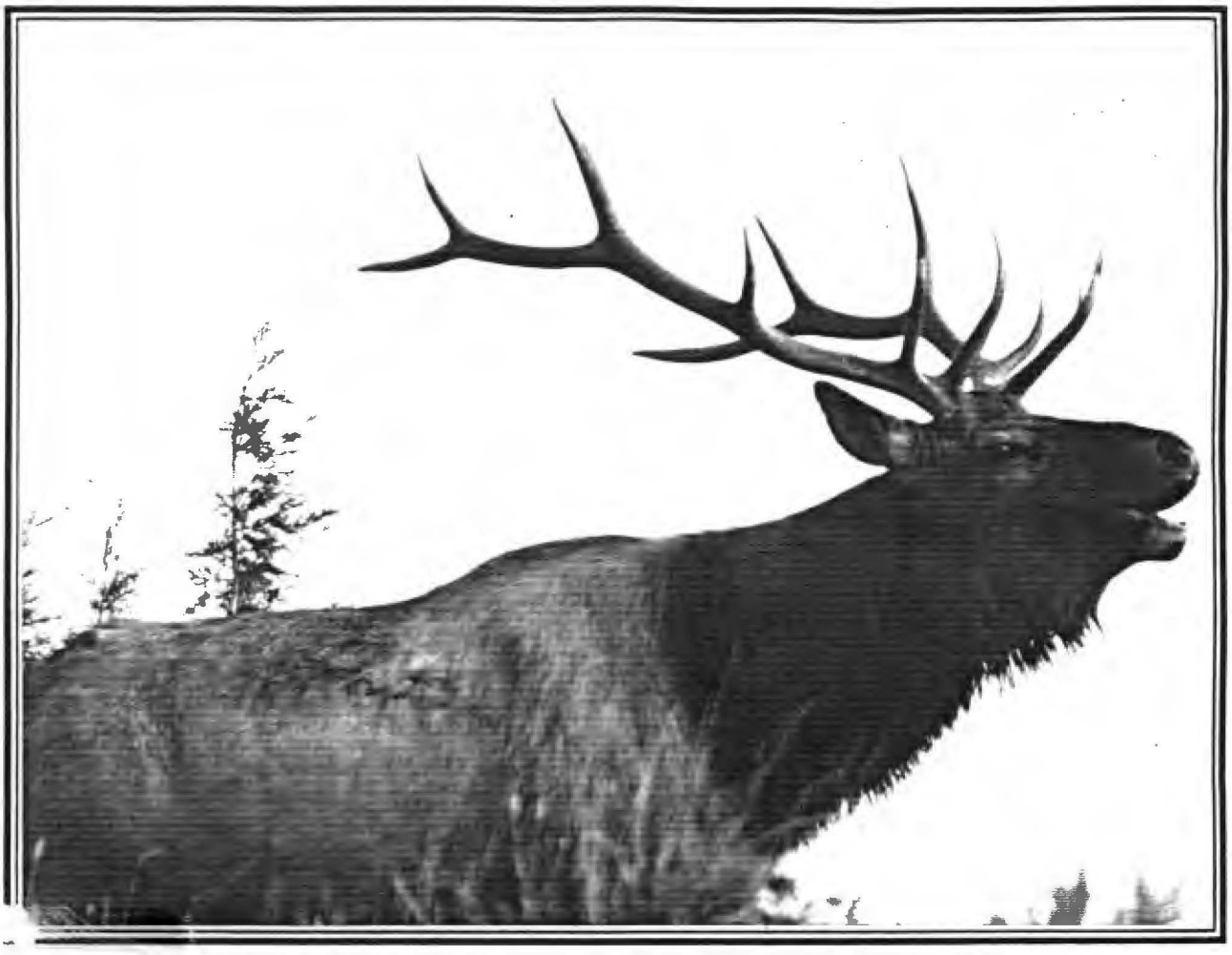
Alaska Department of Fish and Game
Division of Wildlife Conservation

Federal Aid in Wildlife Restoration
Survey-Inventory Management Report
1 July 1995 - 30 June 1997

ELK

Mary V Hicks, Editor



Grants W-24-4 & W-24-5
Study 13.0
November 1998

STATE OF ALASKA
Tony Knowles, Governor

DEPARTMENT OF FISH AND GAME
Frank Rue, Commissioner

DIVISION OF WILDLIFE CONSERVATION
Wayne L. Regelin, Director

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Mary Hicks
Publications Specialist
ADF&G, Wildlife Conservation
P.O. Box 25526
Juneau, AK 99802
(907) 465-4190

LOCATION

GAME MANAGEMENT UNIT: 3 (3,000 mi^2)

GEOGRAPHIC DESCRIPTION: Islands of the Petersburg, Wrangell, and Kake area

BACKGROUND

Elk (*Cervus elaphus*) are not endemic to Alaska but were successfully introduced onto Afognak Island in the Kodiak Archipelago in 1929. There have been several unsuccessful attempts to introduce elk into Southeast Alaska. All previous introductions failed. Lack of monitoring programs precluded our determining causes for these population failures.

