Deer Management Report and Plan, Game Management Unit 6:

Report Period 1 July 2016–30 June 2021, and

Plan Period 1 July 2021–30 June 2026

Charlotte L. Westing

2022

Alaska Department of Fish and Game Division of Wildlife Conservation

Species Management Report and Plan ADF&G/DWC/SMR&P-2022-21

Deer Management Report and Plan, Game Management Unit 6:

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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 Jeff Selinger, Management Coordinator for Region II 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 6 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., RY14 = 1 July 2014–30 June 2015). This report is produced primarily to provide agency staff with data and analysis to help guide and record agency efforts but is also provided to the public to inform it of wildlife management activities. In 2016 the Alaska Department of Fish and Game's (ADF&G, the department) Division of Wildlife Conservation (DWC) launched this 5-year report to report more efficiently 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

Unit 6 covers approximately 10,140 mi^2 of land, including Prince William Sound (PWS), the Copper River Delta, and the North Gulf Coast of Alaska (Fig. 1). Unit 6 is divided into 4 administrative units (6A, 6B, 6C, and 6D), which are also referred to as subunits. Terrain includes rugged mountains, old-growth forest, coastal wetlands, and muskeg meadows.

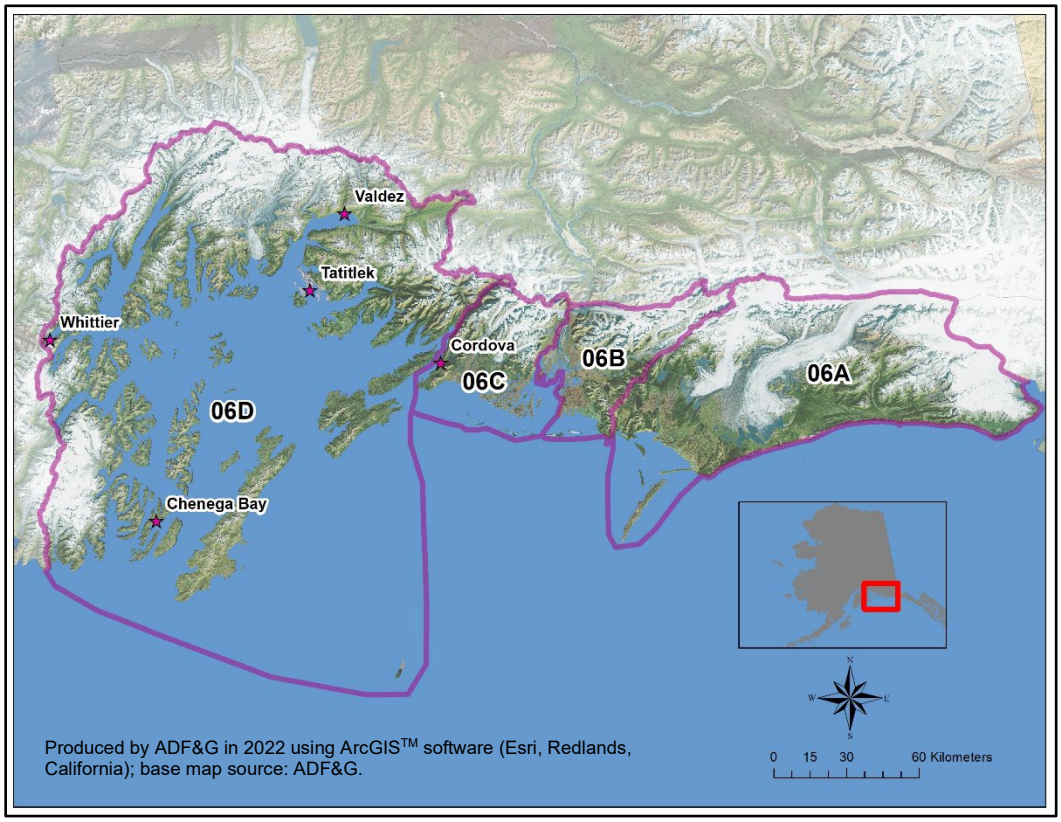

Figure 1. Game Management Unit 6 and its administrative units (subunits), Alaska.

Sitka black-tailed deer in Unit 6 are at the extreme northern limit of their range (Cowan 1969). The population thrives because of the mild, maritime climate conditions on islands in PWS (Unit 6D; Shishido 1986). Snow-shading canopies of old-growth forest provide accessible forage and shelter during winter, especially in the larger watersheds of the big islands (Hawkins, Hinchinbrook, and Montague; Shishido 1986; Reynolds 1979). If forbs eventually become buried by deeper snow, blueberry stems (*Vaccinium ovalifolium)* and kelp, primarily *Alaria marginata*, become important forage foods. Deer can be found in other portions of Unit 6 and are sometimes harvested, but they occur at dramatically lower densities primarily due to higher snow loads.

Summary of Status, Trend, Management Activities, and History of Deer in Unit 6

The Cordova Chamber of Commerce introduced Sitka black-tailed deer into Unit 6 between 1916 and 1923 (Paul 2009). At least 24 deer were released on Hawkins and Hinchinbrook islands in PWS. This was the first big game translocation in the state and was one of the most successful. Deer quickly occupied vacant habitat on most islands and adjacent mainland in PWS. Nearly the entire deer population occurs in Unit 6D. The population peaked in 1945, resulting in habitat damage and long-term reduction in carrying capacity (F. C. Robards, U.S. Fish and Wildlife Service, annual report game, fur and game fish, 1952, memorandum, Cordova). High winter mortality events occurred in the late 1940s, mid-1950s, late 1960s, early 1970s (Reynolds 1979), late 1990s (Crowley 2001), and 2012 (Westing 2018). Predation is minimal because there are few wolves and coyotes off the mainland, and bears are believed to prey on them only opportunistically. ADF&G focuses all monitoring efforts on Unit 6D, where nearly the entire population exists.

Clear-cut logging of old-growth forest on private land in PWS was once the most important deer management concern in Unit 6 (Nowlin 1997). Currently there are no logging operations planned within important deer habitat.

