Wolf Management Report and Plan, Game Management Unit 16:

Report Period 1 July 2010–30 June 2015, and

Plan Period 1 July 2015–30 June 2020

Christopher J. Brockman
Tim C. Peltier

©2017 ADF&G. Photo by Tim Peltier.

2018

Alaska Department of Fish and Game Division of Wildlife Conservation

Wolf Management Report and Plan, Game Management Unit 16:

Report Period 1 July 2010–30 June 2015, and

Plan Period 1 July 2015–30 June 2020

PREPARED BY:

Christopher J. Brockman
Wildlife Biologist II

Tim C. Peltier
Wildlife Biologist III

APPROVED BY:

Todd A. Rinaldi
Management Coordinator

REVIEWED BY:

Michael R. Guttery
Biometrician II

Laura A. McCarthy
Publications Specialist II

©2018 Alaska Department of Fish and Game

Alaska Department of Fish and Game
Division of Wildlife Conservation
PO Box 115526
Juneau, AK 99811-5526

Funding for survey and inventory project 14.0 was provided through the Federal Aid in Wildlife Restoration grant program. 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 through state hunting license and tag fees.

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 area, 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 website.

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

Species management reports and plans are available via the Alaska Department of Fish and Game's website (www.adfg.alaska.gov) or by contacting Alaska Department of Fish and Game, Division of Wildlife Conservation, PO Box 115526, Juneau, AK 99811-5526; phone: (907) 465-4190; email: dfg.dwc.publications@alaska.gov. The report may also be accessed through most libraries, via interlibrary loan from the Alaska State Library or the Alaska Resources Library and Information Services (www.arlis.org).

This document, published as a PDF only, should be cited as follows:

Brockman, C. J., and T. C. Peltier. 2018. Wolf management report and plan, Game Management Unit 16: Report period 1 July 2010–30 June 2015, and plan period 1 July 2015–30 June 2020. Alaska Department of Fish and Game, Species Management Report and Plan ADF&G/DWC/SMR&P-2018-24, Juneau.

The State of Alaska is an Affirmative Action/Equal Opportunity Employer. Contact the Division of Wildlife Conservation at (907) 465-4190 for alternative formats of this publication.

The Alaska Department of Fish and Game does not endorse or recommend any specific company or their products. Product names used in this publication are included for completeness but do not constitute product endorsement.

Cover photo: An immobilized wolf in Unit 16B fitted with a GPS radio collar which will help biologists track its movements and productivity. ©2017 ADF&G. Photo byTim C. Peltier.

Contents

List of Figures

List of Tables

List of Appendices

♦ ♦ ♦

Purpose of this Report

This report provides a record of survey and inventory management activities for wolf (*Canis lupus*) in Unit 16 for the previous 5 regulatory years (RY; RY10–RY14) and plans for survey and inventory management activities in the 5 years following the end of that period (RY15–RY19). A regulatory year 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 its own efforts but is also provided to the public to inform them of wildlife management activities. In 2016 the Alaska Department of Fish and Game's (ADF&G) Division of Wildlife Conservation (DWC) launched this 5-year report to more efficiently report on trends and describe potential changes in data collection activities over the next 5 years. It replaces the wolf management reports of survey and inventory activities that were previously produced every 3 years and supersedes the 1976 draft Alaska wildlife management plans (ADF&G 1976).

I. RY10–RY14 Management Report

Management Area

Unit 16 is located in Southcentral Alaska, west of Anchorage. Unit 16 consists of the drainages into western Cook Inlet from Redoubt Creek and the Susitna River including the drainages of Redoubt Creek and the drainages on the west side of the Susitna River upstream from its junction with the Chulitna River and the drainages into the west side of the Chulitna River upstream of the Tokositna River including the river and drainages on the south side of the river up to the Tokositna Glacier. It is subdivided into Unit 16A which is east of the east bank of the Yentna River from its mouth upstream to the Kahiltna River, east of the east bank of the Kahiltna River and east of the Kahiltna Glacier, and Unit 16B which covers all portions south and west of Unit 16A (Figure 1). Unit 16A is 1,850 mi^2. Unit 16B is approximately five and half times larger at 10,405 mi^2. Wolves are known predators of sheep and goats and have been found to follow ridgelines above the level of suitable moose (*Alces alces*) habitat. As a result, density estimates are based on the total area of the units.

Summary of Status, Trend, Management Activities, and History of Wolves in Unit 16

Prior to the 1900s and the establishment of major human settlements in Anchorage, Palmer–Wasilla and Kenai–Soldotna, wolf numbers in Unit 16 fluctuated with prey densities. Since 1900 wolf populations have been heavily influenced by various harvest regimes ranging from predator control strategies (including the use of poison, bounties, and aerial shooting) prior to statehood to relatively restrictive regulations including only trapping and sport hunting (Harkness 1991; Masteller 1994; Del Frate 2003). Reports from trappers, pilots, and staff indicate wolf numbers began increasing in the early 1990s (Peltier 2006). The first systematic population estimate of wolves in Unit 16 occurred in March 1993, during the development of the sample unit probability estimator (SUPE; Becker et al. 1998). At that time the department estimated there were 48–62 wolves, or 4–5 wolves/1,000 mi^2 or 1.5–1.9 wolves/1,000 km^2, in 8–10 packs, in this area.

