Species Management Report and Plan ADF&G/DWC/SMR&P–2021–46

Elk Management Report and Plan, Game Management Unit 3:

Report Period 1 July 2013–30 June 2018, and

Plan Period 1 July 2018–30 June 2023

W. Frank Robbins

2021

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 Richard Nelson, Management Coordinator for the Division of Wildlife Conservation.

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Please contact the authors or the Division of Wildlife Conservation at (907) 465-4190 if you have questions about the content of this report.

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Purpose of this Report

This report provides a record of survey and inventory management activities for elk in Unit 3 for the 5 regulatory years 2013– 2017 and plans for survey and inventory management activities in the following 5 regulatory, 2018–2022. 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 elk management report of survey and inventory activities that were previously produced every 2 years.

I. RY13–RY17 Management Report

Management Area

Game Management Unit 3 (approximately 3,000 mi^2) is in Southeast Alaska, also known as Alaska's Panhandle, is part of the Alaska Department of Fish and Game (ADF&G) Region I management area (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. The communities of Petersburg, Wrangell, and Kake are in Unit 3 and many inhabitants pursue subsistence lifestyles.

Unit 3 lies within a temperate rainforest influenced by marine systems. Elevation within Unit 3 ranges from sea level to approximately 4,000 feet. Predominant vegetative communities occurring at low-to-moderate elevations (<1500′) include mixed Sitka spruce (*Picea sitchensis*) and 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 and 2,500 feet.

Most land area in Unit 3 is within the Tongass National Forest and under federal management, with smaller parcels under tribal, state, and private ownership. This area has experienced a significant amount of logging activity since the 1950s. Loss of productive old-growth forest (POG) has been extensive on some islands within Unit 3, with the greatest losses on Mitkof, Wrangell, Zarembo, and Kupreanof islands. On Etolin Island, 85% of the historic POG habitat below 800 feet remains, whereas only 46% of POG habitat below 800 feet remains on Zarembo Island (U.S.D.A. Forest Service 2019). Clearcut logging continues on Etolin Island and about 30,000 acres are scheduled to be cut by 2080 (U.S.D.A. Forest Service, unpublished data). This will reduce the island's elk carrying capacity. Additionally, the U.S. Forest Service plans to harvest approximately 72.8 million board feet of old-growth forest from up to approximately 5,435 acres of federal land on northern Etolin Island in one or more timber sale offerings including the Navy Timber sale (U.S.D.A. Forest Service 2009). As part of the proposed action, up to an additional 8.1 miles of permanent and 8.8 miles of temporary roads would be constructed on Etolin Island. Although there has been little documented use of the area by elk, the boundaries of the Navy project area proposed clearcut may influence the distribution of elk