The most important factors limiting the deer population are snow depth and snowpack duration (Reynolds 1979). The population of deer in PWS represents the northernmost extent of their acceptable range (Cowan 1969). A series of mild winters allows deer to increase and disperse to less favorable habitat, only to decline during severe winters when food is inaccessible. Regardless of management actions taken, weather will primarily influence population trajectory. Hunting can, however, be a limiting factor in local areas when deep snow concentrates deer on beaches during the open season (Reynolds 1979, Westing 2018). Harvest may become a more significant factor in the future if numbers of hunters increase. However, weather will continue to constrain hunter access.

ADF&G can and has adjusted season length for either does or any deer as needed to prevent additive harvest. The U.S. Forest Service (USFS) can also modify deer hunting seasons on their lands. USFS management may follow or align with state closures, seasons and bag limits may be adjusted for federally qualified users on federal land, or seasons may be only open to federally qualified users. Changes to either the federal or state season may be announced using emergency

order authority in response to early and substantial snowfall when it is likely to be persistent or when a conservation concern exists.

Legal deer hunting began in 1935. It was monitored from 1960 through 1979 by harvest reports and hunter contacts. Beginning in 1980, ADF&G collected most information through questionnaires mailed to deer harvest ticket holders. Annual harvests before 1978 probably ranged between 500 and 1,500 (Reynolds 1979). The Unit 6 deer harvests began to increase after 1978 and rose to 3,000 deer harvested unitwide by 1987. The average estimated unitwide harvest during the 1990s was 2,160 deer, ranging from 1,300 to 3,000 deer. Intensive management objectives for population and harvest were set in 2001. The average estimated unitwide harvest during the 2000s was 2,460, ranging from 1,400 to 3,500 deer. The average estimated harvest in Unit 6 during the 2010s was 1,900 deer, ranging from 618 to 3,084 deer. In 2011, ADF&G began collecting deer harvest data within the harvest ticket system. Rather than sampling a portion of participants, data from all individuals with harvest tickets was pursued.

Management Direction

- Provide a bag limit that allows for compensatory harvest and the prevention of habitat degradation from high abundance, which is achievable following mild winters (bag limit of 5 deer for residents and 4 for nonresidents).
- Reduce additive harvest (inseason when possible) following extreme weather events. Weather-caused mortality events cannot be prevented. Therefore, management decisions seek to build the population back to moderate levels quickly while maintaining reasonable harvest opportunity.
- Evaluate the current harvest objective based on improved harvest reporting and modify. Harvest objectives have only been met 7 times in 20 years.

Existing Wildlife Management Plans

None presently specific to deer. Direction in *Alaska wildlife management plans: A public proposal for the management of Alaska's wildlife: Southcentral Alaska* (ADF&G 1976) has been modified by Alaska Board of Game regulatory actions over the years.

Goals

The management goal for Unit 6 deer is to maintain healthy, productive populations that are sufficiently abundant and resilient to harsh winters to ensure good hunting opportunities and success.

Codified Objectives

Amounts Reasonably Necessary for Subsistence Uses

There is a positive customary and traditional use finding for deer in Unit 6. The amount reasonably necessary for subsistence uses is set at 1,000–1,250 deer (5 AAC 99.025 (5)).

Intensive Management

The Board of Game (BOG, board) has made a positive finding for the intensive management of deer in Unit 6. The board established a population objective of 24,000–28,000 deer and a harvest objective of 2,200–3,000 deer (5 AAC 92.108).

MANAGEMENT OBJECTIVES

Management objectives will vary based on population status. Current management objectives mirror codified objectives listed above. Additional objectives are as follows:

- When deer pellet transects indicate that the population is low, the 3-year average buck harvest should be >60% of the harvest. Harvest opportunity will be reduced if snow levels are identified as deep and persistent.

- If mean pellet groups per plot (MPGP) are >1.5 for 3 consecutive years, education efforts will focus on increasing doe harvest. Board of Game action may be pursued to liberalize deer harvest.

MANAGEMENT ACTIVITIES

1. Population Status and Trend

ACTIVITY 1.1. Conduct deer pellet transects.

Data Needs

Assess the general level of the population to attempt to understand if harvest is additive or compensatory.

Methods

ADF&G and USFS cooperate to monitor the population trend in PWS. We conduct annual pellet group surveys along transects (Kirchhoff and Pitcher 1988) during late May and early June at 8 sampling locations (Fig. 2). Each location has 3–5 transects consisting of a straight line of 1 × 20-meter plots running uphill from the beach fringe along a compass heading. Most transects terminate at alpine habitat. Those not reaching alpine habitat terminate after we examine 100 plots. The number of plots varies, depending on the distance from the beach to the alpine and the persistence of snow during the survey. The minimum number of plots within a location was 164. The number of plots completed in each area depends on the amount of persistent snow. Transects are terminated when snow cover approaches 100% for the remainder of the transect. We calculate MPGP for each location but also calculate MPGP for all locations combined to inform unitwide inferences on deer abundance.

