

## **Deer Management Report and Plan, Game Management Unit 1A:**

Report Period 1 July 2011–30 June 2016, and

Plan Period 1 July 2016–30 June 2021

**Ross Dorendorf**



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**2020**



## **Species Management Report and Plan ADF&G/DWC/SMR&P-2020-24**

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Report Period 1 July 2011–30 June 2016, and

Plan Period 1 July 2016–30 June 2021

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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 Wildlife Biologist for the Division of Wildlife Conservation.

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**Cover Photo:** Though not common, grey, or white-phased deer are occasionally seen in Southeast Alaska. ©2012 ADF&G. Photo by Phil Mooney.

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## Purpose of this Report

This report provides a record of survey and inventory management activities for deer in Unit 1A 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 its own 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 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

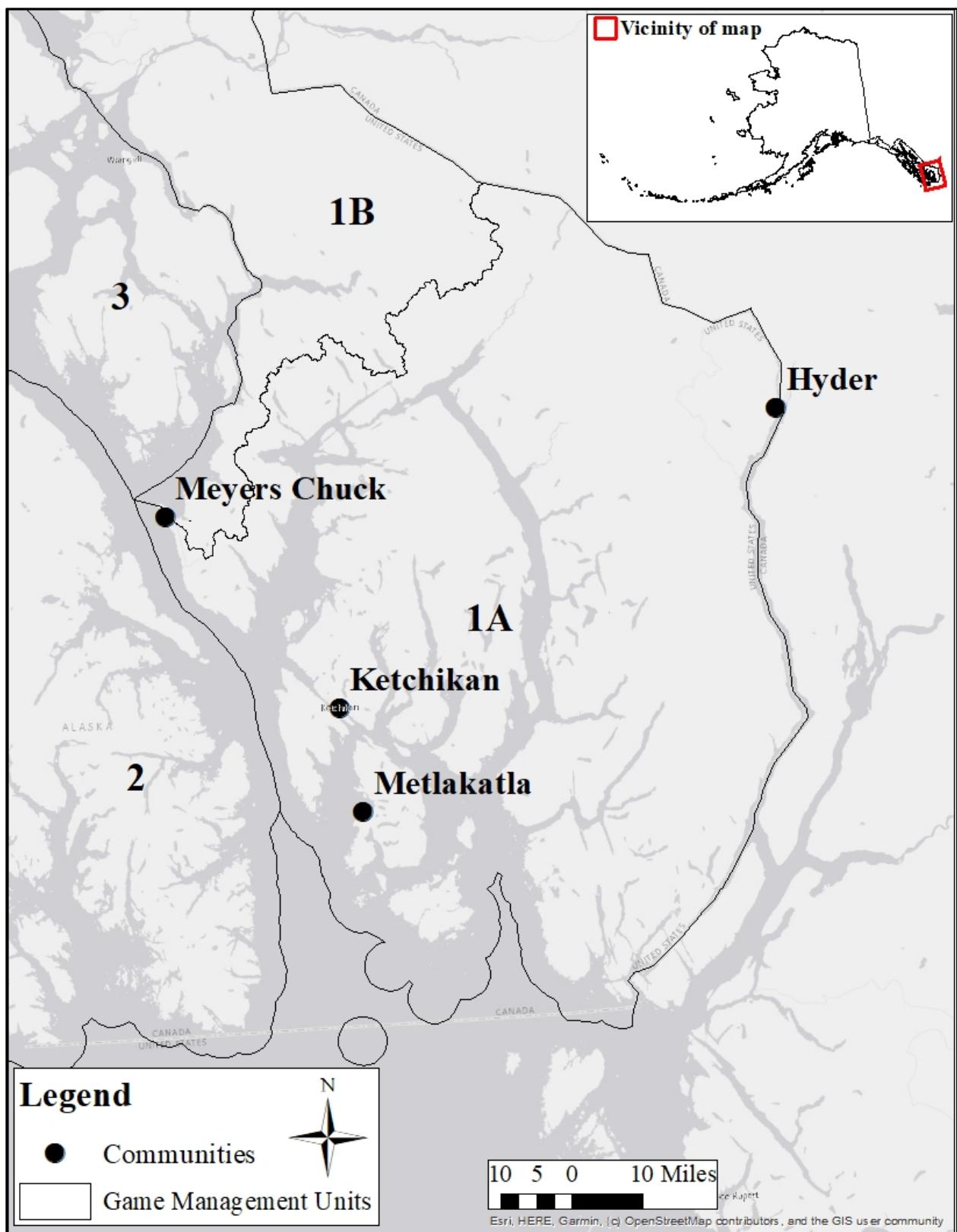
### Management Area

Unit 1A encompasses 5,252 mi<sup>2</sup> of the southern mainland and adjacent islands south of Lemesurier Point, including all drainages into Behm Canal, excluding all drainages into Ernest Sound, and bounded to the east and south by the Canadian border. The unit is bounded to the west by Clarence Straight. Larger islands included in the unit are Revillagigedo, Annette, and Gravina (Fig. 1). The Ketchikan Gateway Borough has an estimated population of 13,865 (U.S. Census Bureau 2018). Smaller outlying communities include Metlakatla (estimated population of 1,375), Hyder (est. pop. 87), and Meyers Chuck (est. pop. 25). Mean temperatures range from a low of 30°F (-1°C) in January to a high of 64°F (18°C) in August with 141 inches (358 cm) of rain annually (U.S. Climate Data 2019). The dominant habitat type in Unit 1A below 2,000 feet (600 m) elevation is temperate rain forest consisting of Sitka spruce (*Picea sitchensis*), western hemlock (*Tsuga heterophylla*), red cedar (*Thuja plicata*), and Alaska yellow cedar (*Chamaecyparis nootkatensis*). Other lower elevation habitats include muskegs, stands of red alder (*Alnus rubra*), and black cottonwood (*Populus balsamifera trichocarpa*) along major rivers and riparian areas. Old-growth forests are interspersed with a patchwork of even-aged forest stands at different successional stages resulting from extensive clear-cut logging and a few natural windthrow events. Mainland areas above 2,000 feet elevation are predominately rock, ice, and open alpine.

