

Wolf Management Report and Plan, Game Management Unit 7 and 15:

Report Period 1 July 2015–30 June 2020, and

Plan Period 1 July 2020–30 June 2025

Jason Herreman



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Species management reports and plans provide information about species that are hunted or trapped and management actions, goals, recommendations for those species, and plans for data collection. Detailed information is prepared for each species every 5 years by the area management biologist for game management units in their areas, who also develops a plan for data collection and species management for the next 5 years. This type of report is not produced for species that are not managed for hunting or trapping or for areas where there is no current or anticipated activity. Unit reports are reviewed and approved for publication by regional management coordinators and are available to the public via the Alaska Department of Fish and Game's public website.

This species management report and plan was reviewed and approved for publication by Jeff Selinger, Management Coordinator for Region II for the Division of Wildlife Conservation.

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Cover Photo: Management Coordinator Jeff Selinger in the field during Kenai wolf captures. Wolf is under temporary general anesthesia. ©2020 ADF&G. Photo by Jason Herreman.

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Purpose of this Report

This report provides a record of survey and inventory management activities for wolves (*Canis lupus*) in Game Management Units 7 and 15 for the 5 regulatory years 2015–2019 and plans for survey and inventory management activities in the next 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 report more efficiently 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 7 (3,520 mi²) consists of the eastern portion of the Kenai Peninsula bounded by the western edge of the Kenai Mountains, the Russian River, and the Harding Ice Field on the west and the western edge of the Sargent Ice Field and eastern edge of Spencer Glacier on the east (Fig. 1). The landscape of Unit 7 consists of mountainous terrain interspersed with river and creek drainages, a few large lakes, and ice fields. Riparian areas and hillsides are densely forested until reaching the alpine zone. Federally managed lands make up approximately 78% of Unit 7: 50% U.S. Forest Service-Chugach National Forest, 22% National Park Service-Kenai Fjords National Park, 5% U.S. Fish and Wildlife Service-Kenai National Wildlife Refuge, and 1% other.

Unit 15 incorporates the western portion of the Kenai Peninsula and is subdivided into 3 administrative units: Units 15A (1,314 mi²), 15B (1,121 mi²), and 15C (2,441 mi²); hereinafter referred to as units. Each unit is significantly different in its topography, flora, and ecological history. Unit 15A is the most northern unit separated from Unit 15B by the Kenai River and Skilak Lake. Unit 15C is the most southerly unit separated from Unit 15B by the Tustumena Glacier, Tustumena Lake, and the Kasilof River (Fig. 2).

Unit 15A is relatively flat with a multitude of small lakes leading up to the foothills of the Kenai Mountains in the east. The dominant flora is a mixed spruce and hardwood climax community. The Kenai National Wildlife Refuge (KNWR) is the largest landholder in Unit 15A. ADF&G collaborates with KNWR in a variety of moose management programs including ADF&G's Moose Research Center near Sterling and cooperative management of Skilak Loop as a wildlife viewing area. Two significant habitat disturbances have occurred since the last major wildfire (85,306 acres) disturbance in 1969, the 2015 Card Street Wildfire that burned more than 9,000 acres in the southeast corner of Unit 15A, and the 2019 Swan Lake Wildfire that burned approximately 167,182 acres in the eastern portion of Unit 15A and a small portion of Units 15B and 7.

