Species Management Report and Plan ADF&G/DWC/SMR&P–2025–47

Deer Management Report and Plan, Game Management Unit 3:

Report Period 1 July 2016–30 June 2021, and

Plan Period 1 July 2021–30 June 2026

W. Frank Robbins

2025

Alaska Department of Fish and Game Division of Wildlife Conservation

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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 Roy Churchwell, Management Coordinator for Region I 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 deer (*Odocoileus hemionus sitkensis*) in Game Management Unit 3 for the 5 regulatory years 2016–2020 and plans for survey and inventory management activities in the next 5 regulatory years, 2021–2025. A regulatory year (RY) begins 1 July and ends 30 June (e.g., RY15 = 1 July 2015–30 June 2016). 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. RY16–RY20 Management Report

Management Area

Game Management Unit 3 is in Southeast Alaska, also known as Alaska's Panhandle, and is part of the Region I management area for ADF&G and DWC. It covers an area of approximately 3,000 mi^2 (7,800 km^2) on islands in the central portion of the Panhandle (Fig. 1). Kupreanof, Kuiu, Etolin, Wrangell, Mitkof, and Zarembo, in descending order, are the largest islands in the unit. Smaller islands include several near the mouth of the Stikine River such as Rynda, Kadin, and Sokolof Islands. Sitka black-tailed deer (*Odocoileus hemionus sitkensis*) are widespread throughout the unit and inhabit most of the Unit 3 islands.

Elevation within Unit 3 ranges from sea level to approximately 3,937 ft (1,200 m). Predominant vegetative communities occurring at low-moderate elevations (<1,509 ft or <460 m) include Sitka spruce (*Picea sitchensis*), western hemlock (*Tsuga heterophylla*), coniferous forest, mixed-conifer muskeg, and deciduous riparian forests. Forests dominated by mountain hemlock (*Tsuga mertensiana*) compose a subalpine, timberline band occupying elevations between 1,509 ft to 2,493 ft (460 m to 760 m).

Most land area in Unit 3 is managed by the Tongass National Forest, with smaller parcels under state, municipal, and private ownership. Initial access to most hunting areas is by water. However, the area has experienced a significant amount of logging activity since the 1950s and in many areas, once hunters arrive, the extensive networks of logging roads are used for additional motorized or nonmotorized access to hunting areas. The communities of Petersburg, Wrangell, and Kake are in the unit and many hunters use road systems connected to those communities to access hunting areas.

Sitka black-tailed deer, moose (*Alces alces andersoni*), wolves (*Canis lupus ligoni*), and black bears (*Ursus americanus*) are present and widely distributed throughout Unit 3. A small number of brown bears (*Ursus arctos*) also occur on those islands separated from the mainland by short water crossings.

