

Deer Management Report and Plan, Game Management Unit 5:

Report Period 1 July 2011–30 June 2016, and

Plan Period 1 July 2016–30 June 2021

Stephanie Sell



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Plan Period 1 July 2016–30 June 2021

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This species management report and plan was reviewed and approved for publication by Stephen Bethune, Acting Management Coordinator for the Division of Wildlife Conservation.

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Cover Photo: Spike buck still in early August velvet. ©2009 ADF&G. Photo by Stephen Bethune.

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Purpose of this Report

This report provides a record of survey and inventory management activities for deer in Unit 5 for the previous 5 regulatory years and plans for survey and inventory management activities in the 5 years following the end of that period. A regulatory year (RY) runs from 1 July through 30 June (e.g., RY10 = 1 July 2010–30 June 2011). This report is produced primarily to provide agency staff with data and analysis to help guide and record its own efforts, but is also provided to the public to inform them of wildlife management activities. In 2016 the Alaska Department of Fish and Game’s Division of Wildlife Conservation launched this new type of 5-year report to more efficiently report on trends and describe potential changes in data collection activities over the next 5 years. It replaces the deer management reports of survey and inventory activities that were previously produced every 2 years.

I. RY11–RY15 Management Report

Management Area

Unit 5 encompasses an area of approximately 5,800 mi² of mainland in northern Southeast Alaska and the eastern Gulf of Alaska coast from Cape Fairweather to Icy Bay (Fig. 1). Yakutat has a maritime climate characterized by relatively mild but often rainy weather with heavy snowfall in the winter months. Unit 5 is comprised of many large glacial systems, including the Malaspina and Hubbard glaciers, icefields, fjords, complex river systems, dense forested habitat with large meadow systems, tidelands and estuaries. Land management in this area is complex, with a variety of state and federal agencies and Alaska Native corporations playing roles.

The climate is typical of coastal rainforests with a strong maritime influence leading to cool wet summers and cold snowy winters. Annual snowfall averaged 143.1 inches (range 47.1–329.9 inches) during RY11–RY15, which was 11% lower than the previous 5-year average of 161.1 inches (range 74.4–225 inches). The total snowfall during the winter of 2011–2012 was one of the highest on record (329.9 inches) while the winter of 2015–2016 was very low in comparison at the Yakutat Airport (NOAA 2017; Fig. 2).

