# Deer Management Report and Plan, Game Management Unit 1B:

Report Period 1 July 2011–30 June 2016, and

Plan Period 1 July 2016–30 June 2021

**Richard E. Lowell**



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Alaska Department of Fish and Game          Division of Wildlife Conservation

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

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**Cover Photo:** Old growth forests are critical to deer over-winter survival, particularly in deep snow conditions ©2014 ADF&G. Photo by Stephen Bethune.

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## Purpose of this Report

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

# I. RY11–RY15 Management Report

## Management Area

Game Management Unit 1B consists of approximately 3,000 square miles of land area on the central Southeast Alaska mainland, extending from Cape Fanshaw south to Lemesurier Point and northeast of those points to the Canadian Border. Most land area in Unit 1B is within the Tongass National Forest and under federal ownership with smaller parcels under Tribal, state, and private ownership. There are no large communities in Unit 1B, although private inholdings and small settlements exist at Point Agassiz, Farm Island, and Meyer's Chuck. The subunit is accessible only by boat or airplane although some local logging roads provide for onsite access.

The Stikine River is a transboundary mainland river system that originates in Spatsizi Plateau of British Columbia and transects the Coast Range before flowing into Sumner Strait near Wrangell, Alaska. About 30 miles of the river lie within the boundaries of Alaska and flow through a steep valley 2–3 km (1.2–1.9 mi) wide. The Stikine Delta is the largest intertidal wetland in Southeast Alaska and consists of 200 km$^2$ (77 mi$^2$) of marsh and tidal flats.

Elevation within Unit 1B ranges from sea level to 9,078 feet. Predominant vegetative communities occurring at low-moderate elevations (<1,500 feet) include Sitka spruce (*Picea sitchensis*) western hemlock (*Tsuga heterophylla*) coniferous forest, mixed-conifer muskeg, and deciduous riparian forests. Mountain hemlock (*Tsuga mertensiana*) dominated forest comprises a subalpine, timberline band occupying elevations between 1,500–2,500 feet. In addition to deer, big game species present and widely distributed throughout Unit 1B include moose, mountain goat, wolf, black bear, and brown bear.
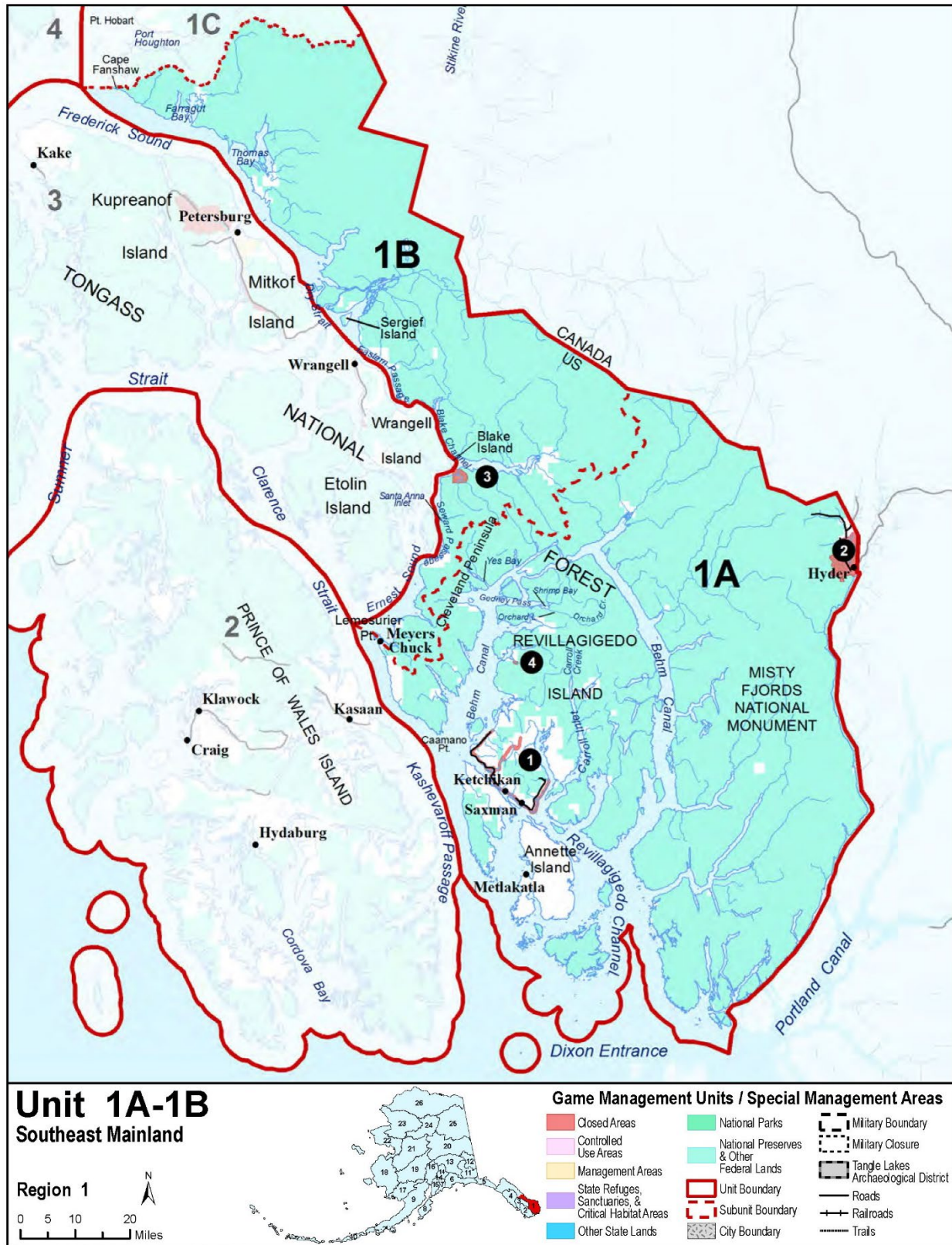
**Figure 1. Map of Game Management Units 1A and 1B, Southeast Alaska. Black numbered circles indicate state restricted areas as found in the Alaska Hunting Regulations.**