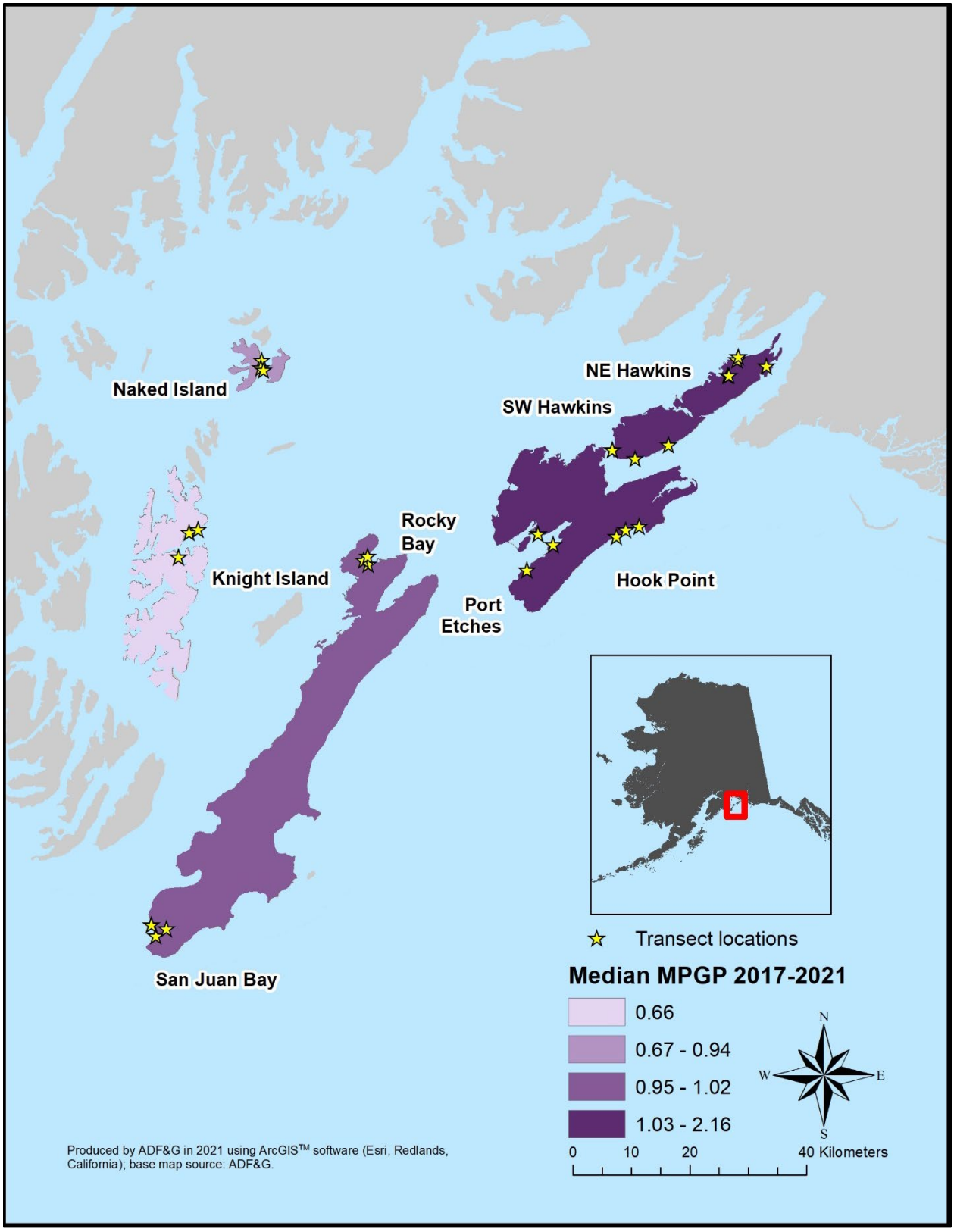

Figure 2. Locations of pellet group transects (stars) and deer pellet density by island for deer in Unit 6, Alaska. Note: Prince William Sound is Unit 6D.

Results and Discussion

Deer density indices in PWS, based on MPGP, were moderate to high during RY16–RY20 (Figs. 2 and 3, Table 1). Deer pellet densities suggest that the deer population may have increased to precrash (RY11, 1.47 MPGP) levels. This recovery is likely a result of numerous mild winters where minimal snow was retained at sea level.

Hawkins and Hinchinbrook islands tend to accumulate less snow than islands in western PWS because a slight temperature cline produces more rain in the east. Indeed, higher pellet group densities were observed there. In addition, both eastern islands have extensive old-growth forests to support wintering deer, whereas the smaller islands of western PWS have smaller watersheds and much less winter habitat. Although Montague Island has large watersheds, much of the best deer winter habitat was clear-cut during the 1980s and 1990s, and the island often receives tremendous amounts of snowfall.

The deer pellet surveys in 2020 were only conducted on Hawkins and Hinchinbrook islands due to logistical fieldwork limitations related to the COVID-19 pandemic. Data from these surveys are not included in cumulative totals (Figs. 2 and 3) due to the likelihood that cumulative mean pellet groups per plot would be skewed higher without data from lower density areas. Surveys on Hawkins and Hinchinbrook did not show signs that any large decline in abundance had happened despite significant snow at sea level.

Kirchhoff and Pitcher (1988) suggested that MPGPs of 0.50 to 0.99, 1.00 to 1.99, and 2.00 to 2.99 were low, moderate, and high densities, respectively, for Southeast Alaska. These densities were generated for Southeast Alaska and are not applicable (i.e., a MPGP above 2.00 for the entire area has never been observed) to PWS. Differences in habitat and a more severe climate likely lead to lower productivity in PWS deer, relative to deer in Southeast Alaska. Jenks natural breaks optimization was used to analyze the historical PWS deer pellet data into high, medium, and low categories. Based on these data, mean pellet groups per plot below 0.89 MPGP may indicate a low population, between 0.89 and 1.35 MPGP may indicate a medium population, and above 1.35 MPGP may indicate that the population is high. In 4 of the 5 years of this reporting period (RY16–RY20), the MPGP was in the high category.

Recommendations for Activity 1.1

Continue.

Table 1. Unit 6D deer population trends as indicated by spring pellet-group surveys, Southcentral Alaska, 2017–2021.

