

## Wolf Management Report and Plan, Game Management Unit 2:

Report Period 1 July 2010–30 June 2015, and  
Plan Period 1 July 2015–30 June 2020

**Boyd Porter**



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## **Wolf Management Report and Plan, Game Management Unit 2:**

Report Period 1 July 2010–30 June 2015, and  
Plan Period 1 July 2015–30 June 2020

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This species management report and plan was reviewed and approved for publication by Thomas V. Schumacher, Management Coordinator for Region I for the Division of Wildlife Conservation.

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**Cover photo:** Wolf on a road near Ratz Harbor, Prince of Wales Island, Alaska.  
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## Purpose of this Report

This report provides a record of survey and inventory management activities for wolves in Unit 2 for the 5 regulatory years (RY) 2010–2014 and plans for survey and inventory management activities for the following 5 regulatory years, 2015–2019. A regulatory year (RY) 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 provide information about wildlife management activities. In 2016 the Alaska Department of Fish and Game’s Division of Wildlife Conservation launched this 5-year report type to more efficiently report on trends and describe potential changes in future data collection activities. It replaces the wolf management reports of survey and inventory activities that were previously produced every 3 years.

## I. RY10–RY14 Management Report

### Management Area

Southeastern Alaska encompasses a narrow strip of mainland and a chain of islands known as the Alexander Archipelago. This portion of Alaska is oriented roughly parallel to the mainland from Yakutat south to the Canada border. The archipelago consists of thousands of islands ranging in size from less than 0.01 km<sup>2</sup> (.0062 mi<sup>2</sup>) to 6,700 km<sup>2</sup> (4,163 mi<sup>2</sup>) with distances between islands and the mainland ranging from several meters to 15 km. Unit 2 includes Prince of Wales (POW) Island and all adjacent islands bounded by a line drawn from Dixon Entrance in the center of Clarence Strait, Kashevarof Passage, and Sumner Strait north to and including Warren Island (Fig. 1). Land area of the unit is approximately 9,300 km<sup>2</sup> (3,600 mi<sup>2</sup>) with extensive shoreline and marine influenced habitats. Prince of Wales Island is the third largest in the United States (about 6,700 km<sup>2</sup> or 4,163 mi<sup>2</sup>) and contains the towns of Craig, Klawock, Hydaburg, and Thorne Bay, as well as several smaller villages and settlements. Total human population on Prince of Wales Island fluctuates seasonally between 4,000 and 5,000 residents.

Land cover on well drained sites is primarily old-growth temperate rain forest consisting of Sitka spruce (*Picea sitchensis*), western hemlock (*Tsuga heterophylla*), red cedar (*Thuja plicata*), and Alaska cedar (*Chamaecyparis nootkatensis*). On flatter terrain as soil moisture increases forest cover transitions to low-volume forest including lodgepole pine (*Pinus contorta*) and eventually muskegs. Above about 600 m elevation forest transitions to subalpine forest also including mountain hemlock (*Tsuga mertensiana*) and eventually to isolated areas of alpine vegetation. In forested habitat understory consists of shrubs and forbs dominated by blueberry (*Vaccinium spp.*) and salal (*Gaultheria shallon*).

Commercial logging has greatly altered forested habitat and human access in Unit 2. Over 200,000 ha of old-growth temperate rain forest have been logged by clearcutting and more than 2,300 miles of roads have been built to access timber. Clearcutting can result in a flush of shrub and forb growth and abundant forage for deer. However, that forage is not accessible during periods with deep snow, and after about 25 years the regenerating evergreen canopy closes, shading out understory vegetation. Closed canopy forest may persist for many decades resulting in large areas with little forage for deer. Efforts are being made to manage previously logged

