C, and 19D, open season for both residents and nonresidents for hunting (10 wolves only) is 10 August to 30 April. For trapping (no bag limit), the season for residents and nonresidents is open from 1 October to 30 April.

Transport Methods

Aircraft (79%) was the most common transportation used by hunters and trappers, followed by snowmachine (15%), to take wolves in Unit 19 (Table 5). There was significant snow accumulation in 2018. This deep snow was most likely the cause for the decrease in snowmachine activity (6%) and the higher percentage of aircraft use (90%) relative to the highest total number of wolves ($n$ = 93) harvested during RY15–RY19. The frequent accumulations and deep snow made snowmachine travel very difficult but created ideal tracking conditions for aircraft.

*Intensive Management*

Portions of Units 19A, 19B, and 19D were within WCFAs. During RY15–RY19, 35 wolves in Unit 19A, 3 wolves in Unit 19B, and 142 wolves in Unit 19D East were reported taken by SDA wolf control (Tables 3a and 3b). Wolf harvest in Unit 19A has typically had lower participation than other units as a result of rising fuel costs, long ferry times for permittees, and poorer snow conditions.

**Table 4. Unit 19 wolf hunting and trapping and aerial wolf control take percent harvest chronology by month, regulatory years 2015–2019, Alaska.**

| Regulatory year | Aug | | Sep | | Oct | | Nov | | Dec | | Jan | | Feb | | Mar | | Apr | | Unknown/ other | | Total harvest |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2015 | 0 | (0) | 3 | (1) | 0 | (0) | 0 | (0) | 23 | (9) | 13 | (5) | 31 | (12) | 28 | (11) | 3 | (1) | 0 | (0) | (39) |
| 2016 | 4 | (2) | 5 | (3) | 0 | (0) | 5 | (3) | 13 | (7) | 15 | (8) | 31 | (17) | 27 | (15) | 0 | (0) | 0 | (0) | (55) |
| 2017 | 3 | (2) | 7 | (5) | 1 | (1) | 1 | (1) | 4 | (3) | 16 | (11) | 36 | (25) | 21 | (15) | 10 | (7) | 0 | (0) | (70) |
| 2018 | 1 | (1) | 10 | (9) | 0 | (0) | 1 | (1) | 3 | (3) | 19 | (18) | 44 | (41) | 20 | (19) | 0 | (0) | 1 | (1) | (93) |
| 2019 | 4 | (3) | 15 | (13) | 2 | (2) | 0 | (0) | 8 | (7) | 19 | (16) | 35 | (30) | 16 | (14) | 0 | (0) | 0 | (0) | (85) |
| Total (*n*) | – | (8) | – | (31) | – | (3) | – | (5) | – | (29) | – | (58) | – | (125) | – | (74) | – | (8) | – | (1) | (342) |
| % of Total | 2 | – | 9 | – | 1 | – | 1 | – | 8 | – | 17 | – | 37 | – | 22 | – | 2 | – | 1 | – | 100 |

*Note*: En dashes indicate not applicable.

**Table 5. Unit 19 hunting and trapping harvest by transport method, regulatory years 2015–2019, Alaska.**

| Regulatory year | Percent harvest by transport method (*n*) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Aircraft | | Snowmachine | | Ski/snowshoe | | Other[a] | | Total |
| 2015 | 90 | (35) | 10 | (4) | 0 | (0) | 0 | 0 | 39 |
| 2016 | 73 | (40) | 15 | (8) | 5 | (3) | 7 | (4) | 55 |
| 2017 | 70 | (49) | 27 | (19) | 0 | (0) | 3 | (2) | 70 |
| 2018 | 90 | (84) | 6 | (6) | 1 | (1) | 2 | (2) | 93 |
| 2019 | 73 | (62) | 18 | (15) | 6 | (5) | 4 | (3) | 85 |
| Total (*n*) | – | (270) | – | (52) | – | (9) | – | (11) | 342 |
| % of Total | 79 | – | 15 | – | 3 | – | 3 | – | – |

[a] Other includes boats, 3- and 4-wheelers, off-road vehicles, highway vehicles, and other unreported methods.
*Note*: En dashes indicate not applicable.