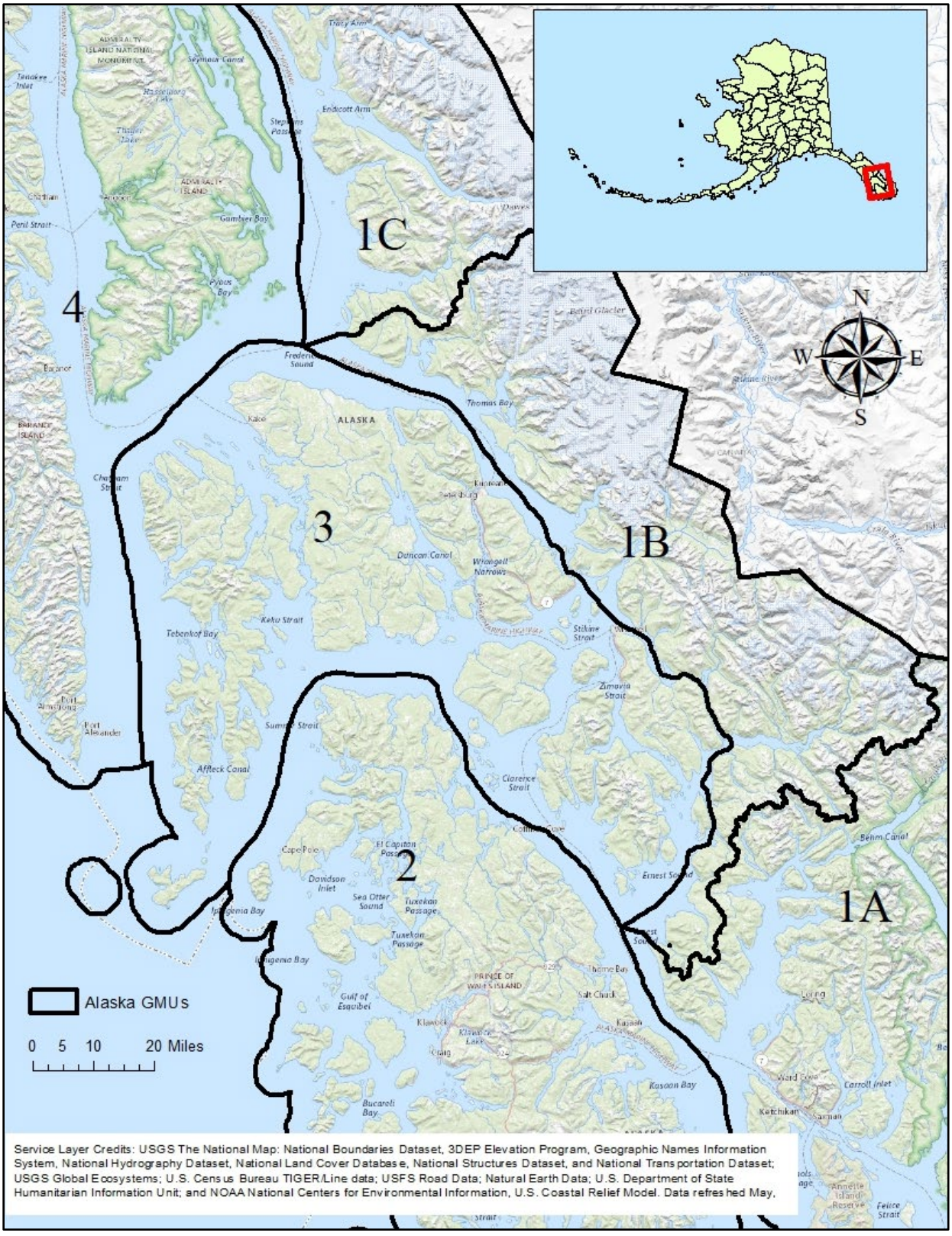

Figure 1. Map of Unit 3 in Region I, Southeast Alaska, regulatory years 2016–2020.

Due to relatively low deer densities, seasons and bag limits for deer in Unit 3; on Mitkof, Woewodski, and Butterworth islands; and on the Lindenberg Peninsula in particular, are more restrictive compared to other island-dominated management units in Region I.

Summary of Status, Trend, Management Activities, and History of Deer in Unit 3

Deer populations on the Unit 3 islands have historically fluctuated with high and low extremes. Severe winter weather causes most population declines, and predation by wolves and bears and illegal hunting are believed to have extended the length of those declines. This has resulted in prolonged periods of low deer density.

Winter weather is one of the main factors influencing deer numbers in Southeast Alaska. In the late 1960s and early 1970s, deer in Unit 3 experienced a series of severe winters which resulted in a significant population decline. The most recent winter population declines occurred from 2006 to 2009 when the central Panhandle, including Unit 3, experienced 3 consecutive winters with well-above-average snowfall. During the winter of 2006–2007, the Petersburg and Wrangell areas broke all-time records for snowfall (229 in for Petersburg and 148 in for Wrangell; NOAA 2010). The effects of severe winters on deer were exacerbated by extensive clear-cut logging of productive old-growth (POG) forest throughout Unit 3. POG stands are important for deer during heavy snow winters because the dense canopy of large trees intercepts snowfall, thereby preventing forage plants from being covered by snow. Such stands also allow deer to move about the landscape without having to expend significant extra energy. As more POG forest is removed through logging, deer are forced to winter among smaller remnant stands where they must compete more intensively for available forage while being increasingly vulnerable to predation. The effects of clearcutting have reduced winter carrying capacity for deer populations in the unit and will continue to do so for decades.

During the 1960s deer numbers in Unit 3 appeared to be relatively stable. At that time, the deer season in this area spanned 1 August–15 December, with a bag limit of 4 deer. However, the population decline from the severe winters in the 1960s–1970s led to restrictive regulations and bag limits. Beginning in 1970, Unit 3 was subdivided into 2 hunt areas (Mitkof Island and the remainder of Unit 3), with the bag limit on Mitkof reduced to 2 antlered deer. By 1973 the season in Unit 3 was reduced to 2 months with a bag limit of just 1 antlered deer.

To help the deer population recover, all of Unit 3 was closed to deer hunting from 1975 through 1979. The area south of Sumner Strait had a limit of 1 antlered deer from 1980 to 1987. The Alaska Board of Game (board) increased this limit to 2 antlered deer in 1988. In 1991 a registration permit hunt with a 15–31 October season and a 1 antlered deer bag limit was opened on parts of Mitkof, Kupreanof, Woewodski, and Butterworth islands, where the deer season had been closed since 1975 (a 16-year closure). The registration permit was replaced with a harvest ticket requirement in 1995.

Since that time Unit 3 has been managed with seasons ranging from 2 weeks to 4 months and bag limits of 1–2 antlered deer. In spite of this male-only harvest, the deer population has remained relatively low when compared to neighboring islands, including Prince of Wales, Admiralty, Baranof, and Chichagof islands. Beginning with the 1993 hunt, the only part of Unit

3 closed to deer hunting was the area within the Petersburg and Kupreanof city limits. The board abolished that closure in the fall of 2000.