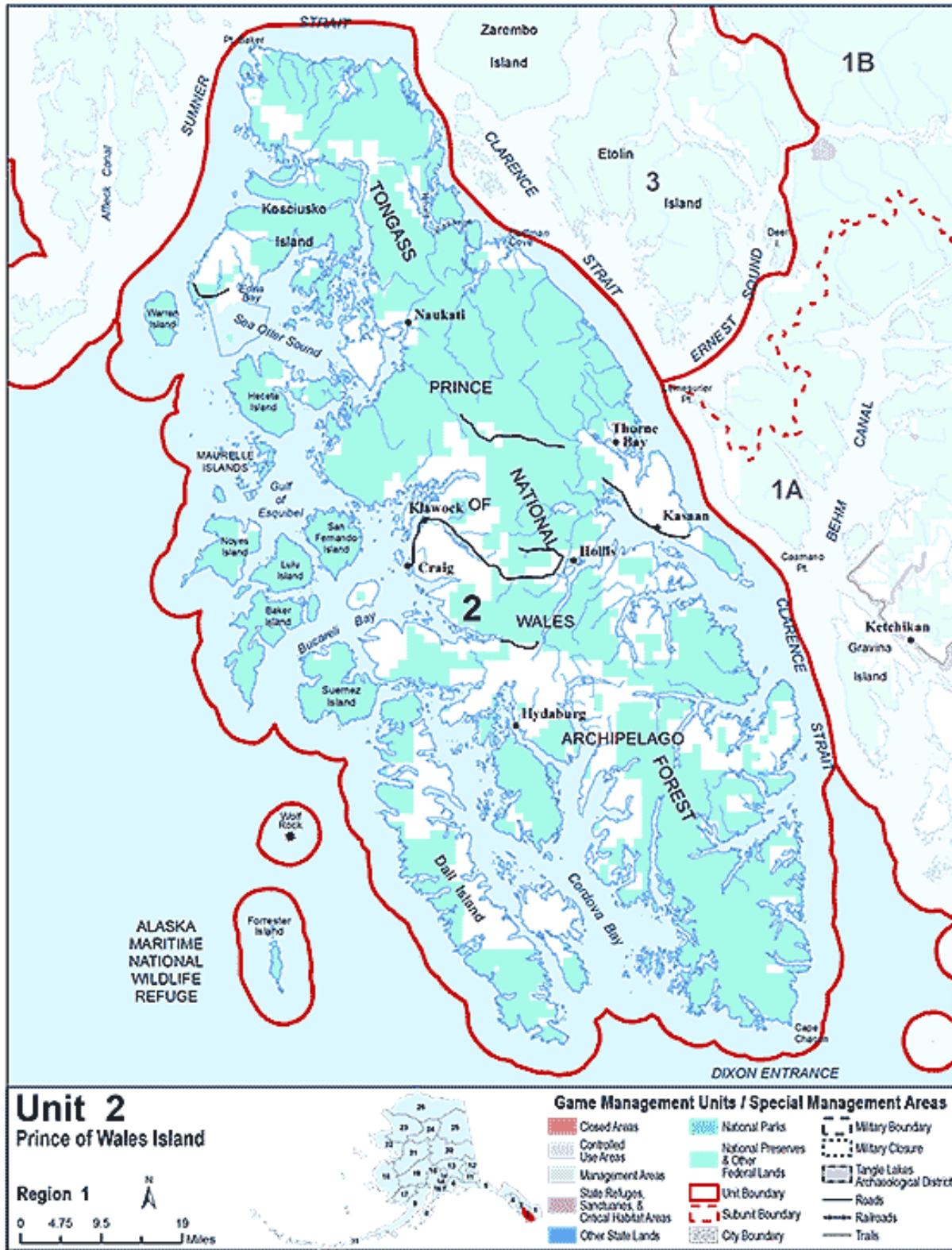


Figure 1. Map showing the boundaries of Unit 2 in Southeast Alaska.



areas, but most thinning in Southeast Alaska is done for silvicultural enhancement with little documented benefit to wildlife.

Unit 2 has been the focus of predator-prey research in Southeast Alaska. Goals have included learning how habitat changes and road densities affect wolves, and their primary prey, deer, and how hunting and trapping drive wolf population dynamics (Farmer et al. 2006, Person and Russell 2008, Person and Logan 2012, Gilbert et al. 2015, Roffler et al. 2016).