Area	Specific location UCU[a]	Survey year	MPGP[b]	95% CI[c]	No. of plots
Knight Island	Bay of Isles	2017	0.48	0.30–0.66	173
	1503	2018	0.66	0.46–0.85	175
		2019	0.37	0.25–0.49	176
		2020	–	–	–
		2021	0.86	0.66–1.06	168
Naked Island	1701	2017	0.94	0.72–1.16	210
		2018	0.84	0.64–1.04	210
		2019	1.25	1.01–1.49	210
		2020	–	–	–
		2021	0.89	0.71–1.08	206
Montague Island	Rocky Bay	2017	1.02	0.81–1.24	218
	1803	2018	1.16	0.94–1.38	218
		2019	0.67	0.52–0.83	218
		2020	–	–	–
		2021	1.65	1.33–1.96	218
	San Juan Bay	2017	–	–	–
	1810	2018	1.21	0.94–1.47	234
		2019	–	–	–
		2020	–	–	–
		2021	–	–	–
Hinchinbrook	Port Etches	2017	2.28	1.94–2.62	231
Island	1903	2018	1.31	1.10–1.52	243
		2019	1.50	1.22–1.78	243
		2020	2.04	1.73–2.35	238
		2021	2.15	1.85–2.46	226
	Hook Point	2017	2.06	1.72–2.40	236
	1905	2018	1.89	1.58–2.20	239
		2019	1.86	1.56–2.16	239
		2020	1.68	1.45–1.92	238
		2021	2.36	1.94–2.79	143
Hawkins Island	NE Hawkins	2017	1.62	1.35–1.88	236
	2001	2018	1.64	1.33–1.94	240
		2019	1.91	1.57–2.26	240
		2020	2.33	1.97–2.69	239
		2021	1.92	1.62–2.23	230
	SW Hawkins	2017	1.75	1.43–2.07	222
	2003	2018	1.77	1.46–2.08	222
		2019	1.71	1.43–1.99	222
		2020	2.36	2.00–2.72	222
		2021	1.65	1.32–1.97	216
All areas		2017	1.50	1.39–1.61	1,527
		2018	1.34	1.24–1.43	1,782
		2019	1.37	1.27–1.47	1,548
		2020	–[d]	–	937
		2021	1.64	1.53–1.76	1,407

Note: End dashes indicate data not available.

[a] UCU = uniform coding units.

[b] MPGP = mean pellet groups per plot.

[c] CI = confidence interval.

[d] MPGP not presented as half of the transect locations were not visited due to COVID-19 restrictions.

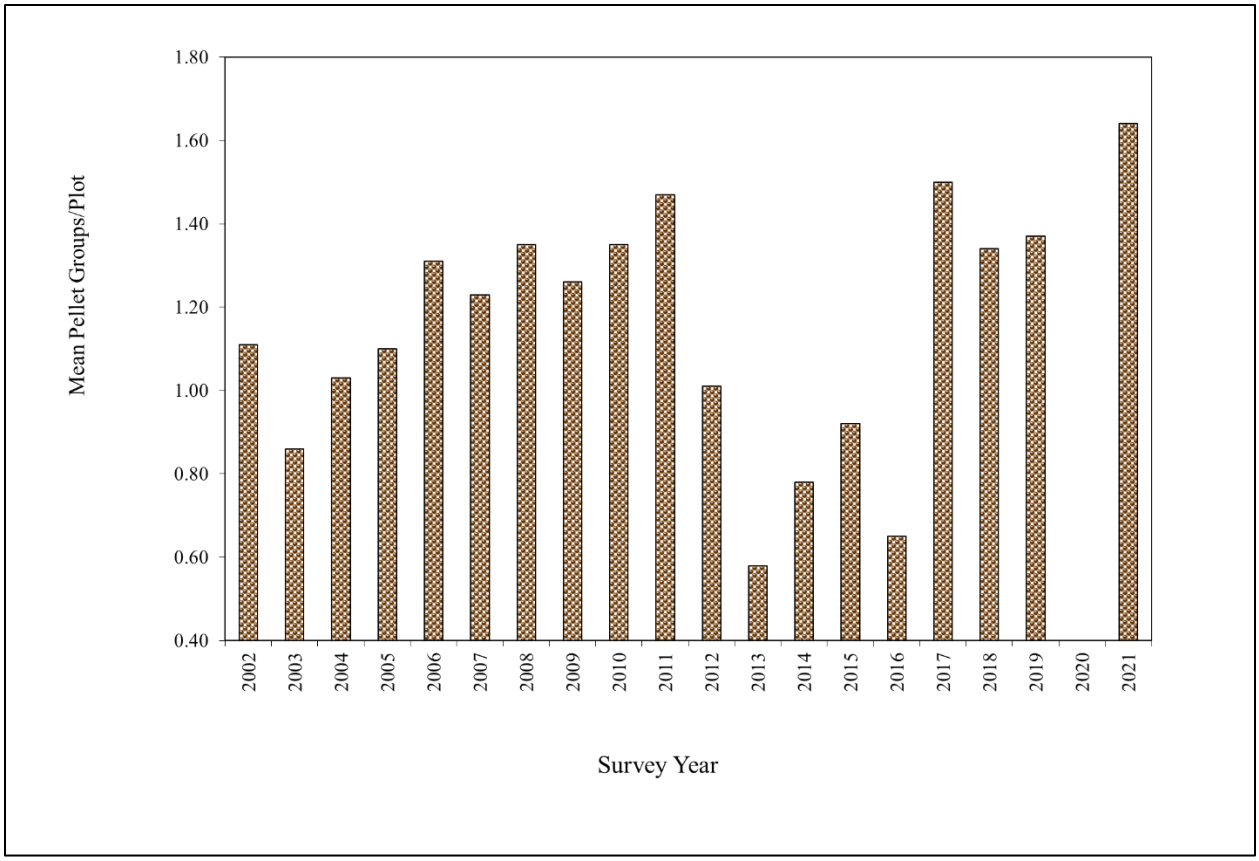

Figure 3. Deer pellet density observed in Unit 6D, Prince William Sound, Alaska. This composite index is based on multiple survey areas detailed in Table 1, this document. Does not include an index for 2020 due to incomplete surveys.

2. Mortality-Harvest Monitoring and Regulations

ACTIVITY 2.1. Quantify and analyze harvest data.

Data Needs

With a positive customary and traditional finding and corresponding amount reasonably necessary for subsistence uses established, as well as intensive management objectives, harvest must be assessed to evaluate the achievement of these goals. Current management objectives for harvest are not used as triggers for corrective action on perceived abundance of this introduced population that is primarily limited by winter severity.

Methods

Harvest data are summarized by regulatory year. From RY80 to RY10 we estimated deer harvest from responses to questionnaires mailed to deer hunters who were issued deer harvest tickets. Approximately 3,000 questionnaires (30% of harvest ticket holders) were mailed to hunters annually, with a response rate averaging 66%. Follow-up letters were sent to nonresponders to achieve more complete data.