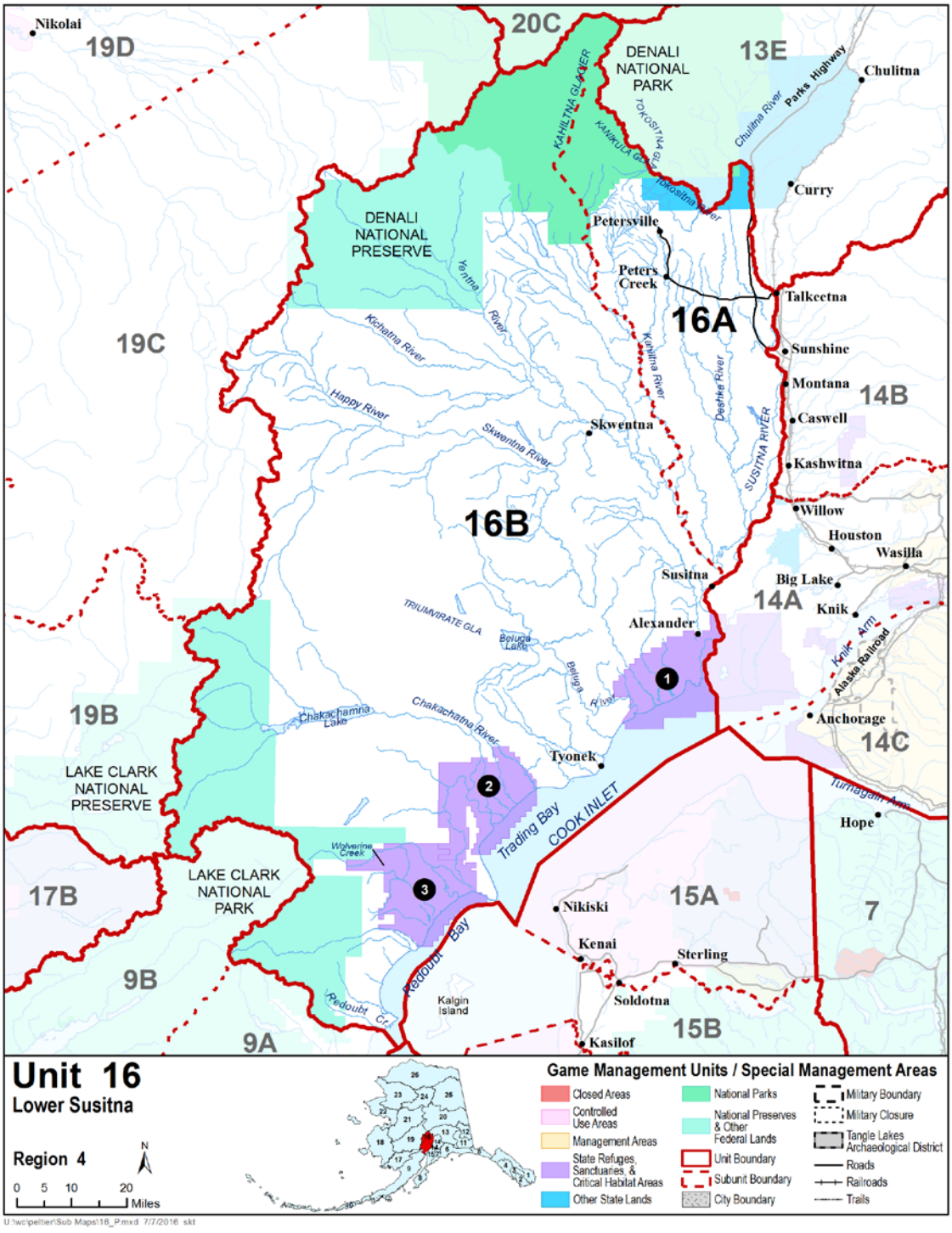

Figure 1. Map of the boundaries of Game Management Unit 16, Southcentral Alaska.

Following trapper discoveries of infestations of the dog-biting louse *Trichodectes canis* in wolves in 1998 (Golden et al. 1999), the department initiated a louse control program. Wolves were captured and treated with the antiparasitic drug ivermectin (Merck & Co., Inc., Kenilworth, New Jersey) or received ivermectin through baits laced with the paste. However, wolves examined after the treatment showed that it was unsuccessful in ameliorating the infestation. Based on the information gathered during the louse treatment and other reports, the population was estimated between 170 and 240 wolves, or 14–20 wolves/1,000 mi^2 or 5.4–7.6 wolves/1,000 km^2, in up to 22 packs in Unit 16 in 2004 (Peltier 2006).