In 1987 50 elk from Oregon were released on Etolin Island. Thirty-three were Roosevelt elk and 17 were Rocky Mountain subspecies. Initial losses were high; about two-thirds of the animals died within 18 months of release.

The lowest estimated population was reached in mid 1988, and since that time the herd has grown and extended its range. A breeding population is established on Zarembo Island and elk have been reported from Mitkof, Wrangell, Prince of Wales, Deer, Bushy, and Kupreanof islands.

MANAGEMENT DIRECTION

We have not established management objectives for Unit 3 elk. The Etolin Island winter carrying capacity has been estimated at 900 elk (Alaska Dep of Fish and Game, 1985). Clearcut logging continues on Etolin and about 30,000 acres are scheduled to be cut by the year 2080 (USFS, unpubl. data). This will reduce elk carrying capacity. As several decades may be required for the elk population to reach carrying capacity, the division's current plan is to provide total protection for maximum population growth. A bulls-only drawing permit season will be initiated now that the population has reached approximately 250 animals. We will attempt to maintain a postharvest ratio of 25–30 bulls per 100 cows.

METHODS

We flew aerial surveys to record tracks and visual sightings of individuals and groups of elk. We recorded observations reported to us by other agency personnel and the public. We recorded elk pellet groups while conducting deer pellet group surveys.

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Population Size

The functional life of radio transmitters affixed to elk was 3 years. The last radio relocation was made August 9, 1994, when 2 animals were located. No radios were transmitting during preparation of this report. Our population estimate is subjective but based on all information

available. Our June 1997 population estimate was 250 elk, with 30-40 elk on Zarembo and the balance on Etolin.

Population Composition

No data are available to make a meaningful population composition estimate. Almost every group of Roosevelt elk included large and small bulls, cows, and calves (in season). Zarembo Island apparently supports only Rocky Mountain elk, usually found in mixed sex and age groups. Some calves survive each year and are being recruited into the breeding population.

Distribution and Movements

Roosevelt elk have dispersed from their release sites but still incorporate those locations within their home range. Most Roosevelt elk have stayed within 10 miles of the release site, but one radiocollared cow spent 6 years in the Mt. Shakes area and then disappeared. This cow was relocated 2 months later 50 miles north on Farm Island. A ground survey found the cow dead and scavenged by bear.

After remaining near the release site for 18 months, the Rocky Mountain elk have dispersed widely. A breeding group is established on Zarembo Island. Elk sightings have been reported on several islands in the area.

For both subspecies the area below 500 feet adjacent to the coast is preferred winter and spring habitat. Roosevelt elk move higher into the mountains in summer and occasionally have been located above 1500 feet.

We conducted 3 aerial surveys and 1 boat survey to determine elk distribution and accessibility to hunters. Elk tracks were consistently seen along the beach on the west side of Zarembo Island from St John Harbor to Snow Passage. Elk or elk tracks were regularly seen on Etolin Island in the Steamer Bay area and the southwest end of the island from McHenry Inlet to the south end of Canoe Passage and north to Mt. Shakes.

In April 1997 we walked 2 deer pellet transects on Etolin Island. In one transect we observed 41 elk pellet groups in 125 plots, all below the 400-ft elevation. The other transect had 28 pellet groups in 110 plots, all below the 710-ft elevation.

MORTALITY

Harvest

Season and Bag Limit. No open season.

Board of Game and State Legislative Actions. In October 1996 the Board of Game established a bull-only elk hunting season in Unit 3. The board authorized up to 30 drawing permits to be issued for an October 1–31 season. The State Legislature passed House Bill 59, stating "The department may donate 4 elk harvest permits each year for elk from the Etolin Island herd for competitive auctions or raffles. The donations may be made only to nonprofit corporations based in the state that are established to promote fish and game management of hunted species,

transplantation of species, and use of fish and game populations for hunting and fishing, subject to the terms of a memorandum of understanding developed by the department."

Other Mortality

Before this reporting period, poachers killed 3 of the originally introduced elk. Brown bears, black bears, and gray wolves inhabit Etolin Island and wolves are on Zarembo Island, but the extent of predation on elk is unknown.

HABITAT

The Etolin Island winter carrying capacity is estimated at 900 elk and consists of the following: clearcut, 2.0 mi^2; second growth, 2.2 mi^2; nonforest or noncommercial forest, 72.9 mi^2; old growth forest, 124.4 mi^2 (Alaska Dep of Fish and Game, 1985).