## Summary of Status, Trend, Management Activities, and History of Sitka black-tailed deer in Unit 1B

Except in isolated pockets, Sitka black-tailed deer (*Odocoileus hemionus sitkensis*) inhabit the Unit 1B mainland in low densities. Historically, the Thomas Bay area and the Cleveland Peninsula have been the primary deer population centers. Deer numbers have fluctuated over time with high and low population extremes. The deer population on the Cleveland Peninsula has declined markedly over the last couple of decades. Severe winter weather has caused most population declines, and predation by wolves and bears have extended the length of the declines. Clearcut logging has and will continue to further reduce deer carrying capacity in some areas.

A significant population decline occurred as a result of a series of severe winters in the late 1960s and early 1970s. The population declines led to restrictive regulations and bag limits in 1973. Unit 1B remained open, with a 1 antlered-deer limit from 1973 to 1980 and a 2 antlered-deer limit from 1981 to the present. The most recent significant population declines occurred as a result of a series of severe deep snow winters during 2006–2007, 2007–2008, and 2008–2009.

Although the communities of Petersburg and Wrangell are located only a short distance west of Unit 1B, much of the hunting effort by individuals in these communities is focused on the adjacent Unit 3 islands. The deer season in most of neighboring Unit 3 closes a month earlier than Unit 1B, after which some Petersburg residents shift their deer hunting efforts to the mainland where the season remains open until December 31. From 1996 through 2010, the estimated Unit 1B deer harvest ranged from 34 to 121, while the estimated number of hunters varied from 66 to 186.