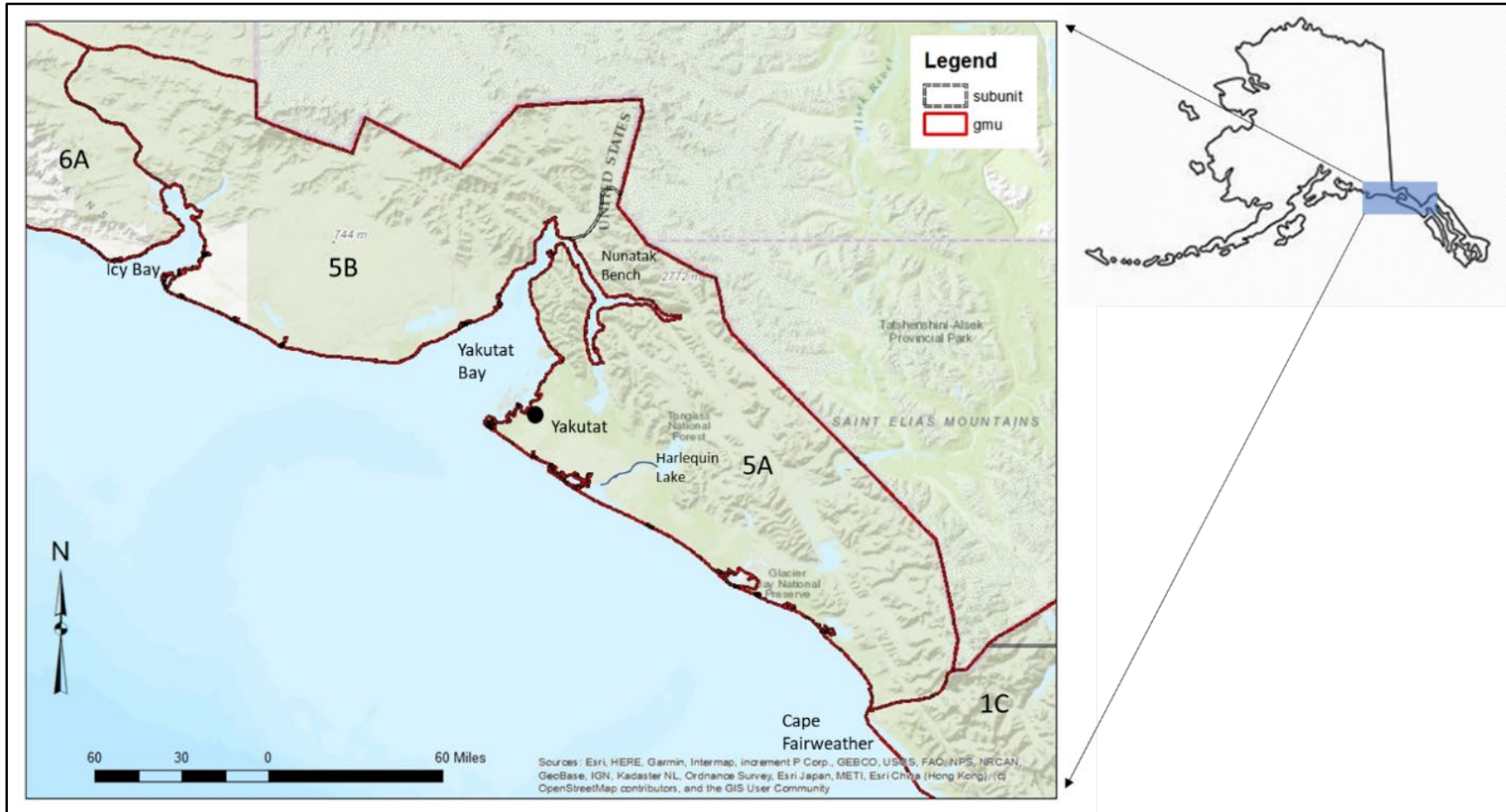


Figure 1. Map showing Game Management Unit 5, Yakutat Area, Southeast Alaska.