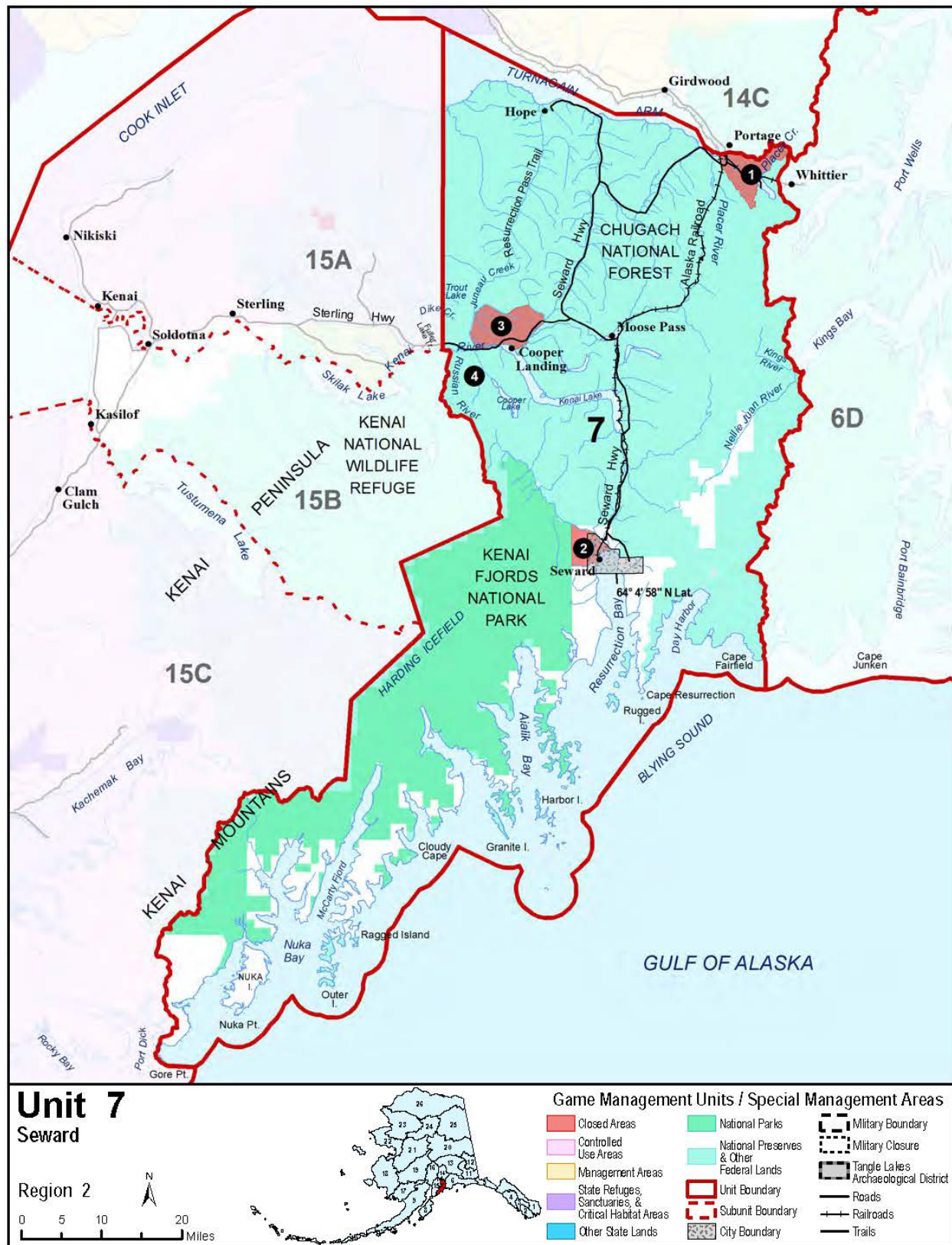


Figure 1. Map of Unit 7 boundaries with indicators of controlled use areas (numbered black circles) as found in the Alaska Hunting Regulations, Seward, Alaska.