## **Summary of Status, Trend, Management Activities, and History of Wolves in Unit 2**

Wolves live throughout the islands of Unit 2. They are capable swimmers and regularly travel among islands. Wolves in Unit 2 feed primarily on deer. Marine mammals, salmon, waterfowl, beaver, and small mammals also supplement their diet. Because of the relatively high density of prey available, the islands of Unit 2 have long been assumed to support the highest densities of wolves in the state.

Wolves in Southeast Alaska and coastal British Columbia have been classified as a subspecies known as the Alexander Archipelago wolf, *Canis lupus ligoni*. Genetic evidence indicates that following glacial retreat coastal areas as far north as Yakutat were colonized by wolves from the south, whereas coastal areas north and west of Yakutat Bay were colonized by wolves from northern areas of interior Alaska and Yukon Territory. The Alexander Archipelago wolf tends to be smaller than wolves inhabiting the mainland of Alaska. The coloration of Southeast wolf pelts varies; however, the brown/gray color is most common (95%). During the past decade, white or near-white pelts have accounted for less than 2%, and black pelts about 4%, of the Unit 2 harvest.

Wolf management in Unit 2 has a long and complicated history. From 1915 through the early 1970s, cash bounty was paid for wolves taken in the region and during much of the 1950s federal agents poisoned wolves on many Southeast Alaska islands in an effort to increase or maintain deer numbers. Wolf harvest records indicate neither predator reduction program had a long-lasting effect on wolf abundance or distribution. Between 1985 and 2001 wolf harvest in Unit 2 ranged from 18-132 wolves (Porter 2003).

Industrial clearcut logging of old-growth temperate rain forest in Unit 2 began in the late 1950s and continued at high levels until the mid-1990s. Although the logging has declined, Unit 2 remains the focus of the industry. Logging affects wolves in 2 ways: it increases human access to the interior of Prince of Wales and other islands by developing an extensive road system, and it alters habitat for deer. Easier access facilitates hunting and trapping in previously inaccessible portions of the islands. Clearcutting has focused on stands of large trees at low elevations that were important winter habitat for deer. Although clearcutting results in an initial flush of forbs and shrubs that are important foods for deer, those conditions persist for only 20 to 25 years, after which regenerating trees grow tall and dense enough to shade out understory vegetation. Large old-growth trees also intercept snow, facilitating deer movement and access to forage during winters with deep snow. In years with little snow the abundant forage in recent clearcuts can support high deer populations. However, in years with deep snow forage in young clearcuts

is buried and the reduced availability of stands of large old trees makes deer more vulnerable to severe winters, which can result in significant die-offs.

In 1990 wolves in Southeast Alaska were identified by an interagency committee sponsored by the U.S. Forest Service (USFS) as a species for which there were concerns about viability or distribution as a result of extensive timber harvesting on the Tongass National Forest. In 1993 the Biodiversity Legal Foundation (Boulder, CO) and an independent biologist from Haines, Alaska filed a petition with the U. S. Fish and Wildlife Service (USFWS) requesting that Southeast Alaska wolves be listed as a threatened subspecies pursuant to the Endangered Species Act (ESA). A comprehensive conservation assessment was subsequently prepared through the Forest Service (Person et al. 1996). The most important consideration identified in that assessment was the need to maintain long-term carrying capacity for deer, the principal prey for most wolves. The authors suggested that a series of old-growth forest reserves might increase the likelihood that wolves would persist where extensive timber harvesting had occurred or was planned.

The U.S. Forest Service completed a land management plan for the Tongass in 1997 (Forest Plan, TLMP, Tongass National Forest Planning Team 1997). That plan included a number of wolf and deer conservation measures, including a system of large, medium, and small old-growth forest reserves (OGRs) connected by corridors of mostly old-growth forest in beach and riparian buffers. In conjunction with other forested habitat not designated or suitable for harvest, the OGRs were intended to ensure viable and well-distributed populations of old-growth associated species would persist throughout their historic ranges. The 1997 Forest Plan also included a Standard and Guideline in areas where deer are the primary prey of wolves to maintain habitat capability to support at least 18 deer per square mile to sustain wolves and provide for hunter harvest. Another Standard and Guideline acknowledged that where human harvest had resulted in a conservation concern for wolves the density of roads may need to be limited to 0.7–1.0 miles per square mile or less. In part, the USFWS based its not warranted finding for the ESA petition on establishment of the OGR system and other wolf conservation measures in the 1997 Forest Plan. Since 1997 many of the original OGRs have been moved and reduced in size to accommodate timber harvest or land exchanges. A 2008 revision to this plan eliminated some small OGRs and through timber project planning many of the existing OGRs were modified to provide additional timber for harvest (U.S. Forest Service, Alaska Region 2008).