Most land in Unit 1A is administered by the U. S. Forest Service, including the 2.3 million-acre Misty Fjords National Monument. This monument is the largest wilderness area in Alaska's national forests and the second largest in the nation. There are also private, state, and native lands in Unit 1A.

### Summary of Status, Trend, Management Activities, and History of Deer in Unit 1A

Sitka black-tailed deer (*Odocoileus hemionus sitkensis*), hereafter referred to as deer, are distributed throughout Game Management Unit (GMU) 1A. Abundance is higher on islands,



**Figure 1. Map of Game Management Unit 1A boundaries, Southeast Alaska.**

decreases on the mainland, and continues to decrease traveling further inland. A combination of less suitable habitat and increased winter severity reduces the carrying capacity of deer on the mainland in Unit 1A. Winter severity is the most important factor determining carrying capacity and distribution of deer in Southeast Alaska (Porter 2015; Gilbert et al. 2017).

Since 2013, Southeast Alaska has experienced a series of mild winters which has allowed deer abundance to increase. Deer abundance has fluctuated through time as evidenced by variable harvest in Unit 1A from a high of 914 in 1995, to a low of 75 in 2008 (ADF&G 1996; Porter 2011). Recent pellet counts indicate that deer populations in 1A remain low (Kirchhoff and Pitcher 1988). However, the Alaska Department of Fish and Game (department) takes caution drawing conclusions from pellet transect data because a large change in deer abundance (approximately  $\pm 30\%$ ) is needed before a change in abundance is detected.

The Alaska Department of Fish and Game (ADF&G), Division of Wildlife Conservation (DWC) tracked harvest using harvest tickets to inform management decisions and provide information to the Board of Game (BOG). Hunters used harvest tickets to record their success and report harvest at the end of the season through a required hunting report. This data provided the department with harvest statistics for deer management. During the 2008 BOG meeting, regulations changed in Unit 1A which resulted in a bag limit of up to 4 bucks throughout Unit 1A, except for the area south of the divide between Santa Anna Inlet and Yes Bay on the Cleveland Peninsula, which had a 2-buck bag limit (Fig. 2; 5 AAC 85.030). The reduction in bag limit on the Cleveland Peninsula was related to the low abundance estimate measured by pellet transects along with low harvest recorded by hunters (Porter 2011).