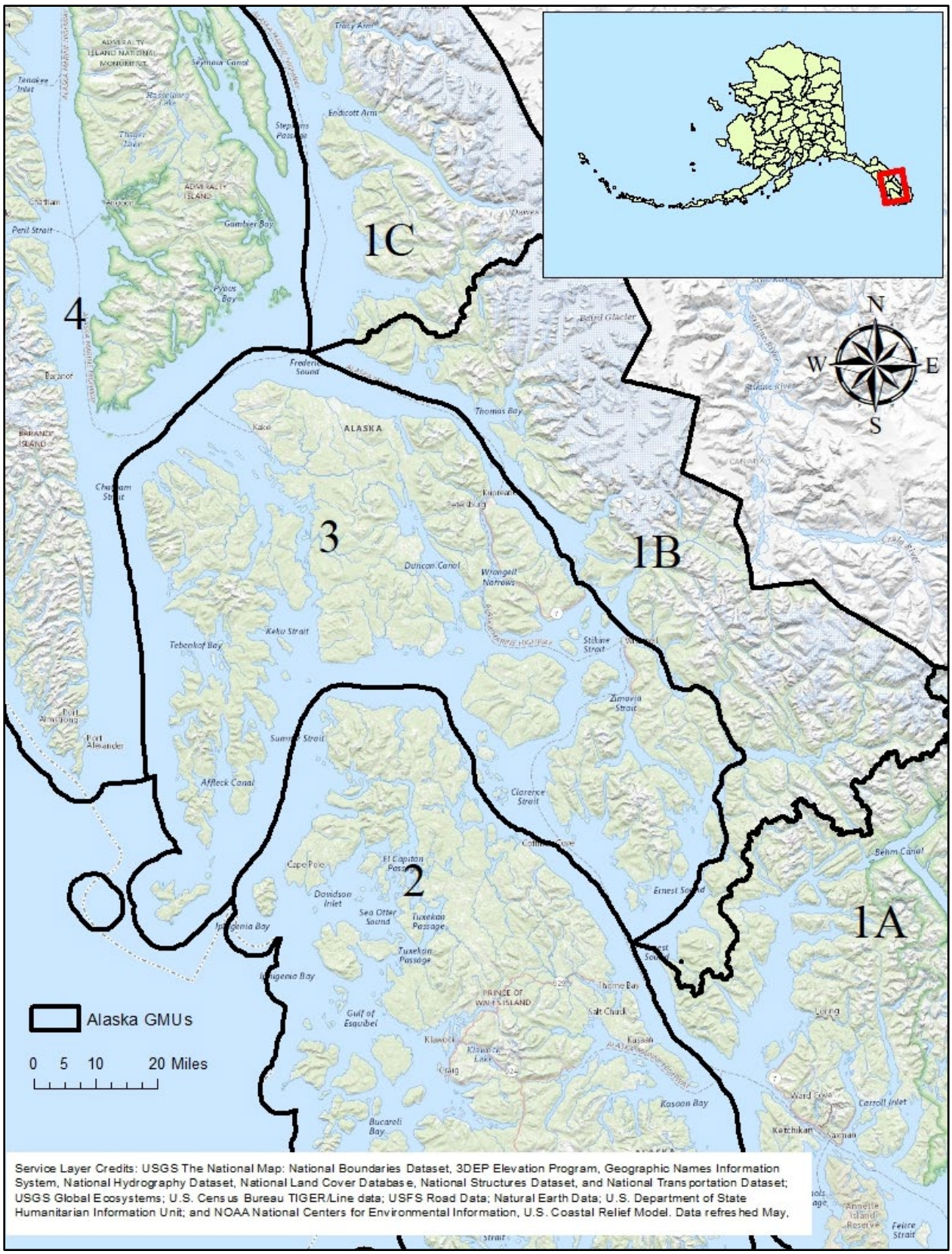

Figure 1. Map of Game Management Unit 3, Southeast Alaska.

and provide some benefit to elk over the short term. However, long-term impacts of clear-cutting are likely to reduce elk carry-capacity. Further, increased road building will create more options for hunters to access elk during hunting season as prior to logging, most hunting was boat based.

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

Elk (*Cervus elaphus*) are not endemic to Alaska. In 1985, the Alaska Legislature passed a law that required the introduction of 50 elk to Etolin Island. Prior to 1987, there were 6 unsuccessful attempts to introduce elk into Southeast Alaska (Burris and McKnight 1973, Paul 2009). There were no monitoring programs for these introductions and therefore the cause of these failures is unknown. In spring 1987, 33 Roosevelt elk (*C. e. roosevelti*) were translocated from Jewell Meadows Wildlife Management Area, Oregon to Dewey Anchorage on Southwest Etolin Island and 17 Rocky Mountain elk (*C. e. nelsoni*) were translocated from the Elkhorn Wildlife Management Area, Oregon to Johnson Cove on Northwest Etolin Island.

Following translocation, precise population estimates are unavailable. Initial losses were high, and about two-thirds of the elk died from predation, starvation, and accidents within 18 months of release (Lowell 2010). Aerial surveys were occasionally completed but results are influenced by sporadic distributions of elk over relatively large areas, thick canopy cover, dense vegetation, and poor elk sightability. Further, annual differences in survey coverage and uncertainties about the sightability of elk during aerial surveys make it difficult to compare survey results over time. Following initial losses, the population stabilized, eventually increased, and extended its range beyond Etolin Island. A breeding population is established on Zarembo Island, and members of the public have reported observing elk on Mitkof, Wrangell, Prince of Wales, Deer, Bushy, Shrubby, and Kupreanof Islands, and on portions of the Unit 1A and 1B mainland (Fig. 2). Elk numbers on islands other than Etolin and Zarembo are believed to be low. The Zarembo Island elk herd contains no more than 40 animals. Aerial counts associated with radio collaring efforts, suggest the elk population on Etolin Island may have declined in recent years (Lowell 2010). The Etolin Island winter carrying capacity is estimated to be from 900 to 1,300 elk (David Person, ADF&G biologist, 2000, ADF&G elk technical committee oral presentation).

