

Deer Management Report and Plan, Game Management Unit 2:

Report Period 1 July 2011–30 June 2016, and

Plan Period 1 July 2016–30 June 2021

Tessa Hasbrouck



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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 Stephen Bethune, Area Management Biologist for the Division of Wildlife Conservation.

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Purpose of this Report

This report provides a record of survey and inventory management activities for Sitka black-tailed deer (*Odocoileus hemionus sitkensis*) in Unit 2 for the 5 regulatory years 2011–2015 and plans for survey and inventory management activities in the following 5 regulatory years 2016–2020. A regulatory year (RY) begins 1 July and ends 30 June (e.g., RY14 = 1 July 2014–30 June 2015). This report is produced primarily to provide agency staff with data and analysis to help guide and record agency efforts but is also provided to the public to inform it of wildlife management activities. In 2016 the Alaska Department of Fish and Game’s (ADF&G, the department) Division of Wildlife Conservation (DWC) launched this 5-year report to more efficiently report on trends and to describe potential changes in data collection activities over the next 5 years. It replaces the deer management report of survey and inventory activities that was previously produced every 2 years.

I. RY11–RY15 Management Report

Management Area

Game Management Unit 2 (Unit 2) includes Prince of Wales Island (POW) 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 3,600 mi² (9,300 km²) with extensive shoreline and marine influenced habitats. Prince of Wales is the third largest island in the United States (about 2,600 mi²) and contains the towns of Craig, Klawock, Hydaburg, and Thorne Bay, as well as several smaller communities. Total human population on Prince of Wales Island fluctuates seasonally between 4,000 and 5,000 residents.

Unit 2 has a temperate, maritime climate typical of Southeast Alaska. Temperatures range from an average low of 31°F in January to an average high of 64°F in July. On average, there are 243 days per year with precipitation, with approximately 99.4 inches of rain and 39 inches of snow annually (BestPlaces 2020). Forest fires are infrequent and the main source of disturbance is caused by wind and landslide events.

Unit 2 is unique due to a high density of karst and cave features caused by chemical weathering of limestone and marble bedrock (Baichtal and Swanson 1996). These features impact the hydrology and ecology of the unit. 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 yellow cedar (*Chamaecyparis nootkatensis*). On flatter terrain, as soil moisture increases, forest cover transitions to low volume forest including shore pine (*Pinus contorta*), and eventually muskegs. Above 2,000 feet (600 meters) elevation, the forest transitions to subalpine, predominantly consisting of mountain hemlock (*Tsuga mertensiana*), and eventually transitioning to isolated areas of alpine vegetation. In forested habitat, understory consists of shrubs and forbs which are dominated by blueberry (*Vaccinium spp.*), salal (*Gaultheria shallon*), devil’s club (*Oplopanax horridus*), and skunk cabbage (*Lysichiton americanus*).