## Management Direction

### EXISTING WILDLIFE MANAGEMENT PLANS

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 the plan was written based on public comments, department recommendations, and board actions. These periodic changes in management planning have been reported in the division's previous periodic species management reports. The plan portion of this report contains the current management plan for deer in Unit 1B.

### GOALS

The management goal for Unit 1B deer is to maintain healthy, productive populations that are sufficiently abundant, resilient to harsh winters, provide good hunting opportunities and success.

## CODIFIED OBJECTIVES

### Amounts Reasonably Necessary for Subsistence Harvest

The Alaska Board of Game has set the amount necessary for subsistence uses (ANS) for deer in Unit 1B at 40–50 deer per year.

### Intensive Management

There is a negative intensive management determination for deer in Unit 1B.

## MANAGEMENT OBJECTIVES

- Monitor deer densities using pellet-group surveys.

- Increase deer populations on their winter range (<1,500-foot elevation) to 32 deer/mi$^2$ (average 1.0 pellet group/20 m$^2$ (22 yd$^2$) plot).

- Monitor the deer harvest using mandatory hunt report cards issued in conjunction with deer harvest tickets.

## MANAGEMENT ACTIVITIES

Prior to 2011, we estimated Unit 1B harvest data from a regional questionnaire, mailed to a random sample of 33% of deer harvest ticket holders. Beginning in 2011, deer harvest data were derived from mandatory hunt report cards issued in conjunction with deer harvest tickets. Relative winter deer densities had historically been measured with spring pellet-group transects in selected areas. No pellet-group transects have occurred in Unit 1B since RY02 (Table 1).

**Table 1. Deer population trends as indicated by pellet-group surveys, Unit 1B, Southeast Alaska, regulatory years 1991–2002.**

| Regulatory year | Area | VCU[a] | Mean pellet-groups/plot | Number of plots | 95% CI |
|---|---|---|---|---|---|
| 1991 | Frosty Bay | 524 | 0.70 | 266 | 0.55–0.86 |
| 1996 | Muddy River | 489 | 1.53 | 348 | 1.26–1.80 |
| 1998 | Horn Cliffs | 490 | 0.60 | 250 | 0.47–0.74 |
| 2000 | Madan | 504 | 0.23 | 244 | 0.14–0.31 |
| 2000 | Harding | 511 | 0.02 | 207 | 0.00–0.05 |
| 2002 | Horn Cliffs | 490 | 0.67 | 290 | 0.53–0.81 |

[a] Value Comparison Unit (VCU).

### 1. Population Status and Trend

Data obtained from mandatory deer harvest ticket hunt report cards (e.g., hunter effort, harvest, and catch per unit effort) currently provides the only indirect measures of deer abundance in Unit

1B (See Activity 2.1.). No pellet-group surveys have been conducted in Unit 1B since spring 2003.

## 2. Mortality-Harvest Monitoring and Regulations

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

Deer harvest data were derived from mandatory hunt report cards issued in conjunction with deer harvest tickets.

*Data Needs*

With a positive customary and traditional finding and a corresponding ANS, the deer harvest must be assessed annually to evaluate achievement of this goal.

*Methods*

Deer harvest data were derived from mandatory hunt report cards issued in conjunction with deer harvest tickets. This is a change beginning in 2011 from past years, where data were collected by polling a random sample of hunters from each community. All deer hunters are now expected to report their hunting activities. Nonetheless, not all hunters submit the required hunt report. Therefore, in order to obtain estimates of total harvest, the reported harvest was multiplied by an expansion factor.

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

*Season and Bag Limit*

| Area | Resident Season | Nonresident season | Bag limit |
|---|---|---|---|
| Unit 1B | 1 Aug–31 Dec | 1 Aug–31 Dec | 2 bucks |

*Results and Discussion*

Harvest by Hunters

During this report period the estimated deer harvest in Unit 1B averaged 99 deer per year, ranging from 87 to 129 deer annually. This represents an increase from the preceding 5-year average (RY06–RY10) of 76 deer annually ranging from 35–115 deer (Table 2).