Unit 3 elk have been harvested since 1997 and they have been managed under a complicated regulation history (Lowell 2010). The Alaska Board of Game (BOG) determined that introduced elk did not qualify for customary and traditional use designations and therefore elk are managed solely under state hunting regulations. Zarembo Island was closed to elk hunting in 2006. Fall weather can influence elk movement patterns and hunter effort and success. Following the initial season opening, elk typically retreat to the more inaccessible portions of Etolin and Zarembo islands. Hunters are aided somewhat later in the season when the elk typically return to low elevation winter range along the coast. Preferred rutting areas are in high elevations, but elk return to near shoreline following the winter equinox (Davidson 2013). Harvest is highest on the southern portion of Etolin island, likely due to access and elk abundance.

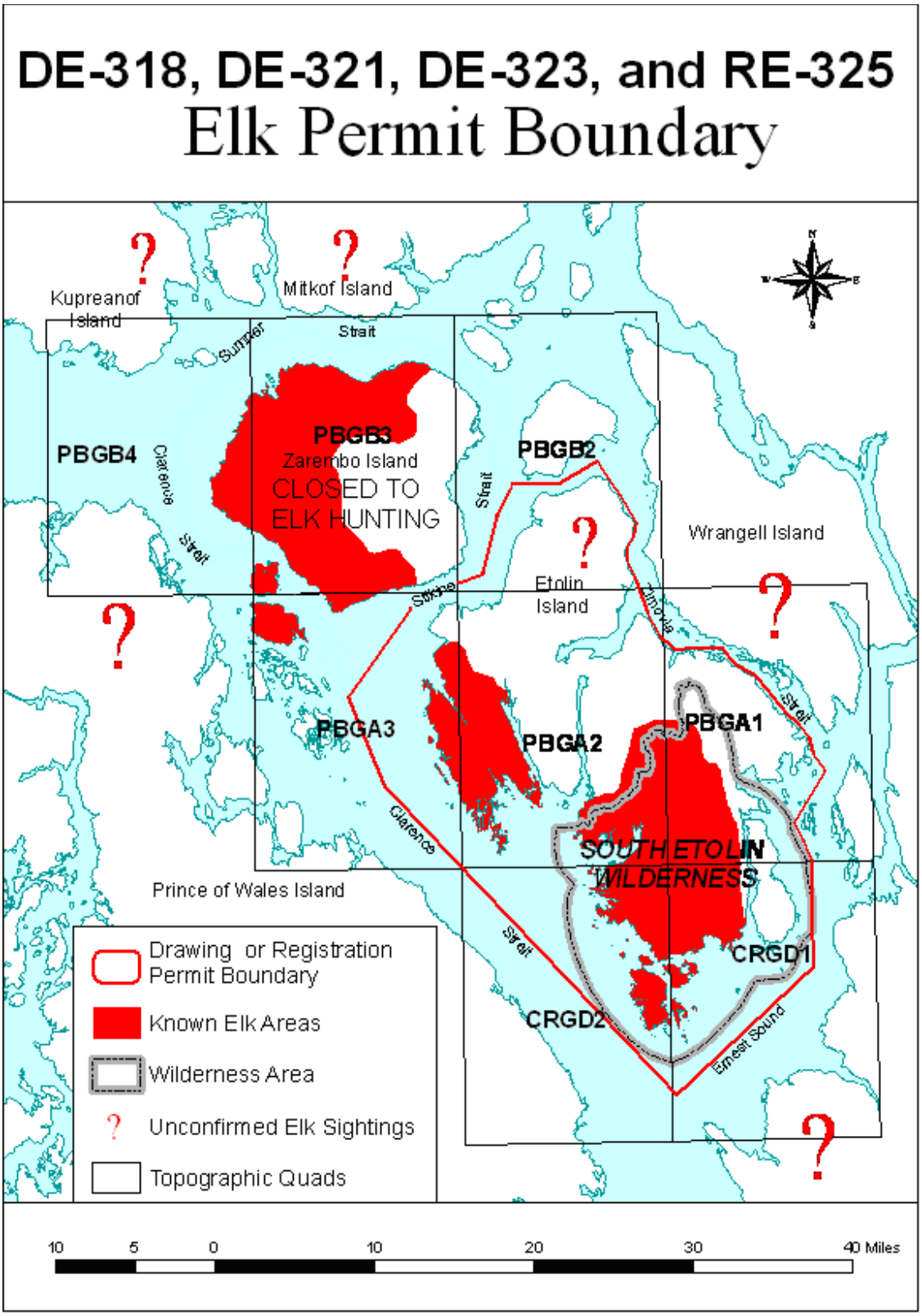

Figure 2. Elk hunting permit boundaries with overlay of USGS map sections (e.g., PBGB4), Southeast Alaska.

