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Federal Aid in Wildlife Restoration
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DEER

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STATEWIDE HARVEST AND POPULATION STATUS

Sitka black-tailed deer are found in the forests of Southeast Alaska, the Gulf Coast, and Kodiak Island. In these areas, it is the major big game species, particularly for resident hunters. In 1986-87 deer populations were stable or increasing in all units. Deer populations remained high in Units 4 (Admiralty, Baranof, and Chichagof Islands) and 8 (Kodiak Island), moderate to high in Unit 6, and low to moderate elsewhere.

An estimated 27,844 deer were harvested statewide. As usual, a substantial portion of the harvest (approximately 75%) occurred in Units 4 and 8. During the reporting period, there was no evidence to suggest that hunting was inhibiting population growth. Instead, the extended series of mild winters have allowed populations to increase or remain stable, despite heavy hunting pressure in some areas.

Unit	Population level	Population trend	Estimated harvest
1A	low	increasing	849
1B	low	slight increase	69
1C	moderate	stable	434
2	moderate to high	increasing	2,805
3	low	increasing	201
4	high	stable	10,257
6	moderate to high	stable	3,229
8	high	stable to increasing	10,000

Steven R. Peterson
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DEER

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 1A and 2

GEOGRAPHICAL DESCRIPTION: Ketchikan area and Prince of Wales Island

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Hunting Regulations No. 27.

Population Status and Trend

Although population levels over much of Subunit 1A and Unit 2 appear to be increasing, the rate of increase appears to be faster in Unit 2. The deer populations over much of the northern and western portions of Prince of Wales Island are currently at fairly high levels, while those levels on several of the small west-coast islands range from high to very high. However, deer numbers remain low in a large portion of Subunit 1A.

Permanent pellet group transects, established in 1984, have not been regularly counted because of problems with weather and transportation and conflicts with other work. Comparable counts were obtained only on Gravina Island (by ADF&G), Twelvemile Arm, Kasaan Bay, and Port Refugio (by USFS). Mean pellet groups/plot on Gravina Island, Twelvemile Arm, and Kasaan Bay remained at approximately the same level as those in 1986, while the count at Port Refugio resulted in a substantial decrease (Table 1).

Mortality

The winter of 1986-87 was reasonably mild throughout Subunit 1A and Unit 2. Deep snow accumulated at higher elevations, but the the winter range received little snow. No significant winter mortality was expected. The beach mortality transects were not surveyed. Field observations and other reports indicated virtually no mortality was attributable to winter conditions.

Harvest information and hunter data for the 1986 hunting season were obtained from a mail survey of 25% of the 13,000

Alaska licensees who acquired deer harvest tickets. Seventy-eight percent of all harvest ticket holders actually hunted. Figures used in this report are estimated totals based on an expansion of the sample (Table 2). Tabulations were made for each unit and hunt area. Consequently, an individual who hunted in more than 1 hunt area or unit will be tallied as a hunter in each of those units or areas.

In Subunit 1A, 1,107 hunters spent 7,100 days in the field and harvested 849 bucks; 48% of the active hunters were successful. The average number of days hunted was 6.4, and 0.78 deer per hunter were taken. Seventy-five percent of the hunter effort in Subunit 1A occurred on Revilla and Gravina Islands. Hunter success was 45% in Gravina Island and 38% on Revilla Island. Both hunter success and deer harvest have been steadily increasing since 1982.

In Unit 2, 2,233 hunters harvested 2,805 deer in 17,505 days of hunting; 69% of the hunters were successful. The number of hunters was up from that in 1985, but the harvest was down. Substantial snowfall during November 1985 undoubtedly increased that year's harvest; the 1986 harvest was closer to expected levels. The average number of days hunted was 7.8, and 1.26 deer were taken per hunter. Most of the harvest in Unit 2 was taken from the north half of Prince of Wales Island, which has an interconnected logging-road system. About 85% of the harvest in Unit 2 and 87% of the hunter effort took place in this area.

Management Summary and Recommendations

Deer populations in both units appear to be increasing and are already at fairly high levels in some areas. Range conditions were good in both units. Except for a few smaller islands, the available habitat can probably support high deer numbers.

The harvest in Unit 2 was concentrated in the northern half of Prince of Wales Island along the road system. This localized hunting effort will probably continue and even increase as ferry access improves and knowledge of the area spreads among hunters. There has been a steady increase in number of hunters and deer harvested in Unit 2 over the past 5 years.

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Table 1. Deer pellet group data[a] for Subunit 1A and Unit 2, 1981-87.