At the fall 2002 meeting, the board extended the season length and increased the bag limit for deer on the Lindenberg Peninsula, aligning the deer regulations on all of Kupreanof Island with the majority of Unit 3. In another action, the board established the Petersburg Management Area, an archery-only hunt area within the Petersburg city limits, and extended the archery-only deer season in this area by an additional 2 weeks.

As a result of declining pellet-group densities and apparent low deer numbers, in fall of 2012, the board adopted a department proposal to reduce the deer hunting season on the Lindenberg Peninsula from a 4-month season with a 2-buck bag limit to a 2-week season with a 1-buck bag limit. As a result of this action, effective in RY13, the deer season and bag limit on Lindenberg Peninsula was once again aligned with that of Mitkof, Woewodski, and Butterworth islands, as had previously been the case from RY93 to RY02. In the same action, the board amended the department's original proposal, resulting in closure of the nonresident deer hunting season on the Lindenberg Peninsula.

Management Direction

Existing Wildlife Management Plans

Alaska wildlife management plans: Southeastern Alaska (ADF&G 1976) includes a deer management plan for Region I as a whole and for the Missionary and Sherman peaks areas on Kupreanof Island in Unit 3. An updated management plan is described in Strategic plan for management of deer in Southeast Alaska, 1991–1995 (ADF&G 1991).

The deer management objectives and harvest management strategies have changed since these plans were written based on public comments, department recommendations, and board actions, and are reported in DWC's species management reports. The plan portion of this report contains the current management plan for deer in Unit 3.

Goals

The management goal is to manage the Unit 3 deer population to achieve and maintain a population of 15,000 deer while maintaining an annual harvest of 900 deer.

Codified Objectives

Amounts Reasonably Necessary for Subsistence Uses

The board has made a positive finding for customary and traditional use of deer in Unit 3 and set the amount necessary for subsistence at 150–175 deer per year (5 AAC 99.025(a)(5)). This has been consistently achieved.

Intensive Management

The Unit 3 management goal is to manage the deer population to achieve and maintain a population of 15,000 deer while supporting an annual harvest of 900 deer, as established by the board in 2000 (5 AAC 92.108).

MANAGEMENT OBJECTIVES

- Increase deer populations on winter range (<1,500 ft elevation) to 32 deer/mi^2, measured by a mean pellet density of 1.0 pellet group/22 yd^2 (20 m^2) plot.
- Monitor deer densities using pellet-group surveys.
- Monitor harvest using hunt report cards issued in conjunction with deer harvest tickets.

MANAGEMENT ACTIVITIES

1. Population Status and Trend

ACTIVITY 1.1. Conduct traditional pellet-group surveys.

Data Needs

Tracking trends in deer abundance in the coastal rainforest environment of Southeast Alaska presents many challenges. A reliable and cost-effective technique is needed for assessing changes in deer abundance over both the short and long term.

Methods

Deer-pellet surveys have been conducted in Region I since 1981. Transects have been established in fixed locations within value comparison units (VCUs) for each unit. VCUs are U.S. Forest Service timber management units and are roughly equivalent to a watershed. Each VCU usually has 3 established transects which traverse deer winter range from sea level to 1,500 ft in most cases, although some transects are flatter or more undulating and only traverse lower elevations. Transect locations were chosen based on a number of different considerations, including habitat characteristics, harvest pressure, management concerns, and accessibility. VCUs of higher management concern may be monitored on a yearly basis, while others may only be surveyed every 2 or 3 years. Over time, the monitoring of some VCUs has been abandoned in lieu of monitoring other VCUs, usually in relation to changes in management concern or habitat, such as logging activities.

Historically, pellet-group surveys have been conducted along established transects (Kirchhoff and Pitcher 1988) during late April and early May at any of 6 sampling locations in Unit 3. Each VCU has 3 established transects consisting of consecutive 3.3 × 65.6 ft (1 × 20 m) plots running uphill from the beach fringe along a compass heading. Transects terminate either at 1,500 ft elevation or after 125 plots have been sampled. Overall transect length, and the number of plots sampled, varies by transect depending on topography, the distance from beach to 1,500 ft

elevation, and the persistence of snow at higher elevations. A transect is terminated when snow cover approaches 100% for 3 consecutive plots and persists for the remainder of the transect.

Results and Discussion

Deer-pellet surveys were conducted in 4 VCUs (Castle River, east Duncan Canal, Portage Bay, and Woewodski Island) to determine if pellet-group surveys were useful in tracking trends in deer abundance based on harvest records, reports from hunters, alpine aerial deer surveys during 2016–2019, and area biologist observations (Table 1). Pellet surveys were not conducted in Unit 3 during RY20 due to COVID-19 precautions; however, surveys were completed for all other years during RY16–RY20.

Table 1. Unit 3 deer pellet-groups surveys, regulatory years 2011–2019, Southeast Alaska.