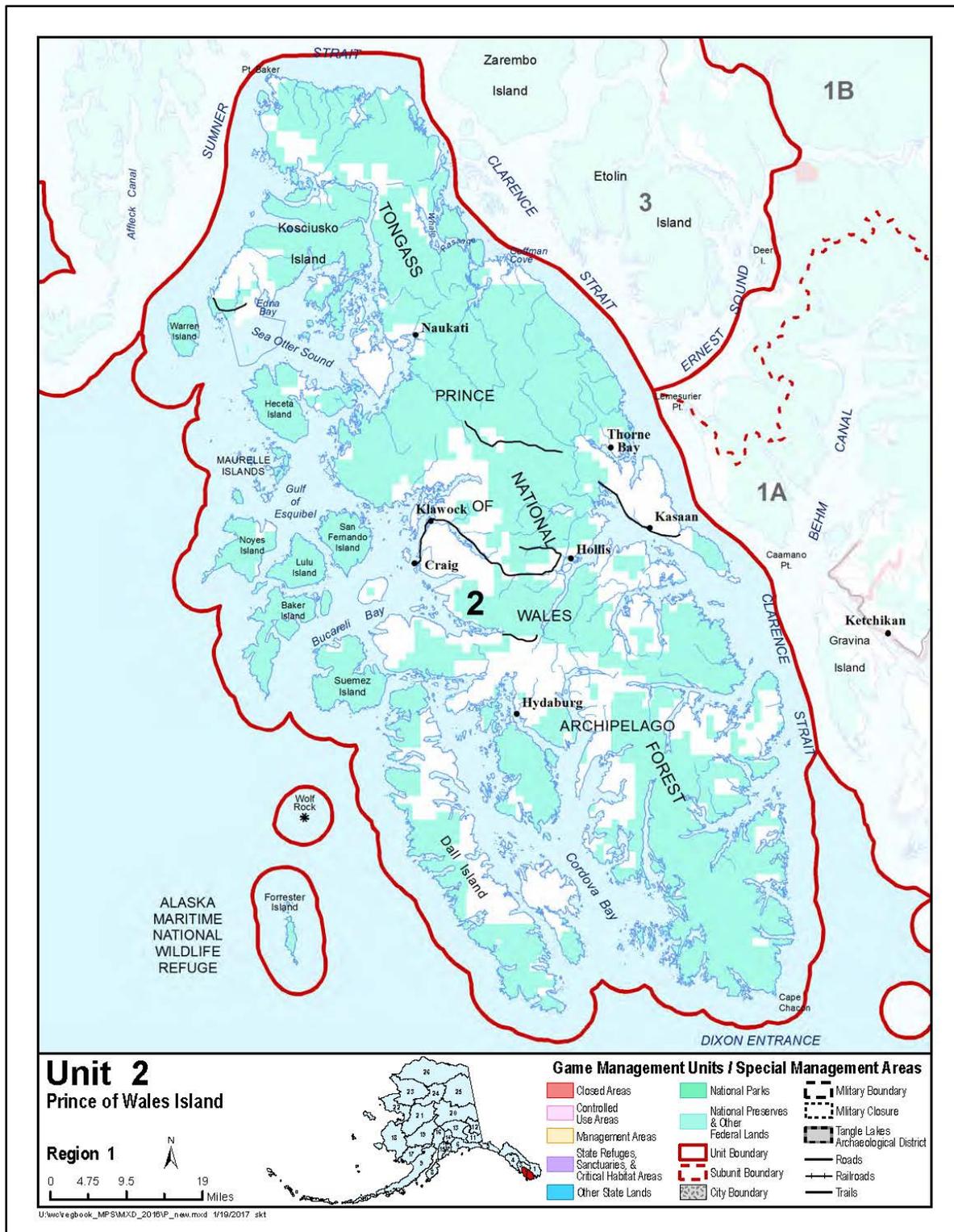


Figure 1. Map showing Unit 2 boundaries, Southeast Alaska.

Prince of Wales Island has the highest amount of total productive forest in Southeast Alaska (USDA 2016). However, POW received the most substantial logging activity in the region since 1954, which resulted in a 94% reduction of contiguous high-volume forest (Albert and Schoen 2013). This logging activity has reduced deer habitat in north central POW by 46% and in south POW by 18% (USDA 2016).

Land ownership on Unit 2 is a mosaic of federal, state, and private owners. Eighty percent of the unit is Tongass National Forest lands, managed by The United States Department of Agriculture, Forest Service (USFS) for diverse opportunities including recreation, economic development, and subsistence activities (Southeast Alaska GIS Library 2019). USFS maintains Wilderness Areas (Karta River and South Prince of Wales), public use cabins, heritage sites, and the El Cap Cave Interpretative site. Sealaska Corporation, the largest private landowner in the unit, primarily manages their lands for economic development (e.g., timber harvest) and hunting opportunities for shareholders. Other landowners include the State of Alaska, and the Alaska Mental Health Trust Authority. These landowners have created the greatest density of harvested forest lands in Southeast Alaska. The timber industry is still one of the biggest employers on POW, with the last remaining large pulp mill (Viking Lumber) located in Klawock. Other major economic drivers are commercial fishing, tourism, and charter fishing.

Summary of Status, Trend, Management Activities, and History of Deer in Unit 2

Sitka black-tailed deer are found throughout Unit 2, both on the mainland of Prince of Wales Island and the smaller adjacent islands. Deer populations fluctuate seasonally, primarily in response to severe winter weather (Klein and Olson 1960), habitat loss (McNay and Voller 1995), hunting pressure (Straugh and Rice 2002), and predation by both wolf and black bear (Gilbert 2015). Deer populations in Unit 2 appear to be healthy compared to adjacent areas such as Units 1A and 3, where numbers of deer are currently low to moderate.

Sitka black-tailed deer are highly valued in Unit 2 as subsistence and sport hunting resources. Harvest is influenced by deer populations, the number of hunters, hunter effort, and weather conditions. The actual total deer harvest is higher than the reported deer harvest due to a lack of reporting.

Harvest information has historically come from hunter surveys (ADF&G 2012). Because of contentious issues surrounding allocation of deer harvest in Unit 2, from 2005 through 2010, Unit 2 deer hunters were required to fill out a harvest report form specific to the unit. Those hunters were removed from the mail survey list and their hunt information was instead captured on the Unit 2 report form. Data through 2010 represents total estimated deer harvest (i.e., actual reporting results multiplied by an expansion factor). From 2005 to 2010 the data is a composite result of data collected through the Region I deer harvest survey and the Unit 2 specific deer harvest reporting efforts. Beginning in fall 2011, the Unit 2 report form and mailout questionnaire were replaced by a statewide deer harvest ticket report, the same harvest report format is currently used for other species such as moose, caribou, and sheep.

State hunting regulations allow hunters to harvest 4 bucks from 1 August–31 December. Federal hunting regulations allow federally qualified hunters to harvest 5 deer, 1 of which may be a doe,

from 24 July–31 January. Federally qualified hunters are people who reside in Region 1, excluding Ketchikan and Juneau residents. Nonfederally qualified hunters are excluded from hunting federal lands from 1 to 15 August. Hunting of female deer has sparked much controversy. In 1995, despite state opposition, a federal 2½ month antlerless season was implemented in Unit 2. The federal antlerless season remains in effect today, running from 15 October through 31 January, and allows each qualified rural hunter under to harvest 1 female deer as part of their 5 deer bag limit.

Current federal hunting regulations provide greater opportunity to federally qualified hunters in Unit 2 compared to nonfederally qualified hunters including: 54 days when only federally qualified users are eligible to hunt on federal land, an either sex season, a higher bag limit, and a season that extends through January. The January either sex season extension was adopted into federal regulation by the Federal Subsistence Board during late fall 2016 outside the regulatory cycle without any public input or other alternatives considered. Federally qualified hunters currently have a bag limit of 5 deer between 24 July and 31 January on federal public lands. The federal bag limit may include 1 doe after 15 October. Nonfederally qualified deer hunters are required to hunt under state regulations which allow 4 bucks between 1 August and 31 December. These hunters are restricted to state and private lands from 1 August to 15 August.

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

Commercial logging has greatly altered forested habitat and human access in Unit 2, ADF&G estimates about 475 mi² (1,230 km²) of forested deer habitat has been logged over the past 50 years, including over 40% of the old growth forest once found in Unit 2. Logging associated road building in Unit 2 has created the highest density of roads in Southeast Alaska, with approximately 4,000 km (2,500 miles) of drivable roads on national forest land and native corporation lands. Clearcutting can result in a flush of shrub and forb growth and abundant forage for deer and other species. 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 and reduced access for hunters. Efforts are being made to manage previously logged areas, but most thinning in Southeast Alaska is done for silvicultural enhancement and impacts on wildlife are not well understood.