In 2003 a wolf control implementation plan was initiated in response to declining moose numbers and a high wolf population in Unit 16B. Initially, the implementation of the plan included the use of snowmachines to take wolves, but land-and-shoot wolf control began in December 2004 and was amended in February 2005 to include same-day-airborne (SDA) aerial shooting of wolves by permittees. The SDA program allowed pilots to apply for permits to harvest wolves from the air. Applications were screened by the area manager and participation in the program was limited to approximately 30 permitted pilots. During the first year of the program SDA teams took 91 wolves. In 2006 the (SDA) program boundaries were expanded to include a portion of Unit 16A (Figure 2). Harvest in subsequent years from hunters, trappers, and SDA teams reduced the population to levels near the intensive management (IM) population objective (Peltier 2009).

Management Direction

EXISTING WILDLIFE MANAGEMENT PLANS

- Direction for wolf management outlined in *Alaska Wildlife Management Plans: Southcentral Alaska* (ADF&G 1976) has been modified through Alaska Board of Game regulatory actions over the years.
- *Operational Plan for Intensive Management of Moose in Game Management Unit 16 During Regulatory Years 2015–2017* (ADF&G 2015).

The goals for Unit 16 are to retain desirable predator–prey ratios and provide a sustainable harvest of wolves (Peltier 2012).

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.

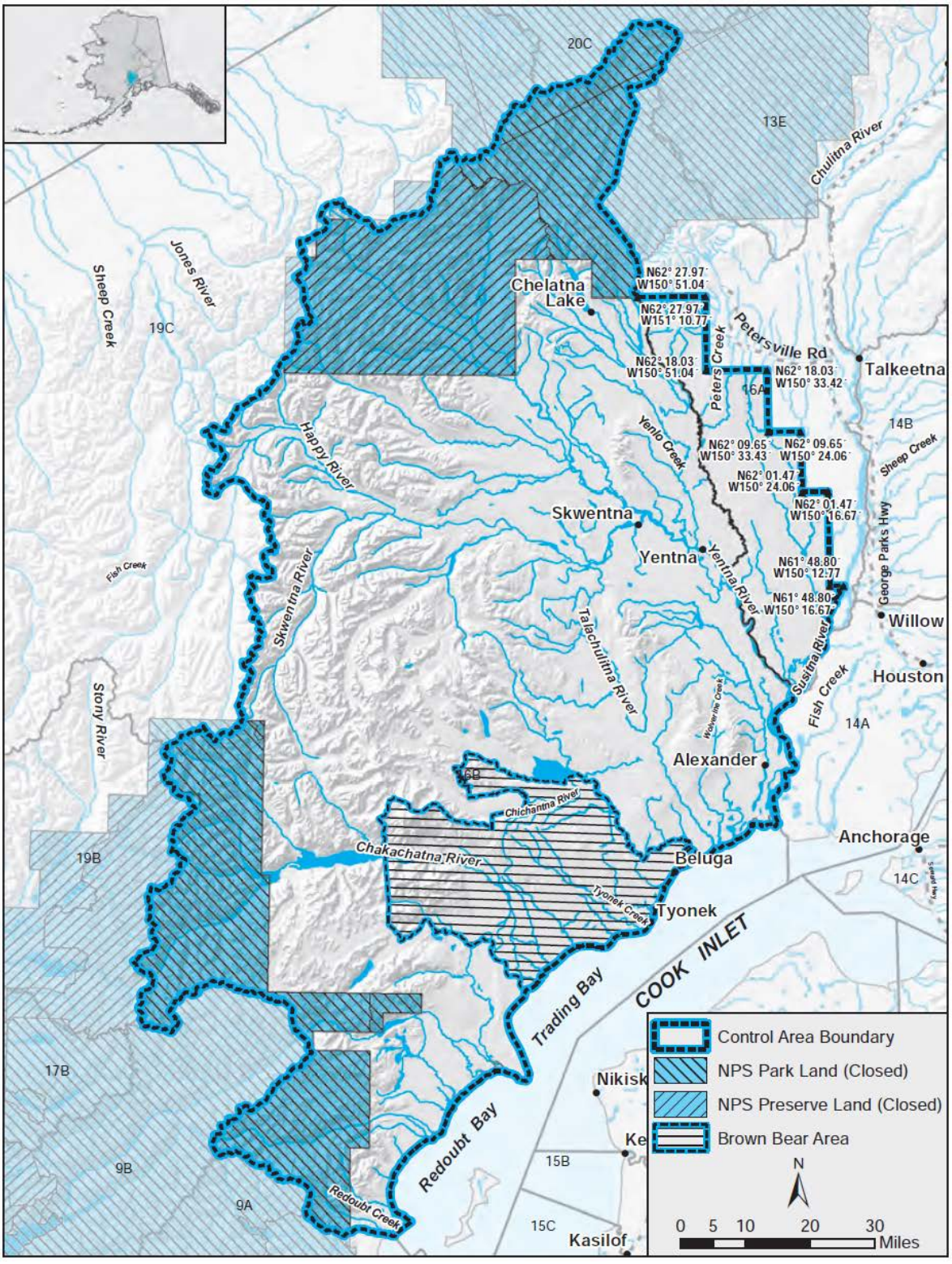

Figure 2. Map showing the Unit 16 predation control area, Southcentral Alaska.