Area	VCU	Regulatory year	Groups per plot	Number of plots	95% CI
Castle River	435	2013	0.15	268	0.10–0.21
		2018	0.52	290	0.41–0.63
East Duncan Canal	437	2011	0.64	289	0.51–0.77
		2012	0.60	282	0.43–1.72
		2013	0.56	263	0.40–0.71
		2014[a]	0.47	354	0.33–0.61
		2015	0.60	281	0.48–0.72
		2016	0.50	268	0.38–0.61
		2017	1.01	279	0.80–1.22
		2018	1.25	287	1.05–1.46
		2019	1.17	267	0.94–1.40
Portage Bay	442	2012	0.63	230	0.50–1.72
		2013	0.24	233	0.16–0.32
		2015	0.40	233	0.30–0.51
		2016	0.46	252	0.35–0.56
		2017	0.40	251	0.29–0.52
		2019	1.10	231	0.86–1.33
Woewodski Island	448	2011	0.74	289	0.58–0.89
		2012	0.74	229	0.56–2.15
		2013	0.64	220	0.50–0.77
		2014	0.76	225	0.58–0.93
		2015	0.63	284	0.49–0.76
		2016	0.71	235	0.55–0.86
		2017	1.02	246	0.82–1.23
		2018	1.77	265	1.49–2.04
		2019	1.21	224	0.96–1.46

Note: VCU refers to value comparison unit and CI refers to confidence interval.
[a] An extra transect was surveyed in 2014.

The Castle River VCU on Kupreanof Island was surveyed in RY18, averaging 0.52 pellet groups per plot, an increase from 0.15 pellet groups per plot observed during the last deer-pellet survey

conducted in RY13. The average number of pellet groups observed during RY18 in the Castle River VCU was the highest ever counted in the VCU (range 0.12–0.52).

The east Duncan Canal VCU (central Kupreanof Island) was surveyed during each year of this report period. The average number of pellet groups per plot ranged from 0.5 in RY16 to 1.25 in RY18. Average pellet groups per plot increased between RY16 and RY18 and declined only slightly in RY19. The 1.25 pellet groups per plot observed during RY18 was the highest since RY08.

The Portage Bay VCU (northern Kupreanof Island) was surveyed in RY16, RY17, and RY19. Average pellet groups per plot ranged from 0.4 in RY17 to 1.1 in RY19. The average number of pellet groups per plot observed during RY19 was the highest counted since the VCU was first surveyed in 1993. From RY15 to RY17 there was no trend in mean number of pellet groups per plot, although department biologists suspected that deer numbers were increasing.

The Woewodski Island VCU (south Mitkof Island) is the most consistently surveyed area in Unit 3. It was surveyed almost every year from 1984 through 2019. During RY16–RY20, average pellet groups per plot ranged from 0.71 in RY16 to 1.77 in RY18. From 2011 to 2016, the mean number of pellet groups per plot was stable, with the average ranging between 0.63 and 0.71, but pellet groups per plot increased in 2017 and remained relatively high until the end of the report period.

While pellet-count surveys conducted during RY11–RY15 and the beginning of this report period showed no increasing trend, by the end of this report period 3 of the 4 surveyed VCUs had met the management objective of mean pellet density of 1.0 pellet group/22 yd^2 (20 m^2) plot. Only the Castle River VCU did not meet the objective. These results track increases in deer observations noted during aerial alpine surveys and harvest and suggest the Unit 3 deer population has recovered from the population decline after the deep snow winters of 2006–2008.

However, the interpretation of pellet-group data should be done with caution, as factors other than changes in deer population size can affect deer pellet-group density. Snowfall patterns influence the distribution and density of deer pellets from year to year. Snow persisting late into the spring at elevations below 1,500 ft can limit our ability to consistently survey the same elevation zone over the years. In some years, not every transect in a VCU can be surveyed, which can influence pellet density results between years. Furthermore, comparisons over time, or from area to area, are most valid when weather conditions are similar. Pellet groups decompose more rapidly with increasing precipitation and warmer temperatures, potentially confounding comparisons. There are also weather-related differences in deer distribution from year to year. During mild winters, deer can access forage in a variety of habitats, including logged areas which have not yet entered the stem exclusion phase. However, in severe winters, deep snow buries forage and can impede deer movements. When evaluating deer-pellet data, the reader should consider winter severity and snowfall patterns, the number of plots sampled from year to year, the variability in pellet-group densities, and the length of time since the last survey (McCoy 2017).

Recommendations for Activity 1.1

Based on the results of deer pellet-group surveys in Unit 3 and other areas of Southeast Alaska since the 1980s, the department believes that pellet-group surveys reflect only gross differences in deer abundance between island groups and provide little useful management information. Additionally, the information is not timely because mean pellet groups per plot often initially increase when winters are severe and deer are declining. The means then take several years to reflect a decline if they detect it at all.

Therefore, we recommend that traditional pellet surveys be discontinued in Unit 3.

ACTIVITY 1.2. Conduct aerial alpine deer surveys.

Data Needs

A reliable and cost-effective technique for assessing changes in deer abundance over both the short and long term is needed to aid deer harvest and timber management programs in Southeast Alaska. Existing deer monitoring programs (such as harvest analyses and pellet group counts), and experimental monitoring programs (e.g. DNA mark-recapture deer-pellet analysis) have shortcomings which limit their usefulness for management, planning, and research.