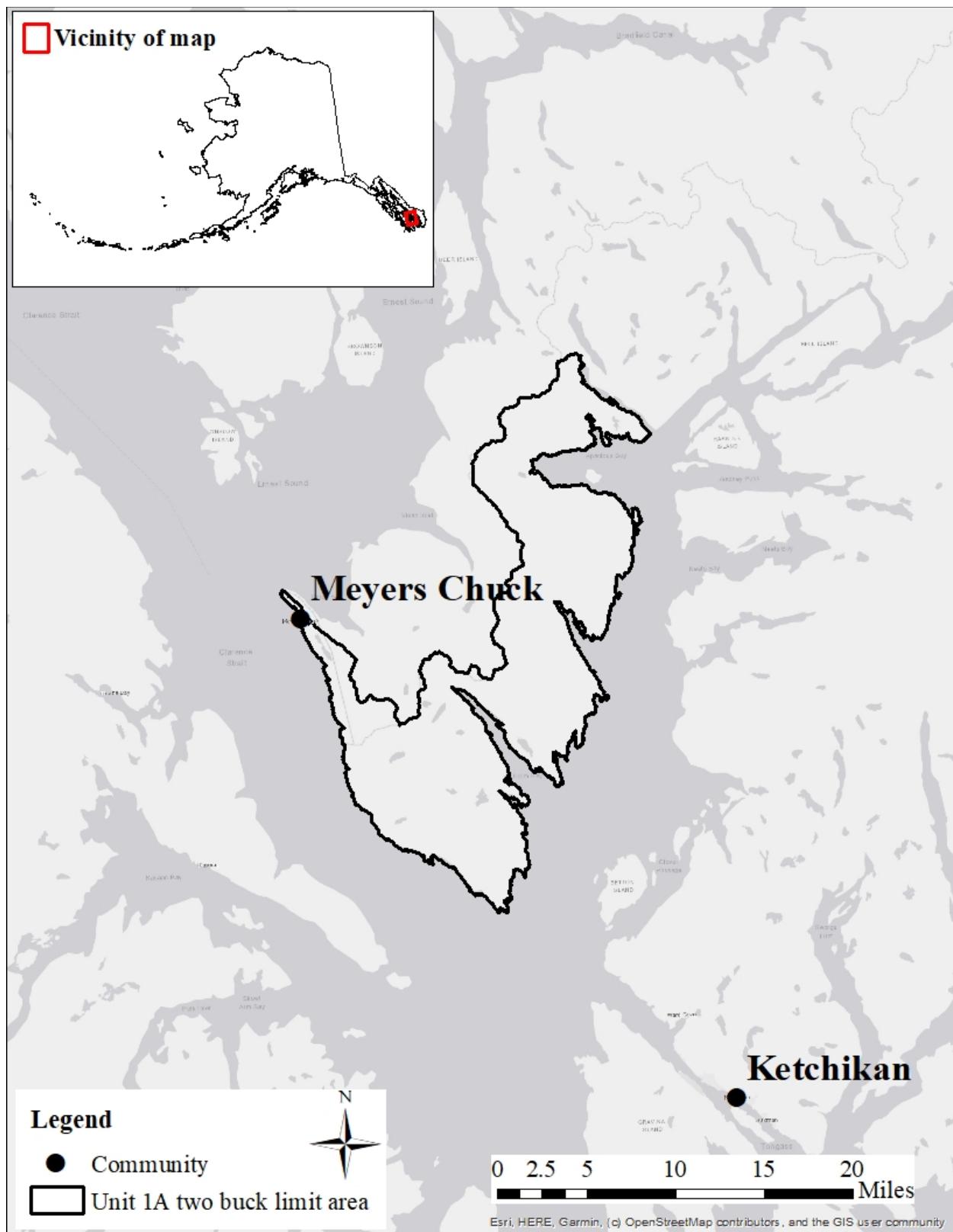
## Management Direction

### EXISTING WILDLIFE MANAGEMENT PLANS

The Strategic Plan for Management of Deer in Southeast Alaska, 1991–1995 (ADF&G 1991) is the most recent deer management plan for Unit 1A. This plan breaks out management of Unit 1A into 6 major areas with 1 or more Wildlife Analysis Areas (WAAs) per area. Major areas analyzed in the plan include Misty Fjords Monument, Lower Cleveland Peninsula, Northern Revillagigedo Island, Southern Revillagigedo Island, Duke Island, and Gravina Island. Annette Island is not included because it is managed by the Metlakatla Indian Community under its sovereign rights. The plan breaks down harvest, hunters, and effort, in a similar way to this species management report and plan. Population objectives are stated for future management based on deer habitat capability, historic hunting pressure, and harvest. New codified management objectives were created by the BOG listed below. Under the Alaska Wildlife Management Plan: Southeastern Alaska (ADF&G 1976), deer are to be managed for providing for the greatest opportunity to participate in deer hunting.

### GOALS

Provide opportunity for deer hunting and viewing under the sustained yield principle using the best science available to benefit the people of Alaska and conserve deer populations.



**Figure 2. Map of Unit 1A Cleveland Peninsula general season deer hunt area, south of divide between Yes Bay and Santa Anna Inlet, Southeast Alaska.**

## CODIFIED OBJECTIVES

### Amounts Reasonably Necessary for Subsistence Uses

The BOG made a positive cultural and traditional finding (5 AAC 99.025) for deer in Unit 1A. They set the amount necessary for subsistence during the 2000 meeting at 5–40 deer for Unit 1A outside the Ketchikan nonsubsistence area.

### Intensive Management

The BOG reported a positive finding for intensive management (5 AAC 92.106) for deer in Unit 1A during the fall 2000 meeting. The Unit 1A management goal is to maintain a population of 15,000 deer while supporting an annual harvest of 700 deer.

## MANAGEMENT OBJECTIVES

Maintain populations in excess of 45 deer per 1 mi<sup>2</sup> of winter range, as determined by mean densities of 1.4 pellet groups per plot (Kirchhoff 1990).

## MANAGEMENT ACTIVITIES

### 1. Population Status and Trend

ACTIVITY 1.1. Monitor population trend in selected watersheds using deer pellet group transects.

#### *Data Needs*

To assess general long-term trends in deer abundance. This monitoring technique allows managers to monitor large changes ( $\pm 30\%$ ) in deer abundance. This information is used to understand how management, weather, predation, and other factors influence deer abundance in Unit 1A.

#### *Methods*

ADF&G and United States Forest Service (USFS) cooperate to monitor the population trend in Unit 1A. ADF&G conducts annual pellet-group surveys along transects (Kirchhoff and Pitcher 1988) during late April and early May at 5 different watersheds. Each location has 3–4 transects consisting of a straight line of 1 × 20-meter plots running uphill from the beach fringe following a compass bearing. All pellet groups within 0.5 meters of either side of the transect line are counted and recorded for each 20-meter-long transect. Transects start at sea level and terminate at either 1,500 ft. in elevation or 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 also terminated if snow covers the majority of 3 or more transects in a row.

Deer pellet surveys provide a general index of population level. Kirchhoff and Pitcher (1988) recommended the following classifications: less than 1.00 mean pellet group per plot (MPGP) as a low-density population, 1.00–1.99 MPGP as a moderate density population, and greater than or equal to 2.00 MPGP as a high-density population.

## *Results and Discussion*

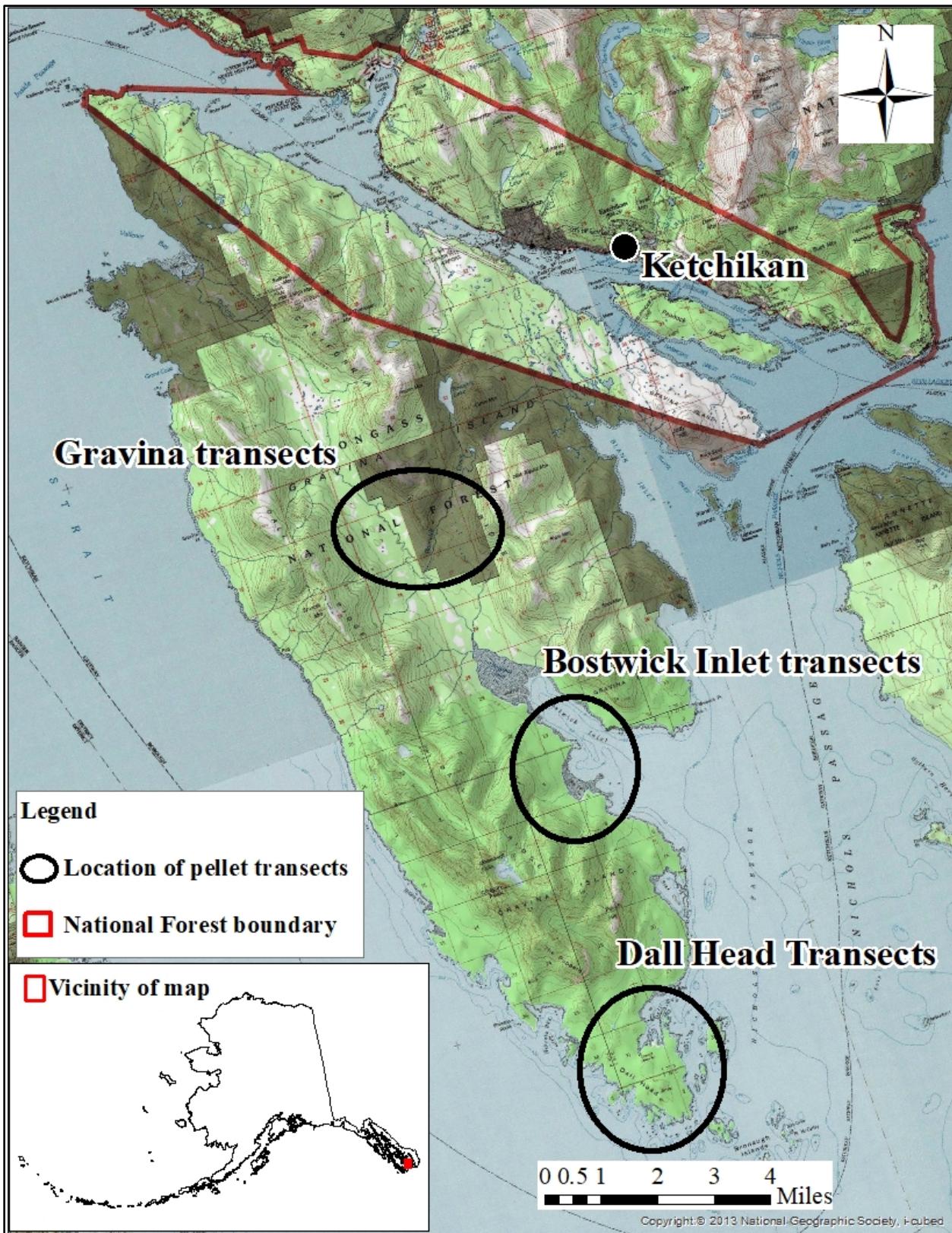
Pellet data for RY11–RY15 indicate deer abundance is low (<1 MPG) in Unit 1A (Table 1; Kirchhoff and Pitcher 1988). This is below the management objective of 1.4 MPG, however, harvest is increasing as winters remain mild. Managers are hopeful that deer abundance will continue to increase with mild winters. Winters are still the greatest limiting factor to deer in Unit 1A which could continue to shift with changes in the climate (IPCC 2017).