Second growth in the 20- to 30-year-old age class eventually reaches a stem-exclusion stage where the canopy closes and important understory plants that deer target as forage disappear. Stem exclusion lasts until the stand reaches approximately 150-years old when the stand slowly starts to regain old-growth characteristics. Habitat does not have true old-growth characteristics until 200-plus years when varied forest structure provides high-quality deer habitat (Alaback 1982; Person 2010). Old-growth habitat can support approximately double the deer density that second-growth habitat can support (Farmer et. al. 2006). Associated with logging is road building, and roads are steadily impinging on deer habitat; however, roads also create better access for deer and wolf hunters. As clearcut logging continues to reduce old-growth habitat in

Unit 2, deer populations are expected to decline. A 1995 study by McNay and Voller on the relationship between habitat and predation of Columbian black-tailed deer on Vancouver Island, British Columbia, suggested that logging with the accompanying road construction and winter range fragmentation concentrates predation on resident deer. They concluded that large blocks of intact old-growth forests at low elevations are essential to sustaining healthy deer populations.

Old-growth forests retain important winter forage (Schoen and Kirchhoff 1985) and provide snow interception for deer during winter (Kirchhoff and Schoen 1987; Hanley et al. 2012). Population models estimate declines in deer carrying capacity of 50–60% by the end of the logging rotation in 2054. By 2054, few areas are expected to meet projected hunter demand within road accessible areas and logged portions of Unit 2 (USFS 1989). The USFS is spending some resources to look at second-growth management and is conducting precommercial thinning and other treatments for wildlife in some areas. The benefits to deer in these cases may be minimal at best (Farmer et. al. 2006). Long-term consequences of habitat loss include the inability to provide for human subsistence needs and a general loss of deer hunting opportunities.

United States Forest Service (USFS), Sealaska Corporation, State of Alaska, and Alaska Mental Health Trust Authority are all harvesting timber in Unit 2. In 2014, the Sealaska Land Bill granted 75,000 acres (an additional 115 mi²) of valuable timber stands to Sealaska Corporation. In 2015, the Big Thorne sale (USFS) allowed for 149 million board feet of timber from approximately 8,000 acres to be removed from the forest. This sale was the largest in the Tongass National Forest in several decades. Most of the timber units slated in this sale represented the last remaining quality deer winter range and travel corridors in the drainages within the central part of POW. The recent Logjam Timber sale included 73 million board feet of lumber resulting in clearcut logging of approximately 3,400 additional acres of old-growth habitat. These timber sales are removing high-quality deer habitat in areas important for subsistence deer harvest.

Despite current abundant deer populations, historically high harvests, and liberal seasons and bag limits, there are continued concerns from subsistence users about their inability to meet their subsistence needs. One concern is increased hunting pressure. As clearcuts advance past seral stages, deer are less visible and sightability leads to the misperception that there are fewer deer available on the landscape. Now and in the future, state and federal managers will continue to struggle with balancing ADF&G's mission of wildlife conservation with the U.S. Forest Service Office of Subsistence Management's mission to provide subsistence opportunity for rural residents under ANILCA (Alaska National Interest Lands Conservation Act), which conflicts with the level of unsustainable timber harvest that has occurred within the unit. It will take time to understand the full effects of historic and current logging practices on wildlife populations in Unit 2.

Management Direction

EXISTING WILDLIFE MANAGEMENT PLANS

Strategic Plan for management of deer in Southeast Alaska, 1991–1995 (ADF&G 1991).

GOALS

Provide greatest opportunity to participate in hunting deer (ADF&G 1976).

CODIFIED OBJECTIVES

Amounts Reasonably Necessary for Subsistence Uses

There was a positive finding for customary and traditional use of 1,500–1,600 deer in Unit 2 (5 AAC 99.025).

Intensive Management

There was a positive finding for deer in Unit 2 (5 AAC 92.108). The Alaska Board of Game established a population objective of 71,000 deer and a harvest objective of 2,700 deer.

MANAGEMENT OBJECTIVES

Maintain populations with more than 45 deer per mi² (17 per km²) of winter range, as determined by mean densities of 1.4 pellet groups per plot (Kirchhoff 1990). Maintain deer population to allow for minimum of 2,700 harvested deer per year.

MANAGEMENT ACTIVITIES

Alaska Department of Fish and Game (ADF&G) conducted spring pellet-group surveys and aerial alpine surveys each year as staff time, budgets, and weather allowed. ADF&G collected population information from anecdotal reports provided by hunters and from field observations. A new technique for estimating deer abundance developed on POW (Brinkman et al. 2011) identifies individual deer using fecal DNA and uses DNA-based mark and recapture techniques to estimate population trends in distinct watersheds. Testing of this new technique continues, and managers are optimistic about the new methodology. It has the potential to replace traditional pellet group surveys in the future (Brinkman et al. 2011).

1. Population Status and Trend

ACTIVITY 1.1. Conduct deer pellet transects.

Data Needs

Assess the general population level to understand if harvest is additive or compensatory. Deer pellets can give a general index of population level. Kirchhoff and Pitcher (1988) recommended the following: <1.00 mean pellet group/plot (MPGP) classified as a low-density population, 1.00–1.99 MPGP classified as a moderate-density population, and >2.00 MPGP classified as a high-density population. ADF&G's goal is to maintain 1.40 MPGP. ADF&G interprets pellet-group transect data cautiously because the survey is designed to indicate long-term deer trends and not necessarily to measure year-to-year changes in deer numbers, or to estimate deer densities. Deer pellet surveys generally can only detect large ($\pm 30\%$) changes in deer densities.