CODIFIED OBJECTIVES

Amounts Reasonably Necessary for Subsistence Uses

The Unit 16 wolf population has a positive customary and traditional use determination. The unitwide amount necessary for subsistence is 0–5 wolves.

Intensive Management

- The wolf control program in Unit 16B was originally authorized in March 2004 and implemented during RY04.
- The wolf control program was reauthorized in May 2006 to include part of Unit 16A, and the modifications were implemented during RY05.
- The predator control program was reauthorized for 6 years and modified to include brown bear (*Ursus arctos*) predation control in March 2011. The modifications were implemented during RY11.
- The predator control program was reauthorized for 6 years and included an operational plan for intensive management of moose in February 2015. Under this plan the wolf population objective is 22–45 wolves.
- Predation control program authorized by the Alaska Board of Game is under 5 AAC 92.122.

MANAGEMENT OBJECTIVES

1. The population objective is to maintain a fall wolf population of 30–60 wolves in at least 4 packs. This should include 8–15 wolves (in 1–3 packs) in Unit 16A and 22–45 wolves (in 3–5 packs) in Unit 16B. This represents a population density of 0.9–1.9 wolves/1,000 km^2 or 2.4–4.9 wolves/1,000 mi^2 unitwide.
2. The human-use objective is to allow maximum opportunity for harvest while maintaining minimum wolf population objectives.

MANAGEMENT ACTIVITIES

1. Population Status and Trend

ACTIVITY 1.1. Estimate the spring (post-trapping/pre-denning) population using incidental staff and pilot observations, anecdotal public reports, and harvest data and sealing records.

Data Needs

Estimations of the wolf population in Unit 16 are necessary to ensure that minimum population objectives are being met, evaluate the success of the intensive management objectives, and can lead to a better understanding of predator–prey dynamics.

Methods

Reports of wolves were collected from SDA pilots, trappers, hunters, and others on an annual basis. This information was supplemented with reports of wolves or wolf tracks observed during moose surveys in the fall.

Results and Discussion

The wolf estimate was 61–106, or 1.9–3.3 wolves/1,000 km^2, or between 5 and 8.6 wolves/1,000 mi^2 in up to 10 packs in spring RY10 (Table 1). The harvest of wolves and the trapping effort beyond 2010 was reduced to the point that further population estimation with any degree of certainty could not be accomplished from public reports.

Recommendations for Activity 1.1

Continue this activity once a precise or viable baseline population estimate has been established (see activity 1.2 in "II. Project Review and RY15–RY19 Plan | Review of Management Activities | 1. Population Status and Trend" this document).

Table 1. Unit 16 fall wolf population estimates,[a] Southcentral Alaska, regulatory years[b] 2001–2010.

Regulatory year	Population estimate	Wolves (1,000 km^2)	Packs	Basis of estimate
2001	160–245	5.0–7.7	25–28	Reports from trappers, staff, public, and late winter pack survey.
2002	132–197	4.2–6.2	22–25	Reports from trappers, staff, public.
2003	168–249	5.3–7.8	22–25	Reports from trappers, staff, public.
2004	170–240	5.4–7.6	18–22	Reports from trappers, staff, public, and SDA pilot observations.
2005	91–122	2.9–3.8	22–23	Reports from trappers, staff, public, and SDA pilot observations.
2006	98–145	3.1–4.6	20–21	Reports from trappers, staff, public, and SDA pilot observations.
2007	104–130	3.3–4.1	18–19	Reports from trappers, staff, public, and SDA pilot observations.
2008	82–102	2.6–3.2	13–15	Reports from trappers, staff, public, and SDA pilot observations.
2009	71–97	2.2–3.1	12–14	Reports from trappers, staff, public, and SDA pilot observations.
2010	61–106	1.9–3.3	10–13	Reports from trappers, staff, public, and SDA pilot observations.

[a] Fall estimate = pretrapping season population.
[b] A regulatory year begins 1 July and ends 30 June, e.g., regulatory year 2001 = 1 July 2001–30 June 2002.

ACTIVITY 1.2. Conduct a minimum wolf count (MWC) or SUPE survey in Unit 16. Continue modeling the population using reports from the public once a minimum count or a SUPE survey can be accomplished.

Data Needs

Abundance data are needed to determine that at least 35 wolves occupy Unit 16 as required by the predation control plan (5 AAC 92.122). An MWC survey will be adequate to establish the persistence of the minimum number of wolves. A SUPE survey would provide a more complete estimate of the entire Unit 16 population.

Methods

A minimum count of wolves in Unit 16B was conducted in January and March 2013 on 3 nonconsecutive days using 5 pilot–observer teams in fixed-wing aircraft. The minimum count was intended to get complete but not intense coverage of the area while searching for tracks. Upon locating tracks, they were followed both directions to determine course of tracks from where they began to where the wolves were located. This information was used to identify separate packs of wolves and the number of animals in each pack.