Methods

Aerial surveys were conducted from 20 July through 17 August in 4 established alpine survey areas. Flights were conducted using Piper PA-18 Super Cub aircraft. Surveys were designed to be approximately 2 h in duration, ending at sunset. Evening surveys were selected over morning surveys because more deer were consistently seen in the evenings per survey hour. Additionally, evening weather was more predictable than morning weather, particularly because of early morning fog.

Pilots and observers counted as many deer as possible while thoroughly covering the survey areas. Unless deer abundance was very high, or deer were in rough terrain and difficult to observe, deer were classified into 4 categories: large buck, small buck, doe, and fawn. Surveys were replicated on 3 to 4 separate evenings to account for variability in the number of deer observed during individual survey flights. Deer per survey hour was selected as the standard metric for deer abundance.

Results and Discussion

During RY16–RY20, surveys were conducted within established alpine survey areas on Etolin, Kuiu, and Kupreanof islands. The south Etolin survey area was flown on 4 evenings in August of RY17 and 3 evenings in July of RY18. A high count of approximately 75 deer per hour was observed in RY17, with a high count of roughly 45 deer per hour in RY18. These were the only years aerial alpine deer surveys were flown on Etolin Island.

Aerial alpine surveys were conducted on Kuiu Island in RY16 and RY17, with 2 replicate surveys in RY16 and 4 in RY17. A high of approximately 30 deer per hour were observed each year. This was an increase from the 5 deer per hour observed in the count area during the single survey flown in RY15.

Aerial alpine surveys were conducted in the west Kupreanof count area in 3 of the years during this report period. A total of 3 replicate surveys were flown in RY16 with a high of 34 deer per hour, 4 replicates in RY17 with a high of 25, and 3 in RY18 with a high of 39. This was an increase from the 8 deer per hour observed during the single survey flown in RY14.

During this report period, 4 aerial surveys were flown on the Lindenberg Peninsula of Kupreanof Island each year between RY16 and RY18, while 3 surveys were flown in RY19. The highest number of deer per hour observed ranged from 65 in RY16 to 122 in RY19. The upward trend in deer numbers in the Lindenberg survey area observed during RY11–RY15 continued during this report period.

Although this method may be useful to assess deer numbers on an island, it is not likely the best method currently available.

Recommendations for Activity 1.2

Discontinue and concentrate on other methods.

2. Mortality-Harvest Monitoring and Regulations

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

Prior to 2011, the department estimated Unit 3 harvest data from a regional questionnaire which was mailed to a random sample of 33% of deer harvest ticket holders. However, since 2011, deer harvest data have been derived from mandatory hunt report cards issued in conjunction with deer harvest tickets.

Data Needs

With a positive customary and traditional finding, an established amounts necessary for subsistence, and an intensive management harvest objective, the Unit 3 deer harvest must be assessed annually to evaluate achievement of these objectives. Harvest trends can indicate population fluctuations which are used to inform management decisions.

Methods

Harvest data are summarized by regulatory year. 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.

Hunters in Unit 3 are required to obtain a general-season harvest ticket before entering the field. Each harvest ticket includes a series of punch tickets which hunters must validate upon the successful harvest of a deer and a mail-in hunt report card (which can also be completed online[1]) to submit for each trip taken, regardless of success. All deer hunters are now expected to report on their hunting activities. Nonetheless, not all hunters submit the required hunt report. Therefore, to obtain total harvest estimates, the reported harvest must be multiplied by an expansion factor to account for nonrespondents.

[1] Hunt report cards can be completed online at www.hunt.alaska.gov.

Once hunt reports are submitted, 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. 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

Season and bag limits for deer in Unit 3, RY14–RY21.

Regulatory years	Unit	Bag limit	Resident season	Nonresident season
2014–2015	Unit 3, Mitkof Island, the Petersburg Management Area (archery-only)	2 bucks	15 Oct–15 Dec	15 Oct–15 Dec
	Unit 3, remainder of Mitkof Island, Woewodski and Butterworth islands	1 buck	15 Oct–31 Oct	15 Oct–31 Oct
	Unit 3, that portion of Kupreanof Island on the Lindenberg Peninsula east of the Portage Bay–Duncan Canal Portage	1 buck	15 Oct–31 Oct	No open season
	Remainder of Unit 3	2 bucks	1 Aug–30 Nov	1 Aug–30 Nov
2019–2021	Unit 3, Mitkof Island, the Petersburg Management Area (archery-only)	2 bucks	1 Oct–15 Dec	1 Oct–15 Dec
	Unit 3, remainder of Mitkof Island, Woewodski and Butterworth islands	1 buck	1 Oct–7 Nov	15 Oct–31 Oct
	Unit 3, that portion of Kupreanof Island on the Lindenberg Peninsula east of the Portage Bay–Duncan Canal Portage	1 buck	1 Oct–7 Nov	No open season
	Remainder of Unit 3	2 bucks	1 Aug–30 Nov	1 Aug–30 Nov

Results and Discussion

Harvest by Hunters-Trappers

During RY16–RY20, the estimated deer harvest in Unit 3 averaged 729 deer per year, ranging from a low of 601 in RY18 to a high of 864 in RY19. This represents an increase in annual harvest from RY11 to RY15, which averaged 539 deer per year (range 449–719; Table 2). The lengthening of the deer season by 3 weeks on the Lindenberg Peninsula of Kupreanof Island and Mitkof Island likely accounts for the increase in harvest in RY19.