Management Direction

Existing Wildlife Management Plans

The Draft Southeast Alaska Elk Management Plan (ADF&G, DWC, May 1999, unpublished document) established management recommendations for Unit 3 elk.

Goals

- To provide for a sustainable harvest of elk in Unit 3.
- To provide the greatest opportunity to participate in hunting of elk in Unit 3.

Codified Objectives

Amounts Reasonably Necessary for Subsistence Harvest

Elk have a negative customary and traditional use finding by the Board of Game.

Intensive Management

There was no intensive management for elk in Unit 3 during this reporting period.

Management Objectives

- Manage Unit 3 elk for hunting opportunity.
- Maintain elk populations on Etolin and Zarembo islands below estimated carrying capacity.
- Limit dispersal of Etolin and Zarembo elk to adjoining islands and the mainland.
- Maintain a postharvest ratio of 25–30 bulls per 100 cows.

Management Activities

1. Population Status and Trend

Activity 1.1. Conduct aerial surveys.

Data Needs

Use alpine aerial surveys as an index of abundance to assess general elk population level.

Methods

ADF&G staff periodically flew aerial surveys of Etolin Island to record both tracks in the snow and sightings of both individuals and groups of elk. However, due to densely forested terrain and

uncertainties about elk sightability, ADF&G staff conducted aerial elk surveys opportunistically and not on a regular schedule. Observations reported by other agency personnel and the public are also recorded.

Results and Discussion

To date, the greatest number of elk observed on Zarembo Island occurred on 16 August 2004, when a single herd comprised of 36 individual elk was observed south of Baht Harbor. Despite numerous attempts to locate, capture, and radiocollar additional elk on Zarembo Island in both 2009 and 2010, few elk were observed, and none were successfully captured and radiocollared. The Zarembo elk population may have further declined, moved to a different part of the island, or it is possible some elk may have moved off the island. The greatest number of elk observed on Etolin Island occurred on 13 July 2010, when 163 elk were observed in 3 individual herds in the vicinity of Mt. Etolin and Mt. Shakes. An unknown number of elk are also known to inhabit the western portion of Etolin Island in the vicinity of Johnson cove, Three Way Passage, and Rocky Bay. A current subjective estimate of the unitwide elk population is approximately 250–350 animals, with more than of those elk on Etolin Island, and the remaining 25% on Zarembo Island.

No data are available to make meaningful elk population composition estimates for Zarembo Island. A survey of southern Etolin Island on 1 August 2013 yielded a total count of 120 elk comprised of 14 bulls, 81 cows, and 25 claves yielding a bull-to-cow ratio of 17:100 and a calf-to-cow ratio of 31:100. On Etolin Island, elk are usually found in groups of mixed sex and age. During aerial surveys, almost every large group of elk observed on Etolin Island included large and small bulls, cows, and calves. Zarembo Island was originally thought to support 2 separate elk herds. However, information gained during aerial surveys and from a single cow elk that was radiocollared from 2008–2010 suggests that there is one main herd on the island which fragments into smaller groups during winter and spring months.

Recommendations for Activity 1.1

Continue to opportunistically survey Etolin and Zarembo islands.

2. Mortality-Harvest Monitoring and Regulations

ACTIVITY 2.1. Quantify and analyze harvest data.

Data Needs

Harvest must be assessed to evaluate the success of these objectives. ADF&G's management strategy relies on accurate hunter harvest reports to assess changes in effort.

Methods

Harvest data are summarized by regulatory year (RY), which begins 1 July and ends 30 June (e.g., RY13 = 1 July 2013–30 June 2014). All hunters are required to report their hunt. Failure to report makes hunters ineligible to possess registration or drawing permits the following year. Hunters are required to report the locations hunted, number of days hunted, sex of the elk harvested, commercial services employed, method of take, and transportation type used.

Successful hunters are required to submit the lower jaw to ADF&G within 5 days of kill and the teeth are sent to Matson's Laboratory (Milltown, Montana) for aging. In addition, successful hunters are asked to submit a photo of their elk's antlers.

Season and Bag Limit

Area	Permit	Season	Bag Limit	Special Provisions
Unit 3 Etolin Island	DE318	1 Sep–30 Sep	1 Bull	Archery
	DE321	1 Oct–15 Oct	1 Bull	None
	DE323	16 Oct–31 Oct	1 Bull	None
	RE325	15 Nov–30 Nov	1 Bull	None
Unit 3 Remainder	–	No open season	–	–

Results and Discussion

Harvest by Hunters

During this reporting period, 32 elk were harvested with an average harvest of 6 elk per year (Table 1). Interest in this hunt was relatively high but participation and success was low. On average, 187 permits were issued each year, 60% of permits were not hunted, and only 9% of hunters were successful. Only 1 cow was harvested during this reporting period. Elk age ranged from 1–10 years old with an average of 5-years old. Effort ranged an average of 2–5 days per regulatory year.