Data collection was sparse for all locations except Dall Head. Dall Head is located at the southern end of Gravina Island (Fig. 3). Trends on Gravina Island indicate little to no change in deer abundance during the reporting period (Table 1). Recent logging activity has fragmented

**Table 1. Unit 1A mean pellet groups by surveyed watershed, Southeast Alaska, regulatory years 2011–2015.**

Location	Year	Plots	MPGP <sup>a</sup>	95% CI
Bostwick Inlet	2011	—	—	—
	2012	—	—	—
	2013	—	—	—
	2014	—	—	—
	2015	277	0.53	0.41–0.65
Dall head	2011	288	0.43	0.29–0.58
	2012	258	0.53	0.41–0.64
	2013	297	0.44	0.34–0.55
	2014	268	0.62	0.45–0.80
	2015	277	0.53	0.41–0.65
Gravina Island	2011	—	—	—
	2012	—	—	—
	2013	92	0.32	0.18–0.45
	2014	—	—	—
	2015	—	—	—
Helm Bay	2011	—	—	—
	2012	—	—	—
	2013	291	0.18	0.12–0.23
	2014	—	—	—
	2015	261	0.16	0.09–0.24
Port Stewart	2011	—	—	—
	2012	—	—	—
	2013	284	0.10	0.06–0.15
	2014	—	—	—
	2015	—	—	—

<sup>a</sup> Mean pellet groups per plot.



**Figure 3.** Topographical map showing the Gravina Island deer pellet survey transect locations circled in black within Game Management Unit 1A, Southeast Alaska.

deer habitat on the north side of Gravina Island, and new transects for future pellet group surveys should be established to replace the existing VCU 999 in this watershed.

Deer density on the Cleveland Peninsula (Helm Bay and Port Stewart transects) remained low during this reporting period (Table 1; Fig. 4). Higher snow accumulation on the Cleveland Peninsula coincides with higher snow accumulation on other portions of the mainland (Person et al. 1996). This higher snow accumulation inhibits access to critical winter forage, which reduces carrying capacity for deer (White et al. 2009; Gilbert et al. 2017). Pellet data from 1986–1995 indicate a historically moderate population density on the Cleveland Peninsula, however it is unknown why the population has not rebounded to this level since 1995.

A 2013 study developed and tested a new deer fecal pellet-based genetic mark-recapture abundance estimation technique (Brinkman et al. 2013). The study used path sampling and DNA extracted from fresh deer fecal pellets to generate a modified mark–recapture (MR) estimate of deer abundance in several Southeast Alaska watersheds. These new tools will enable managers to more accurately estimate the abundance and trend of deer populations in densely vegetated habitats like those found in Southeast Alaska. Limitations of the DNA-based MR technique include the high cost to obtain and analyze the samples and up to a 12-month time lag between when samples are collected, and a population estimate is generated. It is also unknown whether this method can be used in an area with low deer densities (Brinkman 2013) and consequently low pellet encounter rates.

#### *Recommendations for Activity 1.1*

Continue conducting pellet surveys for use as an index of abundance.