Table 2. Unit 3 estimated deer harvest, regulatory years 2011–2020, Southeast Alaska.

Regulatory year	Estimated harvest		
	Male	(% Male)	Total
2011	504	(100)	504
2012	515	(100)	515
2013	449	(100)	449
2014	506	(100)	506
2015	719	(100)	719
2016	780	(100)	780
2017	616	(100)	616
2018	601	(100)	600
2019	864	(100)	864
2020	785	(100)	785

The number of deer hunters in Unit 3 averaged 981 per year (range 867–1,054) during the report period, marking an increase from the preceding 5-year average of 797 (range 697–889) deer hunters. The 1,054 hunters who pursued deer in RY19 represent the highest number of hunters in the unit since RY06 (Table 3).

Of the Unit 3 islands, Zarembo Island was the largest deer producer during this report period with an average annual harvest of 211 deer per year, followed by Kupreanof Island with an average annual harvest of 171, and Wrangell Island with an average annual harvest of 135.

Hunter Residency and Success

The overall success rate for Unit 3 deer hunters averaged 55% during RY16–RY20, ranging from a low of 49% in RY17 to a high of 61% in RY19. The success rate in RY19 is the highest documented in Unit 3 since RY11, when a mandatory hunt report was required of all deer hunters. As is generally the case, local residents of Units 1B and 3 represented the largest group of both successful and unsuccessful hunters. During the report period the overall success rate for local residents was 57% and nonlocal Alaska residents was 50%, while nonresidents had an overall success rate of 35% (Table 3). Deer are more abundant and seasons and bag limits are more liberal in other nearby units; therefore, those areas tend to attract more nonlocal residents and nonresident hunters.

Table 3. Unit 3 deer hunter residency and success, regulatory years 2011–2020, Southeast Alaska.

	Successful						Unsuccessful						
Regulatory year	Local[a] resident	Nonlocal[b] resident	Nonresident[c]	Unk	Total	(%)	Local[a] resident	Nonlocal[b] resident	Nonresident[c]	Unk	Total	(%)	Total hunters
2011	315	39	9	0	363	(52)	272	43	18	1	334	(48)	697
2012	316	31	12	4	363	(45)	361	54	30	6	451	(55)	814
2013	277	53	5	3	338	(42)	353	80	33	2	468	(58)	806
2014	309	36	12	0	357	(46)	326	69	25	0	420	(54)	777
2015	459	43	8	0	510	(57)	316	45	18	0	379	(43)	889
2016	495	68	12	1	576	(57)	379	33	27	2	441	(43)	1,017
2017	390	44	11	2	447	(49)	393	55	20	2	470	(51)	917
2018	400	34	7	1	442	(51)	365	50	10	0	425	(49)	867
2019	578	53	15	2	648	(61)	321	63	22	0	406	(39)	1,054
2020	534	51	12	2	599	(57)	370	53	26	0	449	(43)	1,048

[a] Local resident refers to residents of Units 1B and 3 communities Meyers Chuck, Point Baker, and Port Protection.

[b] Nonlocal resident refers to Alaska residents who are not residents of Units 1B or 3 communities.

[c] Nonresidents refers to U.S. residents who are not residents of Alaska.

Harvest Chronology

While harvest chronology can vary somewhat from year to year, generally the months with the highest harvest are November and October and lowest are August and September. Such was also the case during RY16–RY20 (Table 4).

Table 4. Unit 3 deer percentage of harvest by month, regulatory years 2011–2020, Southeast Alaska.

Regulatory year	Months						Harvest[a]
	August	September	October	November	December	Unk	
2011	16	9	20	51	2	2	504
2012	16	6	19	56	2	1	515
2013	12	7	26	52	1	1	449
2014	15	8	25	50	0	1	506
2015	17	4	35	43	0	0	719
2016	13	9	49	29	0	0	780
2017	19	10	33	36	0	0	616
2018	16	7	31	46	0	0	600
2019	13	6	38	42	0	0	864
2020	21	7	33	39	0	0	785

Transport Methods

As a result of decades of forest management activities, all the major islands in Unit 3 have extensive road systems which provide highway vehicle and 4-wheeler access. Most Unit 3 deer hunters generally report using highway vehicles to access their deer hunting areas. During RY16–RY20 highway vehicles were the most popular means of transportation followed by boats, 4-wheelers, and off-road vehicles (Table 5).

Table 5. Unit 3 deer hunter percentage days of effort by transport method, regulatory years 2011–2020, Southeast Alaska.