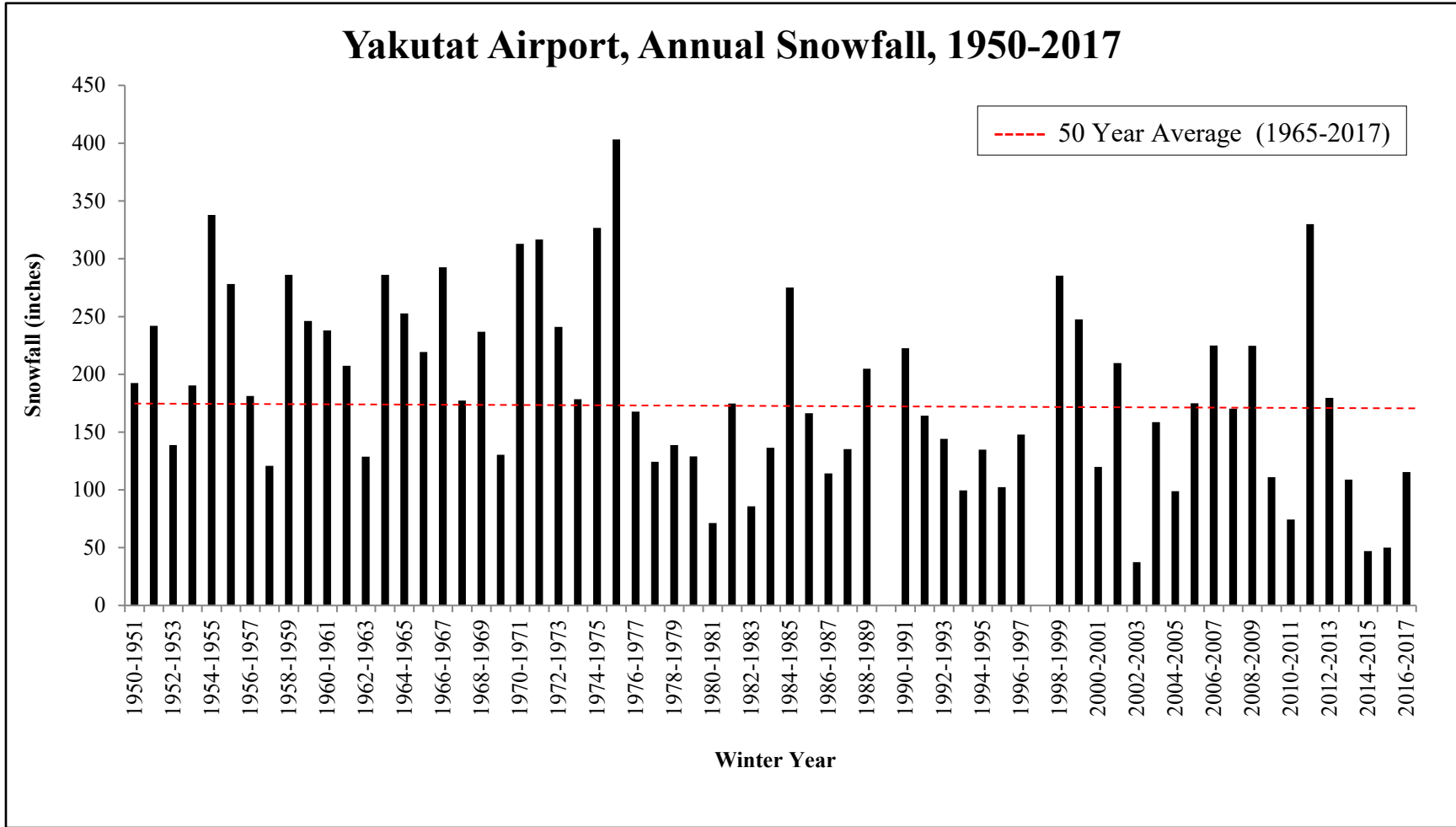


Figure 2. Annual winter snowfall measured at the Yakutat airport, 1950–2016. The 50-year average snowfall (185.7 inches) is represented as a red horizontal dashed line (NOAA 2017).

Summary of Status, Trend, Management Activities, and History of Deer in Unit 5

Deer were introduced to the Yakutat Bay islands in 1934, when 7 does and 5 bucks were released (Paul 2009). These animals established a small population that persists on islands and along the eastern mainland of Yakutat Bay. Heavy snowfall and predators limit deer densities, but the population has supported small harvests over the years. Most deer are taken incidentally. There is little potential for this herd to increase because of the extreme climatic conditions and limited habitat.

Due to deer declines in the 1970s and a virtual cessation of harvest, the Unit 5 season was closed in July 1980. By the end of the 1980s, deer had recovered to some degree, and public requests for an open season began coming before the Board of Game (BOG). In 1991 the BOG instituted a limited hunt in Unit 5A, with a 1-month bucks-only season. Since then, small numbers of deer have been taken in most years, including some reports of illegal harvest.

ADF&G began conducting hunter surveys in 1970 and continued annually through 2010. Those surveys evolved from telephone contacts of a few hunters to a mail-out survey of a random list of hunters (approximately 33%) beginning in 1980. The survey was designed to collect information on hunter effort, hunt location, hunt timing, number of days hunted, transportation used, and the number of deer harvested. In 2011 the department switched from a mail-out survey to a harvest ticket report that all hunters are required to turn in. Survey results for hunter effort, success, and kill location were expanded to estimate results for all harvest ticket holders. Pellet-group counts (Kirchhoff and Pitcher 1988) began in Unit 5A in 1984 and have been conducted primarily on the Yakutat islands and Knight Island with the help of the U.S. Forest Service (USFS). During this reporting period, pellet transect surveys were only conducted in RY13 on the Yakutat islands in Unit 5 (Table 1).

Winter severity, primarily deep and persistent snow, habitat and resource competition with moose appears to limit deer populations in Unit 5. Deer densities remain relatively low however, anecdotal information and staff observations during this report period suggested that deer were much more abundant than ever before and had expanded their range as far inland as the Dangerous River. In recent years, deer are routinely seen along the road system near the community of Yakutat and the areas adjacent to Highway 10. Very mild winters from 2000–2005 allowed deer populations across the region to do very well, however the winters of 2006–2007 and 2007–2008 were severe with record snowfalls recorded in Yakutat (Fig. 2). The snowpack restricted deer movements and led to a substantial deer die off across the region.

Table 1. Unit 5A deer population trends as indicated by pellet-group surveys, RY90–RY15.