## 2. Mortality-Harvest Monitoring and Regulations

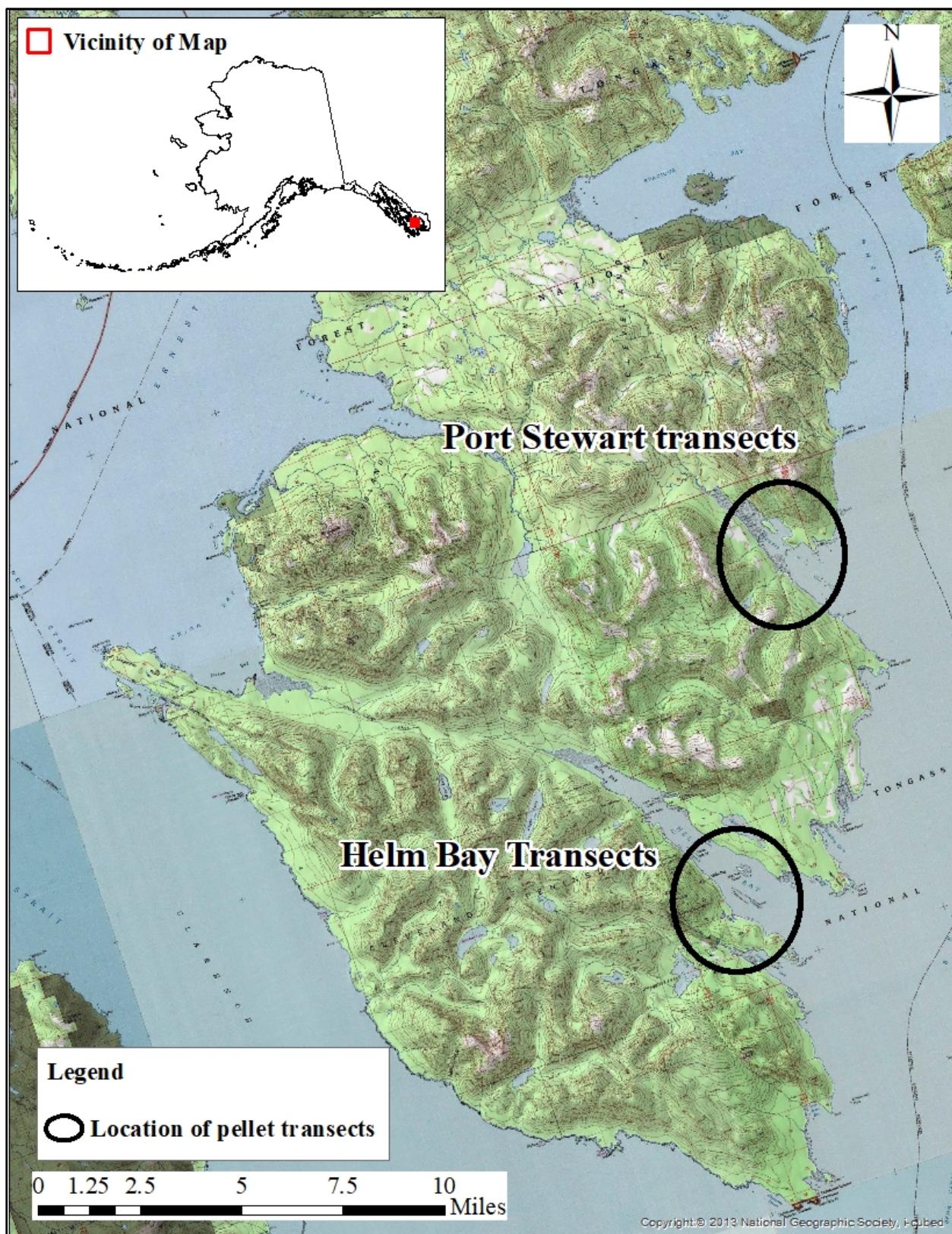
ACTIVITY 2.1. Quantify and analyze harvest data.

#### *Data Needs*

Harvest data is necessary to track the progress toward achieving goals and objectives set forth by the Board of Game and determining trends in deer abundance.

#### *Methods*

Harvest ticket reports were used to track trends in harvest over time. Hunters received 6 harvest tickets and a harvest report to provide hunt information to the department regarding their hunting activity. Questions included: if they hunted or not, the number of trips taken, the GMU in which they hunted, the month of the hunt, the number of days hunted, the number of bucks and/or does killed, the method of take, the transportation that was used, and if commercial services were used for the hunt. Hunters were required to report within 15 days after reaching their bag limit or within 15 days after the close of the season. They had the option of reporting by mail or online through the ADF&G website ([www.adfg.alaska.gov](http://www.adfg.alaska.gov)).



**Figure 4.** Topographical map showing the Cleveland Island deer pellet survey transect locations circled in black within Game Management Unit 1A, Southeast Alaska.

### *Season and Bag Limit*

#### Resident and nonresident hunters

Area	Season	Bag Limit
Unit 1A	1 August–30 November	4 bucks
Unit 1A Cleveland Peninsula south of the divide between Yes Bay and Santa Anna Inlet	1 August–30 November	2 bucks

### *Results and Discussion*

#### Harvest by Hunters

Annual harvest of deer in Unit 1A increased during the reporting period, however, the codified management objective of harvesting 700 deer annually (5 AAC 99.025) was not met (Table 2). The number of hunters and time spent hunting increased during this reporting period which accounts for the increased harvest. The number of deer harvested per hunter slightly increased, and the days spent hunting per deer harvested slightly decreased from RY11 to RY15 (Table 2). The increased hunter harvest suggests that there was an increase in deer abundance which also coincides with the reduced snowfall during the reporting period (Fig. 1).

#### GRAVINA ISLAND

Decreased snow fall and reduced predation likely accounts for the increased harvest of deer on Gravina Island (Table 2). From RY11 to RY15 harvest increased, days hunted before harvesting a deer decreased, and deer per hunter increased. In 2014 the Board of Game adopted an operational plan for intensive management in a portion of Unit 1A (ADF&G 2013). This plan included both Gravina Island and the Cleveland Peninsula (ADF&G 2013). The plan was never implemented as trappers took it upon themselves to increase trapping pressure on Gravina Island. This resulted in a decrease in the wolf population (Porter 2018). This likely was a factor in allowing deer abundance to increase resulting in increased harvest.

#### REVILLAGIGEDO ISLAND

Harvest on Revillagigedo Island has increased slightly, however, days spent hunting per deer harvested has changed little (Table 2). Despite a 75% increase in the number of hunters, the number of days needed to harvest a deer has remained relatively flat over the reporting period (Table 2). The average number of deer per hunter has decreased slightly from 0.6 to 0.5 between RY11 and RY15.