*Alaska Board of Game Actions and Emergency Orders*

Unit 19A

In March 2014 the board modified and reauthorized the Unit 19A predation control implementation plan for the 6 years beginning 1 July 2014. The plan applied aerial wolf control only within the 3,905 $mi^2$ defined by WCFA as the drainages upriver of Sleetmute. The plan's objectives were to reduce the precontrol wolf population to the lowest level possible in the Unit 19A WCFA, and to ensure that 25–30 wolves remained throughout Unit 19A. The plan also established a 534 $mi^2$ BCFA from which both black and brown bears were to be reduced to the lowest level possible if certain thresholds in the moose population were met (Fig. 3).

The plan was scheduled to end 30 June 2020, but the board reauthorized it during its March 2020 Interior Region III meeting. The reauthorized plan will expire 30 June 2026.

Unit 19D

In March 2014, the board modified and reauthorized the Unit 19D predation control implementation plan for 6 years beginning 1 July 2014. The plan applied aerial wolf control only within the 4,484 $mi^2$ WCFA. The objectives of the plan were to reduce the precontrol wolf population to the lowest level possible in the Unit 19D East WCFA and ensure that 40 wolves remained throughout Unit 19D East. The plan also established a 528 $mi^2$ BCFA from which both black and brown bears were to be reduced to the lowest level possible if certain thresholds in the moose population were not met (Fig. 1).

The board reauthorized the plan at its March 2020 meeting; the plan will expire 30 June 2026. The board also modified the plan to include an additional 1,095 $mi^2$ for a total area of 5,579 $mi^2$ (Fig. 2).

*Recommendations for Activity 2.1*

Continue.

## 3. Habitat Assessment-Enhancement

No habitat assessment or enhancement activities occurred in Unit 19 during RY15–RY19.

## 4. Wolf Management with Public Participation and Outreach

### ACTIVITY 4.1. Increase public proficiency in wolf trapping through trapper education clinics.

*Data Needs*

Engage the public in trapping wolves by recruiting new wolf trappers. Conduct more trapper education clinics, which have been well received in the past. These clinics may also have other potential management benefits.

*Methods*

Organize trapper education clinics. Clinics provide information on building wolf snares, effective sets, snare locations that minimize incidental catch of moose, wolf and moose biology, and regulations.

*Results and Discussion*

No trapping clinics were conducted during the reporting period due to time constraints, resources, and other management priorities.

*Recommendations*

Continue as time and resources allow.

### NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Hair loss on wolves is a problem throughout Unit 19, with causes identified as genetic follicular dysplasia and lice. No cost-effective tools are known to treat these problems, so they are likely to persist. Wolf pelts with poor fur quality have little value, but during RY10–RY14, hunters and trappers were still inclined to take infected wolves and remove lice-infested individuals from the population, in conjunction with intensive management objectives. During RY15–RY19, there were significant numbers of wolves with hides containing hair loss. Depending on the severity of the hair loss, affected hides may still present value to hunters and trappers, as do the skulls.

Between collaboration with permittees and the inspection of hides during sealing, it is estimated that roughly 40% of total wolf hides show signs of noticeable hair loss.

It is difficult to attract wolf predation control pilots to Unit 19A due to fuel and lodging costs and longer ferry times from population centers. Additionally, marginal snow conditions in some years make predation control efforts less successful.

#### Data Recording and Archiving

- Wolf harvest (fur sealing) data are archived in WinfoNet.
- Electronic data and files such as survey memoranda and reports are also stored in WinfoNet, Project Title: McGrath Area Office. Primary Region: III.
- Hard copies of data and files such as survey memoranda and reports are also located in the McGrath ADF&G office.

#### Agreements

There are no agreements with other agencies pertaining to wolf management.

#### Permitting

No permits were needed to conduct wolf management activities in Unit 19 during RY15–RY19.

## Conclusions and Management Recommendations

Throughout Unit 19, we ensured the long-term conservation of wolves, provided for a broad range of human uses and values of wolves, and increased public awareness and understanding of wolf conservation and management. Within the units where wolf control took place, at least 25–30 wolves in Unit 19A and 40 wolves in Unit 19D East remained each year after wolf control programs concluded.

During RY15–RY19, we met the Unit 19A management objective to reduce wolf numbers to the lowest level possible. The portion of Unit 19A outside the WCFA is instrumental in ensuring our objective that 30–36 wolves remain in all of Unit 19A, which we achieved.