In 1997 a study, *Dietary Overlap Between Native Sitka Black-tailed Deer and Introduced Elk in Southeast Alaska,* was published in the Journal of Wildlife Management. The abstract states that Kirchhoff and Larsen studied diet composition of native Sitka black-tailed deer (*Odocoileus Hemionus sitkensis*) and a growing herd of introduced elk (*Cervus elaphus*) on Etolin Island to evaluate potential interspecific competition. Diets of deer and elk were similar during a mild, relatively snow-free winter, with both species heavily relying on salal (*Gaultheria shallon*), red huckleberry (*Vaccinium parvifolium*), and western red cedar (*Thuja plicata*). As expected, elk ate more grasses (Graminas) and sedges (Cyperaceae) than deer, and deer ate more forbs and low-growing evergreen plants than did elk. Relatively low plant diversity in Southeast Alaska limits options for divergence in deer and elk diets. At present, high dietary overlap probably does not lead to direct competition for food resources because both deer and elk populations are relatively low and food does not appear limiting. However, as their populations increase or should harsh winter weather reduce the variety and availability of winter foods, intra- and interspecific competition is inevitable. Crown closure following clearcut logging will decrease forage abundance and increase competition between deer and elk over time. (Kirchhoff and Larsen 1997)

CONCLUSIONS AND RECOMMENDATIONS

The Unit 3 elk population is increasing after losses following introduction. Elk are dispersing and have established a breeding herd on Zarembo Island. As elk disperse and the population increases, it will be important to continue monitoring efforts. Results of the dietary study should be scrutinized to see if browse species are utilized at a rate potentially harmful to the native deer population.

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PREPARED BY:

Edward B. Crain
Wildlife Biologist III

SUBMITTED BY:

Bruce Dinneford
Management Coordinator

LOCATION

GAME MANAGEMENT UNIT: 8 (5,097 mi^2)

GEOGRAPHIC DESCRIPTION: Kodiak and adjacent islands

BACKGROUND

The Roosevelt elk population in Unit 8 originated from a release of 8 animals near Litnik Bay on Afognak Island in 1929 (Batchelor 1965). The population was estimated at more than 200 elk by 1948, and the first hunt occurred in 1950. Hunting has been allowed annually since 1955. The population peaked at 1200–1500 by 1965, with 9 separate herds on Afognak Island and 1 herd on nearby Raspberry Island. A series of severe winters caused extensive mortality, reducing the population to an estimated 450 elk by 1972 (Burris and McKnight 1973). By the 1980s the herd recovered to almost the previous high and has since undergone minor fluctuations correlated with winter severity.

Accessibility of each elk herd to hunters strongly influenced management strategies. In the 1960s many herds were only lightly harvested, despite a 153-day season and a bag limit of 2 elk. However, excessive harvest of the highly accessible Raspberry Island herd prompted managers to recommend closing that herd to hunting in 1968 (Alexander et al. 1968). Drawing permit hunts and registration permit hunts with harvest quotas regulated by emergency order closures characterized management strategies for the most accessible herds of southwestern Afognak Island and Raspberry Island from the mid 1970s to the late 1980s. Initiation of commercial logging in 1975 marked a new management era, with increased vulnerability of elk to hunting resulting from logging road access and loss of security cover. By the mid-1980s shorter seasons had to be imposed in east–central Afognak Island where logging was concentrated. Beginning with the 1993–94 season, the road-accessible eastern and central part of Afognak Island was incorporated with the southwestern Afognak areas into a single management area regulated by drawing permit hunts.

MANAGEMENT DIRECTION

MANAGEMENT OBJECTIVES

To maintain a population of at least 1000 elk for use by all user groups.

METHODS

Each year we attempt to use 1 observer in a Piper PA-18 (Super Cub) aircraft to conduct an aerial composition count of each herd between July and September. We make supplemental counts of herds >50 animals from color print photographs taken during the survey. In August 1994, 1995, and 1996 we also conducted a composition count from the ground in the Raspberry Island herd.

We used helicopter darting techniques to capture 11 elk (1 male, 10 females) between 27 June and 1 July 1996, and we equipped them with radio collars. We made 4–6 flights each year to relocate instrumented elk.

We collected data on harvest and hunting effort from mandatory hunting reports, field checkstations, and periodic monitoring of hunting activity by boat and aircraft.

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Population Size

Aerial composition surveys indicated an increasing trend in the elk population beginning in 1992 (Table 1). The minimum population on Raspberry and Afognak Islands in 1996 was estimated at 1400 elk, well above the 760 elk minimum estimate in 1992. Among the 8 herds identified on Afognak Island, all were stable to slightly increasing at the end of this reporting period. Because all herds were not counted each year and because winter conditions the past 2 years were less severe, I suspect minimum herd size estimates.

The Paramanof Peninsula herd, which declined precipitously after 1989 (Smith 1996), showed no sign of recovery (Table 1). That herd, only lightly hunted because of difficult access, was estimated at over 300 animals in the mid-1980s. I suspect part of that herd joined the Malina Lakes herd with a closely adjacent range south of Malina Bay.