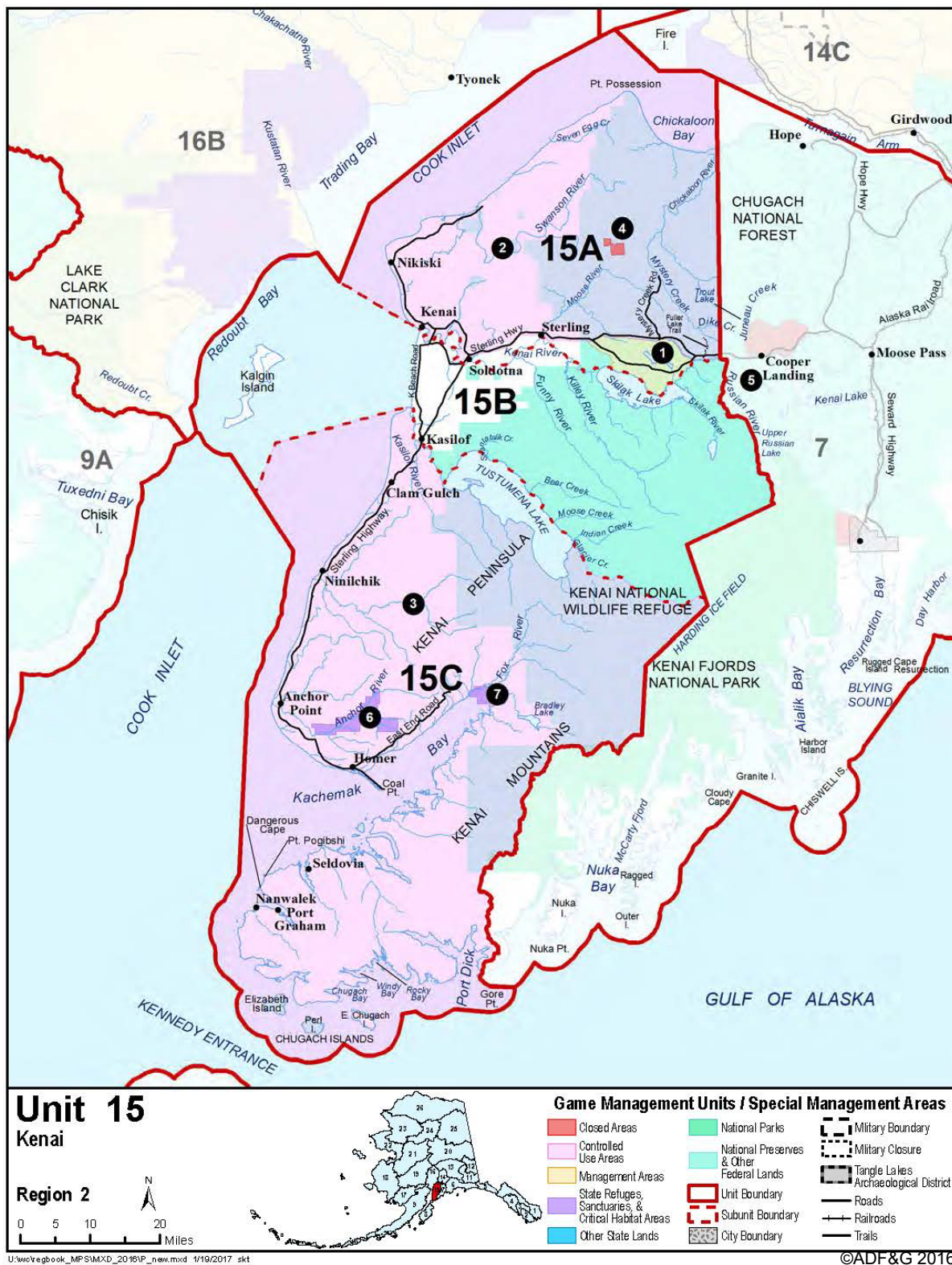


Figure 2. Map of Units 15A, 15B, and 15C boundaries with indicators of controlled use areas (numbered black circles) as found in the Alaska Hunting Regulations.

The Kenai National Wildlife Refuge is also the largest landholder in Unit 15B. The western portion of Unit 15B is similar to Unit 15A in topography and flora. As you go east, however, unit 15B becomes more mountainous and transitions into an alpine ecosystem. Forests within Unit 15B succumbed to widespread spruce bark beetle (*Dendroctonus rufipennis*) infestations that began in the 1990s. Unit 15B recently experienced significant habitat turnover in the form of the 2014 Funny River Fire that burned an area of approximately 196,610 acres, most of it in Unit 15B.

Unit 15C is significantly different from both Units 15A and 15B. KNWR lands make up only a small portion of the unit in the northeast corner and a small area south of Kachemak bay. The rest of Unit 15C is in a mix of state, private, and municipal land ownership. The portion of Unit 15C north of Kachemak Bay and the Fox River peaks in the Caribou Hills and the Ninilchik Domes and slopes down to the lowlands. Very few small lakes are present but numerous riparian areas exist draining from the highlands. Dominant vegetation is a mosaic consisting of spruce, willow, grasses (*Calamagrostis canadensis*; particularly in salvage logged areas), alder, and some hardwood stands. The northern portion of Unit 15C has seen fairly consistent habitat disturbance over the past 2 decades in the form of wildfires, beetle kill, logging, and human development. The portion of Unit 15C south of Kachemak Bay and the Fox River consists of a very different ecotype compared to the northern portion of Unit 15C as it is comprised of coastal maritime forest and subalpine habitat.