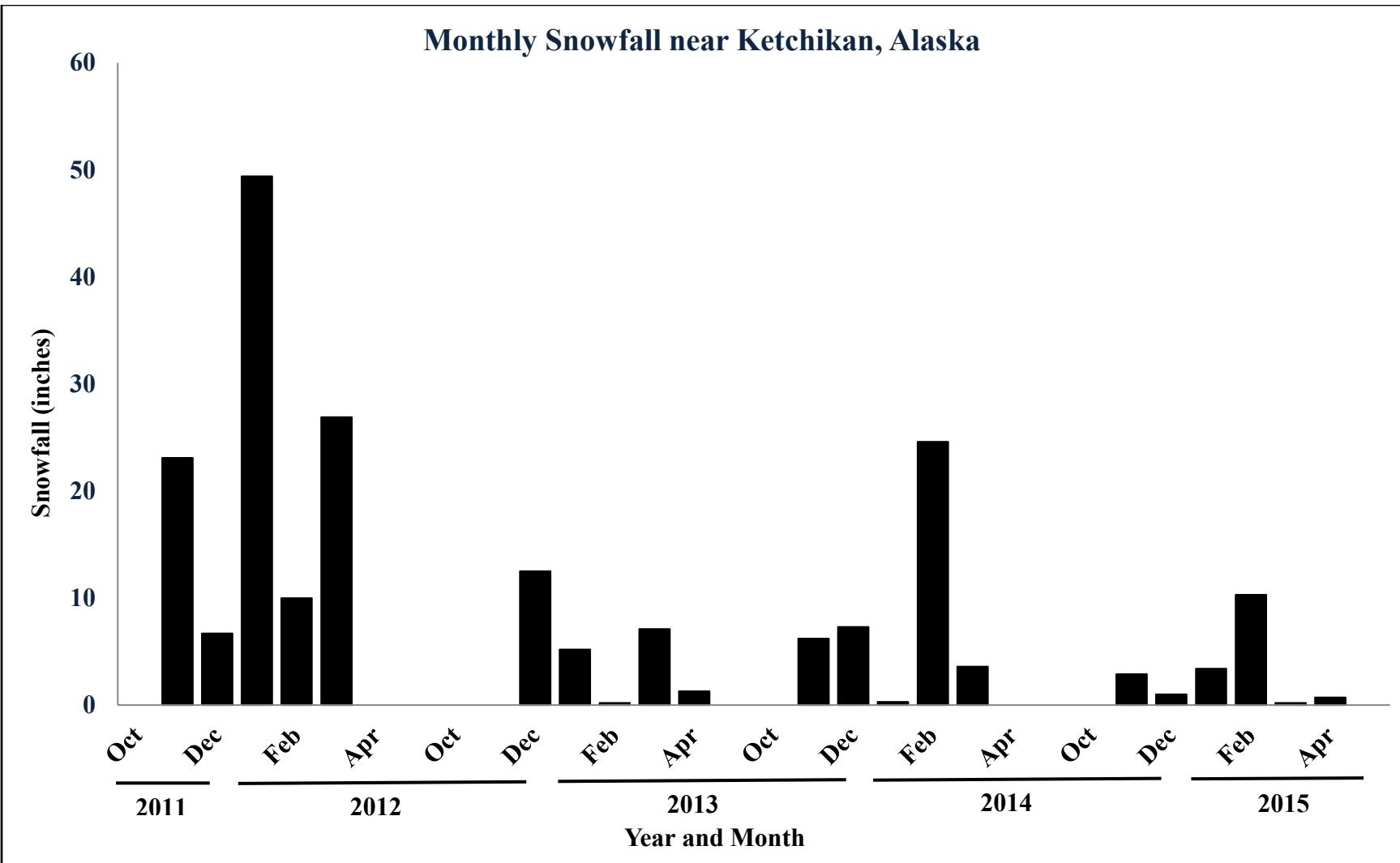
#### OTHER AREAS IN UNIT 1A

Gravina Island and Revillagigedo Island receive far more pressure than other areas in Unit 1A, but few hunters do pursue deer in other locations. During RY12–RY13, hunters expended far more days to harvest a deer than RY11, or RY14–RY15, while hunting on the Cleveland Peninsula. This may be a result of small sample size, or few hunters hunting on the Cleveland Peninsula. Other locations received minimal harvest and effort (Table 2).

**Table 2. Unit 1A deer harvest from regulatory years 2011–2015, Southeast Alaska.**

Area	Regulatory year	Total hunters	Successful (%)	Average days per hunter	Days spent hunting	Total harvest	Average deer per hunter	Average days hunted per deer harvested
All Unit 1A	2011	359	38	3.2	1,156	186	0.5	6.2
	2012	517	30	3.6	1,883	228	0.4	8.3
	2013	568	30	4.0	2,297	263	0.5	8.8
	2014	584	33	3.4	1,972	297	0.5	6.7
	2015	625	41	3.7	2,284	387	0.6	5.9
Revillagigedo Island	2011	268	45	3.0	774	147	0.6	5.3
	2012	407	32	3.4	1,395	179	0.5	7.6
	2013	415	33	3.9	1,606	207	0.5	8.2
	2014	430	34	3.2	1,365	204	0.5	6.8
	2015	468	40	3.2	1,443	244	0.5	6.1
Gravina Island	2011	73	21	2.9	212	15	0.2	14.0
	2012	95	12	2.4	223	15	0.2	15.0
	2013	89	15	2.8	246	13	0.2	18.5
	2014	146	28	2.5	363	50	0.3	7.3
	2015	162	44	2.6	421	89	0.6	4.7
Cleveland Peninsula	2011	17	34	1.8	30	6	0.3	5.4
	2012	15	47	7.6	110	8	0.6	13.8
	2013	15	8	3.4	50	2	0.2	22.2
	2014	18	58	4.4	81	14	0.8	5.9
	2015	19	57	3.5	66	15	0.8	4.5
Other mainland	2011	8	50	5.3	54	4	1.0	1.0
	2012	19	58	2.3	41	15	0.8	2.9
	2013	16	37	4.3	62	11	0.7	6.1
	2014	2	100	1.0	2	2	1.0	1.0
	2015	10	35	2.2	21	3	0.4	2.1
Annette Island	2011	2	100	2.0	3	2	1.0	2.0
	2013	5	25	2.0	11	1	0.3	7.9
	2014	3	0	1.0	3	0	0.0	—
	2015	8	100	2.5	19	8	1.0	2.5
Duke and surrounding islands	2011	3	0	2.0	7	0	0.0	—
	2012	2	0	2.0	4	0	0.0	—
	2013	8	0	3.2	26	0	0.0	—
	2014	12	0	4.3	52	0	0.0	—
	2015	16	24	1.7	27	4	0.2	7.2

*Note:* Harvest information in this table is derived from ADF&G harvest ticket data.