The Tonki Cape herd has shown little or no growth despite complete protection for several years. Bear predation and illegal harvest may be sufficiently high to prevent this small herd from growth.

Population Composition

Observed bull:cow ratios in 1995 and 1996 were 10:100, above the 3–6:100 noted in the previous 3 years. This increase probably reflects improved overwinter survival and decreasing hunting pressure because of more restrictive seasons since 1993. Calf:cow ratios were stable at 30–31:100. This was somewhat lower than in some earlier years, and probably reflects increased survival in yearlings of both sexes. The foot surveys on Raspberry Island in 1996 supported the increased survival theory, with 55% (22/40) of the bulls classified as yearlings.

Distribution and Movement

Distribution of the elk herds has been monitored by composition counts and by relocating radio-collared elk since 1986. There are at least 8 separate herds on Afognak Island and 1 herd on Raspberry Island. Except for the Paramanof herd, the annual home ranges of each elk herd have been stable with little interchange between herds.

MORTALITY

Harvest

Seasons and Bag Limits. There were 2 open seasons for resident and nonresident hunters for Raspberry Island. During the 10 October to 31 October season, the bag limit was 1 bull elk by

drawing permit only with up to 100 permits to be issued. During the 1–25 November season, the bag limit was 1 antlerless elk with 200 permits to be issued.

The open season for resident and nonresident hunters in that portion of Afognak Island west of Tonki Bay and west of a line from the head of Tonki Bay to Pillar Cape and south and east of a line from the head of Discoverer Bay to the head of Malina Bay and south of Malina Bay was 10–31 October; the bag limit was 1 elk by drawing permit, with up to 500 permits issued. A second season scheduled for 5–25 November by registration permit was closed by emergency order in 1995–1996 in part of the area encompassing the ranges of 2 herds east of Kazakof Bay. No emergency orders were issued for the second season in 1996–1997.

The open season for resident and nonresident hunters for the remainder of Unit 8 was 10 October–25 November; the bag limit was 1 elk by registration permit.

That portion of Afognak Island east of Tonki Bay and east of a line from the head of Tonki Bay to Pillar Cape remained closed to hunting.

Board of Game Actions and Emergency Orders. The Board of Game passed a regulation establishing separate drawing permit hunts for bull and antlerless elk for Raspberry Island for the 1995–96 season. The change was recommended by department staff to improve bull:cow ratios and to increase the number of mature bulls in this herd, where antlered elk are particularly vulnerable to hunters.

In March 1997 the Board make several changes to the 1997–98 elk seasons. Twenty-four days were added to the Afognak hunt by changing the opening date from 10 October to 25 September, eliminating the 1–4 November closure between drawing and registration hunts for southern Afognak and changing the closure date from 25 to 30 November. These modifications were based on department recommendations to increase the elk harvest to take advantage of increasing herd sizes. The Board also changed the hunting regulations on the Seal Bay herd to include it in the northwest Afognak registration hunt. The Raspberry season was changed from 10 October to 25 November to 1 October to 30 November. This change was intended to add a couple of periods to the antlerless hunt and better distribute the hunting pressure, minimizing problems of too many hunters afield during the antlerless hunt.

We issued an emergency order for 1995 closing the Duck Mountain and Portage Lake registration hunts. No emergency orders were issued in 1996.

Hunter Harvest. The annual elk harvest increased from a low of 67 elk in 1992–93 to 135 elk in 1996–97 (Table 2). Recent annual harvests were well below the peak of 206 elk killed in 1989–90. The percent of bulls in the harvest increased from a low of 44% in 1992–93 to a high of 68% in 1994–95 (Table 2). Smith (1996) noted that the proportion of bulls in the harvest was in a declining trend before 1992–93. The distribution of the elk harvest among the individual hunts was similar in 1995–96 and 1996–97.

Permit Hunts. Permit hunt boundaries were changed in 1993–94. Much of central and eastern Afognak Island, previously administered as a registration permit hunt, was included with southwestern Afognak Island in a drawing permit hunt. In that management area a registration

permit hunt is scheduled following the drawing permit hunt if the allowable harvest is not met during the drawing permit hunt. A reduced area in northwestern Afognak Island remained as a registration permit hunt for the entire 10 October–25 November season.

In 1993–94 only part of the new drawing–registration hunt area was opened for a registration permit hunt. The central part of Afognak Island, which contains the Portage Lake, Duck Mountain, and Marka Lakes herds, was opened for a 3-day registration hunt, and the Seal Bay herd of eastern Afognak Island was opened for the entire 5–25 November scheduled season. The Malina Lakes herd of southwestern Afognak Island was not opened for the registration permit hunt because harvest goals were met during the drawing hunt.