Wolf harvest in Unit 2 increased with the growth of the human population and road building associated with the logging industry and peaked at 132 wolves in RY96. Such high harvest was thought unsustainable and contributed to the Alaska Board of Game (BOG) implementing an annual harvest guideline level (HGL) in RY97 of 25% of the estimated Unit 2 fall wolf population. This annual HGL is the maximum harvest allowable under State of Alaska regulation. At that time the Unit 2 population was thought to be about 350 wolves and implementation of the HGL resulted in the department establishing a harvest quota of 90 wolves (Porter 2003). The Unit 2 wolf season was first closed by emergency order in RY97. In 2000 the HGL was increased to 30% based on analysis (Person 2001) showing low natural wolf mortality in this population, but the harvest quota was maintained at 90 wolves. Concurrently, the Federal Subsistence Board (FSB) also adopted a harvest cap of 30% of the population in Federal regulation. In response to a perceived decline in the population the 2010 harvest quota was reduced to 60 wolves. The hunting and trapping seasons were again closed by emergency order

in RY13. The harvest quota for RY14 was further reduced to 25 wolves based on the DNA estimate, and the season was again closed by emergency order.

A second petition to list the Alexander Archipelago wolf under the ESA was filed in 2011. The petitioners asked that 3 options be considered: 1) listing the Alexander Archipelago wolf throughout its range, 2) finding that Unit 2 represented significant portion of its range, or 3) listing the Unit 2 population as a distinct population segment (DPS). A Species Status Assessment authored by the U.S. Fish and Wildlife Service (Gilbert et al. 2015) included a modeling effort that predicted that by 2045 the Unit 2 wolf population would decline as much as 25%, and the Sitka black-tailed deer population would decline by 28% from 1995 levels. The assessment expected that the predicted declines would result primarily from presumed effects of logging on deer habitat. Concurrent with the ESA review, in 2012 the department initiated a new effort to estimate the number of wolves in Unit 2 using a DNA-based mark-recapture method. That effort failed to produce an estimate in 2012 but succeeded in 2013 when the population was estimated at 221 wolves. Hunter and trapper harvest during the RY13 was 57 wolves, below the harvest quota for that year of 60, and the RY14 harvest was 29 wolves when the quota had been set at 25. The following fall the wolf population estimate declined to 89 wolves. For 2015 and 2016 the department documented an apparent decline in wolf numbers and documented a high rate of unreported human-caused mortality (Roffler et al. 2016). Consequently, as a conservative measure ADF&G and the Forest Service in season managers reduced the wolf harvest quota to 50% of the HGL.

In January 2016 the USFWS issued a “not warranted” 12-month finding on the 2011 ESA petition despite the low population estimate in 2014. The decision explained that the Alexander Archipelago wolf faces several stressors throughout its range related to wolf harvest, forestry practices affecting prey abundance, road development, and climate-related events in Southeast Alaska and coastal British Columbia. However, it determined that the best available information indicated populations of the wolf in most of its range appeared stable. The USFWS also determined that Unit 2 wolves did not qualify as a DPS for listing under the ESA because the population does not persist in an unusual or unique ecological setting; loss of the population would not result in a significant gap in the range; and the population does not differ markedly from other populations based on its genetic characteristics. The department’s position has been that while there may be vulnerabilities for wolves in some parts of Unit 2 (Person et al. 1996, Person et al. 2001, Person and Russell 2008, Person and Logan 2012), wolves are viable (i.e., not threatened with extinction) in Unit 2 and across their historic range in Southeast Alaska.