Area	Regulatory year	Mean pellet-groups/plot	Number of plots	95% CI
Knight Island (VCU 361)	1990	0.81	100	0.61–1.01
	1991	0.95	100	0.74–1.16
	1993	0.44	90	0.25–0.64
	1995	0.0	153	0.00–0.00
	1996	0.03	192	0.01–0.05
	2002	0.22	117	NA
Humpback (VCU 363)	1990	0.01	118	0.00–0.03
Yakutat Islands (VCU 368)	1990	0.32	415	0.24–0.39
	1991	0.48	243	0.37–0.58
	1992	1.07	106	0.81–1.32
	1993	0.66	251	0.52–0.80
	1995	0.59	379	0.48–0.69
	1996	0.59	344	0.48–0.70
	1999	0.9	145	0.85–0.95
	2001	0.66	200	NA
	2002	0.58	325	NA
	2003	0.86	274	NA
	2007	1.97	421	1.76–2.18
2013	1.3	355	1.14– 1.46	
Ankau (VCU 369)	1990	0.03	116	0.00–0.05

Note: VCUs are the U.S. Forest Service (USFS) timber management units and are roughly equivalent to a watershed.

Management Direction

EXISTING WILDLIFE MANAGEMENT PLANS

Region I developed a wildlife management plan in 1976 (ADFG 1976) which included objectives and management strategies for deer populations throughout the region. That plan was never formally updated, however a strategic plan for management of deer population objectives was developed to guide management through RY89 (ADF&G 1991).

GOALS

Although the overall goals of the original plans are important, the management objectives and harvest management strategies have changed since the plan was written based on public

comment, staff recommendations, and Board of Game actions. These periodic changes in management planning have been reported in the division's previous species management reports. The plan portion of this report contains the current management plan for deer in Unit 5.

CODIFIED OBJECTIVES

Amounts Reasonably Necessary for Subsistence Harvest

The Board of Game has made a positive finding for customary and traditional use of deer in Game Management Unit 5 and set 20–40 deer as the amount necessary for subsistence (ANS). The unit-wide ANS has not been met since 2011.

Intensive Management

There is a negative finding for deer in Unit 5.

MANAGEMENT OBJECTIVES

- Maintain a population capable of sustaining a 1-month season and a bag limit of 1 buck.

MANAGEMENT ACTIVITIES

1. Population Status and Trend

ACTIVITY 1.1. Traditional deer pellet-group surveys.

Data Needs

Formal population estimates are not available for Unit 5 deer. Population information is needed to determine if management objectives are being met. Deer pellet-group surveys have been the primary method used by ADF&G to provide an index of general population trends.

Methods

Deer pellet-group surveys were conducted annually along traditional straight-line transects (Kirchhoff and Pitcher 1988) on several islands in Yakutat Bay: Krutoi, Kriwoi, Khantaak, and Dolgoi. Most transects surveyed were previously established in old-growth forest because of its importance as winter habitat for deer (Schoen and Kirchhoff 1990).

Results and Discussion

Deer pellet-group surveys and harvest data are the only mechanisms currently used to monitor general trends in the Unit 5A deer population (McCoy 2017). The only pellet-group survey conducted during this reporting period was the Yakutat Islands in 2013. Transects averaged 1.30 groups per plot (range 1.14–1.46; Table 1). Pellet densities on the Yakutat islands were lower than the last survey in 2007, however the department does not feel this is an indication of a decline in the deer population because the public are reporting an increase in deer sightings. During 2013 survey, department staff noticed heavy browsing on blueberry plants and moose

pellets and tracks in some areas. This suggests that there may be some level of competition occurring on the island between these 2 ungulate species.

Pellet-group surveys have biases and limitations as quantitative measures of deer abundance and were not originally designed to detect finer-scale ($\leq 30\%$) changes in deer abundance (Karin McCoy, ADF&G, pers. comm.). Deer pellet-group surveys allow biologists to get in the field and assess browse intensity, habitat condition, and investigate over-winter mortality to a degree. Mild winters during the reporting period allowed for more mobility of deer due to the absence of snow no longer restricting their movements (Fig. 2).

Recommendations for Activity 1.1

Pellet-group transects are the most common method used to monitor deer population trends in specific watersheds throughout the unit and region. They are intended to document large changes ($>30\%$) in deer density. The data also permit general comparisons of deer abundance among areas and years (McCoy 2011). Because winter severity can influence the results of pellet-group surveys, inferences about population trends based on year to year variations in observed pellet-group densities must be made with caution (Lowell 2013). Although some managers have expressed that deer pellet-group surveys provide little useful management information about deer numbers or distribution, we recommend that traditional pellet-group surveys be continued every 3–5 years on the Yakutat islands and Knight Island in Unit 5A because this is where the majority of total deer harvest in the area occurs.