In 1994–95 the ranges of the Marka Lake, Portage Lake, and Duck Mountain herds, which are accessible by logging roads, were not opened for a registration hunt because of a high risk of overharvest. The Malina Lakes herd was opened for the 5–11 November registration hunt, and it was reopened during 19–25 November. The Seal Bay herd in eastern Afognak Island was open during the scheduled 5–25 November registration hunt. Unusually windy conditions in October and November 1994 frequently delayed travel by boat and aircraft, which resulted in lower than expected harvest. Allowable harvest goals were not reached for most herds.

Hunter Residency and Success. Average hunter success was 23% for both 1995–96 and 1996–97 (Table 3). Each year residents of Unit 8 harvested more elk than did other Alaskan residents. The number of hunters in the field increased in 1993–94, declined 1994–95, and again rebounded in 1995–96 and 1996–97.

Harvest Chronology. Harvest was highest in the last 2 weeks of October for all 3 areas in most years (Table 4). Chronology data were not analyzed for the 1995–96 and 1996–97 seasons.

Transportation Methods. Numbers of hunters using highway vehicles increased, a harvest trend that correlated with continued logging road construction on Afognak Island (Table 5). Elk hunters in Unit 8 continue to use aircraft and boats as their main methods of transportation.

Other Mortality

Two of 18 collared female elk died of unknown causes during the 1994–95 winter. Both elk were older animals estimated at >10 years old. The increasing trend in elk counts indicated that overwinter mortality was light in the past 4 years.

HABITAT ASSESSMENT

Commercial logging of Sitka spruce (*Picea sitchensis*) on Afognak Island continued to extend to new areas. New logging operations in the Waterfall Bay and eastern Izhut Bay areas during this reporting period enhanced road access to the Seal Bay and Waterfall elk herds. The department continued to review timber harvest plans which private timber owners are required to submit to the Department of Natural Resources. Current laws do not contain provisions for protecting terrestrial wildlife, so the reviews are strictly advisory. The long-term effects of logging on elk habitat quality have not been studied on Afognak Island. In the future as second-growth timber matures into a closed canopy, elk carrying capacity could be diminished.

NONREGULATORY MANAGEMENT PROBLEMS/NEEDS

Increasing vulnerability of elk to hunting as the result of logging and road construction is the major management concern. Hunters' efficiency in harvesting elk in logged drainages continued to increase, requiring close monitoring and frequent in-season closures for individual herds.

CONCLUSIONS AND RECOMMENDATIONS

Since 1992 the elk population has increased to a minimum of 1400 elk. All 8 Afognak Island herds and the Raspberry Island herd increased or were stable. The population increase was attributed to improved overwinter survival during the past 4 winters. A declining trend in bull:cow ratios, previously a concern, appears to have been reversed. The harvest increased from a low of 67 elk in 1992 to 135 elk in 1996–97. The percent bulls in the harvest has exceeded 50% for each of the past 4 years.

The change from a 1 September to a 10 October opening date was effective in slowing the harvest and may have been a factor in improving the bull:cow ratios. However, the later opening date made weather more of a factor determining hunter success. In 1994 extremely high winds seriously restricted hunter travel in October and November, resulting in lower than expected harvest. The liberalization of season opening dates for the larger elk herds should improve our chances of reaching harvest objectives.

Although hunters tended to cluster near the most accessible elk herds adjacent to the road system and in the southwestern Afognak Island area, the current regulatory system continued to allow managers adequate flexibility in responding to population changes and harvest of individual herds. As road access improves, smaller management areas will be required to assure that population objectives for each herd are met. Logging roads now transect or border the ranges of all of the Afognak Island elk herds, except the outer Tonki Cape herd. The Marka Lake, Duck Mountain, and Portage Lake elk herds have become increasingly vulnerable to hunting because of increased road access and reduced cover. These herds will soon have to be regulated exclusively by drawing permits.

Management will be further complicated by the Federal Subsistence Board's action establishing elk as a customary and traditional resource for all residents of the Kodiak archipelago. We can anticipate liberalized seasons on the Waterfall Lake herd, which seasonally occupies portions of the Kodiak National Wildlife Refuge. Close coordination with Refuge staff and with the Federal Regional Council will be necessary to prevent overharvest.

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PREPARED BY:

Roger B. Smith
Wildlife Biologist

Lawrence J. Van Daele
Wildlife Biologist III

SUBMITTED BY:

Michael G. McDonald
Assistant Management Coordinator

Table 1 Unit 8 summer aerial elk composition counts and estimated population by herd, 1992–1997