Both state and federal regulations are in place for hunting and trapping wolves in Unit 2. The Unit 2 wolf hunting and trapping seasons for federally qualified subsistence users on federal lands open September 1 and November 15, respectfully. State wolf hunting and trapping seasons in Unit 2 open December 1. Because we have established a joint quota with the USFS, the state season may be modified or closed before the opening date if the wolf harvest from the earlier federal season approaches the quota. Federal lands make up most of the Unit 2 landscape and, consequently, federal subsistence regulations play a key role in regulating the wolf harvest.

## **Management Direction**

### **EXISTING WILDLIFE MANAGEMENT PLANS**

Planned management activities have been outlined in the division's periodic management reports and modified periodically over the years as a result of public comments, staff recommendations, and Board of Game actions, with changes noted in the reports. The plan section of this report represents the operational plan for managing wolves in Unit 2 for the next period, which includes development of a formal management plan for Unit 2 wolves (see plan section).

### **GOALS**

There are no specific goals for the population other than to manage for a sustainable harvest.

### **CODIFIED OBJECTIVES**

#### Amounts Reasonably Necessary for Subsistence Uses

The customary and traditional use determination finding for wolves in Unit 2 listed in AAC 99.025 established by the Alaska Board of Game in 2004 is as follows: 90 percent of the harvestable portion of the Unit 2 wolf harvest.

#### Intensive Management

There is no intensive management program in Unit 2.

### **MANAGEMENT OBJECTIVES**

During this report period the management objective was to provide for a sustainable harvest while maintaining total human-caused mortality at no more than 30% of the estimated autumn population by BOG decision 1997. However, this objective was reevaluated during this period and was revised to 20% of the estimated autumn population, effective in RY15 by the BOG. This reduction was in response to a lower annual estimate and high unreported mortality. Setting more specific population and harvest objectives would clarify management for ADF&G staff and the public.

## MANAGEMENT ACTIVITIES

### 1. Population Status and Trend

ACTIVITY 1.1. Estimate the preseason population of the wolf population in Unit 2 annually.

#### *Data Needs*

A preseason population estimate is necessary to meet a current Board of Game regulation that requires ADF&G to set an annual Unit 2 wolf harvest quota based on a percentage of the preseason population estimate.

#### *Methods*

Since 2013 the Unit 2 wolf population has been estimated as part of a research project (DWC Federal Aid project number 14.30, Wolf population estimation on Prince of Wales Island, Alaska). To evaluate wolf abundance and sustainable harvest, ADF&G and the USFS initiated a cooperative wolf research project in central POW Island (GMU 2). That project was designed to estimate wolf abundance by radiocollaring a sample of wolves from central POW. Because capture success was low, efforts to live-capture wolves were halted, and we focused our effort on a DNA mark-recapture technique using wolf hair captured at scented hair trap stations.

#### *Results and Discussion*

The population was estimated at 221 wolves in fall 2013, 89 wolves in fall 2014, and 108 wolves in fall 2015. The dramatic decline between fall 2013 and fall 2014 is difficult to explain, but researchers decided to act on the best information available and set the 2015 wolf harvest quota at 11 wolves based on that estimate.

#### *Recommendations for Activity 1.1*

It appears we will continue to need at least periodic estimates of this population and although more refinement of the assumptions and analysis may be warranted, the field and lab methods have been developed to a point where the Division of Wildlife Conservation's management staff could conduct an estimate using techniques developed by the division's research staff. Therefore, the research staff recommends transitioning the population estimate from a research project to a survey and inventory project. We further recommend that a Unit 2 wolf management plan be developed through a stakeholder process that sets population and harvest goals, establishes how the population will be estimated, and describes triggers for specific management actions.

### 2. Mortality and Harvest Monitoring

ACTIVITY 2.1. Monitor and document hunter and trapper harvest.

#### *Data Needs*

Data are collected on harvest, harvest methods, and unreported human-caused mortality to ensure overall mortality is sustainable for this insular population and to inform management decisions.

## *Methods*

Harvest of the Unit 2 wolf population is monitored through mandatory sealing of wolves harvested by trappers and hunters. For each wolf sealed we record the month of take, method, sex, transportation method, and estimated pack size. Additional information comes from sightings during aerial surveys for mountain goats and deer. Finally, anecdotal reports and information provided in the annual statewide trapper survey provide additional information.