Summary of Status, Trend, Management Activities, and History of Wolves in Units 7 and 15

Wolves were extirpated from the Kenai Peninsula shortly after the turn of the twentieth century likely due to large fires that impacted their prey base and the use of poison by trappers (Peterson et al. 1984). Bounties and an extensive predator control program in Southcentral Alaska 1915–1960 likely prevented recolonization of wolves back to the Kenai Peninsula (Peterson et al. 1984). The first wolf in over 50 years was spotted in 1961 and by 1975 wolves had recolonized most available habitat throughout the Kenai Peninsula (Peterson et al. 1984).

During the 50-year extirpation of wolves on the Kenai, the trapping and hunting seasons for wolves remained open with no closed season and no bag limit. After the first sighting in 1961, both the trapping and hunting seasons were closed. The first harvest was allowed in 1974. An infestation of dog louse (*Trichodectes canis*) was first identified on the Kenai Peninsula in 1982. Attempts to stop the spread of the infestation were unsuccessful and the parasite spread rapidly across the Kenai Peninsula. Infested wolves are now common, but lice prevalence has decreased since approximately 2012.

Other factors that have had an impact on wolf harvests include land and shoot provisions which were eliminated in 1984 and changes in trapping regulations within the Kenai National Wildlife Refuge (KNWR). Starting in 1985, KNWR began requiring trappers to check traps at least every 7 days. In 1988, a 4-day trap check was adopted for leg-hold traps. Then a mandatory trapper education class was instituted in 1989 for anyone trapping on the refuge.

Peterson et al. (1984) estimated the Unit 7 and 15 wolf population at 186 animals during their study conducted from 1976–1981. The population for Unit 15 in 2021 is currently considered

stable at approximately 86 animals (Dave Saalfeld, ADF&G Wildlife Biologist, Anchorage, unpublished data).

Management Direction

Wolves in Units 7 and 15 will be managed to provide for human uses and to ensure that wolves remain an integral part of the Kenai Peninsula's ecosystem. 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). The aesthetic value of being aware of or observing wolves in natural interactions with their environment is also recognized as an important human use of wolves. Domestication of wolves for personal use or for commercial purposes is generally considered incompatible with department management policies (5 AAC 92.030). Wolf reduction has been identified as an objective in the intensive management plans for moose in Units 15A and 15C and if implemented will affect the management direction of wolves in these units (ADF&G 2012a, 2012b).

Existing Wildlife Management Plans

- Draft Operational Plan for Intensive Management (IM) of moose in Game Management Unit 15A during regulatory years 2012–2017, January 2012. This operational plan describes evidence of limiting factors; potential indices for evaluating treatment response; and decision frameworks for predation control, habitat enhancement, and prey harvest strategies. The operational plan complements the intensive management plan in regulation (5 AAC 92.118; ADF&G 2012a).
- Draft Operational Plan for Intensive Management (IM) of moose in Game Management Unit 15C during regulatory years 2012–2017, January 2012. This operational plan describes evidence of limiting factors; choice of indices for evaluating treatment response; and decision frameworks for predation control, habitat enhancement, and prey harvest strategies (5 AAC 92.118; ADF&G 2012b).

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

No codified objectives exist for wolves in Units 7 or 15.

Amounts Reasonably Necessary for Subsistence Uses

No subsistence finding currently exists for wolves in Units 7 or 15.

Intensive Management

Wolves are identified for predator control within the draft operational plans for moose management in Units 15A and 15C (ADF&G 2012a, 2012b). Implementation of this predator control could affect wolf harvest strategies.

Management Objectives

- Survey all areas outside Kenai Fjords National Park at least once every 5 years.
- Survey units under intensive management on a yearly basis to verify wolf numbers.
- Maintain a minimum of 15 wolves in Unit 15A.
- Maintain a healthy, viable population of wolves in Units 7 and 15.

Management Activities

1. Population Status and Trend

ACTIVITY 1.1. Conduct a biannual minimum wolf count (MWC; Gardner and Pamperin 2014) in Units 7 and 15 using fixed-wing aircraft when appropriate snow conditions exist.

Data Needs

An estimate of wolf abundance is needed to establish that a minimum number of wolves persist in Units 7 and 15B, to ensure that they remain a functioning part of the ecosystem, and to ascertain whether IM objectives are being met in Units 15A and 15C.