**Table 2. Estimated legal deer harvest in Unit 1B, Southeast Alaska, regulatory years 2005–2015.**

| Regulatory year | Estimated legal harvest | | | | | |
|---|---|---|---|---|---|---|
| | Male | (%) | Female | (%) | Unknown | Total |
| 2005 | 58 | (100) | 0 | – | 0 | 58 |
| 2006 | 114 | (100) | 0 | – | 0 | 115 |
| 2007 | 43 | (100) | 0 | – | 0 | 35 |
| 2008 | 34 | (100) | 0 | – | 0 | 35 |
| 2009 | 105 | (100) | 0 | – | 0 | 100 |
| 2010 | 103 | (100) | 0 | – | 0 | 97 |
| 2011 | 88 | (100) | 0 | – | 0 | 89 |
| 2012 | 88 | (100) | 0 | – | 0 | 88 |
| 2013 | 87 | (100) | 0 | – | 0 | 87 |
| 2014 | 101 | (100) | 0 | – | 0 | 101 |
| 2015 | 132 | (100) | 0 | – | 0 | 129 |

The number of hunters ranged from a low of 125 in RY11, to a high of 172 in RY14, and averaged 151 hunters per year during this report period. The 172 deer hunters that pursued deer in RY14 represent the highest number of hunters since RY98. The number of hunters during the current report period increased considerably over the preceding 5-year period from an average of 109 which ranged from 66–149 deer annually. The RY14 reduction in the deer season length and bag limit on the Lindenberg Peninsula near Petersburg, and recent increases in deer abundance in the Thomas Bay area are believed responsible for the high number of deer hunters in Unit 1B that year.

Hunter Residency and Success

The overall success rate for Unit 1B deer hunters averaged 49% during the report period, ranging from a low of 39% in RY13 to a high of 58% in RY15. Local residents of Units 1B and 3 represented the greatest effort and had the highest success rate (51%). During the report period, an estimated 60 nonlocal Alaska residents hunted deer in Unit 1B with an overall success rate of 33%, while an estimated 100 nonresidents had an overall success rate of 43% (Table 3). Deer populations are greater and seasons and bag limits more liberal in other nearby units, therefore, those areas attract more nonlocal and nonresident hunters.

Harvest Chronology

While harvest chronology can vary from year to year, generally most harvest in Unit 1B takes place during November, October, and August, in decreasing order. Such was the case during the current reporting period (Table 4).

**Table 3. Deer hunter residency and success, Unit 1B, Southeast Alaska, regulatory years 2005–2015.**

| Regulatory year | Successful | | | | | | Unsuccessful | | | | | | Total hunters |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Local resident[a] | Nonlocal resident | Nonresident | Unk | Total | (%) | Local resident[a] | Nonlocal resident | Nonresident | Unk | Total | (%) | |
| 2005 | 47 | 0 | 5 | 0 | 52 | (43) | 48 | 7 | 14 | 0 | 69 | (57) | 121 |
| 2006 | 62 | 10 | 5 | 0 | 77 | (65) | 23 | 5 | 13 | 0 | 41 | (35) | 118 |
| 2007 | 24 | 3 | 0 | 0 | 27 | (41) | 24 | 6 | 9 | 0 | 39 | (59) | 66 |
| 2008 | 19 | 0 | 0 | 0 | 19 | (25) | 57 | 0 | 0 | 0 | 57 | (75) | 76 |
| 2009 | 61 | 6 | 6 | 0 | 73 | (51) | 53 | 6 | 6 | 0 | 65 | (49) | 138 |
| 2010[b] | 54 | 7 | 13 | 0 | 74 | (50) | 61 | 0 | 14 | 0 | 75 | (50) | 149 |
| 2011 | 56 | 3 | 7 | 0 | 66 | (53) | 44 | 7 | 8 | 0 | 59 | (47) | 125 |
| 2012 | 56 | 3 | 9 | 1 | 69 | (50) | 57 | 9 | 4 | 0 | 70 | (50) | 139 |
| 2013 | 51 | 0 | 8 | 3 | 62 | (39) | 66 | 9 | 21 | 0 | 96 | (61) | 158 |
| 2014 | 55 | 12 | 13 | 0 | 80 | (47) | 70 | 10 | 12 | 0 | 92 | (53) | 172 |
| 2015 | 85 | 2 | 6 | 0 | 93 | (58) | 50 | 5 | 12 | 0 | 67 | (42) | 160 |