Results and Discussion

The minimum count conducted in 2013 found tracks of 14 different groups of between 1 and 6 wolves, for a total of 26–39 animals. Poor tracking conditions were widespread through the survey period (Appendix A).

Recommendations for Activity 1.2

Continue.

2. Mortality–Harvest Monitoring and Regulations

ACTIVITY 2.1. Monitor hunter and trapper harvest trends through sealing records.

Data Needs

Fur sealing data from the databases available through ADF&G's Wildlife Information Network (WinfoNet) are needed annually to assess trends in the harvest. Harvest location, pack size, and hunter–trapper effort are critical elements needed to assess harvest trends and corroborate aerial survey observations. Harvest estimates are needed in order to establish that the population is not being harvested in excess of sustained yield.

Methods

All wolves harvested are required to be sealed. Information recorded at the time of sealing includes month and year of kill, name of harvester, location of kill, methods of take and transportation, sex, color, and the number of other wolves believed to be in the pack.

Season and Bag Limit

Unit and Bag Limits	Resident Open Seasons	Nonresident Open Seasons
Unit 16A		
Hunting: 10 wolves, but only up to 5 wolves per day may be taken.	10 Aug–30 Apr	10 Aug–30 Apr
Trapping: No limit.	15 Oct–30 Apr	15 Oct–30 Apr
Unit 16B		
Hunting: 10 wolves.	10 Aug–30 Apr	10 Aug–30 Apr
Trapping: No limit.	15 Oct–30 Apr	15 Oct–30 Apr

Results and Discussion

Harvest by Hunters–Trappers

Hunters and trappers reported harvesting between 0 and 8 wolves annually, while SDA pilots harvested between 2 and 15 wolves annually during the reporting period (Table 2). The average for the period was 9.6 wolves annually. The majority of the harvest was from Unit 16B, which has large areas open to hunting and trapping, no road access but relatively good terrain for SDA. The SDA program was restricted to Unit 16B North in RY13–RY14 and suspended entirely in RY15.

Harvest Chronology

The small harvest over the past few years makes the effect of the timing look large and varied (Table 3). Harvest chronology coincides with method of take in that wolves taken by snare or trap are taken during the trapping season of November through March or April. Typically, wolves that were killed by hunters were incidentally taken during the fall hunting season. SDA wolves are taken when snow conditions and good light coincide for good tracking. Permits for SDA pilot–gunner teams were valid from early December until 30 April of each year, with a closed period lasting 1 week around the start of the Iditarod sled dog race in March.

Transport Methods

Most successful hunters and trappers routinely use airplanes to harvest wolves (Table 4).

Alaska Board of Game Actions and Emergency Orders

In spring 2011 the board reauthorized the intensive management plan for Unit 16 for a period of 6 years. They also changed the hunting bag limit for wolves in Unit 16A to 10 per season, with no more than 5 wolves taken per day. In spring 2015 the intensive management plan was reauthorized for a period of 6 years and relocated under 5 AAC 92.122.

Recommendations for Activity 2.1

Continue.

Table 2. Unit 16 wolf harvest, Southcentral Alaska, regulatory years[a] 2010–2014.

Regulatory	Reported harvest				Method of take			
year	M	F	Unk	Total	Trap–Snare	Shot	SDA[b]	Unk
Unit 16A								
2010	4	13	0	17	4	4	9	0
2011	10	7	0	17	2	0	15	0
2012	1	1	0	2	0	0	2	0
2013	4	0	0	4	1	3	0	0
2014	4	1	1	6	1	5	0	0
Unit 16B								
2010	0	0	0	0	0	0	0	0
2011	2	0	0	2	0	2	0	0
2012	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0

[a] A regulatory year begins 1 July and ends 30 June, e.g., regulatory year 2010 = 1 July 2010–30 June 2011.
[b] SDA = same day airborne. SDA represents harvest by permitted pilots participating in predator control.

Table 3. Unit 16 wolf percent harvest chronology by month, Southcentral Alaska, regulatory years[a] 2010–2014.

Regulatory	Percent harvest chronology by month							
year	Aug–Oct	Nov	Dec	Jan	Feb	Mar	Apr	*n*
2010	6	12	47	0	23	0	12	17
2011	11	0	0	25	53	0	11	19
2012	0	0	0	0	0	100	0	2
2013	50	0	0	25	0	25	0	4
2014	50	0	17	0	33	0	0	6

[a] A regulatory year begins 1 July and ends 30 June, e.g., regulatory year 2010 = 1 July 2010–30 June 2011.

Table 4. Unit 16 wolf percent harvest by transport method, Southcentral Alaska, regulatory years[a] 2010–2014.

	Percent harvest by transportation method								
Regulatory year	Airplane	Dogsled, skis, snowshoes	Boat	3- or 4-wheeler	Snowmachine	ORV[b]	Highway vehicle	Unk	*n*
2010	76	12	0	0	12	0	0	0	17
2011	85	0	0	5	5	0	5	0	19
2012	100	0	0	0	0	0	0	0	2
2013	50	50	0	0	0	0	0	0	4
2014	50	0	16	17	0	0	17	0	6

[a] A regulatory year begins 1 July and ends 30 June, e.g., regulatory year 2010 = 1 July 2010–30 June 2011.
[b] ORV = off-road vehicles.