Since RY11 data was produced using the harvest ticket system. Rather than select participants receiving questionnaires, all hunters are expected to report their activity. These data must be edited for accuracy in coding and reviewed for data entry errors. While the harvest questionnaire provided a map for hunters to indicate where they focused their effort, the harvest ticket system relies on an open-ended response to location. As a result, follow-up letters from the Cordova ADF&G office must be sent to many hunters to get more precise harvest location data. Harvest estimates are expanded to account for nonresponse. This information was summarized for total harvest, hunter residency and success, harvest chronology, and transportation methods for Unit 6. Harvest data were grouped into geographic areas that included Hinchinbrook Island, Montague Island, Hawkins Island, western PWS, and northern and eastern PWS.

Season and Bag Limit

The season for resident and nonresident hunters was 1 August–31 December. The bag limit was 5 deer for residents and 4 for nonresidents. Female deer could be taken beginning 1 October.

An additional federal season exists for federally qualified users on federal land with an annual bag limit of 1 buck that is open for the month of January.

Results and Discussion

Harvest by Hunters

Harvest in RY16 (2,959 deer) was the eighth highest since harvest reporting began in 1984. This harvest nearly met levels seen in RY11 when extreme weather concentrated deer where they were vulnerable to harvest. Because there was no concentrating event in RY16 (Table 2, Fig. 4), this suggests that the RY16 harvest may have been related to actual increased deer density. Harvests during this reporting period were above the previous 20-year average (RY94–RY15) in RY16 and RY19 and below during RY17, RY18 and RY20 (Table 2, Fig. 4).

Increased harvest of deer in RY16 was not observed consistently across all areas. While Hinchinbrook Island and Montague Island experienced marked spikes in harvest in RY16, Hawkins Island, showed a steady increase in harvest from RY12. Hawkins Island experienced the largest reported harvest on record in RY11 (Westing 2018) and may have had a slower recovery.

Montague Island has the highest annual harvest of the 5 geographic areas in PWS (Table 2, Fig. 5). The 5-year (RY16–RY20) average harvest of deer on Montague Island (665 deer) was the highest number of deer followed by Western PWS (527 deer), Hinchinbrook (493 deer), and Hawkins Island (362 deer; Fig. 5). During RY16–RY20, Western PWS replaced Hawkins Island in the top 3 areas of highest harvest. This is probably indicative of the slower recovery of the population on Hawkins Island and the high harvest pressure in Western PWS.

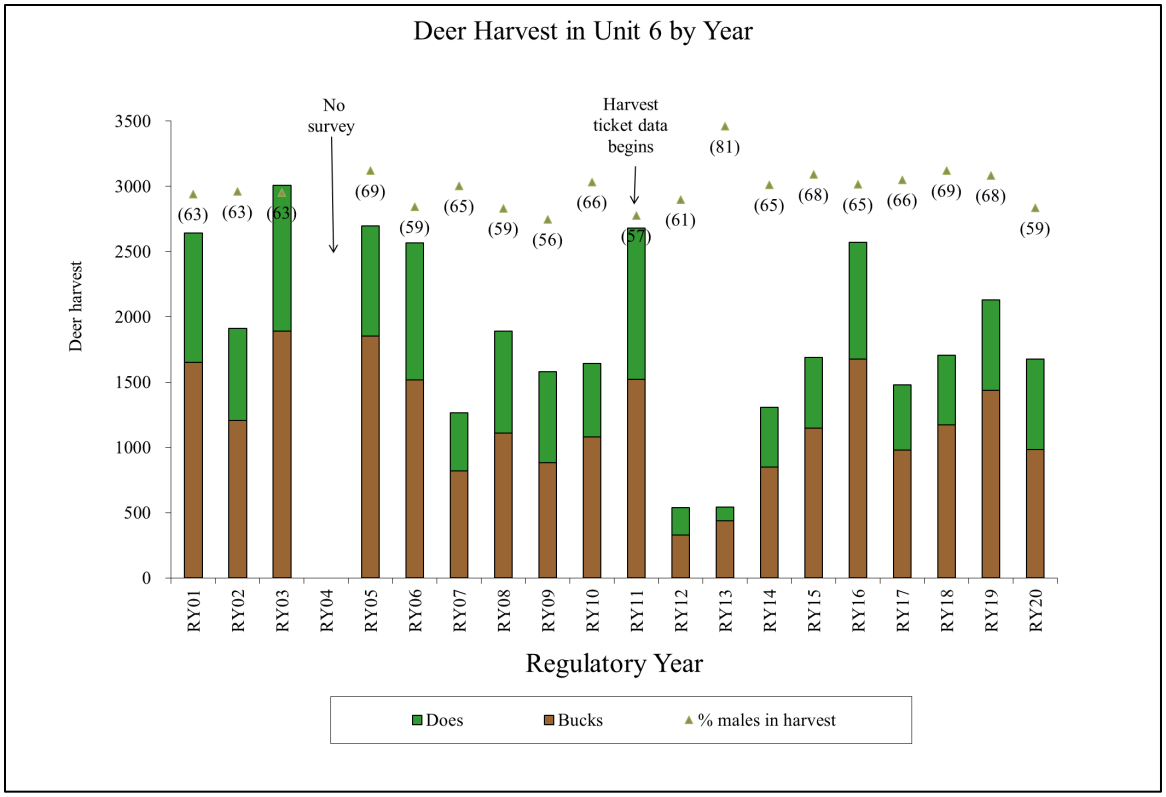

Figure 4. Estimated deer harvest by sex (percent male above bars) in Unit 6D, Prince William Sound, Alaska.

Harvest was composed of more than 60% males in all but one year (RY20) of this reporting period (RY16–RY20). In most areas in most years, males make up more than 60% of the harvest. However, harvest in Western PWS was less than 60% males in every year of this reporting period (Table 2).

Table 2. Unit 6D deer harvest, Southcentral Alaska, regulatory years 2016–2020.