Unreported human-caused mortality is monitored through identifying the fates of the few collared wolves, reports from the public, and enforcement actions.

## *Results*

### Hunter/Trapper Harvest and Harvest Methods

The average annual wolf harvest in Unit 2 was 37 during RY10–RY14 with a range of 20–57 wolves taken annually by all methods (Table 1). Wolves were harvested using traps (63%), snares (18%), and ground shooting (19%).

### Harvest Chronology

Most hunting and trapping effort in Unit 2 is focused around January and February when pelts are most prime and consequently fur prices are highest. During RY10–RY14, 33% of the harvest was taken in each of January and February, 18% in March, and 13% in December.

### Transport Methods

During RY10–RY14, boats (52%) and highway vehicles (42%) continue to account for the majority of transport methods used by successful Unit 2 wolf hunters and trappers (Table 3).

### Successful Trappers

During RY10–RY14 an average of 12 trappers per year were successful (range 10–17), and the average annual take per trapper was 3 wolves (Table 4).

## *Other Mortality*

Unreported human-caused mortality (UHCM), including wolves wounded by hunters, trappers, or vehicle collisions that could not be recovered and wolves that died as a result of illegal hunting or trapping, was previously documented as a significant cause of mortality for this population (Person and Russell 2008). ADF&G biologists and state and federal law enforcement officers monitor and attempt to document unreported mortality, so it can be incorporated into management decisions. However, with few Unit 2 wolves radiocollared, documenting UHCM is difficult, and we do not know if it remains a significant source of mortality. Accounting for UHCM in annual harvest quotas remains a contentious issue.

**Table 1. Unit 2, Alaska wolf harvest, regulatory years<sup>a</sup> 2000–2014.**

Regulatory year	Game Management Unit 2				Method of take					Pelt color			
	Female	Male	Unk	Total	Shot	Trapped	Snared	Unk	Total	Black	Gray	White	Total
2000	37	36	0	73	9	28	35	1	73	4	68	0	72
2001	28	34	0	62	6	34	22	0	62	2	60	0	62
2002	28	35	1	64	7	49	8	0	64	3	53	7	63
2003	14	19	0	33	4	12	17	0	33	4	29	0	33
2004	33	44	0	77	12	29	36	0	77	0	0	0	0
2005	24	36	0	60	16	17	27	0	60	2	56	0	58
2006	19	19	0	38	14	19	5	0	38	2	36	0	38
2007	14	22	0	36	18	6	12	0	36	1	31	2	34
2008	5	19	0	24	7	10	7	0	24	0	20	0	20
2009	7	15	0	22	2	13	6	1	22	1	22	0	23
2010	11	9	0	20	4	12	4	0	20	0	17	0	17
2011	9	19	0	28	6	21	1	0	28	0	26	0	26
2012	21	31	0	52	11	28	13	0	52	1	51	0	52
2013	31	26	0	57	11	35	11	0	57	1	41	0	42
2014	13	16	0	29	3	22	4	0	29	0	25	0	25

<sup>a</sup> A regulatory year begins 1 July and ends 30 June, e.g., regulatory year 2010 = 1 July 2010–30 June 2011.

**Table 2. Wolf harvest chronology for game management Unit 2, Alaska regulatory years<sup>a</sup> 2000–2014.**

Regulatory year	Unit 2 wolf harvest chronology										Totals
	Aug	Sep	Oct	Nov	Dec	Jan	Feb.	Mar	Apr	May	
2000	0	0	0	0	12	28	19	14	0	0	73
2001	0	0	0	0	13	24	18	7	0	0	62
2002	0	0	0	3	6	35	18	1	0	1	64
2003	0	0	0	1	2	6	13	11	0	0	33
2004	0	0	0	0	20	20	17	20	0	0	77
2005	0	0	1	1	18	9	15	16	0	0	60
2006	0	2	0	1	2	4	16	13	0	0	38
2007	0	0	4	4	7	13	7	1	0	0	36
2008	0	0	0	0	2	2	9	11	0	0	24
2009	0	0	1	0	5	8	5	4	1	0	24
2010	0	0	0	0	2	10	2	6	0	0	20
2011	0	1	0	0	8	4	7	8	0	0	28
2012	0	0	0	3	8	12	16	13	0	0	52
2013	0	0	0	0	6	27	18	6	0	0	57
2014	0	0	1	0	1	8	19	0	0	0	29

<sup>a</sup> A regulatory year begins 1 July and ends 30 June, e.g., regulatory year 2010 = 1 July 2010–30 June 2011.