Permit Hunts

During this report period, ADF&G issued 25 archery-only drawing permits (DE318), and 100 from 2 separate rifle-season drawing permits hunts (50 DE321 and 50 DE323) each year (Table 2). Between 1 and 2 governor's permits were awarded each year, and about 60 hunters on average received registration permits (RE325). Participation and success varied by year and permit type.

Hunter Residency and Success

Nonresident hunters did not harvest elk during this reporting period (Fig. 3). Excluding 2016, more elk were harvested by nonlocal hunters than by local hunters. On average, local hunters harvested 2 elk per year and nonlocal resident hunters harvested 4 elk per year. ADF&G defines Kake, Petersburg, and Wrangell residents as local hunters, with other Alaskan residents defined as nonlocal hunters.

Harvest Chronology

Harvest chronology varied by year during this reporting period (Fig. 4). Most years had low harvest during the first week, with greater harvest occurring later in the season. Harvest peaked in the middle of the season in 2014 and 2016. Chronology is artificially manipulated with the permit system, and hunters are further limited by fall weather and elk distribution.

Table 1. Elk harvest data for regulatory years 2013 –2017, Unit 3, Southeast Alaska.

Regulatory year	Permits issued	Percent did not hunt	Percent unsuccessful	Percent successful	Harvest							Total harvest	Average age	Average days per successful hunter
					Bulls	(%)	Cows	(%)	Unk	(%)	Illegal			
2008	171	58	97	3	2	100	0	0	0	0	0	2	2	5
2009	149	60	90	10	6	100	0	0	0	0	0	6	4	3
2010	181	71	88	12	6	100	0	0	0	0	0	6	4	4
2011	175	66	85	15	9	100	0	0	0	0	0	9	3	2
2012	173	57	89	11	8	100	0	0	0	0	0	8	4	2
2013	188	58	94	6	4	80	1	20	0	0	0	5	5	2
2014	185	58	94	6	5	100	0	0	0	0	0	5	5	3
2015	188	68	86	14	8	100	0	0	0	0	0	8	5	2
2016	197	63	93	7	5	100	0	0	0	0	0	5	5	4
2017	175	53	89	11	9	100	0	0	0	0	0	9	4	5

Table 2. Elk harvest data for regulatory years 2013 –2017, Unit 3, Southeast Alaska.

Hunt number	Regulatory year	Permits issued	Percent did not hunt	Percent successful	Number bulls	Number cows	Illegal/ unreported	Total harvest
DE318 Drawing Archery-only	2013	25	68	0	0	0	0	0
	2014	25	80	20	1	0	0	1
	2015	25	76	0	0	0	0	0
	2016	25	80	40	2	0	0	2
	2017	25	76	17	1	0	0	1
DE321 Drawing	2013	51	47	7	2	0	0	2
	2014	50	64	6	1	0	0	1
	2015	50	68	25	4	0	0	4
	2016	50	66	6	1	0	0	1
	2017	50	55	23	5	0	0	5
DE323 Drawing	2013	50	60	0	0	0	0	0
	2014	50	72	14	2	0	0	2
	2015	50	70	13	2	0	0	2
	2016	50	66	0	0	0	0	0
	2017	50	54	0	0	0	0	0
RE325 Registration	2013	61	63	9	1	1	0	2
	2014	59	32	3	1	0	0	1
	2015	61	66	5	1	0	0	1
	2016	71	51	6	2	0	0	2
	2017	49	41	10	3	0	0	3
SE318, SE320, SE323 (governor's permits)	2013	1	0	100	1	0	0	1
	2014	1	0	0	0	0	0	0
	2015	2	0	50	1	0	0	1
	2016	1	100	0	0	0	0	0
	2017	1	0	0	0	0	0	0
General Hunt (outside drawing permit area)	2013	NA	NA	NA	0	0	0	0
	2014	NA	NA	NA	0	0	0	0
	2015	NA	NA	NA	0	0	0	0
	2016	NA	NA	NA	0	0	0	0
	2017	NA	NA	NA	0	0	0	0