Area	Regulatory year	Estimated legal harvest[a] Male	(%)	Female	(%)	Total	Estimated illegal/ unrecovered harvest[b]	Total
Hawkins Island	2016	197	(66)	101	(34)	298	45	343
	2017	187	(65)	99	(35)	286	43	329
	2018	252	(73)	92	(27)	344	52	396
	2019	288	(73)	105	(27)	393	59	452
	2020	152	(60)	101	(40)	253	38	291
Hinchinbrook Island	2016	458	(75)	149	(25)	607	91	698
	2017	298	(72)	115	(28)	413	62	475
	2018	279	(72)	108	(28)	387	58	445
	2019	289	(76)	93	(24)	382	57	439
	2020	219	(62)	134	(38)	353	53	406
Montague Island	2016	592	(64)	339	(36)	931	140	1,071
	2017	236	(64)	130	(36)	366	55	421
	2018	315	(73)	117	(27)	432	65	497
	2019	423	(69)	192	(31)	615	92	707
	2020	333	(61)	214	(39)	547	82	629
Western Prince William Sound	2016	301	(57)	231	(43)	532	80	612
	2017	155	(58)	113	(42)	268	40	308
	2018	239	(58)	176	(42)	415	62	477
	2019	362	(58)	259	(42)	621	93	714
	2020	235	(52)	220	(48)	455	68	523
Northern and eastern Prince William Sound	2016	80	(66)	42	(34)	122	18	140
	2017	63	(74)	22	(26)	85	13	98
	2018	66	(73)	25	(27)	91	14	105
	2019	69	(68)	33	(32)	102	15	117
	2020	40	(65)	22	(35)	62	9	71
Unit 6D unknown	2016	48	(58)	35	(42)	83	12	95
	2017	42	(69)	19	(31)	61	9	70
	2018	22	(61)	14	(39)	36	5	41
	2019	8	(44)	10	(56)	18	3	21
	2020	6	(46)	7	(54)	13	2	15
Unit 6D total	2016	1,676	(65)	897	(35)	2,573	386	2,959
	2017	981	(66)	498	(34)	1,479	222	1,701
	2018	1,173	(69)	532	(31)	1,705	256	1,961
	2019	1,439	(68)	692	(32)	2,131	320	2,451
	2020	985	(59)	691	(41)	1,676	241	1,917

[a] Derived from harvest ticket data.

[b] Unquantified but estimated to be 15% of reported total.

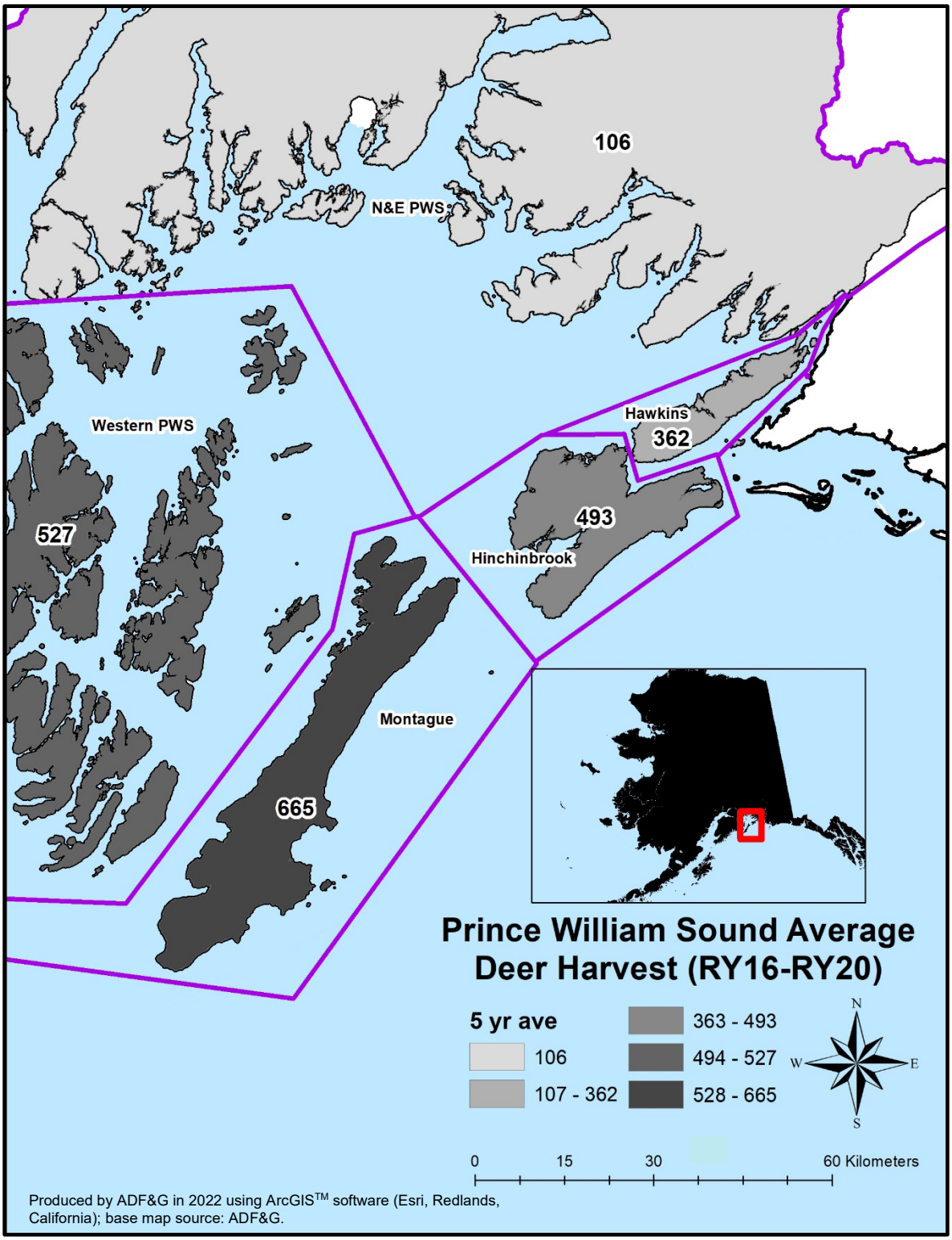

Figure 5. Average deer harvest estimates by hunt area in Unit 6D, Prince William Sound, Alaska, regulatory years 2016–2020.