Methods

Wide transects concentrating on major travel corridors such as drainages and ridges are flown across the unit at low altitude using a PA-18 Super Cub or equivalent aircraft approximately 2 days after a fresh snowfall (typically late February early March) with the intent of giving animals enough time to leave fresh tracks. Multiple planes with pilot-spotter pairs are used so that the entire unit can be covered in 1 to 1.5 days. When animals are encountered, they are enumerated. If tracks are encountered, they are followed by the aircraft until either animals are seen or the number of animals within the group can be confidently estimated. Global Position System (GPS) locations of all animal sightings are taken to differentiate between groups. GPS track lines are recorded to ensure appropriate coverage of the survey area.

Results and Discussion

No surveys were flown in Units 7 or 15 during RY15–RY19. Efforts and funding were instead focused on collaring wolves to provide better estimation of wolves in future surveys and to collect valuable biological information.

Recommendations for Activity 1.1

Conduct a minimum count when conditions and funding allow.

ACTIVITY 1.2. Identify all wolf packs on the Kenai Peninsula. Collar and maintain at least 2 GPS-collared individuals in each pack, and track wolf movements.

Data Needs

More information about wolf ecology and their interactions with prey species on the Kenai Peninsula is needed to address intensive management concerns. Collared wolves would also aid in conducting an areawide wolf population census.

Methods

Wolves were captured via helicopter darting and collared with GPS collars each spring using a fixed-wing spotter team. Spotters flew the peninsula looking for fresh wolf tracks and directed the helicopter darting team to wolves. Worn and out-of-date collars were replaced, and new animals were collared to maintain sample size.

Results and Discussion

As of June 2020, 62 individual wolves were captured on the Kenai Peninsula over 4 winters with 7 individuals recaptured at least once. Thirty-two mortalities were documented from these 62 individuals and 1 slipped collar which was recaptured and subsequently recollared. Causes of mortality included highway vehicle (1), natural mortality (2), harvested/trapped (26), and unknown (1). Three wolves dispersed off the Kenai, all from the Fox River Pack. One settled on Joint Base Elmendorf Richardson, one north of Denali National Park, and the third was harvested on the east side of Lake Louis. Thirty collars remain active as of June 2020. Relocations of wolves are attempted bimonthly to obtain minimum count estimates. This work is conducted by research staff with the assistance from management staff.

Recommendations for Activity 1.2

Continue to maintain a sample of collared wolves in each pack and conduct an areawide census when conditions arise.

2. Mortality-Harvest Monitoring and Regulations

ACTIVITY 2.1. Monitor wolf harvest through sealing records.

Data Needs

The number and characteristics of harvested wolves is needed to assess harvest trends. Supplemental data related to the harvest, including the size of packs from which wolves are

harvested, location of harvest, and hunter and trapper effort are additional critical elements needed to assess harvest trends and corroborate aerial survey observations. Harvest estimates are also used to establish whether IM objectives have been met and to ensure that wolves remain a viable part of the Kenai Peninsula ecosystem.

Methods

Regulation 5AAC 92.170 requires that hunters and trappers present harvested wolves to either an authorized ADF&G staff member or a state-appointed sealer. Sealing must occur within 30 days of harvest if taken under hunting regulations or within 30 days of season closure if taken by trapping regulations. Harvest data are summarized by regulatory year (RY). This process involves attaching a seal to the wolf pelt and collecting data. These data are then entered in ADF&G's Wildlife Information Network (WinfoNet) harvest database. Paper copies of sealing records are maintained at sealing locations. Harvest is reported by regulatory year. Information recorded for each wolf includes date of kill, name of harvester, location of kill, method of take, transportation used, sex and color of wolf, and number of other wolves thought to be in the pack from which the animal was taken.

Season and Bag Limit

Current seasons and bag limits are listed on the ADF&G website:

<http://www.adfg.alaska.gov/index.cfm?adfg=wildliferegulations.main>

Seasons and bag limits for RY15–RY19 were as follows:

<i>Unit</i>	<i>Open seasons</i>	
<i>Method: Bag limit</i>	<i>Resident</i>	<i>Nonresident</i>
<i>Unit 7</i>		
Hunting: 5 wolves	10 August–30 April	10 August–30 April
Trapping: No limit	15 October–31 March	15 October–31 March
<i>Unit 15</i>		
Hunting: 5 wolves	10 August–30 April	10 August–30 April
Trapping: No limit	15 October–31 March	15 October–31 March

Results and Discussion

Harvest by Hunters-Trappers

The average annual combined wolf harvest for Units 7 and 15 from RY15 to RY19 was 34 animals, which is very similar to the RY10–RY14 average of 38 wolves (Table 1). Females represented less than 50% of the harvest in all years of RY15–RY19 except RY17. This is the opposite of the RY10–RY14 trend.