Within Unit 19D East, we achieved our objective to reduce wolf numbers to the lowest level possible within the WCFA. The portion of Unit 19D East outside the WCFA is also instrumental in ensuring our objective that 40 wolves remain, which was achieved.

We also met management objectives to harvest fewer than 30% of the wolves from Units 19B, 19C, and the remainder of Unit 19D, and to provide for an annual harvest up to 150 wolves from Units 19B, 19C, and the remainder of 19D (which excludes SDA wolf control harvest from the Unit 19D WCFA). Based on the reported annual harvests, the estimated annual harvest rate in these areas averaged 40 wolves.

Getting wolf control permittee participation in the Unit 19A WCFA is difficult. Low participation is attributed primarily to high cost of aviation fuel, distance from the wolf control areas to large population centers, time available to fly (which did not always coincide with good weather and snow conditions needed to take wolves using aerial methods), and landowner restrictions, among other reasons. Future wolf control programs should favor permittees with a track record of participation and success but should be mindful of the need to recruit new participants who will be necessary for these programs to remain viable in the future.

Because incidental take accounts for a significant proportion of the total wolf harvest in Units 19B and 19C, wolf harvest will likely remain low.

Recruiting new wolf trappers would be desirable. Trapping clinics represent a viable recruitment method, and simultaneously accommodate the desire in local communities to take more wolves. Previous clinics have been well received, and other potential management benefits, such as increased harvest and communication between local communities and management biologists, may follow. Therefore, we recommend conducting these clinics as resources allow.

Wolf control programs are designed to help achieve moose population and harvest objectives. In Units 19A and 19D East, moose population and harvest objectives have not been met, so we recommend maintaining these predation control programs and our current wolf management goals for Unit 19.

# II. Project Review and RY20–RY24 Plan

## Review of Management Direction

### Management Direction

There are no changes to the management direction for wolves in Unit 19 for the RY20–RY24 plan period.

### Goals

G1. Ensure the long-term conservation of wolves throughout their historic range in Alaska in relation to their prey and habitat.

G2. Provide for the broadest possible range of human uses, and the values of wolves and their prey populations that meet wildlife conservation principles and which reflect the public's interest.

G3. Increase public awareness and understanding of the uses, conservation, and management of wolves, their prey, and habitat in Alaska.

## CODIFIED OBJECTIVES

### Amounts Reasonably Necessary for Subsistence Uses

C1. Unit 19 has a positive customary and traditional use finding for wolves, as determined by the board, with an amount necessary for subsistence uses of 90% of the harvestable portion.

### Intensive Management

C2. Removing wolves only from WCFAs will ensure they will persist in Units 19A and 19D.

## MANAGEMENT OBJECTIVES

### Units 19A and 19D

M1. Within the Unit 19A WCFA, the wolf control population objective in the WCFA is to reduce the number of wolves by at least 60–80% from precontrol numbers.

M2. Within the Unit 19D WCFA, the wolf control population objective in the WCFA is to reduce the number of wolves by at least 60–80% from precontrol numbers.

### Units 19B, 19C, and remainder of 19D

M3. Provide for an annual harvest of up to 30% of the combined wolf population, or up to 150 wolves.

## REVIEW OF MANAGEMENT ACTIVITIES

### 1. Population Status and Trend

ACTIVITY 1.1. Conduct aerial wolf population surveys within the WCFAs in Units 19A and 19D as schedules, budgets, and weather permit.

*Data Needs*

Population estimates help assess the effectiveness of wolf removals.

*Methods*

No change from RY15–RY19.

ACTIVITY 1.2. Continue to refine annual wolf population estimates based on wolf survey results, incidental sightings, hunter interviews, trapper questionnaires, and evaluations of sealing documents (objectives C2, M1, M2).

*Data Needs*

Population estimates help assess the effectiveness of wolf removals.

*Methods*

Conduct interviews with wolf control pilots, trappers, hunters, and permittees to gain detailed information on spring pack sizes and locations within the WCFAs.

2. Mortality-Harvest Monitoring

ACTIVITY 2.1. Monitor harvests and trapper efforts through sealing records, trapper interviews, and trapper questionnaires (Objectives C2, M1, M2, M3).