[a] Residents of Units 1B and 3, Meyers Chuck, Point Baker, and Port Protection.

**Table 4. Unit 1B deer harvest chronology by month and percent, regulatory years 2005–2015.**

| Regulatory year | Harvest periods | | | | | | | | Number of deer[a] |
|---|---|---|---|---|---|---|---|---|---|
| | August | September | October | November | December | January | March | Unknown | |
| 2005 | 43 | 16 | 19 | 22 | 0 | 0 | 0 | 0 | 58 |
| 2006 | 14 | 13 | 20 | 42 | 11 | 0 | 0 | 0 | 115 |
| 2007 | 56 | 9 | 0 | 28 | 0 | 0 | 0 | 7 | 35 |
| 2008 | 0 | 0 | 34 | 66 | 0 | 0 | 0 | 0 | 35 |
| 2009 | 17 | 3 | 3 | 64 | 7 | 0 | 0 | 7 | 100 |
| 2010 | 5 | 14 | 28 | 38 | 12 | 3 | 0 | 1 | 97 |
| 2011 | 18 | 7 | 18 | 48 | 7 | 0 | 0 | 2 | 89 |
| 2012 | 22 | 3 | 13 | 45 | 16 | 0 | 0 | 0 | 88 |
| 2013 | 15 | 8 | 20 | 55 | 2 | 0 | 0 | 0 | 87 |
| 2014 | 14 | 6 | 26 | 44 | 10 | 0 | 0 | 0 | 101 |
| 2015 | 10 | 15 | 17 | 54 | 1 | 0 | 0 | 3 | 129 |

## Transport Methods

Most hunters reported using boats to access their hunting area, followed by 4-wheelers, highway vehicles, and foot travel (Table 5). Logging roads provide highway vehicle and all-terrain vehicle access in a few isolated portions Unit 1B.

### Other Mortality

In addition to mortality resulting from legal hunting, other sources of deer mortality include severe winter weather, predation by wolves and bears, poaching, injury and accidents, and starvation or natural causes.

### Alaska Board of Game Actions and Emergency Orders

In an attempt to address concerns about low deer densities and hunter harvest on the Cleveland Peninsula, in fall 2010 the board adopted a proposal to extend the wolf hunting season by 31 days (1 August–31 May) throughout Unit 1A and within that portion of Unit 1B located south of Bradfield Canal and the East Fork Bradfield River. At the department's request, the board approved expedited review and implementation of the wolf hunting season extension and the new regulation became effective during the spring 2011 season.

No emergency orders were issued regarding deer hunting in Unit 1B during this report period.

### Recommendations for Activity 2.1

Continue.