**Figure 5. Total snowfall by month for regulatory years 2011–2015 near Ketchikan, Alaska. Snow depth data from land-based station Ketchikan 10 N, AK US (NCDC 2019).**

### Hunter Residency and Success

Residents represent the majority of hunters in Unit 1A (Table 3). Few nonlocal or nonresident hunters pursue deer in Unit 1A. The number of nonlocals hunting was relatively unchanged. The number of unsuccessful nonresidents increased slightly.

### Harvest Chronology

Consistent with previous reporting periods, harvest was highest in October and November during the rut (Porter 2015; Table 4). August was a popular month to hunt in the alpine while vegetation was still available before it began to senesce in September, prompting deer to move down in elevation. Harvest among months and years was relatively unchanged during this reporting period (Table 4).

### Transport Methods

Overall patterns of harvest by transportation method remained similar with a few changes compared to previous reporting periods (Porter 2015; Table 5). Use of highway vehicles increased from RY11–RY15 likely coinciding with the popularity of hunting on Gravina Island. Timber harvests are scheduled to continue on Gravina Island and may open up new roads for hunters to access via highway vehicle on other parts of the island. Boating also remains a popular transportation method for hunting deer in Unit 1A (Table 5).

### *Other Mortality*

Other types of mortality for deer include illegal harvest, car strikes, starvation, disease, and accidents. We do not have precise methods for accounting for these types of mortality, but future efforts should be made to quantify these measures.

### *Alaska Board of Game Actions and Emergency Orders*

In 2014 the Board of Game adopted an operational plan for intensive management of predators in a portion of Unit 1A on Gravina Island and the Cleveland Peninsula (ADF&G 2013). No emergency orders were issued for deer in Unit 1A during this reporting period.

### *Recommendations for Activity 2.1*

Continue.

**Table 3. Unit 1A deer hunter residency and success, regulatory years 2011–2015, Southeast Alaska.**

Regulatory year	Successful					Unsuccessful					Total hunters <sup>a</sup>
	Local resident	Nonlocal resident	Nonresident	Total <sup>a</sup>	%	Local resident	Nonlocal resident	Nonresident	Total <sup>a</sup>	%	
2011	123	4	9	136	39	195	14	7	216	61	352
2012	134	14	12	160	31	307	22	26	355	69	515
2013	158	11	5	174	31	347	20	26	393	69	567
2014	181	8	6	195	33	350	17	22	389	67	584
2015	243	13	2	258	41	315	14	39	368	59	626

<sup>a</sup> Total does not include unknown residency.

**Table 4. Unit 1A deer harvest chronology percent by month, regulatory years 2011–2015, Southeast Alaska.**

Regulatory year	Harvest chronology percent by month							n
	August	September	October	November	December	Unknown		
2011	11	11	35	43	0	0		186
2012	24	4	26	46	0	0		228
2013	13	4	31	52	0	0		263
2014	16	5	30	48	0	1		297
2015	27	10	33	30	0	0		387
Average	18	7	31	44	0	0		272

**Table 5. Unit 1A deer harvest percent by transport method, regulatory years 2011–2015, Southeast Alaska.**

Regulatory year	Percent harvest by transport method									n
	3 or 4 wheeler	Airplane	Boat	Foot	Highway vehicle	Horse/dog team	Off-road vehicle	Other/unknown	Snow-machine	
2011	3	4	50	9	23	0	1	9	0	391
2012	3	2	48	17	25	0	1	3	0	550
2013	4	2	49	14	25	0	1	4	0	605
2014	2	3	45	7	39	0	0	4	0	625
2015	3	1	51	6	35	0	2	2	0	690

### 3. Habitat Assessment-Enhancement

The United States Forest Service (USFS), State of Alaska (SOA), and other private landowners provided access to timber for logging companies from RY11–RY15.

- The USFS started planning for the South Revillagigedo Integrated Resource Project which is projected to provide 60 million board feet of timber from up to 6,000 acres over the course of 15 years.
- The SOA was preparing to offer 481 acres (195 hectares) on Gravina Island for a future timber sale.
- The Sealaska Corporation finished logging 6,931 acres from the southern portion of the Cleveland Peninsula.

Beginning in the 1960s, thousands of acres of old-growth forest on federal, state, Alaska Mental Health Trust, and private lands were harvested mostly on Revillagigedo and Gravina islands and the Cleveland Peninsula. For example, on U.S. Forest Service land on Revillagigedo Island and the Cleveland Peninsula, 19 percent of the high volume productive old-growth forest and 38% of the large-tree productive old-growth forest below 800 feet elevation (deer winter habitat) has been clear-cut (USFS 2016). Further, prior to closure of the Ketchikan Pulp Mill, U.S. Forest Service habitat capability models predicted declines in deer carrying capacity in Unit 1A of 50–60% in long-term timber sale areas by the end of the old growth logging rotation in 2054 (USFS 1989). Other Unit 1A landowners manage less land, but those lands are more intensively harvested. Department biologists will continue to provide comments on State and Federal timber sales for the benefit of deer habitat.

## **NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS**

### Data Recording and Archiving

- Data sheets were scanned and stored on the Ketchikan server.
- Historical survey notes, memos, and data sheets were digitized and scanned for permanent storage on the Ketchikan server.
- Wildlife management reports and plans and the management operational plan for deer–Unit 1A are stored online at [www.wildlifepublications.adfg.alaska.gov](http://www.wildlifepublications.adfg.alaska.gov).

### Agreements

ADF&G and the Ketchikan-Misty Fiords Ranger District have an informal agreement to combine efforts in completing annual pellet-transect surveys.