**Table 3. Unit 2, Alaska successful wolf trapper transport methods, regulatory years<sup>a</sup> 2000–2014.**

Regulatory year	Game Management Unit 2 transport methods								Totals
	Aircraft	Horse or dog team	Boat	4-wheeler	Snow-machine	Off- road vehicle	Highway vehicle	Foot	
2000	0	0	45	0	0	0	28	0	73
2001	0	0	45	1	0	0	16	0	62
2002	2	0	46	1	0	0	15	0	64
2003	0	0	23	0	0	0	10	0	33
2004	0	0	45	2	0	0	30	0	77
2005	0	0	33	2	0	1	24	0	60
2006	0	0	14	6	2	0	14	0	36
2007	0	0	19	1	0	0	16	0	36
2008	0	0	6	0	0	0	18	0	24
2009	0	0	6	4	0	9	5	0	24
2010	1	0	5	7	0	1	6	0	20
2011	0	1	17	0	0	0	9	1	28
2012	0	0	23	0	0	0	29	0	52
2013	0	0	29	0	0	0	28	0	57
2014	0	0	22	1	0	0	6	0	29

<sup>a</sup> A regulatory year begins 1 July and ends 30 June, e.g., regulatory year 2010 = 1 July 2010–30 June 2011.



**Table 4. Unit 2, Alaska successful wolf trappers and average catch per trapper, regulatory years<sup>a</sup> 2000–2014.**

Trappers who harvested wolves in Unit 2		
Regulatory year	Number of trappers	Average catch per trapper
2000	21	3.5
2001	18	3.4
2002	18	3.6
2003	12	2.8
2004	17	4.5
2005	16	3.8
2006	10	3.8
2007	9	4.0
2008	7	3.4
2009	6	4.0
2010	10	2.0
2011	10	2.8
2012	17	3.1
2013	15	3.8
2014	10	3.0

<sup>a</sup> A regulatory year begins 1 July and ends 30 June, e.g., regulatory year 2010 = 1 July 2010–30 June 2011.

*Alaska Board of Game Actions and Emergency Orders*

During this report period the Alaska Board of Game reduced the harvest guideline level from 30% to 20% of the preseason population estimate. That change that went into effect in RY15 to allow the population to rebound from a unitwide population estimate of 89 wolves in fall 2014 that indicated a decrease in the population.

Emergency orders closing the wolf hunting and trapping seasons in Unit 2 were issued in RY13 and RY14 after fur sealing records indicated we had reached the quota. Because Unit 2 wolves are managed both by the department under State of Alaska regulations and the USFS under federal subsistence regulations, in both years a single combined emergency order was issued by both agencies.

*Recommendations for Activity 2.1.*

Continue without changes.

3. Habitat Assessment-Enhancement

The department continues to monitor and comment on forest practices that may impact habitat important for the Unit 2 wolf population, including habitat for the species’ primary prey, deer. These efforts are focused on ensuring continuing sustainable wildlife populations.

No other specific habitat assessment or enhancement activities have been conducted during this reporting period.

## **NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS**

### Data Recording and Archiving

Wolf sealing data are electronically archived in ADF&G's WinfoNet database (<http://winfonet.alaska.gov/index.cfm>).

Hard copies of wolf sealing forms are stored in 3-ring binders by regulatory year in the Ketchikan Area Office file cabinets.

Electronic copies of written reports are archived on the hard drive of the Ketchikan Area Biologist at H:\Users\bporter\Documents\Wildlife Progress Reports & Research Papers\Wolf and the Region I sever S:\Region1Shared-DWC\Offices\Ketchikan\Boyd Porter\Wildlife Progress Reports & Research Papers\Wolf.