Herd	Regulatory Year	Bulls	Cows	Calves	(%)	Bulls: 100 Cows	Calves: 100 Cows	Total Elk Observed	Estimated Population
Raspberry Island	1992–93	4	71	26	(26)	6	37	101	115–125
	1993–94	1	104	29	(22)	1	28	134	135–145
	1994–95	19	99	40	(25)	19	40	158	150–160
	1995–96	25	120	47	(25)	21	39	192	190–200
	1996–97	42	138	27	(13)	30	20	207	210–220
Seal Bay	1992–93	0	78	20	(20)	0	26	98	125–150
	1993–94	--	--	--	--	--	--	--	130–150
	1994–95	6	45	11	(18)	12	22	62	135–150
	1995–96	9	14	2	(8)	64	14	25	140–160
	1996–97	--	--	--	--	--	--	--	170–180
Duck Mountain	1992–93				(7)	5	8	45	65–100
	1993–94				(24)	5	32	102	110–125
	1994–95				(31)	--	45	87	105–125
	1995–96				(23)	4	31	73	120–130
	1996–97	--	--		(24)	--	--	33	130–140
Portage Lake	1992–93	1	18	16	(46)	--	--	35	70–80
	1993–94	--	--	--	--	--	--	--	80–90
	1994–95	1	50	6	(11)	2	12	57	70–80
	1995–96	--	--	--	--	--	--	--	65–75
	1996–97	3	55	17	(23)	5	31	75	75–85

Table 1 Continued

Herd	Regulatory Year	Bulls	Cows	Calves	(%)	Bulls: 100 Cows	Calves: 100 Cows	Total Elk Observed	Estimated Population
Marka Lake	1992–93	3	32	8	(19)	9	25	43	50–60
	1993–94	2	60	15	(19)	3	25	77	80–85
	1994–95	5	36	7	(15)	14	19	48	80–85
	1995–96	3	81	24	(22)	4	30	108	110–120
	1996–97	--	--	17	(22)	--	--	78	120–130
Malina Lake	1992–93	0	137	69	(33)	0	50	206	225–250
	1993–94	8	247	55	(18)	3	22	310	300–325
	1994–95a	0	218	64	(23)	0	23	282	285–325
	1995–96	14	205	79	(27)	7	39	298	290–310
	1996–97	4	259	64	(20)	2	25	327	335–345
Afognak Lake	1992–93	--	--	--	(--)	--	--	--	---
	1993–94	--	--	--	(--)	--	--	--	---
	1994–95a	0	46	9	(16)	0	20	55	---
	1995-96	2	83	20	(19)	2	24	105	110-120
	1996-97	--	--	--		--	--	--	125-135

Table 1 Continued

Herd	Regulatory Year	Bulls	Cows	Calves	(%)	Bulls: 100 Cows	Calves: 100 Cows	Total Elk Observed	Estimated Population
Waterfall Lake	1992–93	3	56	24	(29)	5	43	83	90–100
	1993–94	1	94	24	(20)	1	26	119	125–140
	1994–95	5	77	23	(22)	6	30	105	135–140
	1995–96	12	122	26	(16)	9	21	160	165–175
	1996–97	7	79	31	(26)	9	39	117	175–185
Paramanof Peninsula	1992–93	0	0	0	(--)	--	--	0	25–30
	1993–94	0	4	0	(--)	--	--	4	20–50
	1994–95	0	0	0	(--)	--	--	0	20–50
	1995–96	0	0	0	(--)	--	--	0	20–30
	1996–97	0	0	0	(--)	--	--	0	20–30
Tonki Cape	1992–93	1	14	3	(17)	7	21	18	20–25
	1993–94	0	0	0	(--)	--	--	0	20–30
	1994–95	0	0	0	(--)	--	--	0	20–30
	1995–96	1	27	6	(18)	4	22	34	30–40

Table 1 Continued

Herd	Regulatory Year	Bulls	Cows	Calves	(%)	Bulls: 100 Cows	Calves: 100 Cows	Total Elk Observed	Estimated Population
Tonki Cape	1996–97	1	23	4	(14)	4	17	28	30–40
Total all herds	1992–93	15	451	167	(26)	3	37	633	760–850
	1993–94	16	583	147	(20)	3	25	746	950–1100
	1994–95	36	585	178	(22)	6	30	799	950–1100
	1995–96	75	715	221	(22)	10	31	1011	1250–1300
	1996–97	57	554	168	(22)	10	30	779	1300–1400