Methods

ADF&G and the U.S. Forest Service (USFS) collaboratively monitor the deer population trend for Unit 2 by completing deer pellet transects. There are 20 Value Comparison Units (VCUs) in Unit 2 that have been historically surveyed. VCUs are USFS timber management units and are roughly equivalent to a watershed. During this reporting period Alaska Department of Fish and Game surveyed 6 VCUs, including Red Bay (532), Sarkar (554), Thorne Lake (575), Snakey Lakes (578), Little Ratz (584), and 12-Mile Arm (621; Fig. 2). Annual pellet-group surveys along transects (Kirchhoff and Pitcher 1988) are conducted during late April and early May for between 2 and 4 VCUs each year. Each location has 3 or 4 transects consisting of a straight line of 1 × 20-meter plots running uphill from the beach fringe along a compass bearing. Most transects terminate at 1,500 feet elevation. Transects that do not reach the alpine terminate after 120 plots. The number of plots vary, depending on the distance from the beach to the alpine, and the persistence of snow during the survey. Transects are terminated when snow cover is greater than 50% for 3 consecutive plots. The goal is to have 300 plots within each watershed. MPGP is calculated for each location, but combined for all locations to obtain an average MPGP for informing unitwide inferences on deer abundance trends.

Results and Discussion

ADF&G surveyed pellets using the traditional method in watersheds in Unit 2 in 2011 (n = 2), 2012 (n = 3, and 2015 (n = 5) and calculated a mean of 1.92 MPGP, 2.16 MPGP, and 1.40 MPGP, respectively for the 3 years (Fig. 3). Estimates for 2011 and 2015 indicate a moderate-density population, and estimates for 2012 indicated a high-density population. All 3 years met the 1.4 MPGP objective.

Extensive logging and the loss of intact old-growth timber stands has made it difficult to maintain pellet transects in some VCUs. When possible, ADF&G abandoned transects that were clearcut and attempted to identify alternate old-growth timber stands within the same watershed. Despite a few winters with above average snowfall in the last decade, pellet counts appear to be stable or slightly increasing in most of the VCUs surveyed. Pellet group data suggest that deer in Unit 2 are stable. ADF&G has not assessed the long-term impact from the 2 large timber sales currently in progress on Prince of Wales to see if pellet-transect locations are still intact and whether ADF&G will be able to continue this important deer trend index work.

Recommendations for Activity 1.1

Continue to monitor pellet trends if there is enough winter habitat to measure changes and assess the efficacy of employing the methods outlined in Brinkman et al. 2011.

ACTIVITY 1.2. Conduct alpine aerial surveys.

Data Needs

Use alpine aerial surveys as an index of abundance to assess general deer population level prior to hunting season.