VCU[b] no.	Name	Year	Pellet group statistics		
			N	Mean	95% CI
532	Red Bay	1987	177	0.32	0.18-1.47
561	Ward Chuck	1984	326	1.02	1.02-1.38
		1985	295	1.60	1.36-1.84
578[c]	Snakey Lakes	1986	279	0.62	0.51-0.73
581[c]	Luck Lake	1986	178	1.74	1.41-2.07
621[c]	12 Mile	1985	196	0.31	0.19-0.43
		1986	300	0.64	0.48-0.81
		1987	370	0.65	0.49-0.81
635[c]	Port Refugio	1985	317	2.69	2.27-3.12
		1986	324	2.52	2.09-2.96
		1987	369	1.76	1.46-2.07
715	Smugglers	1981	147	0.48	0.30-0.66
716	Helm Bay	1981	704	0.16	0.12-0.19
		1984	302	0.54	0.44-0.65
		1985	181	0.85	0.65-1.05
738[c]	Margaret	1985	515	0.57	0.47-0.66
		1986	251	0.84	0.69-1.00
748	George Inlet	1981	110	0.21	0.09-0.33
		1984	344	0.27	0.19-0.35
		1985	313	0.52	0.39-0.65
752	Whitman Lake	1981	45	0.18	0.02-0.33
		1987	187	0.16	0.09-0.23
758[c]	Carroll Point	1985	188	0.66	0.46-0.86
		1986	118	0.75	0.56-0.95
759[c]	Moth Bay	1985	140	0.59	0.42-0.74
		1986	156	0.98	0.79-1.17
760[c]	Lucky Cove	1985	335	1.16	1.00-1.33
		1986	258	1.16	0.95-1.32
764	Blank Inlet	1981	108	1.24	0.89-1.59

Table 1. (continued)

VCU no.	Name	Year	Pellet group statistics N	Mean	95% CI
765	Dall Head	1981	69	0.52	0.31-0.74
769[c]	Alava Bay	1985	311	0.52	0.39-0.65
		1986	326	0.85	0.68-1.01
772[c]	Wasp Cove	1985	271	0.41	0.31-0.51
		1986	300	0.50	0.38-0.62
999	E. Gravina Island (Intensive)	1981	226	1.06	0.89-1.22
		1984	1,087	0.86	0.78-0.94
		1985	1,172	1.23	1.13-1.32
		1986	1,267	1.40	1.30-1.50
999	E. Gravina Island (Comparable transects)	1984	376	0.88	0.73-1.03
		1985	224	1.44	1.20-1.67
		1986	346	1.62	1.43-1.81

[a] 1 x 20M continuous plot transects running from sea level to about 1,500 feet in elevation.

[b] VCU = Value Comparison Unit (U.S. Forest Service).

[c] Established and counted by U.S. Forest Service.

Table 2. Deer harvest data for Subunit 1A and Unit 2, 1980-86.

Unit	Year	No. of hunters	% Successful	No. Hunter days	Deer killed	% bucks
1A	1980	890	27%	5,160	395	99
	1982	900	29%	4,370	340	100
	1983	960	31%	5,130	440	100
	1984	1,060	42%	5,820	620	97
	1985	1,108	37%	5,683	779	100
	1986	1,107	48%	7,100	849	99
2	1980	620	56%	4,600	615	99
	1982	1,150	58%	9,190	1,185	100
	1983	1,560	62%	11,290	1,740	100
	1984	1,910	63%	13,070	1,880	99
	1985[a]	2,025	68%	14,182	3,151	97
	1986[a]	2,233	69%	17,505	2,805	100

[a] Poor response rate for 1986.

DEER

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNITS: 1B and 3

GEOGRAPHICAL DESCRIPTION: Subunit 1B - Southeast Mainland from Cape Fanshaw to Lemesurier Point
Unit 3 - Islands of the Petersburg, Kake, and Wrangell area

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Hunting Regulations No. 27.

Population Status and Trend

Sitka black-tailed deer are found on most of the islands in Unit 3 and the mainland area of Subunit 1B. In the past, deer populations in these areas have periodically reached peaks and then crashed (Merriam 1970, Olson 1979). The declines can be attributed to many factors; the most prominent one is a severe winter. Wolf and bear predation, excessive or illegal hunting, and reduced carrying capacity caused by clearcut logging have also depleted the deer population. Spring pellet group surveys were conducted on Conclusion, Etolin, Onslow, Mitkof, Kupreanof, Woronkofski, and Castle Islands. Each 20-m^2 survey plot was positioned along a predetermined compass course. Pellet group transects were placed in Value Comparison Units (VCUs) that had been delineated by the U.S. Forest Service for resource-planning efforts.