3. Habitat Assessment–Enhancement

None.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Data Recording and Archiving

- Harvest data and copies of sealing forms are stored on an internal database housed on a server (http://winfonet.alaska.gov/index.cfm).
- Field data sheets are scanned and housed on the computer server in the Palmer Area Biologist office (O:\WC\Palmer Area Office Folder\Species\Furbearer\Wolf\Scanned Archive Files) and stored in file folders located in the Palmer Assistant Area Biologist's office.

Agreements

None.

Permitting

None.

Conclusions and Management Recommendations

Little is known about the status of wolves in Units 16. The lack of active trapping in the area and the suspension of the SDA program means that little information can be gleaned from the few reports that are submitted; however, the population was reduced considerably through the SDA program. The suspension of the SDA program in RY15 should lead to an increase in wolf abundance from reproduction and immigration. The moose population is currently within objective and monitoring the growth of the wolf population and its subsequent effect on the moose population is recommended.

II. Project Review and RY15–RY19 Plan

Review of Management Direction

MANAGEMENT DIRECTION

The existing management direction and goals appropriately direct management of wolves in Unit 16. The management direction for Unit 16 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 16 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 16 that require a departure from statewide goals for wolf management.

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

Amounts Reasonably Necessary for Subsistence Uses

The Unit 16 wolf population has a positive customary and traditional use determination. The unitwide amount necessary for subsistence is 0–5 wolves.

Intensive Management

- The wolf control program in Unit 16B was originally authorized in March 2004 and implemented during RY04.
- The wolf control program was reauthorized in May 2006 to include part of Unit 16A, and the modifications were implemented during RY05.
- The predator control program was reauthorized for 6 years and modified to include brown bear (*Ursus arctos*) predation control in March 2011. The modifications were implemented during RY11.
- The predator control program was reauthorized for 6 years and included an operational plan for intensive management of moose in February 2015. Under this plan the wolf population objective is 22–45 wolves.
- Predation control program authorized by the Alaska Board of Game is under 5 AAC 92.122.

MANAGEMENT OBJECTIVES

1. Maintain a spring population of a minimum of 35–55 wolves in Unit 16 during the IM program (5 AAC 92.122).
2. Upon discontinuation of the IM program the population objective is to maintain a fall wolf population of 30–60 wolves in at least 4 packs. This should include 8–15 wolves (in 1–3 packs) in Unit 16A and 22–45 wolves (in 3–5 packs) in Unit 16B.

3. The human-use objective is to allow maximum opportunity for harvest while maintaining minimum wolf population objectives.

REVIEW OF MANAGEMENT ACTIVITIES

1. Population Status and Trend

ACTIVITY 1.1. Estimate the spring (post-trapping) population using incidental staff and pilot observations, anecdotal public reports, and harvest data and sealing records.

Data Needs

Estimates of the wolf population in Unit 16 are necessary to ensure that minimum population objectives are being met, evaluate the success of the intensive management objectives, and can lead to a better understanding of predator–prey dynamics.

Methods

Reports of wolves will be collected from SDA pilots, trappers, hunters, and others on an annual basis. This information will be supplemented with reports of wolves or wolf tracks observed during moose surveys in the fall.

ACTIVITY 1.2. Conduct a SUPE (Becker et al. 2004) to estimate wolf abundance, or an MWC survey (Gardner and Pamperin 2014) to determine the minimum number of wolves in Unit 16 for IM regulatory requirements (objective 1).

Data Needs

Abundance data are needed to determine that at least 35 wolves occupy Unit 16 as required by the predation control plan, 5 AAC 92.122. An MWC survey will be adequate to establish the persistence of the minimum number of wolves. A SUPE would provide a more complete estimate of the entire Unit 16 population.

Methods

Both SUPE and MWC survey methodologies use aerial enumeration of packs and individual wolves to determine population size. SUPE survey assumptions are described in Becker et al. (1998, 2004) and Gardner and Pamperin (2014): 1) all wolves in the study area move and leave tracks; 2) fresh wolf tracks are not missed; 3) tracks can be followed forward and backward; 4) number of wolves in a pack are correctly enumerated; 5) no packs are double counted; 6) there is a 1:1 relationship between packs and tracks counted; and 7) the probability of observing any pack in the study area is >0.

A SUPE survey is preferable to an MWC because it provides density information as well as an estimate of the total population and a measure of precision, however when conditions are not favorable for completing a SUPE, an MWC can be accomplished that will provide a minimum estimate of the population size thus determining if we have met the population objective. An MWC does not have a range of values, confidence intervals, or well-defined statistical inference

and will only be used to evaluate the minimum wolf abundance relative to the population objectives.