Table 1. Combined trapping and hunting harvest totals for Units 7 and 15, regulatory years 2015–2019.

Regulatory year	Unit 7	Unit 15A	Unit 15B	Unit 15C	Unit 15Z	Total harvest
2015	0	21	5	6	0	32
2016	5	8	15	14	1	43
2017	6	17	0	13	0	36
2018	1	12	6	12	1	32
2019	1	8	1	17	0	27

Harvest Chronology

Most wolf harvest in Units 7 and 15 occurs in Units 15C and 15A between November and March (Table 2).

Table 2. Harvest chronology of wolves in Units 7 and 15, Alaska during regulatory years 2015–2019.

Regulatory year	Month of harvest										Total
	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Other	
2015	1	2	1	4	7	4	11	2	0	0	32
2016	0	4	2	6	9	9	9	3	0	1	43
2017	0	3	0	9	10	4	5	4	1	0	36
2018	2	3	0	1	1	4	13	6	2	0	32
2019	0	2	1	0	6	9	7	2	0	0	27

Alaska Board of Game Actions and Emergency Orders

No Board of Game actions were taken, and no emergency orders were issued during RY15–RY19.

Recommendations for Activity 2.1

Continue.

3. Habitat Assessment-Enhancement

No habitat assessment or enhancement activities were conducted during RY15–RY19.

Nonregulatory Management Problems or Needs

Data Recording and Archiving

Wolf survey memoranda are stored in the area biologist's file cabinets in the ADF&G office in Soldotna. Starting in 2016, electronic copies are stored on the Homer shared network drive (O:\DWC\ADF&G-Homer Files\Species Data\Furbearer\Wolf\Surveys).

Electronic records of the survey results, track files, and animals locations are stored on the Homer office shared drive (O:\DWC\ADF&G-Homer Files\Species Data\Furbearer\Wolf\GPS data).

Agreements

None.

Permitting

Under IM operations in Unit 15A during RY13–RY15, beginning in December of 2013 aerial pilot and gunner teams were permitted to take wolves in the designated control area (ADF&G 2012a; Fig. 3). Additionally, ADF&G issued an aerial wolf control permit to one trapper, who was hired RY13. Operations were permitted only in the designated control areas. The 14 mi² section in the northwest corner of Unit 15A was added to the control area in RY15 (Fig. 3).