2. Mortality-Harvest Monitoring and Regulations

ACTIVITY 2.1. Analyze deer harvest data from mandatory deer hunt reports.

Data Needs

Hunt report data is required to determine if harvest objectives are being met. It provides information about the number of participants in the hunt, hunter effort and success, location of hunt and harvest, and modes of transport. Information collected about harvest trends can be indicative of population fluctuations.

Methods

Hunters in Unit 5A are required to obtain a general season harvest ticket before entering the field. Each harvest ticket requires the hunter's demographic information including their hunting license number and includes a series of punch tickets that hunters must validate upon successful harvest of a deer. Harvest tickets also contain a mail-in hunt report card which can also be completed online at www.hunt.alaska.gov for each trip they went on regardless of success.

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). From RY80–RY10, we estimated¹ total deer harvest

¹ Note that the Unit 5 deer harvest estimates and summary statistics cited here for RYs 2006–2010 may differ slightly from those cited in previous Unit 5 Deer Management Reports. Discrepancies between the deer harvest estimates provided in this document and those provided

by asking a randomly selected group of individuals who obtained deer harvest tickets (approximately 33% of hunters from each residence community) to voluntarily report their hunting activity. Follow-up letters were sent to nonresponders in an attempt to improve sample size. In order to obtain a total harvest estimate, the reported harvest was then multiplied by an expansion factor.

Since 2011, deer harvest data have been derived from mandatory hunt report cards issued in conjunction with deer harvest tickets rather than by polling a random sample of hunters from each community. All deer hunters are now expected to report their hunting activities. Nonetheless, not all hunters submit the required hunt report. Therefore, in order to obtain total harvest estimates, the reported harvest must still be multiplied by an expansion factor to account for nonrespondents.

Once hunt reports have been submitted, reported hunt and harvest locations are coded for data entry. Hunters often provide vague hunt or harvest locations in which case an attempt is made to contact them for more precise location data. A cutoff date of 15 June has been established for receipt of hunt reports. Any hunt reports not submitted or received by 15 June are excluded from analysis. Once all hunt and harvest locations have been coded and data entry is complete, the results are analyzed and summaries of total harvest, hunter residency and success, harvest chronology, and transportation methods are derived for each unit.

Season and Bag Limit

Area	Season	Resident and nonresident hunters
Unit 5A (<i>youth hunt only</i>)	15 October–31 October	1 antlered deer
Unit 5A	1 November–30 November	1 antlered deer
Unit 5B	No open season	

Results and Discussion

Harvest by Hunters

The average annual harvest in Unit 5A during this reporting period was 23 deer (Table 2). The majority of deer were harvested within Yakutat Bay (Khantaak and Knight islands). The average number of days hunters took to harvest a deer during the reporting period varied between 6.3–18.0 days/deer with an average of 13.2 days/deer (Table 3). Deer harvests spiked in RY11 during a period when the Yakutat area experienced record snowfalls and deer were driven to the beaches to seek refuge making them readily accessible to hunters. Harvest decreased significantly after RY11 presumably due to the high harvest and potential winter deer die off during the heavy snow fall that year. Since RY11, the annual harvest has remained low but fairly

in previously cited documents are the result of a recently completed reanalysis and rectification of Region I deer hunter survey data and annual harvest estimates dating back to RY97.

stable. Mild winters during the remainder of the reporting period have allowed for deer to rebound and deer sightings in town suggest that populations have recovered to some degree.

Hunter Residency and Success

The overall success rate for all Unit 5A deer hunters combined averaged 32% during this report period. As is generally the case, local residents of Unit 5A represented the largest group of both successful and unsuccessful hunters, accounting for 94% of the hunters. During this report period the overall success rate for local residents (residents of Unit 5A) was 33%, nonlocal Alaska residents was 19%, while nonresidents had an overall success rate of 33% (Table 4).

Table 2. Unit 5A annual deer harvest, RY06–RY15.

Regulatory year	Males	Females	Estimated total
2006	42	0	42
2007	19	0	19
2008	26	0	26
2009	23	0	23
2010	30	0	30
2011	51	0	51
2012	19	0	19
2013	15	0	15
2014	17	0	17
2015	13	0	13

Table 3. Unit 5A hunter effort and success, RY06–RY15.