**Table 5. Unit 1B deer hunter effort, percentage days of effort by transport method for regulatory years 2005–2015, Southeast Alaska.**

| Regulatory year | Percent of effort | | | | | | | | Days of effort |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | Airplane | Boat | 4-wheeler | Foot | ORV[a] | Highway vehicle | Horse or dog team | Not specified | |
| 2005 | 0 | 97 | 0 | 0 | 0 | 3 | 0 | 0 | 283 |
| 2006 | 5 | 92 | 0 | 0 | 0 | 0 | 0 | 3 | 527 |
| 2007 | 6 | 89 | 3 | 1 | 0 | 0 | 0 | 0 | 401 |
| 2008 | 4 | 93 | 0 | 0 | 0 | 0 | 0 | 4 | 411 |
| 2009 | 5 | 88 | 0 | 0 | 0 | 3 | 0 | 3 | 681 |
| 2010 | 0 | 88 | 0 | 1 | 1 | 9 | 0 | 1 | 985 |
| 2011 | 2 | 88 | 1 | 2 | 0 | 3 | 1 | 3 | 387 |
| 2012 | 0 | 75 | 20 | 2 | 0 | 2 | 0 | 1 | 581 |
| 2013 | 0 | 67 | 15 | 4 | 0 | 2 | 1 | 11 | 660 |
| 2014 | 0 | 86 | 5 | 0 | 5 | 2 | 0 | 1 | 941 |
| 2015 | 0 | 88 | 6 | 3 | 0 | 2 | 0 | 0 | 831 |

[a] Off-road vehicle.

## 3. Habitat Assessment-Enhancement

No attempt has been made to enhance habitat in Unit 1B specifically for deer. While primarily intended as a silvicultural practice, deer likely derive some benefit from precommercial thinning

of second growth stands which can temporarily enhance habitat for deer and moose. In March 1997, ADF&G implemented a plan to enhance moose habitat on state land at Thomas Bay. Phase 1 of the plan called for reopening 10 miles of logging roads that were impassable due to dense vegetative growth and downed trees. Road-clearing operations were completed in June 1998. Phase 2 of the plan called for treating 380 acres of dense second growth primarily by precommercial thinning and partial strip clearing. The thinning of four, second-growth units totaling 380 acres was completed in October 1998. Anecdotal reports from hunters and observations by staff indicate that both moose and deer increased utilization of these thinned second-growth units as browse production increased and residual thinning slash began to settle and decompose.

Clearcut logging has occurred extensively in Unit 1B which has converted older conifer stands to early successional vegetation types that can temporarily enhanced forage for moose and deer. Pre-commercial thinning and pruning has been performed in many young second-growth stands in the unit. The resulting forage enhancement typically exists for about 25 years, after which time canopy closure again results in loss of understory vegetation.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Data Recording and Archiving

- All data derived from deer hunt reports, including annual harvest summaries are archived electronically in ADF&G's Wildlife Information Network database (WinfoNet).

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 1B using state harvest tickets and concurrent season dates and bag limits.

Permitting

None.

## Conclusions and Management Recommendations

Unit 1B deer populations exist in isolated pockets and have patchy distribution. With the exception of a few areas, the unit has relatively low deer density (due to typically high snow accumulation and predation) and largely is inaccessible. Unitwide, deer densities vary from moderate in some isolated areas, such as between Thomas Bay and Le Conte Bay, to extremely low in others. Overall, deer populations appear to be from stable to increasing with localized variations.

As a result of the RY14 reduction in the deer season and bag limit on Lindenberg Peninsula in adjacent Unit 3, many Petersburg residents shifted deer hunting efforts to the Unit 1B mainland where the season and bag limit is more liberal. As a result, the number of deer hunters and the harvest increased in the unit during RY14 and RY15.

Winter weather, predation, and clearcut logging have the greatest effects on deer population dynamics. Clearcut logging and second-growth stands entering stem exclusion have and will continue to reduce deer carrying capacity in the unit. However, at this time the deer population in the unit appears stable with increases in some areas such as Thomas Bay. There are no indications that the hunting season or bag limit for deer should be further restricted in Unit 1B.

# II. Project Review and RY16–RY20 Plan

## Review of Management Direction

### GOALS

The management goal for Unit 1B deer is to maintain healthy, productive populations, sufficiently abundant and resilient to harsh winters to ensure good hunting opportunities and success.