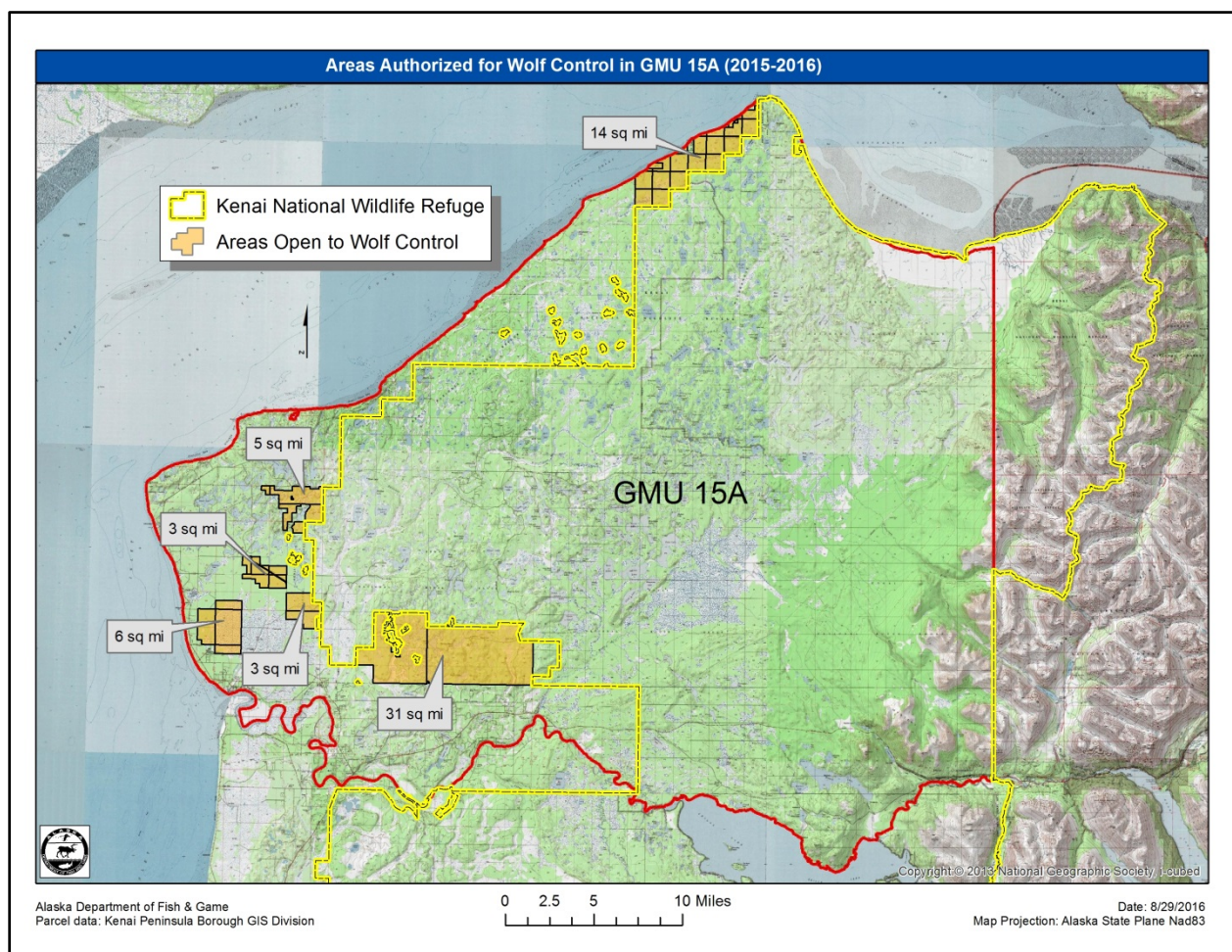


Figure 3. Map showing the boundaries of the Kenai National Wildlife Refuge and the areas open to wolf control.

Conclusions and Management Recommendations

The current wolf population in Unit 15 appears to be smaller than what was observed in the 1980s and 1990s when wolves were surveyed more frequently, and moose numbers were higher. ADF&G management staff believes it is important to continue monitoring wolf numbers and to increase our knowledge of their ecology, particularly considering the IM mandate. Since the last comprehensive survey of Unit 7 was done in the 1980s, a wolf survey is needed in that unit. However, in the long-term, surveying Unit 15 should take priority over Unit 7 since Unit 15 has been identified for intensive management. ADF&G will continue to try to maintain collared wolves in all packs in Unit 15 and conduct a census as conditions and budgets allow.

ADF&G will continue to work with trappers to supply them with road-killed or other moose and caribou meat that is unfit for human consumption to use for bait.

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 Units 7 and 15. The management direction for these units ensure that wolves will persist as part of the natural ecosystem and ensures continued wolf hunting, trapping, and viewing opportunities. Units 7 and 15 wolves will continue to be managed in a manner that complements the statewide wolf management goals (ADF&G 2002). However, on a short-term basis in Units 15A and 15C, the IM objectives for moose management and subsequent operation plans conflict with the statewide management goals for wolves. When or if predator control is initiated in these units, the only objective that will continue to be applicable is to manage for the long-term sustainability of a viable wolf population; the human-use objectives for moose will then supersede the human-use objectives for wolves in Units 15A and 15C.

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

- No codified objectives exist for wolves in Units 7 or 15.
- Moose IM objectives and subsequent operational plans for predator control affect optimal wolf management strategies (ADF&G 2012a, 2012b).

Management Objectives

RY15–RY19 objectives will be maintained or modified for RY20–RY24 as indicated below:

1. Survey all areas outside Kenai Fjords National Park at least once every 5 years. Maintain this management objective and complete as time, conditions, and funding allow.
2. Survey intensive management Units 15A and 15C on a yearly basis to verify wolf numbers (ADF&G 2012a, 2012b). Maintain this management objective and complete as conditions allow.
3. Maintain a minimum of 15 wolves in Unit 15A. Maintain this objective as it ensures a viable wolf population within the unit while meeting IM standards.
4. Maintain a healthy viable population of wolves in Units 7 and 15. Maintain this management objective in Unit 7 and in the portions of Unit 15 without active IM predator control operations. In predator control areas, modify this objective to match IM objectives.