Hunters have improved in their recognition of the mandatory reporting requirement that is being used instead of the previous survey system (used until RY11) which sampled hunters (only selected hunters were required to respond). Using Cordova hunters as an example, in RY11 65% reported their hunt activity. By RY20, 85% of Cordova hunters reported their hunt activity. Road-system-based hunters, which also comprise most nonlocal hunters, showed similar response improvements. Adjustments were made to estimate harvest from nonresponders. Without these adjustments, harvest ticket data might not be comparable with past data.

Hunter Residency and Success

Deer hunters had an annual success rates (harvest of at least 1 deer reported during the season) of 51–61% during RY16–RY20 (Table 3). Since RY14, success rates have remained above precrash (RY11) levels. Nonlocal residents represented 58–66% of successful hunters during RY16–RY20 (Table 3). Local residents on average (RY16–RY20) killed 1.6 deer per hunter compared to 1.0 deer per hunter for nonlocal residents. The number of deer taken per nonlocal resident hunter and local resident hunter during RY16–RY20 was nearly identical to their respective 10-year average (RY06–RY15). Nonresidents remained minor contributors (<5%) to the deer harvest.

Harvest Chronology

In RY16–RY20, hunters killed the most deer during October and November (Table 4). During November the rut was in progress, making bucks easier to target. In some years (RY16, RY18, and RY20), harvest in December increased relative to other years likely due to snow-caused movements and concentrations.

Transport Methods

Similar to previous years, hunters primarily used boats during RY16–RY20 (88%), and a smaller percentage used airplanes (10%, Table 5). Other modes, including 3- and 4-wheelers, highway vehicles, and walking comprised 0–1% of the estimated harvest each year (Table 5).

Other Mortality

Wounding loss and illegal harvest together was estimated to be at least 15% of the total reported harvest (Table 2). The actual amount of harvest in these categories is unknown and not constant. Ample snow during the hunting season likely results in higher levels of wounding loss as snow concentrates deer on the beach where they can be shot from boats. No major winter mortality events were observed during RY16–RY20.

Table 3. Unit 6 deer hunter residency and success, Southcentral Alaska, regulatory years 2016–2020.

Regulatory year	Successful					Unsuccessful					Total hunters
	Local resident[a]	Nonlocal resident	Nonresident	Total	(%)	Local Resident[a]	Nonlocal resident	Nonresident	Total	(%)	
2016	350	686	28	1,064	(60)	164	512	46	722	(40)	1,786
2017	248	452	33	733	(51)	166	491	55	712	(49)	1,445
2018	315	447	15	777	(54)	147	471	41	659	(46)	1,436
2019	317	630	34	981	(61)	128	472	29	629	(39)	1,610
2020	268	578	24	870	(52)	167	589	43	799	(48)	1,669

[a] Resident of Unit 6.

Table 4. Unit 6 deer harvest chronology percent by month, Southcentral Alaska, regulatory years 2016–2020.

Regulatory year	Harvest chronology percent by month							
	August	September	October	November	December	January	Unknown	*n*
2016	7	3	36	27	27	0	0	2,533
2017	12	3	32	33	19	1	1	1,476
2018	9	3	27	34	27	0	0	1,749
2019	8	3	33	38	17	0	0	2.142
2020	10	3	33	31	23	0	0	1,692

Table 5. Unit 6 deer harvest percent by transport method, Southcentral Alaska, regulatory years 2016–2020.

Regulatory year	Percent harvest by transport method						
	Airplane	Boat	3- or 4-wheeler	Highway vehicle	Foot	Unknown	*n*
2016	13	85	1	0	1	0	2,538
2017	9	88	1	0	1	1	1,479
2018	8	90	0	0	1	1	1,748
2019	10	88	1	1	0	1	2,144
2020	10	88	1	0	1	0	1,687

Alaska Board of Game Actions and Emergency Orders

There were no board of game actions or emergency orders during RY16–RY20.

A federal season was established for federally qualified subsistence users on federal land. This season allows hunters to take a buck in January if one still remains on their bag limit.

Recommendations for Activity 2.1

Modify—since harvest reporting has improved, and in some areas is very high, the need for continued use of expansion factors should be evaluated.

Current harvest objectives should be evaluated to determine if they are appropriate based on improved harvest reporting (since RY12) and modified. Harvest objectives have only been met 7 times in 20 years.

ACTIVITY 2.2. Mortality risk assessment: Additive or compensatory.

Data Needs

Assess whether annual hunting mortality is additive or compensatory.

Methods

Collect and consider anecdotal reports of body condition. If fall and early winter are very mild and the population is low, body condition may be very good. If the population is high (based on deer pellet transect results) or the winter is dominated by below average temperatures and/or above average snow fall, animals may be entering the winter in poorer body condition. Evaluate game camera footage for changes in deer per day relative to other years. Use footage to document dramatic changes in body condition or inhibitive snow levels (sternum height). Monitor inseason harvest using anecdotal reports, dock checks, and reports from the Alaska Wildlife Troopers to assess harvest relative to established normal levels.

Results and Discussion

All anecdotal reports indicated that animals were in fat body condition. In all years of this reporting period (RY16–RY20), snow was minimal and ephemeral before January which probably helped maintain body condition for a longer period. Camera footage was unsuccessful at documenting body condition but did indicate snow condition at numerous locations in most years. Inseason harvest indicators were typical during RY16–RY20. All of these data suggest that harvest was compensatory during RY16–RY20.

Recommendations for Activity 2.2

Continue.

3. Habitat Assessment-Enhancement

ACTIVITY 3.1. Monitor snow depth.

Data Needs

Identify extreme weather events, specifically depth of snow that is limiting, from a quantity not quality standpoint.

Methods

Assess snow depth using Alaska Avalanche Information Center data taken on Mount Eyak at 1,500 ft elevation. Game cameras can indicate snow accumulation at remote locations and lower elevations.

Results and Discussion

During RY16, RY17, and RY18 Unit 6 experienced seasonal (1 October–31 March) average temperatures that were above normal. Precipitation was average or below average in RY16, RY17, RY19, and RY20. The combination of these 2 measures led to low-snow winters in RY16, RY17, and RY18. With the return to normal colder temperatures in RY19 and RY20, more snow was accumulated (Steve "Hoots" Witsoe, Alaska Avalanche Information Center, personal communication). Game camera images confirmed these weather data with little "deer limiting" snow observed in RY16, RY17, and RY18 within forest and up to 100 m elevation. In RY19 and RY20, several feet of snow occurred at sea level although it came after January. During these years, deer were probably excluded from middle and high elevations.