ACTIVITY 1.3. Conduct territory mapping using radiotelemetry (TMR) survey to determine the number of wolves in Unit 16 for IM regulatory requirements (objective 1), as well as provide information about current density and potential for future growth.

Data Needs

Abundance data are needed for this activity in order to determine that at least 35 wolves occupy Unit 16 as required by the predator control plan, 5 AAC 92.122. The TMR method would provide a complete estimate of the entire population–particularly in the absence of survey data.

Methods

TMR requires that most or all wolf packs in an area are radiocollared and regularly tracked to assess pack size and composition and to map territory boundaries (Adams et al. 2008).

A TMR density estimate of wolves in Unit 16 is preferable to the MWC as it provides pack size and distribution data, with the deliverable being a population census. It may be the only option for assessing wolf populations in areas with continually poor snow tracking conditions (Gardner and Pamperin 2014).

Monitoring wolves, given the recent lack of tracking conditions in the area, will require collaring wolves to develop a TMR population estimate. This will cost approximately $55,000 in the first year and ~$15,000 in subsequent years to produce a relatively precise population estimate.

In RY17, in the final year of the current IM CIP program funding, a minimum estimate of wolves is planned to assess sustainability of the wolf population as required by the Unit 16 predation control plan. As prescribed in the IM plan, a minimum population of 35 wolves in Unit 16 is approximately an 80% reduction from the precontrol population and is a level that will ensure that wolves persist as part of the natural ecosystem in Unit 16 and ensures there will be continued wolf hunting, trapping, and viewing opportunities.

2. Mortality–Harvest Monitoring

Monitor harvest through sealing records (objective 2).

Data Needs

Fur sealing data stored in databases accessible through WinfoNet are needed annually to assess trends in harvest. Pack size, location of harvest, and hunter–trapper effort are critical elements needed to assess harvest trends and corroborate aerial survey observations.

Methods

Wolves harvested by trappers and hunters will continue to be sealed to monitor harvest. Fur sealing data will be archived in databases accessible through WinfoNet and queried annually to access reported wolf harvest data for Unit 16.

ACTIVITY 2.2. Participate in trapper clinics and educational workshops.

Data Needs

None. Clinics and workshops are a public education effort and not a data gathering effort.

Methods

Participation in local trapper education clinics has focused on the regulations, responsibilities, and ethics of trapping particularly as they pertain to the trapper's code of ethics and trapping around the urban–backcountry interface.

Reccomendations for Activity 2.2

Continue participating in clinics and workshops as need and opportunities arise.

3. Habitat Assessment–Enhancement

None.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Data Recording and Archiving

- Harvest data and copies of sealing forms are stored on an internal database housed on a server (http://winfonet.alaska.gov/index.cfm).
- Field data sheets are scanned and housed on the computer server in the Palmer Area Biologist office (O:\WC\Palmer Area Office Folder\Species\Furbearer\Wolf\Scanned Archive Files) and stored in file folders located in the Palmer Assistant Area Biologist's office.

Agreements

None.

Permitting

None.

References Cited

Adams, L. G., R. O. Stephenson, B. W. Dale, R. T. Ahgook, and D. J. Demma. 2008. Population dynamics and harvest characteristics of wolves in the central Brooks Range, Alaska. Wildlife Monographs 170. doi:10.2193/2008-012

ADF&G (Alaska Department of Fish and Game). 1976. Alaska wildlife management plans: Southcentral Alaska (draft proposal; subsequently adopted by Alaska Board of Game). Division of Game, Federal Aid in Wildlife Restoration Project W-17-R, Juneau.

ADF&G (Alaska Department of Fish and Game). 2002. Strategic plan. Division of Wildlife Conservation, Juneau. http://www.adfg.alaska.gov/static/research/plans/pdfs/strategic_plan_wc_2002.pdf (Accessed 2 April 2018).

ADF&G (Alaska Department of Fish and Game). 2015. Operational plan for intensive management of moose in Game Management Unit 16 during regulatory years 2015–2017. Division of Wildlife Conservation, Juneau. http://www.adfg.alaska.gov/static-f/research/programs/intensivemanagement/pdfs/2015_gmu_16_intensive_management_operational_plan.pdf (Accessed 3 April 2018).

Becker, E. F., H. N. Golden, and C. L. Gardner. 2004. Using probability sampling of animal tracks in snow to estimate population size. Pages 248–270 [*In*] W. L. Thompson, editor, Sampling Rare or Elusive Species: Concepts and Techniques for Estimating Population Parameters. Island Press, Washington, D.C.

Becker, E. F., M. A. Spindler, and T. O. Osborne. 1998. A population estimator based on network sampling of tracks in the snow. Journal of Wildlife Management 62(3):968–977. doi:10.2307/3802549

Del Frate, G. 2003. Unit 16 wolf. Pages 109–117 [*In*] C. Healy, editor. Wolf management report of survey–-inventory activities 1 July 1999–30 June 2002. Alaska Department of Fish and Game, Division of Wildlife Conservation, Federal Aid in Wildlife Restoration Project 14.0, Juneau.

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.