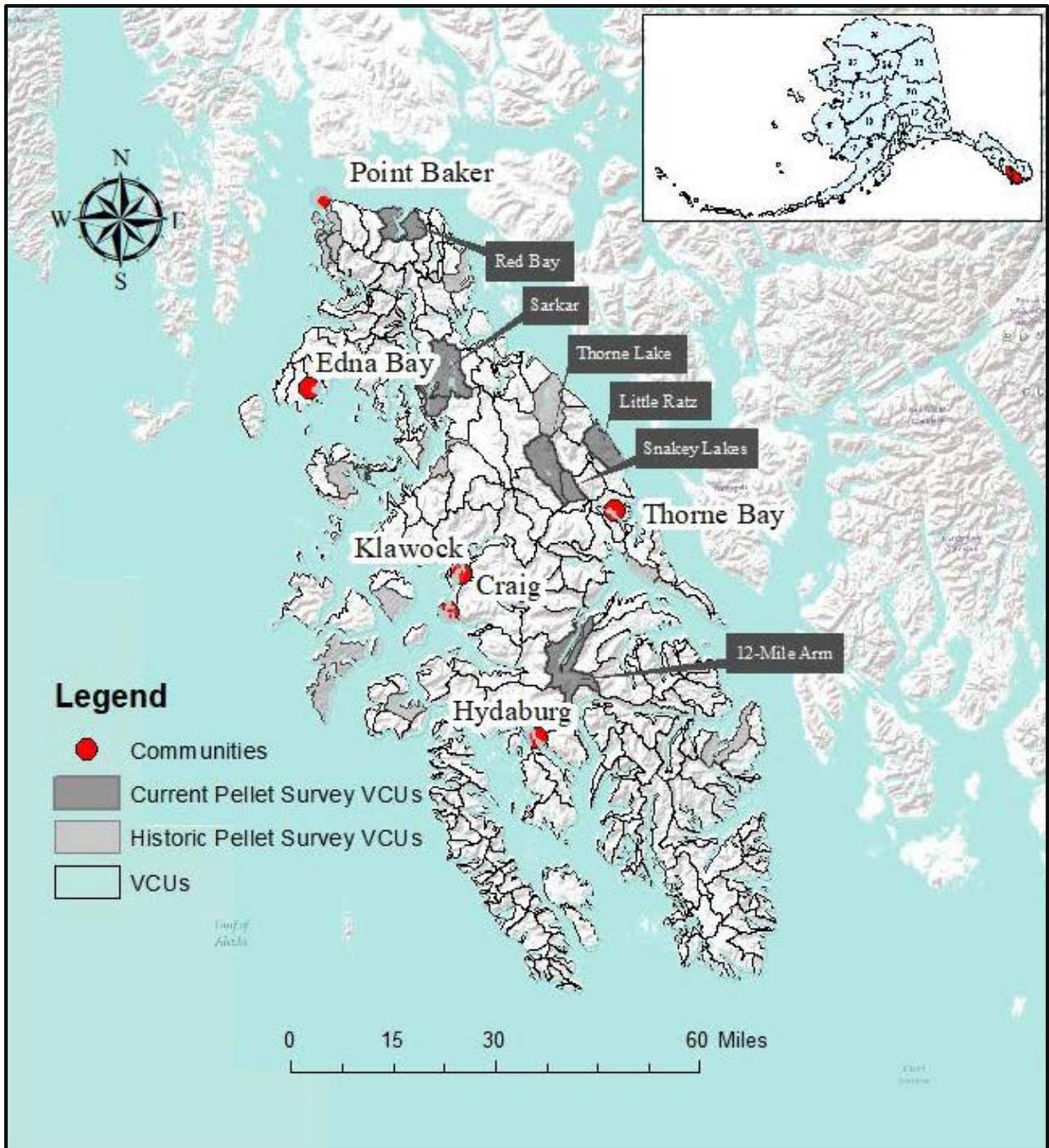


Figure 2. Unit 2 deer pellet survey locations by Value Comparison Unit (VCU), Southeast Alaska.

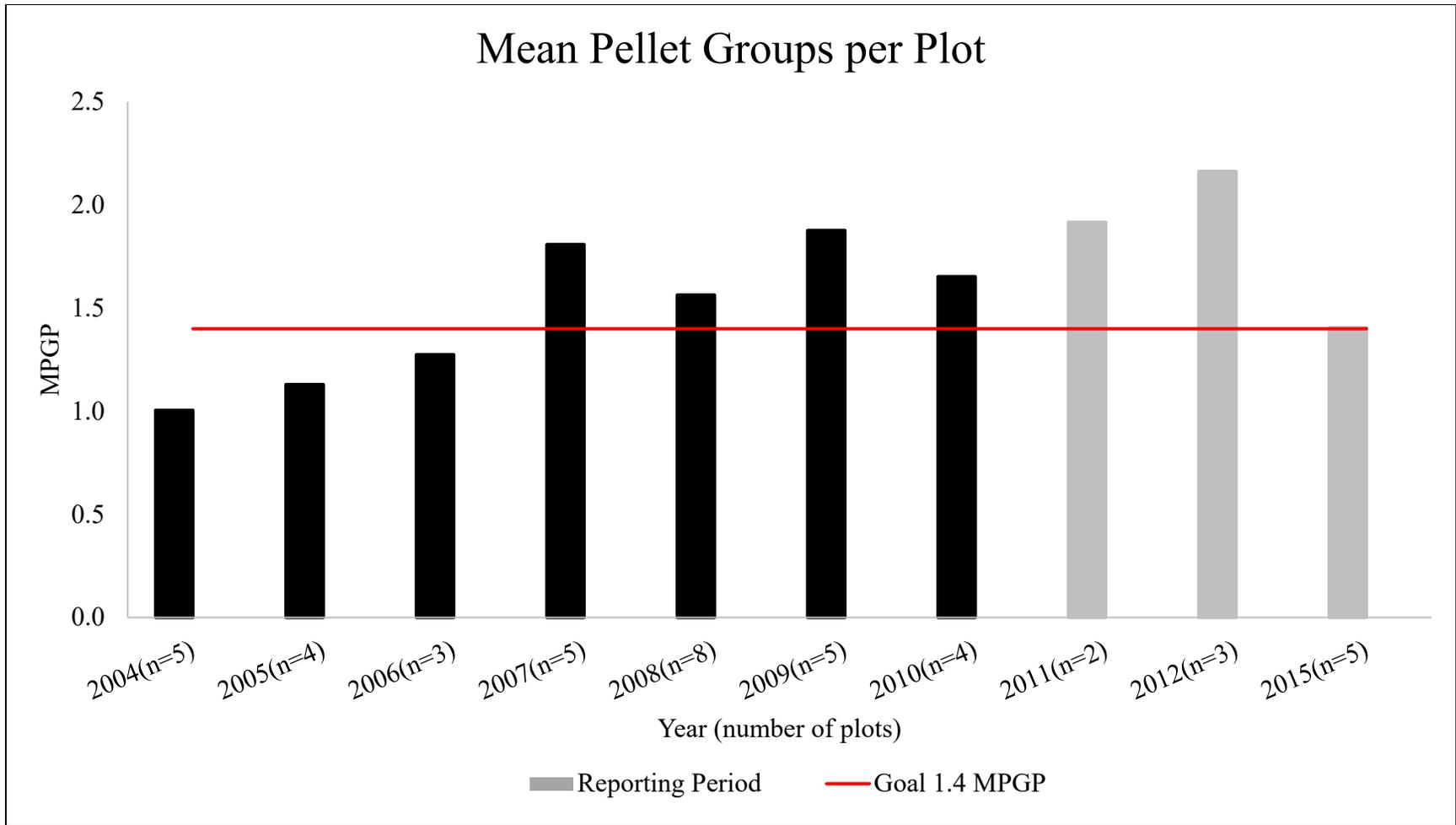


Figure 3. Mean pellet groups per plot (MPGP) for the 10 most recent sample periods, Unit 2, Southeast Alaska.

Methods

ADF&G performed one alpine aerial survey on northern POW (including Kosciusko Island) in 2014 via fixed-wing aircraft with 1 pilot (contracted through Wildlife Research and Management, Fairbanks, AK) and 1 observer searching for deer in alpine habitat. Temperature and cloud cover were recorded for the flight. The flight began 2 hours prior to sunset and terminated at sunset. Each 2-person team recorded the location and classification (i.e., large buck, small buck, doe, fawn, unknown) of observed deer. ADF&G calculated deer per hour, a metric that will be compared over time and space.