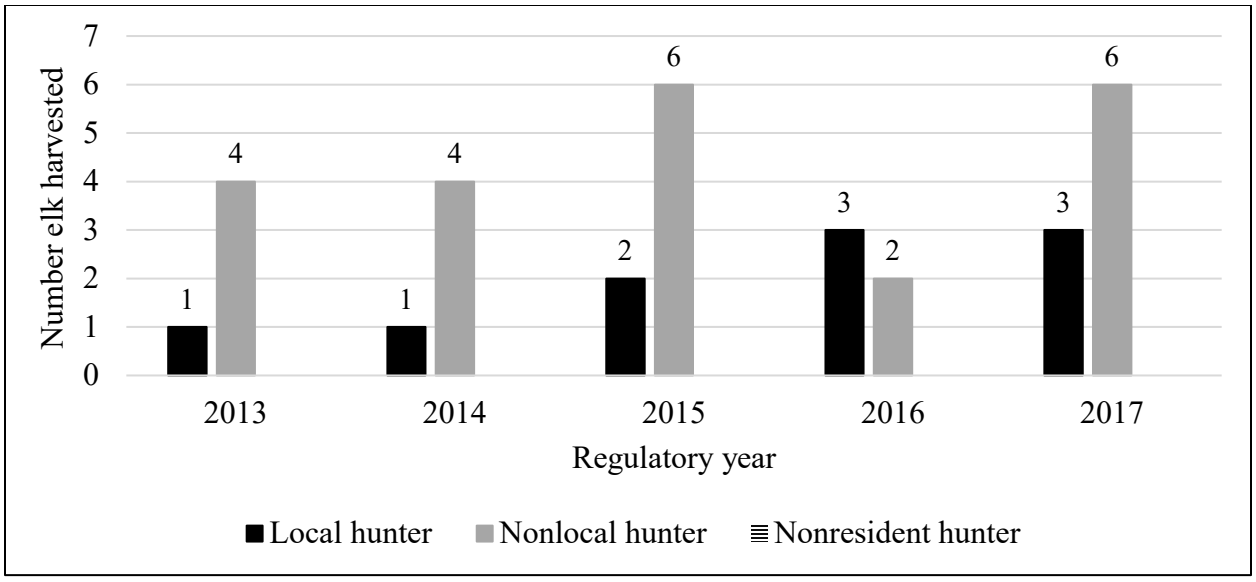

Figure 3. Elk harvest by local residents (of Kake, Petersburg, and Wrangell), nonlocal Alaska residents, and nonresident hunters for regulatory years 2013–2017, Unit 3, Southeast Alaska.