Regulatory year	Number of hunters	Number of days hunted	Number of deer killed	Number of deer/hunter	Number of days/deer
2006	86	319	42	0.5	7.6
2007	46	250	19	0.4	13.2
2008	65	247	26	0.4	9.5
2009	51	157	23	0.5	6.8
2010	68	294	30	0.4	9.8
2011	90	322	51	0.6	6.3
2012	69	254	19	0.3	13.4
2013	61	215	15	0.2	14.3
2014	75	242	17	0.2	14.2
2015	64	234	13	0.2	18.0

Table 4. Unit 5A deer hunter residency and success, RY06–RY15.

Regulatory year	Successful					Unsuccessful					Total hunters
	Local ^a resident	Nonlocal ^b resident	Nonresident	Unknown	Total (%)	Local ^a resident	Nonlocal ^b resident	Nonresident	Unknown	Total (%)	
2006	21	5	0	0	26 (30)	55	5	0	0	60 (70)	86
2007	14	6	0	0	20 (43)	27	0	0	0	27 (57)	47
2008	26	0	0	0	26 (40)	39	0	0	0	39 (60)	65
2009	23	0	0	0	23 (45)	28	0	0	0	28 (55)	51
2010	24	6	0	0	30 (44)	33	5	0	0	38 (56)	68
2011	50	2	0	0	52 (58)	30	7	0	0	37 (42)	89
2012	19	0	0	0	19 (28)	49	1	0	0	50 (72)	69
2013	14	1	0	0	15 (25)	43	1	2	0	46 (75)	61
2014	17	0	0	0	17 (33)	52	3	2	0	57 (78)	73
2015	11	0	2	0	13 (20)	50	1	0	0	51 (80)	64

^a Local means residents of Unit 5A.

^b Nonlocal residents are Alaska residents who do not live in Unit 5A.

Table 5. Unit 5A deer hunters by transport method (%), RY06–RY15.

Regulatory year	All-terrain			Highway			Unknown
	Airplane	Boat	Vehicle	Foot	vehicle	Other	
2006	0	65	5	0	20	0	10
2007	0	55	9	9	18	0	9
2008	0	59	6	0	35	0	0
2009	0	75	0	8	17	0	0
2010	0	63	7	12	12	0	6
2011	0	72	3	7	8	2	8
2012	2	54	6	10	23	0	5
2013	5	65	5	0	16	0	9
2014	0	56	2	2	34	0	6
2015	2	58	3	3	26	0	8

Transport Methods

Since nearly all deer are taken from small offshore islands, boats are typically the primary means of transportation used by deer hunters in Unit 5A. During this report period, hunters reported using boats (61%), highway vehicles (21%), walking (5%), and all-terrain vehicles (4%) to access deer hunting areas (Table 5). Hunters are often confused regarding which mode of transportation to submit on a hunt report. This confusion comes from using various modes of transportation prior to setting out on foot in search of deer (e.g., towing a boat to harbor with highway vehicle).

Other Mortality

Winter mortality is suspected to have been minimal due to the mild winters during this report period. Although brown bears, black bears and wolves are also present in Unit 5A the extent of deer mortality by these species has not been investigated. Illegal harvest of deer most likely occurs in Unit 5A, but we do not know how prevalent it is but is suspected to be fairly low. We do not have estimates of nonhunting mortality during the report period.

Alaska Board of Game Actions and Emergency Orders

During the 2012 Board of Game meeting the board passed a proposal to open a youth only deer hunt in Unit 5A which starts 2 weeks before the regular season. Youth hunters must successfully complete a department approved hunter education course and be accompanied by a licensed resident adult at least 21 years of age or older. The Board modified the amount reasonably necessary for subsistence uses for deer in Unit 5 to a range of 20–40 based on the mean and standard deviation of harvest by all Alaska residents from 2008–2012.

Recommendations for Activity 2.1

Continue to monitor total harvest for comparison with management objectives.

3. Habitat Assessment-Enhancement

ACTIVITY 3.1. Conduct annual browse surveys.

Data Needs

Winter habitat in the form of low elevation, high volume old growth forests is the most important habitat factor for deer in the region. Deer habitat capability models were developed to estimate the capability of habitats in Southeast Alaska to support populations of Sitka black-tailed deer (Suring et al. 1992), however Unit 5 was not included. No habitat assessment or habitat enhancement has occurred in Unit 5A since the model was developed.