Recommendations for Activity 3.1

Continue.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

We will continue to communicate with the hunting public to improve harvest report quality and reduce nonresponse. Additional communication will also alleviate confusion about differences between federal and state regulations.

Data Recording and Archiving

- Deer harvest data and survey memoranda are stored on an internal database housed on an internal server, ADF&G's Wildlife Information Network (WinfoNet, http://winfonet.alaska.gov/index.cfm).
- Data sheets are scanned and stored on the Cordova ADF&G server (O:\DWC\Deer).
- Original datasheets are stored in file folders located in the Cordova area biologist's office.
- Historical survey notes and data sheets are being digitized and scanned for permanent storage on the file server.

Agreements

ADF&G and USFS, Chugach National Forest have a cooperative agreement that results in the sharing of costs to conduct deer pellet transects and the data that come from them.

Permitting

None.

Conclusions and Management Recommendations

Under intensive management law (AS 16.05.255) our mandated population objective is 24,000–28,000 deer, and our harvest objective is 2,200–3,000 deer. Because we have no estimate of population size, this objective is, at best, an educated guess at the number of deer required to support human needs. Obtaining a population estimate has not been identified as a priority because of the survey challenges associated with finding and counting forest dwelling animals in an extremely remote area. Based on pellet-group densities, mild winters, harvests, and reports from stakeholders, it is likely that deer numbers have rebounded to "precrash" (RY11) levels in PWS.

Deer pellet indices were highest on Hawkins and Hinchinbrook islands, possibly indicating that more deer occur there than on other islands. However, harvest is highest on Montague, followed by western PWS. This is likely due to access from Whittier and is not reflective of deer density. Although reasonable hunting opportunity exists to sustain the intensive management objective of 2,200–3,000 deer, hunters reported taking fewer deer during RY16–RY20 compared to years prior. With increased fuel costs, effort may be focused in lower quality areas that are closer to port.

Pellet-group surveys and harvest data seem to be effective tools to monitor and manage deer harvest despite the variation that occurs from deep-snow winters in Unit 6. MPGP has been a reliable index to population trend.

II. Project Review and RY21–RY25 Plan

Review of Management Direction

MANAGEMENT DIRECTION

There are no changes in management direction from RY16–RY20 to RY21–RY25. Deer in Unit 6 will continue to be managed as follows:

- Provide a bag limit that allows for compensatory harvest and the prevention of habitat degradation from high abundance, which is achievable following mild winters (5 deer for residents, 4 for nonresidents).
- Reduce additive harvest (inseason when possible) following extreme weather events. Weather-caused mortality events cannot be prevented. Therefore, management decisions seek to build the population back to moderate levels quickly while maintaining reasonable harvest opportunity.
- Evaluate the current harvest objective based on improved harvest reporting and modify. Harvest objectives have only been met 7 times in 20 years.

GOALS

The management goal for Unit 6 deer is to maintain healthy, productive populations that are sufficiently abundant and resilient to harsh winters to ensure good hunting opportunities and success.

CODIFIED OBJECTIVES

Amounts Reasonably Necessary for Subsistence Uses

There is a positive customary and traditional use finding for deer in Unit 6. The amount reasonably necessary for subsistence uses is set at 1,000–1,250 deer (5 AAC 99.025 (5)).

Intensive Management

The Board of Game (BOG, board) has made a positive finding for the intensive management of deer in Unit 6. The board established a population objective of 24,000–28,000 deer and a harvest objective of 2,200–3,000 deer (5 AAC 92.108).

MANAGEMENT OBJECTIVES

Management objectives will vary based on population status.

- When deer pellet transects indicate that the population is low, the 3-year average buck harvest should be >60% of the harvest. Harvest opportunity will be reduced if snow levels are identified as deep and persistent.
- If MPGP are >1.5 for 3 consecutive years, education efforts will focus on increasing doe harvest. Board of Game action may be pursued to liberalize deer harvest.

REVIEW OF MANAGEMENT ACTIVITIES

1. Population Status and Trend

ACTIVITY 1.1. Conduct deer pellet transects.

Continue to explore new techniques to monitor population status.

Data Needs

Deer pellet transects have been discontinued as a monitoring tool in other parts of Alaska. Currently, deer pellet transects are an affordable but coarse tool to assess trends in an unfavorable budget climate. A more refined tool of similar cost would be desirable.

Methods

We will continue to follow data collection methods from the RY16–RY20 reporting period and explore new techniques.

2. Mortality-Harvest Monitoring

ACTIVITY 2.1. Monitor hunter harvest via WinfoNet data from harvest ticket reports.

Data Needs

No change from RY16–RY20.

Methods

We will continue to follow data collection methods from the RY16–RY20 reporting period.

ACTIVITY 2.2. Mortality risk assessment: Additive or compensatory.

Data Needs

Identify whether annual hunting mortality is most likely additive or compensatory.

Methods

Collect and consider anecdotal reports of body condition. If fall and early winter are very mild and the population is low, body condition may be very good. If the population is high (based on deer pellet transect results) or the winter is dominated by below average temperatures and/or above average snow fall, animals may be entering the winter in poorer body condition. Evaluate game camera footage for changes in deer per day relative to other years. Use footage to document dramatic changes in body condition or inhibitive snow levels (sternum height). Monitor in-season harvest using anecdotal reports, dock checks, and reports from the Alaska Wildlife Troopers to assess harvest relative to established normal levels.

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Methods

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NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Data Recording and Archiving

- Deer harvest data are stored on the internal ADF&G WinfoNet database (http://winfonet.alaska.gov/index.cfm).
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Agreements

ADF&G and USFS, Chugach National Forest have a cooperative agreement that results in the sharing of costs to conduct deer pellet transects and the data that come from them.

Permitting

None.

Acknowledgments

USFS contributes financially and with personnel to deer monitoring in PWS.

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