### Permitting

Permitting options are available for disabled hunters allowing them to shoot from a boat as well as proxy permits for a method and means exemption allowing a hunter to harvest deer on behalf

of other residents who qualify as disabled or elderly (<https://www.adfg.alaska.gov/index.cfm?adfg=huntlicense.proxy>; 5 AAC 92.104).

## Conclusions and Management Recommendations

Mean pellet groups per plot averaged below the management objective of 1.4 per plot for all monitored watersheds from RY11–RY15. Similarly, the codified harvest objective of 700 deer annually was not met during the reporting period. However, a lack of severe winters seems to have aided in allowing deer abundance to increase in Unit 1A. Mild winters coincide with an increase in abundance, hunters, days spent hunting, and harvest for deer. If this trend continues, the harvest objective and management objective of 1.4 MPG may be attained in the future.

ADF&G should continue to monitor deer abundance in Unit 1A with pellet transects and harvest tracking. There is not a cost-effective way to estimate the deer population in Unit 1A due to cost, logistics, and staff time. Therefore, monitoring indices of abundance with harvest statistics and pellet transects should continue until better methods are created. Since snow fall is a key factor in determining the severity of winter on deer, its recommended to monitor snowfall more closely to determine when harsh winters occur and to monitor their impact on deer abundance.

## II. Project Review and RY16–RY20 Plan

### Review of Management Direction

#### MANAGEMENT DIRECTION

1. Maintain a bag limit of 4 bucks. If population indices indicate an increase in the population, submit a proposal to the BOG to implement a doe harvest.
2. If population indices indicate a decrease in abundance, harsh winters occur, or other factors suggest a decrease in the population, submit a proposal to the BOG to reduce bag limit to allow for population to rise while still allowing for some harvest.

#### GOALS

Provide opportunity for deer hunting and viewing under the sustained yield principle using the best science available to benefit the people of Alaska and conserve deer populations.

#### CODIFIED OBJECTIVES

##### Amounts Reasonably Necessary for Subsistence Uses

The Board of Game made a positive cultural and traditional finding (5 AAC 99.025) for deer in Unit 1A. They set the amount necessary for subsistence during the 2000 meeting at 5–40 deer for Unit 1A outside the Ketchikan non-subsistence area.

## Intensive Management

BOG reported a positive finding for intensive management (5 AAC 92.106) for deer in Unit 1A during the Fall 2000 meeting. The Unit 1A management goal is to maintain a population of 15,000 deer while supporting an annual harvest of 700 deer.

## **MANAGEMENT OBJECTIVES**

Maintain populations in excess of 45 deer per mi<sup>2</sup> 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. Monitor population trend in selected watersheds using deer pellet group transects.

#### *Data Needs*

To assess general long-term trends in deer abundance. This monitoring technique allows managers to monitor large changes ( $\pm 30\%$ ) in deer abundance. This information is used to understand how management, weather, predation, and other factors influence deer abundance in Unit 1A.

#### *Methods*

ADF&G and the United States Forest Service (USFS) cooperate to monitor the population trend in Unit 1A. ADF&G conducts annual pellet group surveys along transects (Kirchhoff and Pitcher 1988) during late April and early May at 5 different watersheds. Each location has 3–4 transects consisting of a straight line of 1 × 20 meter plots running uphill from the beach fringe following a compass bearing. All pellet groups within 0.5 meters of either side of the transect line are counted and recorded for each 20-meter-long transect. Transects start at sea level and terminate at either 1,500 ft. in elevation or at 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 also terminated if snow covers the majority of 3 or more transects in a row.

Deer pellet surveys provide a general index of population level. Kirchhoff and Pitcher (1988) recommended the following classifications: <1.00 mean pellet groups/plot (MPGP) low-density population, 1.00-1.99 MPGP moderate density population,  $\geq 2.00$  MPGP as a high-density population.

### 2. Mortality-Harvest Monitoring

ACTIVITY 2.1. Quantify and analyze harvest data.

#### *Data Needs*

Harvest data is necessary to track the progress toward achieving goals set forth by the Board of Game. The board found a positive customary and traditional finding for Sitka black-tailed deer in

Unit 1A, so harvest objectives were created. These objectives include the amounts reasonably necessary for subsistence (ANS) and intensive management (IM) objectives listed above.

#### *Methods*

Harvest tickets will be used to track trends in harvest over time. Hunters will receive 6 harvest tickets and a report to provide hunt information to the department on their hunting activity. Questions will include: if they hunted or not, the number of trips taken, the GMU hunted in, the month of hunt, the number of days hunted, the number of bucks and/or does killed, the method of take, the transportation used, and if commercial services were used. Hunters will be required to report within 15 days after reaching their bag limit or within 15 days after the close of the season. Hunters will have the option of reporting by mail or through the ADF&G website ([www.adfg.alaska.gov](http://www.adfg.alaska.gov)).

### 3. Habitat Assessment-Enhancement

ACTIVITY 3.1. Continue to comment on state and federal timber sales to promote the retention of quality deer habitat.

ACTIVITY 3.2. Quantify and analyze snowfall data, starting in RY19.

#### *Data Needs*

Winters with deep persistent snow increase winter deer mortality. Monitoring snowfall on an elevational gradient on the mainland and islands in Unit 1A may help determine impacts of winters with deep persistent snowpack on deer abundance. Placing snow monitoring stakes on the mainland and islands will allow for comparison in snow depth. Typically, snow depth is deeper on the mainland compared to islands, but no direct measurements are currently available for comparison. This method will allow us to determine impacts of snow between these 2 areas that coincide with where we conduct pellet transects.

#### *Methods*

Motion triggered cameras will be set to time-lapse mode to capture snow depth on marked depth boards. Boards will be placed at 100–200, 400–500, and 1,900–2,000 feet (30–61, 122–152, 579–610 meters) in elevation on Gravina Island and the Cleveland Peninsula. These 2 locations coincide with pellet transect locations to offer a comparison between deer abundance and snow depth and persistence. Snow depth data will also be monitored from local weather stations.

## **NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS**

### Data Recording and Archiving

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## Agreements

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## 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.

## **Acknowledgments**

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Alaska Department of Fish and Game

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