Results and Discussion

There is only 1 year of data and therefore it is limited to descriptive statistics with no inference to population level. ADF&G conducted the survey on 2 Aug, and observed 19 large bucks, 14 small bucks, 32 does, 3 fawns, and 17 unknowns for a total for 45 deer per hour. The relationship between alpine deer and overall deer population is currently unknown, but ADF&G is working to develop methods to test this relationship to improve the usefulness of this metric for management and conservation.

Recommendations for Activity 1.2.

Continue to perform aerial alpine surveys to create a long-term dataset. Consider using modelling and mark-recapture with pellet-fecal DNA coupled with a camera grid technique to understand how surveys relate to overall population level.

2. Mortality-Harvest Monitoring and Regulations

ACTIVITY 2.1. Quantify and analyze harvest data.

Data Needs

With a positive customary and traditional finding and a corresponding Amount Necessary for Subsistence (ANS) established, harvest must be assessed to evaluate the achievement of these goals. Currently, harvest objectives are not used as triggers for any kind of regulatory corrective actions on perceived deer abundance. This is because deer in Unit 2 are primarily limited by factors unrelated to legal hunting such as winter severity.

Methods

ADF&G collects population information from spring pellet-group surveys, field observations, and anecdotal reports from hunters. Prior to RY2011, ADF&G gathered harvest data from an annual hunter questionnaire, which were mailed to a random sample of hunters who were issued deer harvest tickets (ADF&G 2012). DWC mailed harvest questionnaires to approximately 33% of all Region I deer harvest ticket holders. Using the answers on the surveys returned to us, ADF&G expanded the results statistically to estimate hunting results for all deer harvest ticket holders. This deer harvest survey had been conducted since the early 1980s to estimate deer harvest. However, at the 2010 Board of Game meeting, the department submitted a proposal to change harvest assessment from the survey format to an individual hunter harvest ticket report. The proposal was accepted and was implemented in July of 2011.

Harvest data are summarized by regulatory year (RY), which begins 1 July and ends 30 June (e.g. RY12 = 1 July 2012–30 June 2013). Beginning with the 2011 season, all deer hunters were required to submit a hunt report detailing information for each hunting trip. Hunters indicated the locations hunted, number of days hunted, number of deer harvested, sex of the deer harvested, commercial services employed, method of take, and transportation type used to access the hunting location harvest data is statistically extrapolated to account for low reporting rates.

Season and Bag Limit

Nonfederally qualified hunters: 1 August–31 December, 4 bucks.

Federally qualified hunters: 24 July–31 January, 5 deer, however, no more than 1 can be antlerless.

Results and Discussion

Harvest by Hunters

The yearly reported harvest in Unit 2 has averaged 3,858 deer over the past 5 seasons (2011–2015) with the highest reported harvest to date during 2015 with 4,244 (Table 1). Annual harvest remained well above the harvest objective of 2,700 for all 5 years. The 2015 harvest was the highest reported harvest on record for Unit 2 (Table 1). Deer per hunter average was 2 deer during the past 5 years (2011–2015). The average hunter days per deer during the same period were 3.9 days. Hunter success rates for 2011–2015 were also high at 78% (Table 1). Reported harvest data is consistent with anecdotal and field observations in Unit 2, which all suggest the Unit 2 deer population is stable-to-increasing and currently at a 15- to 20-year high level.

Table 1. Unit 2 reported number of deer harvested, hunter success rate, and calculated effort, Southeast Alaska, regulatory years 2011–2015.

Regulatory year	Reported Harvest			Hunter Success and Effort		
	Male	Female	Total	% Successful hunters	Average deer per hunter	Average days per deer
2011	3,639	107	3,746	80	2.2	4.1
2012	3,600	95	3,695	73	2.0	3.9
2013	3,600	76	3,676	80	1.9	3.7
2014	3,812	118	3,930	77	1.8	4.0
2015	4,147	97	4,244	80	2.0	3.9
Average	3,760	99	3,858	78	2.0	3.9
Percent	97	3	–	–	–	–

Reporting rates are low for Unit 2 which makes it difficult to accurately estimate harvest. Unreported harvest, especially of female deer by federally qualified residents of Unit 2, is concerning. After hearing testimony from POW residents at both the Regional Advisory Council and other Unit 2 public meetings regarding the numbers of does currently being harvested and not reported on the state report system, it is obvious the unreported impact to the deer population is significant. The mandatory deer hunt reports may improve ADF&G’s ability to detect changes in harvest and effort. Harvest statistics such as hunt location, number of hunting days, number of hunting trips, number of deer harvested by sex, transportation, and month of kill will be an important measure of deer abundance that will be useful for evaluating progress toward achieving program objectives.

Hunter Residency and Success

During this reporting period there was a similar proportion of federally qualified and nonfederally qualified deer hunters on average in Unit 2 (Table 2). However, on average, 60% of deer harvest was by federally qualified hunters (Table 2). Unit 2 residents had the highest annual average success rate (83%), followed by Ketchikan residents (70%), other Alaskan residents (69%), and nonresidents (54%; Table 3). On average, less than 3% of hunters reported harvesting their full bag limit (Fig. 4). The majority of federally qualified hunters (67%) reported harvesting between 0 and 2 deer per year.