Regulatory year	Airplane	Boat	3- or 4-wheeler	Foot	Highway vehicle	ORV[a]	Other	Unknown	Days of effort
2011	1	48	9	5	27	2	0	7	3,104
2012	2	35	10	5	43	3	0	0	4,003
2013	3	32	9	3	46	4	1	2	4,523
2014	1	35	9	2	49	1	0	1	3,512
2015	2	28	6	3	54	6	0	1	4,638
2016	0	33	7	6	47	6	0	1	4,054
2017	2	31	8	1	51	3	0	4	3,985
2018	1	30	11	2	52	3	0	2	3,341
2019	2	29	8	2	55	3	0	1	4,284
2020	3	28	7	2	56	4	0	1	4,320

[a] ORV refers to off-road vehicle.

Other Mortality

In addition to legal hunting, other sources of deer mortality include predation by wolves and bears, poaching, deer-vehicle collisions, injury and accidents, and starvation or other natural causes. Poaching of deer undoubtedly occurs in Unit 3, but the department does not have prevalence information. We also have no estimates of nonhunting mortality during RY16–RY20.

Alaska Board of Game Actions and Emergency Orders

During their 2019 meeting, the board adopted a proposal which extended the deer season in the Petersburg Management Area by 2 weeks with the new season dates of 1 October to 15 December.

The resident deer season was also extended by 3 weeks on Mitkof, Woewodski, and Butterworth Islands, and that portion of Kupreanof Island on the Lindenberg Peninsula east of Portage Bay and Duncan Canal, with the new season dates of 1 October to 7 November.

Recommendations for Activity 2.1

Continue.

3. Habitat Assessment-Enhancement

The Unit 3 landscape has been altered considerably by decades of logging, which continues to reduce the deer carrying capacity. Diets of deer and sympatric moose also overlap, particularly during winter. Nonetheless, anecdotal evidence suggests deer are currently below the carrying capacity of the habitat and nutrition is not believed to be a major factor in past population declines. Yet winter habitat in the form of low elevation, high volume old growth forests is still considered by department biologists to be the most important and most limiting habitat for deer in this area. The characteristics typical of high-volume, old growth forest stands take hundreds of years to fully develop, and only after a period of approximately 150 years do second-growth stands begin to take on old growth characteristics. A series of heavy-snow winters (RY06, RY07, and RY08) and logging-related reductions in low-elevation, south-facing, and high-volume old growth forests which were important for deer overwinter survival may have contributed to the past declines in deer numbers. These winters and logging reductions also limit achievable population increases.

No attempt has been made to enhance habitat in Unit 3 specifically for deer. While generally considered a silviculture prescription, precommercial thinning of the dense second-growth stands resulting from clear-cut logging can temporarily increase forage production, delay eventual stem exclusion resulting from canopy closure, and accelerate forest succession to an old growth forest condition. As such, precommercial thinning of logged stands provides the only real opportunity to improve habitat conditions for deer. However, such benefits typically occur for a 5- to 25-year period following treatment and provide little benefit to deer in the near-term. Furthermore, most of the unit consists of federal lands (national forest) and is not within the state's authority to undertake such activities. Even if habitat enhancements were feasible, we would not expect such efforts to significantly improve deer numbers in the near term. The department is not currently considering habitat enhancement.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Federally qualified residents of Units 1–5 including Petersburg, Wrangell, and Kake can hunt deer under state or federal subsistence hunting regulations on federal lands. Most land in Unit 3 is federally managed; under these designated hunter provision, qualified users can harvest deer on behalf of an unlimited number of qualified beneficiaries. Unlike the state proxy hunting system, the federal designated hunter program has no age or disability requirements for beneficiaries. As a result of this provision, the state's individual bag limits are somewhat ineffective, making season length the most effective tool for limiting harvest to within sustainable limits.

Data Recording and Archiving

Pellet-group surveys: All records and data analysis related to deer pellet-group surveys are archived on network servers in the Douglas Region I office.

Hunt reports: All data derived from deer hunt reports, including annual harvest summaries, are archived electronically in ADF&G's Wildlife Information Network.

Records and data related to aerial alpine surveys are maintained in the Petersburg area office where it is stored electronically on the area biologist desktop computer and backed up on the network server.

Agreements

ADF&G and the U. S. Fish and Wildlife Service Office of Subsistence Management have agreed to manage both state and federal deer hunting in Unit 3 using state harvest tickets and concurrent season dates and bag limits.

Permitting

Deer hunting in Unit 3 is managed using harvest tickets with an associated hunt report requirement.