Methods

The model for other regions provides an evaluation of habitat quality which is assumed to be related to long-term carrying capacity. The model only used winter range because winter is assumed to be the most limiting season for Sitka black-tailed deer (Hanley and McKendrick 1985). Suring et al. (1992) determined that under low snow, intermediate snow, and deep snow situations deer carrying capacity is assumed to be 125 deer per mi² (0.5 deer per ha), 100 deer

per mi² (0.4 deer per ha), and 50 deer per mi² (0.2 deer per ha) respectively for habitats with the highest coefficients.

Recommendations for Activity 3.1

We recommend that some sort of habitat capability assessment or monitoring be completed within Unit 5A and Region I to better determine deer population estimates, and harvest objectives within each Unit.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

None.

Data Recording and Archiving

All records and data analysis related to deer pellet-group transects, harvest tickets, and hunter reports are archived on network servers in the Douglas, Region I office.

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

Pellet surveys were conducted on the Yakutat Islands of Krutoi, Kriwoi, Khantaak, and Dolgoi during RY13 of this report period. Overall, the average density of deer pellets decreased during this reporting period but remains the second highest density since 1990 (Table 1).

While pellet-group surveys have historically been used to monitor deer population trends in specific watersheds throughout the region, they are only useful for documenting large changes ($\geq 30\%$) in deer density years after changes in deer numbers have occurred and only allow general comparisons of deer numbers from area to area in Southeast Alaska. The technique is generally considered of limited use for assessing small, short-term changes in deer density.

An average of 23 deer were harvested annually during this reporting period. A series of mild winters during the reporting period likely allowed deer to remain at higher elevations where they were less accessible to hunters. Deer populations in Unit 5A are largely driven by winter severity and probably a small percentage of predation and competition by moose.

II. Project Review and RY16–RY20 Plan

Review of Management Direction

MANAGEMENT DIRECTION

Region I developed a wildlife management plan in 1976 (ADFG 1976) which included objectives and management strategies for deer populations throughout the region. That plan was never formally updated, however a strategic plan for management of deer population objectives was developed to guide management through RY89 (ADF&G 1991).

GOALS

Although the overall goals of the original plans are important, the management objectives and harvest management strategies have changed since the plan was written based on public comment, staff recommendations, and Board of Game actions. These periodic changes in management planning have been reported in the division's previous species management reports. This portion of this publication contains the current management plan for deer in Unit 5.

CODIFIED OBJECTIVES

Amounts Reasonably Necessary for Subsistence Uses

The Board of Game has made a positive finding for customary and traditional use of deer in Game Management Unit 5 and set 20–40 deer as the amount necessary for subsistence. The unit-wide amount necessary for subsistence (ANS) has not been met since 2011.

Intensive Management

There is a negative finding for deer in Unit 5.

MANAGEMENT OBJECTIVES

- Maintain a population capable of sustaining a 1-month season and a bag limit of 1 buck.

REVIEW OF MANAGEMENT ACTIVITIES

1. Population Status and Trend

ACTIVITY 1.1. Traditional deer pellet-group surveys.

Data Needs

No changes. We currently conduct surveys annually when conditions allow.

Methods

For methods please refer to Activity 1.1. of the report section of this report.

2. Mortality-Harvest Monitoring

ACTIVITY 2.1. Analyze deer harvest data from mandatory deer hunt reports.

Data Needs

No change. We continue to collect harvest data annually.

Methods

The usefulness of information obtained from hunt harvest reports could be improved by increasing hunter response rates, and by conducting follow-up surveys of non-respondents to evaluate the effects of nonresponse bias.

3. Habitat Assessment/Enhancement

ACTIVITY 3.1. Use GIS to assess current deer habitat capability (DHC) in Unit 5A to better determine population estimates.

Data Needs

There are currently no population and harvest objectives for Unit 5A deer. Given deer are introduced and offer a limited harvest opportunity more specific objectives should be developed by assessing DHC.

Methods

A landscape analysis for the current deer habitat capability should be conducted using GIS technology and the USFS's Forage Resource Evaluation System for Habitat—Deer, or FRESH model (Hanley et al. 2012).

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

None.

Data Recording and Archiving

All records and data analysis related to deer pellet-group transects, harvest tickets, and hunter reports are archived on network servers in the Douglas, Region I office.

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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