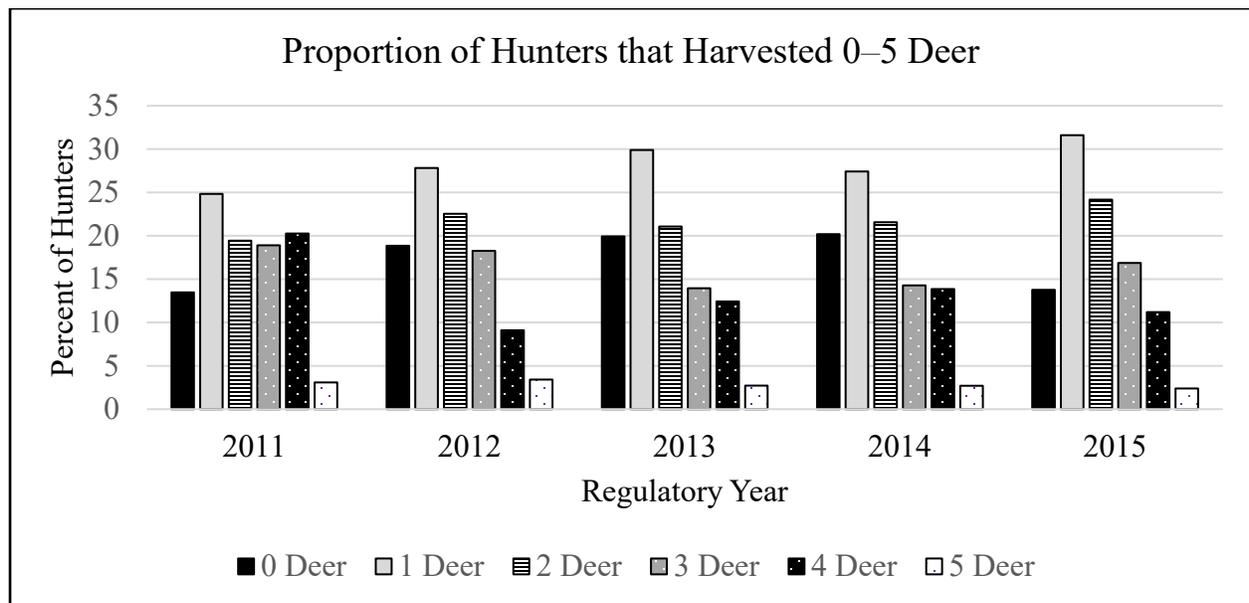


Figure 4. Proportion of Unit 2 residents who harvested from 0 to 5 deer, Southeast Alaska, regulatory years 2011–2015.

Table 2. Unit 2 number of federally qualified and nonfederally qualified hunters, and number of deer harvested by each for regulatory years 2011–2015, Southeast Alaska.

Regulatory year	Total hunters					Total harvest				
	# Federally qualified	# Nonfederally qualified	Total	% Federally qualified	% Nonfederally qualified	# Federally qualified	# Nonfederally qualified	Total	% Federally qualified	% Nonfederally qualified
2011	1,157	1,065	2,222	52	48	2,379	1,367	3,746	64	36
2012	1,283	1,199	2,482	52	48	2,230	1,467	3,696	60	40
2013	1,266	1,223	2,489	51	49	2,199	1,479	3,678	60	40
2014	1,369	1,356	2,726	50	50	2,366	1,566	3,931	60	40
2015	1,389	1,424	2,813	49	51	2,486	1,757	4,243	59	41
Average	1,293	1,254	2,546	51	49	2,332	1,527	3,859	60	40

Table 3. Unit 2 deer harvest success rates by residency, Southeast Alaska, regulatory years 2011–2015.

Regulatory year	Hunter residency			
	Unit 2	Ketchikan	Remaining Alaska	Non-Alaska
2011	87	68	71	54
2012	81	72	65	56
2013	80	69	75	57
2014	80	68	61	49
2015	86	73	75	55
Average	83	70	69	54

Harvest Chronology

Most Unit 2 deer are harvested during August, October, and November (Table 4). August harvest levels were traditionally much higher but beginning in 2003, significant changes were implemented to federal deer hunting regulations that restricted nonfederally qualifying hunters from participating during the first 2 weeks of August. Federally qualified hunters are taking more advantage of the July season when day length is longer, and the weather is typically mild. For nonfederally qualified hunters, November is now the most popular month to hunt and accounts for roughly 52% of the total reported harvest (Table 4).

Table 4. Unit 2 deer harvest chronology by month for regulatory years 2011–2015, Southeast Alaska.

Regulatory year	Jul ^a	Aug	Sep	Oct	Nov	Dec	Jan ^a	Unk/other
2011	203	555	290	586	1,871	200	–	41
2012	139	453	301	557	1,905	314	–	28
2013	169	476	284	449	2,092	174	–	34
2014	152	594	287	576	2,100	191	–	32
2015	185	644	348	697	2,128	207	26	33
Average	170	544	302	573	2,019	217	26	34
Percent	4	14	8	15	52	6	<1	<1

^a Only federally qualified hunters can harvest deer in July and January.

Transport Methods

With the extensive road system in Unit 2, highway vehicles typically dominate the preferred access methods for hunters. On average during this reporting period, 27% of hunters used boats to access hunting areas and 63% of hunters used highway vehicles (Table 5).

Table 5. Unit 2 hunter transportation methods, Southeast Alaska, regulatory years 2011–2015.

Regulatory year	Method of transportation					
	Airplane	Boat	Foot	Highway vehicle	Other ^a	Unknown
2011	75	638	213	1,473	33	89
2012	101	713	195	1,613	17	69
2013	90	719	61	1,736	21	71
2014	103	865	83	1,804	5	91
2015	131	845	99	1,937	4	36
Average	100	756	130	1,713	16	71
Percent	3	27	4	63	<1	3

^a Other methods include horse, dog team, 4-wheeler, snow machine, off-road vehicle, and airboat.