Conclusions and Management Recommendations

Increasing trends in pellet-group and aerial alpine deer surveys, combined with an increase in harvest, indicate the Unit 3 deer population has rebounded from the decline seen after the deep-snow winters of 2006–2008. In RY06, the estimated unitwide harvest began a decreasing trend which continued until reaching a low of 285 deer in RY08. That was the lowest reported Unit 3 deer harvest in decades and well below the preceding 10-year average (RY98–RY07) of 644 deer. The harvest increased to 505 in RY11, and further increased to 717 in RY15, suggesting that the Unit 3 deer population, aided by a series of mild winters, was rising. During RY16–RY20 the Unit 3 deer harvest averaged 729 deer, equaling the estimated harvest prior to the decline which began in RY06. While harvest has increased as the deer population apparently recovered from the deep snow winters of 2006–2008, in RY19 the board extended the deer season on the Lindenberg Peninsula of Kupreanof Island and on Mitkof Island by 3 weeks to

include the early part of the rut, when bucks are more susceptible to harvest. Department biologists cannot assess whether changes in harvest since RY19 are more related to increasing deer abundance or increased hunting opportunity.

Many factors influence deer abundance including habitat quality, winter severity, predation, hunting, and possibly competition with an expanding Unit 3 moose population. Of those, we anticipate habitat change related to decades of clearcut logging throughout Unit 3 is likely to have the greatest long-term effect on deer abundance. Timber harvest also resulted in construction of extensive road networks, increasing access for deer hunting. The effect of roads is greatest where road systems are connected to communities (e.g. Mitkof, Kupreanof, and Wrangell islands). However, even remote road systems enhance access for deer hunters and reduce refugia for deer. Land managers intending to improve deer hunting by mitigating the effects of clearcutting on deer (e.g. precommercial thinning) should focus on areas accessible to hunters.

For decades, deer pellet-group surveys have been used to monitor deer population trends in specific watersheds throughout the region. However, interpreting pellet group counts can be confounded by several factors, and the method is only sensitive to large changes (≥30%) in deer abundance. In the late summers of 2013 and 2014, staff experimented with aerial alpine deer surveys in an effort to develop a more reliable method of accurately assessing relatively small, short-term (1–2 years) changes in deer abundance. This method is limited to areas with sufficient alpine habitat, and the degree to which changes in deer abundance in alpine habitat reflect changes in the larger deer population is unknown. The department will publish an assessment of the alpine survey technique in RY25. A camera-based method of monitoring deer abundance is also being evaluated in several areas of the region including Mitkof Island.

Despite relatively restrictive hunting seasons and bag limits, Unit 3 deer population management has been hampered to some extent by individuals exploiting the federal designated hunter provision to harvest deer in excess of their individual bag limit. As a result, the effectiveness of individual bag limits for constraining the deer harvest within sustainable levels has been compromised, resulting in the need to maintain shorter hunting seasons for deer in portions of the unit.

ADF&G recommends no changes to the state deer hunting regulations in Unit 3 at this time. Research is needed to further evaluate methods for monitoring deer population trends and to evaluate the respective roles which weather, predation, and clearcut logging play in influencing deer populations.

II. Project Review and RY21–RY25 Plan

Review of Management Direction

MANAGEMENT DIRECTION

GOALS

Management goals for RY21–RY25 have been updated to the following:

- Provide sustained opportunity to participate in deer hunting.
- Provide an opportunity to view and photograph deer.
- Protect and maintain the deer population and habitat in Unit 3.

CODIFIED OBJECTIVES

Amounts Reasonably Necessary for Subsistence Uses

The board has made a positive finding for customary and traditional use of deer in Unit 3 and set the amount necessary for subsistence at 150–175 deer per year (5 AAC 99.025(a)(5)), which has been consistently achieved.

Intensive Management

The Unit 3 management goal is to manage the deer population to achieve and maintain a population of 15,000 deer while supporting an annual harvest of 900 deer, as established by the board in 2000 (5 AAC 92.108).

MANAGEMENT OBJECTIVES

Management objectives for RY21–RY25 have been updated to the following:

- Monitor the deer harvest through general-season harvest ticket reports.
- Assess new methods (specifically motion-sensor camera methods) to measure population indices which allow the monitoring of deer population trends.

REVIEW OF MANAGEMENT ACTIVITIES

1. Population Status and Trend

ACTIVITY 1.1. Conduct motion-sensor camera deer surveys.

Data Needs

Tracking trends in deer abundance in the coastal rainforest environment of Southeast Alaska presents many challenges. A reliable and cost-effective technique is needed for assessing changes in deer abundance over both the short- and long-term.

Methods

A 1.2 mi (2 km) hexagon-cell camera grid placed in winter deer habit below 1,000 ft elevation will be established on Mitkof Island. A random selection of 40 grid cells will be used for cameras, which will be placed near each center according to established protocol used throughout the region. These cameras will be serviced annually: Pictures will be downloaded, batteries replaced, and cameras will be tested to ensure that they are in working condition. Photograph data will be analyzed by the regional biometrician to determine if camera methods are an effective way of monitoring trends of forest-dwelling deer.

2. Mortality-Harvest Monitoring

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

Data Needs

No change from RY16–RY20.

Methods

No change from RY16–RY20.

3. Habitat Assessment-Enhancement

No change from RY16–RY20.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Data Recording and Archiving

No change from RY16–RY20.

Agreements

No change from RY16–RY20.

Permitting

No change from RY16–RY20.

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