### Agreements

Under informal operational agreements, the department works cooperatively with the U.S. Forest Service on implementing consistent harvest quotas and in issuing emergency orders.

There are currently 3 agreements with outside groups along with ADF&G all focused on the annual DNA estimate of wolves on POW. The 3 groups are Hydaburg Community Association, Craig School District, and the Nature Conservancy. ADF&G provides the leadership, field training, and guidance and all hair samples are sent to the lab together each year and used to generate the wolf estimate.

### Permitting

Nothing to report.

## **Conclusions and Management Recommendations**

Balancing often conflicting public desires for the timber industry, abundant deer for hunters, and a sustainably harvestable wolf population in Unit 2 is likely to remain challenging and controversial. A carefully designed wolf management plan could provide clarity on goals, and predictability for management actions for a wide spectrum of stakeholders while reducing the management burden on agencies. Any management plan should include population and harvest objectives for wolves, clear direction on how wolf abundance will be estimated and measurable indicators that will trigger specific management actions. This larger planning effort would be outside the scope of normal survey and inventory activities and to be successful should be led by ADF&G.

## II. Project Review and RY15–RY19 Plan

### Review of Management Direction

#### MANAGEMENT DIRECTION

The department will continue to manage for both sustainable harvest and nonconsumptive uses of wolves in Unit 2.

#### GOALS

Maintain a population that supports sustainable harvest and viewing through regulation of hunting and trapping seasons, bag limits, and harvest guidelines.

#### CODIFIED OBJECTIVES

No change.

#### Amounts Reasonably Necessary for Subsistence Uses

No change.

#### Intensive Management

None.

#### MANAGEMENT OBJECTIVES

- Conduct a management planning process for Unit 2 wolves to establish population and harvest objectives for Unit 2 wolves.
- Limit wolf harvest in Unit 2 to no more than 20% of the most recent population estimate, until and unless this is changed through a management planning process and/or Board of Game action.

#### REVIEW OF MANAGEMENT ACTIVITIES

##### 1. Population Status and Trend

ACTIVITY 1.1. Population monitoring.

##### *Data Needs*

Monitoring abundance helps evaluate whether harvest is sustainable. A current Board of Game regulation requires that we set an annual Guideline Harvest Level based on the most recent population estimate. Because of previous Endangered Species Act petitions and ongoing public concerns over harvest management of wolves in Unit 2, accurate population estimates are important for managing this population.

### *Methods*

Previously wolf abundance was monitored through discussions with hunters and trappers and through findings of a research project that used radiocollared wolves. A more recent research project (Roffler et al. 2016) developed and refined a noninvasive technique of estimating wolf abundance using DNA from hair collected on an array of hair snares. That method was found to be more accurate and much more cost-effective than the method using collared wolves. That research project will end in FY19, and the research project techniques will likely then be used going forward by ADF&G/DWC management staff as a population survey and inventory activity to develop periodic population estimates.

## 2. Mortality-Harvest Monitoring and Regulations

ACTIVITY 2.1 Monitor and document hunter and trapper harvest.

### *Data Needs*

No change.

### *Methods*

No change.

ACTIVITY 2.2. Develop a formal management plan for Unit 2 wolves.

### *Data Needs*

A carefully designed wolf management plan could provide clarity on goals, and predictability for management actions for a wide spectrum of stakeholders while reducing the management burden on agencies. It is anticipated the plan will include population and harvest objectives for wolves, clear direction on how wolf abundance will be estimated and measurable indicators that will trigger specific management actions.

### *Methods*

It is expected the planning process will follow fairly traditional approaches to developing wildlife management plans, including data analysis, public review of draft, public meetings and other standard elements of planning processes. It is anticipated that to be successful the planning effort will require leadership by ADF&G and active participation by land management agencies, hunters, and trappers.

## 3. Habitat Assessment-Enhancement

It is expected that the management plan to be developed will address needs related to wolf habitat.

## **NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS**

### Data Recording and Archiving

No change.

## Agreements

No anticipated changes. However, it is possible the management planning process to be undertaken may result in additional agreements.

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