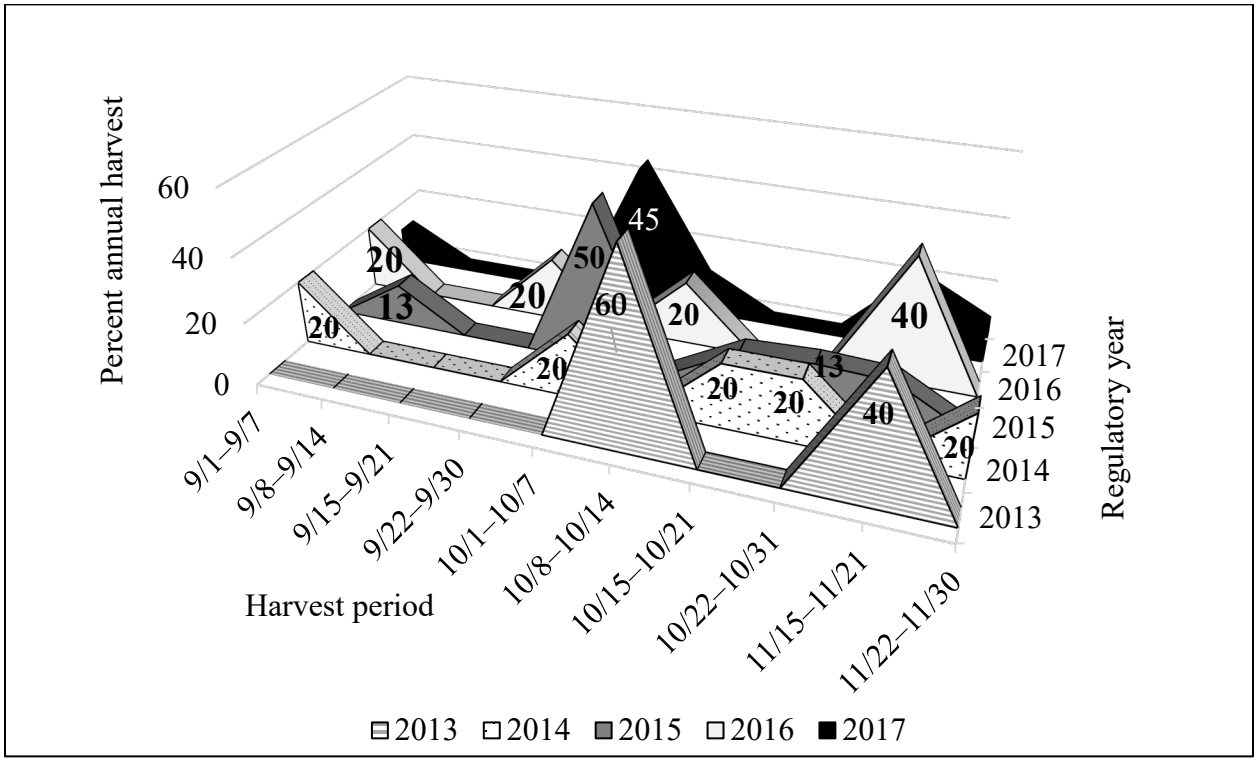

Figure 4. Harvest chronology for regulatory years 2013 –2017, Unit 3, Southeast Alaska.

Transport Methods

During this reporting period, hunters primarily used boats to access Etolin Island (Fig. 5). Some hunters used aircraft, but hunters did not use other transportation types (i.e., ATV, snowmachine, highway vehicle).

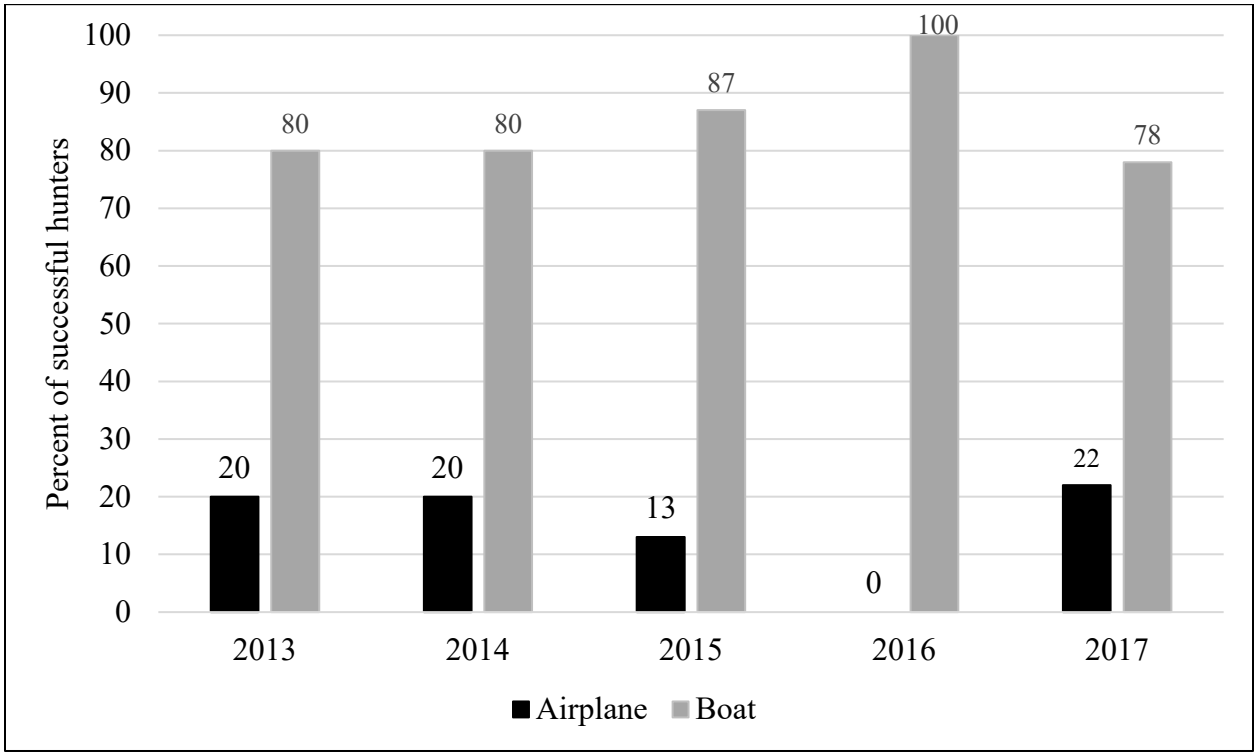

Figure 5. Proportion of successful-hunter transportation methods for regulatory years 2013–2017, Unit 3, Southeast Alaska.