*Data Needs*

Fur sealing data from WinfoNet will be reviewed annually to assess harvest. This information is used for intensive management and annual reports to the board.

*Methods*

Wolves harvested by trappers, hunters, and control permittees will be sealed to monitor harvest. Harvest data will be archived in WinfoNet and reported by regulatory year. Information recorded for each wolf will include date of kill, name of person harvesting wolf, location, method of take, transportation, sex of the wolf, color of the pelt, and number of wolves thought to be in the pack. Pelts from harvested wolves will be sealed with a CITES locking tag that coincides with sealing certificate records. Wolves taken by SDA hunting methods in predator control areas will receive an additional locking tag in conjunction with the CITES locking tag.

3. Habitat Assessment-Enhancement

No habitat assessment or enhancement activities occurred in Unit 19 during RY15–RY19.

## NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Data Recording and Archiving

- Wolf harvest (fur sealing) data will be archived in WinfoNet.
- Electronic data and files such as survey memos and reports will be stored in WinfoNet. Project Title: McGrath Area Office. Primary Region: Region III.
- Hard copies of data and files such as survey memos and reports will also be stored in the McGrath ADF&G office.

Agreements

Currently there are no agreements with other agencies pertaining to wolf management.

Permitting

No permits are expected in this period.

# References Cited


Alaska Department of Fish and Game. 2018. Operational plan for intensive management of caribou (*Rangifer tarandus*) in Game Management Units 9B, 17, 18, and 19B. Division of Wildlife Conservation, Juneau.

Boertje, R. D., P. Valkenburg, and M. E. McNay. 1996. Increases in moose, caribou, and wolves following wolf control in Alaska. Journal of Wildlife Management 60(3):474–489. doi:10.2307/3802065

Central Kuskokwim Moose Management Planning Committee. 2004. Central Kuskokwim moose management plan. Alaska Department of Fish and Game, Division of Wildlife Conservation, Wildlife Management Plan, Fairbanks.

Gardner, C. L., and N. J. Pamperin. 2014. Intensive aerial wolf survey operations manual for Interior Alaska. Alaska Department of Fish and Game, Wildlife Special Publication. ADF&G/DWC/WSP-2014-01, Juneau.

Gasaway, W. C., R. D. Boertje, D. V. Grangaard, D. G. Kelleyhouse, R. O. Stephenson, and D. G. Larsen. 1992. The role of predation in limiting moose at low densities in Alaska and Yukon and implications for conservation. Wildlife Monographs 120:1–50.

Gasaway, W. C., R. O. Stephenson, J. L. Davis, P. E. K. Shepherd, and O. E. Burris. 1983. Interrelationships of wolves, prey, and man in Interior Alaska. Wildlife Monographs 84:1–50.

Hayes, R. D., and A. S. Harestad. 2000. Demography of a recovering wolf population in the Yukon. Canadian Journal of Zoology 78(1):36–48. doi:10.1139/cjz-78-1-36

Hayes, R. D., R. Farnell, R. M. P. Ward, J. Carey, M. Dehn, G. W. Kuzyk, A. M. Baer, C. L. Gardner, and M. O'Donoghue. 2003. Experimental reduction of wolves in the Yukon: Ungulate responses and management implications. Wildlife Monographs 152:1–35.

Keech, M. A., M. S. Lindberg, R. D. Boertje, P. Valkenburg, B. D. Taras, T. A. Boudreau, K. B. Beckmen. 2011. Effects of predator treatments, individual traits, and environment on moose survival in Alaska. Journal of Wildlife Management 75(6):1361–1380. doi:10.1002/jwmg.188

Keech, M. A. 2012. Response of moose and their predators to wolf reduction and short-term bear removal in a portion of Unit 19D. Alaska Department of Fish and Game, Federal Aid-Wildlife Restoration, Final Wildlife Research Report ADF&G/DWC/WRR-2012-7, Grants W-33-4 through W-33-10, Project 1.62, Fairbanks.

Stephenson, R. O. 1978. Characteristics of exploited wolf populations. Alaska Department of Fish and Game, Division of Wildlife Conservation. Federal Aid in Wildlife Restoration, Research Final Report, Projects W-17-43 through W-17-8, Juneau.


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