Table 2 Unit 8 elk harvest data by permit hunt, 1992–1997

Hunt Area/Nr	Regulatory Year	Permits Issued	Percent did not hunt	Percent unsuccessful hunters	Percent successful hunters	Bulls	(%)	Cows	(%)	Unk.	Illegal unreported	Total harvest
Raspberry Island	1992–93	50	50	84	16	2	(50)	2	(50)	0	0	4
(Drawing Hunt	1993–94	70	63	54	46	6	(50)	6	(50)	0	0	12
No. 702-707)	1994–95	90	42	73	27	10	(71)	4	(29)	0	0	14
	1995–96	73	52	69	31	4	(36)	7	(64)	0	0	11
	1996–97	195	56	63	37	12	(39)	19	(61)	0	0	31
South and East	1993–94[a]	335	58	57	43	33	(54)	28	(46)	0	0	61
Afognak Island	1994–95	335	52	68	32	36	(69)	16	(31)	0	0	52
(Drawing Hunt	1995–96	335	44	68	32	39	(66)	20	(34)	0	0	59
No. 708-710)	1996–97	450	52	67	33	44	(63)	26	(37)	0	0	70
South and East	1993–94	392	--[b]	89	11	6	(60)	4	(40)	0	0	10
Afognak Island	1994–95	434	--	88	12	4	(50)	4	(50)	0	0	8
(Registration Hunt	1995–96	126	--	87	13	8	(47)	8	(47)	1	0	17
No. 753)	1996–97	184	--	88	12	12	(52)	11	(48)	0	0	23
North Afognak Island	1993–94	392	--	96	4	3	(75)	1	(25)	0	0	4
(Registration Hunt	1994–95	434	--	87	13	8	(73)	3	(27)	0	0	11
No. 754)	1995–96	69	--	87	13	5	(56)	4	(44)	0	0	9
	1996–97	119	--	91	9	9	(82)	2	(18)	0	0	11

Table 2 Continued

	Regulatory Year	Permits Issued	Percent did not hunt	Percent unsuccessful hunters	Percent successful hunters	Bulls	(%)	Cows	(%)	Unk.	Illegal unreported	Total harvest
Total all hunts	1992–93	848	53	83	17	29	(44)	37	(56)	1	0	67
	1993–94	797	56	75	25	48	(55)	39	(45)	0	0	87
	1994–95	859	57	77	23	58	(68)	27	(42)	0	0	85
	1995–96	811	47	75	25	56	(58)	39	(41)	1	0	96
	1996–97	1158	47	77	23	77	(57)	58	(43)	0	0	135

[a] New boundaries for Afognak Island drawing and registration permits were established for 1993–94.

[b] Registration permit valid for multiple hunts, so % of permittees not hunting in a specific area is not a valid statistic.

Table 3 Unit 8 elk hunter residency and success, 1992–1997

	Successful					Unsuccessful					
Regulatory Year	Local[a] resident	Nonlocal resident	Nonresident	Total	%	Local[a] resident	Nonlocal resident	Nonresident	Total	%	Total[b] hunters
1992/93	35	29	3	67	(17)	147	166	18	331	(83)	398
1993/94	44	42	1	87	(18)	270	127	6	403	(82)	490
1994/95	59	24	2	85	(22)	142	146	7	298	(78)	383
1995/96	66	29	1	96	(23)	156	150	12	320	(77)	416
1996/97	73	55	7	135	(23)	241	198	25	465	(78)	600

[a] Local means resident of Unit 8.

[b] Hunters participating in more than one permit hunt were tallied for each hunt.

Table 4 Unit 8 elk harvest chronology by 15-day period (percent in parentheses), 1992–1997

Area	Regulatory Year	Harvest Periods 9/1–9/15	9/16–9/30	10/1	10/15	10/16	10/31	11/1	11/15	11/16	11/30	12/1–12/15	Total
Raspberry Island	1992/93	--	--	1	(25)	3	(75)	0	--	--	--	--	4
	1993/94	--	--	1	(6)	8	(75)	3	(19)	--	--	--	12
	1994/95	--	--	2	(14)	6	(43)	5	(36)	1	(7)	--	14
	1995/96	--	--	--	--	--	--	--	--	--	--	--	--
	1996/97	--	--	--	--	--	--	--	--	--	--	--	--
South & East	1993/94	--	--	27	(38)	34	(48)	10	(14)	0	--	--	71
Afognak Island[a]	1994/95	--	--	20	(33)	33	(55)	5	(8)	2	(4)	--	60
	1995/96a	--	--	--	--	--	--	--	--	--	--	--	--
	1996/97a	--	--	--	--	--	--	--	--	--	--	--	--
North Afognak	1993/94	--	--	0	--	4	(100)	0	--	0	--	--	4
Island[b]	1994/95	--	--	3	(27)	4	(36)	3	(27)	1	(9)	--	11
	1995/96[a]	--	--	--	--	--	--	--	--	--	--	--	--
	1996/97[a]	--	--	--	--	--	--	--	--	--	--	--	--

[a] Chronology data not analyzed for 1995/96 or 1996/97.