Other Mortality

Alaska Department of Fish and Game believes Unit 2 has one of the highest illegal and unreported harvests in the region. Unreported harvest has previously been estimated to be equal to the Unit 2 reported harvest. These estimates are based on anecdotal reports, interviews with law enforcement personnel, public testimony, and deer research on POW (Person 2010). After being identified as a high priority, an extensive effort was placed on obtaining better Unit 2 deer harvest reporting to quantify the actual number of deer killed each year. However, anecdotal reports from hunters and public testimony during an extensive multi-agency Unit 2 deer planning effort during 2004 (Unit 2 Deer Planning Subcommittee 2005) suggest that even with the best efforts to improve deer harvest reporting in Unit 2, it still significantly underestimates the actual number of deer harvested. Flynn and Suring (1989) reported that actual hunter kill could be 38% greater than total estimated harvests from hunter reports because of crippling loss. Field observations and voluntary reports of wounding loss verify that current wounding loss estimates are conservative.

Prior to extensive road paving on the island, deer/vehicle collision estimates were low (10–25 deer/year) and were not considered a significant source of Unit 2 mortality. However, the collision risk increased in 2003 because of extensive new POW highway paving projects, which now extend from Craig to Coffman Cove and east to Thorne Bay. Higher vehicle speeds, as well as an attractive food source created by planting grass for erosion control near the new roads will likely cause more deer/vehicle collisions.

Recommendations for Activity 2.1

Continue collecting hunter harvest data and work to increase compliance with reporting requirements.

3. Habitat Assessment-Enhancement

No actions during this reporting period.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Data Recording and Archiving

Deer harvest data are stored on an internal database, ADF&G's Wildlife Information Network (WinfoNet).

Agreements

During this reporting period a memorandum of understanding (MOU) between ADF&G and the USFS (14-MU-11100500-022) went into effect in June 2014. The expiration is June 30, 2019.

Permitting

Permitting options are available for disabled hunters allowing them to shoot from a boat as well as proxy permits allowing a hunter to harvest deer on behalf of other residents.

Conclusions and Management Recommendations

Managing Sitka black-tailed deer and deer hunters is a difficult task in this region. Alaska Department of Fish and Game relies on indices (aerial surveys and pellet counts) and harvest statistics to assess population trends. During this regulatory period, these indices and harvest statistics suggest the deer population is currently stable. Both pellet count data and deer harvest data have exceeded minimum objectives. Aerial surveys will become more useful when there are more years of data.

ADF&G currently has several limitations that need to be addressed. First, it will be important to assess and understand the relationship between alpine counts and overall population level. Research between these 2 factors would increase statistical inference, therefore enhancing the usefulness of aerial alpine surveys. Second, unreported harvest rates of both sexes are high and may become unsustainable. Increasing compliance with reporting requirements will better help track the deer population. Third, federal regulations are outside of ADF&G control and therefore ADF&G can only directly impact regulations for nonfederally qualified hunters. This limits ADF&G's ability to react to changes in populations trends.

In order to address these limitations, ADF&G suggests collaborating with research staff, partner agencies, and other entities to create solutions. The efficacy of aerial alpine surveys needs to be assessed and therefore a project needs to be created. ADF&G also needs to work towards increasing compliance with reporting requirements. We cannot shift federal regulations, but ADF&G should continue to advise federal agencies on sustainable deer regulations and provide data to help set regulations, as well as continue to perform deer pellet surveys and collaborate with research partners.

II. Project Review and RY16–RY20 Plan

Review of Management Direction

MANAGEMENT DIRECTION

- Provide a bag limit that allows for hunter harvest including 4 bucks for all residents and nonresidents.
- Submit proposals to the Board of Game to reduce additive mortality following harsh winters with deep persistent snow.

GOALS

Provide greatest opportunity to participate in hunting deer (ADF&G 1976).

CODIFIED OBJECTIVES

Amounts Reasonably Necessary for Subsistence Uses

There was a positive finding for customary and traditional use of 1,500–1,600 deer in Unit 2 (5 AAC 99.025).

MANAGEMENT OBJECTIVES

Maintain populations greater than 45 deer per mi² of winter range, as determined by mean densities of 1.4 pellet groups per plot (Kirchhoff 1990).

REVIEW OF MANAGEMENT ACTIVITIES

1. Population Status and Trend

ACTIVITY 1.1. Conduct deer pellet transects.

Data Needs

Evaluate measures of variance for average MPPG with a biometrician to better inform strength of information based on pellet counts.

Methods

No change from report section.

ACTIVITY 1.2. Conduct alpine aerial surveys.

Data Needs

Continue to perform alpine aerial surveys and evaluate the relationship between alpine observations and overall deer population. Although alpine aerial deer surveys are a convenient method for assessing trends, data on the ratio of alpine deer to nonalpine deer would better help assess population dynamics and increase statistical inference.

Methods

No change in survey methods from report section. Annually perform 3–4 alpine aerial surveys on northern POW (including Kosciusko Island) and 3–4 alpine aerial surveys on central POW.

2. Mortality-Harvest Monitoring

ACTIVITY 2.1. Quantify and analyze harvest data.

Data Needs

No change from report section.

Methods

No change from report section.

3. Habitat Assessment-Enhancement

No activities anticipated.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Data Recording and Archiving

Alaska Department of Fish and Game is transitioning to a new harvest reporting process and should continue to advocate to hunters to report total harvest. Please note that there may be discrepancies between data in this report and management reports from previous reporting periods. DWC deleted many records and reloaded data from 1997–2010 in the WinfoNet database due to questionable records found in the database. In most cases, these data differences were minimal and the current deer harvest data is the best available to date.

Agreements

During this reporting period a memorandum of understanding (MOU) between ADF&G and the USFS (14-MU-11100500-022) went into effect in June 2014. The expiration is June 30, 2019.

Permitting

Permitting options are available for disabled hunters allowing them to shoot from a boat as well as proxy permits allowing a hunter to harvest deer on behalf of other residents.

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