Review of Management Activities

Activities will be adapted for RY20–RY24 as indicated below:

1. Population Status and Trend

ACTIVITY 1.1. Conduct a minimum wolf count (MWC; Gardner and Pamperin 2014) in Units 7 and 15 using fixed-wing aircraft when appropriate snow conditions exist.

Data Needs

An index of wolf abundance is needed to establish that a minimum number of wolves persist in Units 7 and 15B to ensure that they remain a functioning part of the ecosystem. An estimate of wolf abundance is needed to establish that IM objectives are being met in Units 15A and 15C. A MWC survey will adequately gather this information.

Methods

No change from the RY15–RY19 reporting period. MWC surveys are described by Gardner and Pamperin (2014), and all MWC surveys conducted in Units 7 and 15 will be designed to implement those previously described methods.

ACTIVITY 1.2. Identify all wolf packs on the Kenai Peninsula. Collar and maintain at least 2 GPS-collared individuals in each pack, and track wolf movements.

Data Needs

No change from the RY15–RY19 reporting period.

Methods

No change from the RY15–RY19 reporting period. Continue collaring wolves in Unit 15 to maintain 2 collared wolves in each pack.

Captures will be conducted via helicopter darting each spring using a fixed-wing spotter team. Spotters will fly the peninsula looking for fresh wolf tracks and direct the helicopter darting team to wolves. Worn and out-of-date collars will be replaced, and new animals will be collared to maintain sample size.

2. Mortality-Harvest Monitoring

ACTIVITY 2.1. Monitor wolf harvest through sealing records.

Data Needs

No change from RY15–RY19.

Methods

The current harvest documentation system appears to be adequate for Units 7 and 15. We do not anticipate a significant amount of undocumented harvest in RY20–RY24. Harvest rates appear to be most affected by harvest conditions and as such we will continue to note observations during the trapping season and include these in our analysis of harvest.

3. Habitat Assessment–Enhancement

No habitat assessment or enhancement activities are planned for RY20–RY24.

Nonregulatory Management Problems or Needs

Data Recording and Archiving

Data collected during aerial surveys will be recorded on the Wolf Census Form (Appendix). Paper files of wolf survey memoranda will be stored in the area biologist's file cabinets in the ADF&G office in Soldotna. Electronic copies starting in 2016 will be stored on the Homer shared network drive (O:\DWC\ADF&G-Homer Files\Species Data\Furbearer\Wolf\Surveys). Electronic copies of old survey memoranda will be saved on the Homer shared network drive.

GPS location data will be logged using World Geodetic System 1984 (WGS84) datum. GPS files will be stored on the Homer office shared network drive (O:\DWC\ADF&G-Homer Files\Species Data\Furbearer\Wolf).

Agreements

No management agreements are anticipated for RY20–RY24.

Permitting

No predator-control permits were renewed beginning in RY16 for Unit 15A and we do not anticipate permitting any control activities in Unit 15A or 15C in RY20–RY24.

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Appendix. Wolf census form.**Wolf Census Form**

Date _____ GMU _____ Takeoff time _____ Flight hours _____

Pilot _____ Observer _____ Land Time _____

Snow age	Snow Cover	Light type	Light intensity	Wind speed	Predominant Habitat	Survey Rating
1-2 days	1. Complete	Bright	High	<5 mph	1. OPEN lower elev. Shrubs/wetland	Excellent
3-4 days	2. Some low veg showing	Flat	Medium	6-10 mph	2. DECIDUOUS FOREST birch/aspen	Good
5-6 days	3. Bare ground showing		Low	>10 mph	3. MIXED FOREST	Fair
7+ days					4. OPEN CONIFEROUS FOREST	Poor
					5. DENSE CONIFEROUS FOREST	
					6. SUB-ALPINE FOREST	
					7. BURN	

-continued-

Appendix continued.

Point	Lat/Long first spotted	Time track spotted	Time wolves found	Lat/Long pack sighted	Pack size	Wolf Colors	Lat/Long backtrack ends	Time track ends

Comments _____