Golden, H. N., T. H. Spraker, H. J. Griese, R. L. Zarnke, M. A. Masteller, D. E. Spalinger, and B. M. Bartley. 1999. Briefing paper on infestation of lice among wild canids in Alaska. Alaska Department of Fish and Game, Division of Wildlife Conservation, Unpublished Report, Anchorage.

Harkness, D. B. 1991. Unit 16 wolf. Pages 78–82 [*In*] S. M. Abbott, editor. Wolf management report of survey–inventory activities 1 July 1989–30 June 1991. Alaska Department of Fish and Game, Division of Wildlife Conservation, Federal Aid in Wildlife Restoration Study 14.0, Juneau.

Masteller, M. A. 1994. Unit 16 wolf. Pages 85–93 [*In*] M. V. Hicks, editor. Wolf management report of survey–inventory activities 1 July 1991–30 June 1993. Alaska Department of Fish and Game, Division of Wildlife Conservation, Federal Aid in Wildlife Restoration. Grants W-23-5, W-24-1, W-24-2. Study 14.0. Juneau.

Peltier, T. 2006. Unit 16 wolf. Pages 109–117 [*In*] P. Harper, editor. Wolf management report of survey–inventory activities 1 July 2002–30 June 2005. Alaska Department of Fish and Game, Division of Wildlife Conservation, Federal Aid in Wildlife Restoration Project 14.0, Juneau.

Peltier, T. 2009. Unit 16 wolf. Pages 113–120 [*In*] P. Harper, editor. Wolf management report of survey–inventory activities 1 July 2005–30 June 2008. Alaska Department of Fish and Game, Division of Wildlife Conservation, Federal Aid in Wildlife Restoration Project 14.0, Juneau.

Peltier, T. 2012. Unit 16 wolf. Pages 115–120 [*In*] P. Harper, editor. Wolf management report of survey–inventory activities 1 July 2008–30 June 2011. Alaska Department of Fish and Game, Species Management Report ADF&G/DWC/SMR-2012-4, Juneau.

♦ ♦ ♦

Appendix A. Unit 16B minimum wolf count survey results, Southcentral Alaska, 2013.

THE STATE of ALASKA
GOVERNOR SEAN PARNELL

Department of Fish and Game
DIVISION OF WILDLIFE CONSERVATION
Palmer Area Office
1800 Glenn Highway, Suite 2
Palmer, Alaska 99645-9965
Main: 907.746.6300
Fax: 907.746.6305

Memorandum

To: Lem Butler, Management Coordinator
Bruce Dale, Regional Supervisor

From: Tim Peltier, Assistant Area Biologist, Palmer

Date: 4 April 2013

Subject: Wolf Surveys in 16B

A survey to estimate the minimum number of wolves in Unit 16B was completed on 16 March 2013 after three previous attempts; January 26th, March 3rd, and March 11th. The survey was abandoned on January 26th and March 3rd after determining that survey conditions were inadequate to determine the presence of wolves in the area. The third attempt began on March 11th but was shut down for three days due to high wind. We used five fixed-wing aircraft over the course of three non-consecutive days to complete the survey. The timing and amount of snow in Unit 16B this winter has proved to make optimal survey conditions elusive. Snowfall was inconsistent with the eastern and southern portions of the unit receiving significantly less snow, if at all. In spite of the limitations we were able to find tracks of 14 different groups of between 1 and 6 wolves, for a total estimate of between 26 and 39 animals. No actual sightings of wolves occurred during any of the survey flights.

Conditions for the survey were not optimal. Optimal survey conditions occur 24 to 48 hours after a significant snowfall in a survey area. This allows old tracks to be covered and any new tracks to stand out and allow the pilot observer teams a better chance of tracking and sighting wolves. Most of the ground appeared very 'tracked up' and the number of wolves and direction of travel was hard to discern. It is likely that some of the tracks seen in separate groups were of the same animals thus overestimating the number of wolves in a particular area. It is also very likely that we have underestimated the number of wolves in the unit because our pilot-observer teams did not find wolves in locations reported to us by pilots participating in the wolf control program.

Based on the minimum estimate of 26 to 39 animals, poor survey conditions, and the refugia provided by federal lands in Unit 16B, the aerial control program should be suspended when four wolves have been taken by pilot gunner teams. Currently Unit 16B wolf population objective is to maintain a population of 22 to 45 wolves. A quota of four wolves in the predator control program would keep the population above the lower end of the harvest objectives. Assuming that the actual population is most likely greater than the minimum count of 26 wolves, take by other methods (i.e. hunters and trappers) has been slight in recent years.

Appendix B. Wolf minimum count survey form, 2013.

Wolf Survey Form

Date						Weather
Pilot						Cloud Cover %
Observer						Precipitation
						Temperature
						Snow Cover %
Time off:			Time on:			
GMU / Sub Unit						
Area Description						
	# of wolves			Direction		
Group	Grey	Black	Tracks only	TO	From	Way point # or Lat/Long
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

NC 2011


ALASKA
DEPARTMENT OF FISH AND GAME