Other Mortality

Brown bears, black bears, and gray wolves occur on Etolin Island. Wolves and a relatively small number of black bears are found on Zarembo Island. The extent of predation on elk is not known. Some poaching of the introduced elk has been documented in the past and likely continues to occur.

Alaska Board of Game Actions and Emergency Orders

There were no emergency orders regarding Unit 3 elk during this reporting period.

Recommendations for Activity 2.1

Continue collecting hunter harvest and effort data.

3. Habitat Assessment-Enhancement

There were no actions during this reporting period.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

ADF&G remains concerned about the potential negative effect that elk populations may have on native Sitka black-tailed deer. Research is needed to evaluate the extent of interspecific competition between introduced elk and native Sitka black-tailed deer. Elk may affect deer populations directly through physical displacement or indirectly by competition for food or by altered predator–prey dynamics. Research has shown the diets of deer and elk overlap to a high degree, suggesting potential for interspecific competition (Kirchhoff and Larsen 1998). Introduced elk dispersed from Etolin to other islands and established a breeding population on at least one other island. Should elk become widely distributed throughout Southeast Alaska, a reduction in deer numbers is to be anticipated due to competition for resources. Also, native moose populations have been increasing in Unit 3 over the past decade, and moose now occur on both Etolin and Zarembo Islands. Moose range expansion may also affect elk and deer.

Despite initial radiocollaring and monitoring efforts in the years immediately following the 1987 elk introduction, little is currently known about the ecology and habitat relationships of Unit 3 elk. Research initiated in 2008 helped identify seasonal movement patterns, provided information on summer and winter ranges, provided information on calving and rutting areas, and identified habitats important to Unit 3 elk (Davidson 2013). Additional research is needed to develop reliable methods of inventorying Southeast Alaska elk populations to evaluate population size and trend.

Data Recording and Archiving

Elk harvest data are store on an internal database, ADF&G's Wildlife information Network (WinfoNet). Elk teeth are analyzed at Matson's Laboratory.

Agreements

There were no formal agreements during this reporting period.

Permitting

There were no permits associated with issues Unit 3 elk management during this reporting period.

Conclusions and Management Recommendations

We continue to receive unverified reports of elk sightings outside the Etolin and Zarembo Island complex, some of which appear credible. Elk sightings have been reported from Wrangell, Mitkof, Kupreanof, Prince of Wales, Bushy and Shrubby islands, and from portions of the Unit 1B mainland. While elk have reportedly been harvested on Shrubby Island, the kill locations were not verified, and the possibility exists that these animals were killed illegally on

neighboring Zarembo Island. As elk disperse, and should the population increase, it will be important to monitor their numbers and distribution.

Based on aerial survey counts associated with recent radiocollaring efforts, the estimated elk population on Zarembo Island has been revised downward. It may also be necessary to revise the Etolin elk population estimate downward. Additional research is needed to develop reliable methods of inventorying Southeast Alaska elk populations so that population size and trend can be evaluated.

II. Project Review and RY18–RY22 Plan

Review of Management Direction

MANAGEMENT DIRECTION

The Draft Southeast Alaska Elk Management Plan (ADF&G, DWC, May 1999, unpublished document) established management recommendations for Unit 3 elk.

GOALS

- To provide for a sustainable harvest of elk in Unit 3.
- To provide the greatest opportunity to participate in hunting of elk in Unit 3.

CODIFIED OBJECTIVES

Amount Reasonably Necessary for Subsistence Uses (ANS)

Elk have a negative customary and traditional use finding.

Intensive Management

There was no intensive management for elk in Unit 3 during this reporting period.

MANAGEMENT OBJECTIVES

- Manage Unit 3 elk for hunting opportunity.
- Maintain elk populations on Etolin and Zarembo islands below estimated carrying capacity.
- Limit dispersal of Etolin and Zarembo elk to adjoining islands and the mainland.
- Maintain a postharvest ratio of 25–30 bulls per 100 cows.

REVIEW OF MANAGEMENT ACTIVITIES

1. Population Status and Trend

ACTIVITY 1.1 Conduct aerial surveys.

Data Needs

No change from report section.

Methods

No change from report section.

2. Mortality-Harvest Monitoring

ACTIVITY 2.1 Quantify and analyze harvest data.

Data Needs

No change from report section.

Methods

No change from report section.

3. Habitat Assessment-Enhancement

No activities anticipated.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Data Recording and Archiving

ADF&G will continue to store all data digitally.

Agreements

No formal agreements are anticipated.

Permitting

No permitting is anticipated.

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