### CODIFIED OBJECTIVES

#### Amount Reasonably Necessary for Subsistence Uses

The ANS of 40–50 deer per year in Unit 1B has been consistently achieved; and therefore, there is not a need to revise ANS for this unit.

#### Intensive Management

There is a negative IM determination for deer in the unit, and given the relatively low annual harvest, there not a need to revise the current IM determination.

### MANAGEMENT OBJECTIVES

- Monitor deer densities using pellet-group surveys and aerial surveys of deer in the alpine.

- Increase deer populations on winter range (less than 1,500-ft elevation) to 32 deer/mi$^2$ (average 1.0 pellet group/20 m$^2$ (22 yd$^2$) plot).

- Monitor the deer harvest using mandatory hunt report cards issued in conjunction with deer harvest tickets.

# REVIEW OF MANAGEMENT ACTIVITIES

## 1. Population Status and Trend

ACTIVITY 1.1. Aerial alpine deer surveys.

*Data Needs*

Traditional pellet-group transects were last conducted in Unit 1B in 2003 and are unlikely to resume in the foreseeable future. Aerial alpine deer surveys have been conducted annually in nearby Unit 3 since 2013 and have shown promise for providing an index to deer numbers and population trends. In lieu of traditional pellet-group surveys, we recommend that aerial alpine deer surveys, similar to those conducted in Unit 3, be initiated in portions of Unit 1B to see if this method can be used to successfully measure trends in deer abundance.

*Methods*

After 2 seasons of experimentation, ADF&G staff in Petersburg has established standard methodologies for conducting aerial surveys for deer in alpine habitats. Surveys are conducted in late-July and early August and designed to be approximately 2 hours in duration, ending at sunset. Pilot and observer count as many deer as possible, while covering established alpine survey routes. Unless abundance is very high, deer composition can be classified to large buck, small buck, doe, and fawn. Replicate surveys, with a goal of 4 surveys per survey area, are conducted to account for variability in the number of deer observed during individual survey flights. Deer per survey hour was selected as the standard metric.

Previous radio telemetry studies of deer in Southeast Alaska have shown that not all deer seasonally migrate to high elevation alpine habitats during the summer (Schoen and Kirchhoff 1984). While observed increases in the number of deer seen per hour during alpine surveys on Kupreanof Island does appear to correlate with recent increases in the estimated deer harvest, we do not currently know if trends in the number of deer observed during alpine surveys reflect similar changes in abundance for the islandwide population. In order to inform the alpine deer survey technique, it would be desirable to investigate the spacial movement patterns and survival rates of radiocollared deer within surveyed alpine areas. Having a sample of radiocollared deer in surveyed alpine areas would also allow for the development of sightability estimates for deer in alpine habitat.

## 2. Mortality-Harvest Monitoring

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

*Data Needs*

Data obtained from mandatory deer harvest ticket hunt report cards (e.g., hunter effort, harvest, and deer per hunter days) currently provides the only indirect measure of deer abundance in Unit 1B.

*Methods*

The usefulness of information obtained from hunt harvest reports could be vastly improved by increasing hunter response rates (currently about 66%), and by conducting follow-up surveys of unreported permits to evaluate the effects of nonresponse bias.

## 3. Habitat Assessment-Enhancement

We currently have no assessment of where Unit 1B deer populations stand relative to carrying capacity. It may be desirable to conduct browse utilization surveys in the Thomas Bay area where sympatric deer, moose, and mountain goats all exert pressure on available winter forage. Such surveys may also be useful for evaluating browse utilization on the Cleveland Peninsula where deer have languished at low density for many years.

## NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

### Data Recording and Archiving

- Harvest ticket overlays are stored electronically in ADF&G's Wildlife Information Network database (WinfoNet). Hunt reports are retained in the Petersburg Area Office as hard copies and stored electronically in WinfoNet.

- Harvest data and summary statistics are stored electronically in WinfoNet.

### Agreements

No change.

### Permitting

None.

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