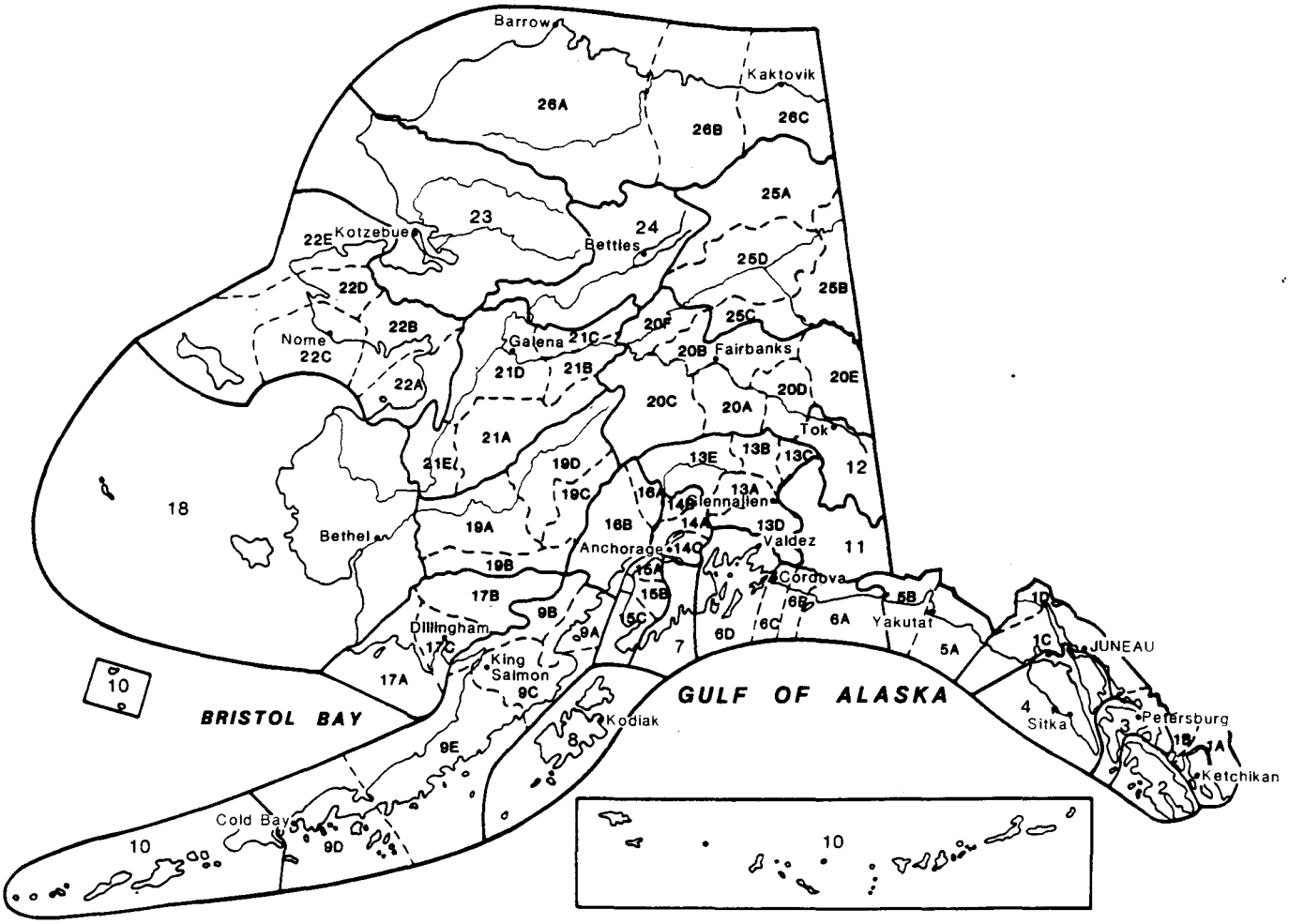
[b] New hunt boundaries for Afognak Island hunts were established in 1993/94.

Table 5 Unit 8 elk harvest by transport method (percent in parentheses), 1992–1997

Regulatory Year	Airplane		Horse	Boat		ORV		Highway vehicle		Unknown		Total
1992/93	29	(43)	0	23	(34)	0	(T)	12	(18)	3	(5)	67
1993/94	38	(45)	0	31	(36)	0	(0)	16	(19)	0	0	85
1994/95	24	(31)	0	30	(38)	1	(1)	24	(31)	0	(0)	78
1995/96	31	(32)	0	35	(36)	0	(-)	30	(31)	1	(1)	97a
1996/97	44	(33)	0	56	(42)	2	(2)	33	(24)	0	(--)	135

[a] Permit data indicate a total of 97 transport methods reported for 96 elk harvested.

Alaska's Game Management Units



The Federal Aid in Wildlife Restoration Program consists of funds from a 10% to 11% manufacturer's excise tax collected from the sales of handguns, sporting rifles, shotguns, ammunition, and archery equipment. The Federal Aid program allots funds back to states through a formula based on each state's geographic area and number of paid hunting license holders. Alaska receives a maximum 5% of revenues collected each year. The Alaska Department of Fish and Game uses federal aid funds to help restore, conserve, and manage wild birds and mammals to benefit the public. These funds are also used to educate hunters to develop the skills, knowledge, and attitudes for responsible hunting. Seventy-five percent of the funds for this report are from Federal Aid.

Len Roe Jr

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