Conclusion Island was surveyed for the first time in 1986, indicating a deer population that was probably at carrying capacity (Table 1). Results from the surveys on Woronofski, Mitkof, and Kupreanof-Castle Islands indicted the deer populations had increased since 1985. The mean pellet groups/plot in VCU 473 on south Etolin and Onslow islands declined in 1987 (Table 1); whereas, from 1984 to 1986 they had been increasing: 0.37, 0.59, and 0.67 pellet groups/plot, respectively. The 1987 count was 0.42 pellet groups/plot, which is almost as low as that for 1984 (Table 1).

The Level Islands were not sampled in 1986, but the pellet group data for 1985 (Table 1) show that the deer population was increasing. The number of pellet groups/plot

increased from 0.65 in 1981 to 1.29 and 1.66 in 1983 and 1986, respectively.

Coronation Island was not surveyed in 1987; the deer population there was increasing in 1986, and field observations in 1987 indicated that the trend was still upward. The island was surveyed in 1983, resulting in an average of 0.78 pellet groups/plot ($\bar{N}$ = 228). Coronation Island has had a history of high deer numbers; wolves were introduced there in the 1960's so that the effects of predation on deer herds could be studied (Merriam 1966). These wolves made severe inroads into the deer population, and both prey and predators declined drastically. There were no predators on the island in 1984 (Land and Young 1984), but bear tracks were observed on the island in 1987. Coronation Island will be scheduled for pellet group sampling in 1988.

Deer pellet group surveys have not been used to determine actual deer numbers in Unit 3 because too many variables influence the data. Persisting snow in the winter of 1984-85 and 1986-86 tended to keep deer at lower elevations than in 1983-84, which may have resulted in higher pellet group readings. Other biases include the following: (1) deer defecation rates may vary with diet and season; (2) persistence of deer pellets is not known for the sampled areas; (3) experience and visual acuity of observers vary; (4) visibility of pellets is affected by light conditions, vegetation, and terrain; and (5) pellets are not evenly distributed. The pellet group technique is most useful for determining gross annual trends in the population and for comparing deer populations among islands (M. Thomas, pers. comm.).

As in 1984 and 1985, deer populations on Mitkof Island were censused using a spotlight technique: 2 observers in a slowly moving vehicle (10 mph) used spotlights to locate deer adjacent to the logging roads. To take into account the vegetation and terrain features, a modification of the Hahn Deer Cruise Line was used (Hahn 1949). The visible acreage was estimated so that deer sightings could be converted to numbers in a given area (Shult and Armstrong 1984). Prior to running the transects, the visibility was recorded at 0.1-mile intervals (expressed in yards) and the average width was multiplied by the length of the transect to determine the average visible acreage. A population index of deer/mi^2 can be used for comparative purposes, but it should not be construed to be actual deer numbers.

The average number of deer observed on the Woodpecker Cove spotlight counts increased slightly from 41 deer/mi^2 in 1985 to 45 deer/mi^2 in 1986. Pellet group surveys on Mitkof in

1987 indicated a population of 60-134 deer/mi^2. The deer season has been closed on Mitkof since 1975.

Population Composition

No information was collected on the age and sex ratios of deer populations in Subunit 1B or Unit 3. In areas where deer densities are high, a helicopter survey of deer in clearcut or alpine areas may be used to classify deer by age and sex, but sex ratios obtained in this manner are subject to bias; i.e., some yearling bucks do not develop antlers large enough to be visible from the air, and alpine ratios can be distorted because bucks are more frequently found in alpine areas than does. A helicopter was used in 1985 to determine sex ratios of the deer herd in the spotlight study area on Mitkof Island; the sex ratio was 50:50.

Mortality

A survey questionnaire was mailed to a sample of deer harvest ticket holders to obtain harvest information (Thomas 1987). Extrapolation of responses indicated that 412 hunters harvested 201 bucks in Unit 3 in 1986 (48% success), compared with 428 hunters harvesting 166 bucks in 1985 (39% success). Hunter effort decreased from 5 days/deer in 1985 to 3.4 days/deer in 1986 (Table 2).

In Subunit 1B, the survey questionnaire indicated that 119 hunters harvested 69 bucks (58% success) in 1986, compared with 39 bucks harvested by 94 hunters in 1985 (42% success). Hunter effort decreased from 6.7 days/deer in 1985 to 5.8 days/deer in 1986 (Table 2).

Predation by wolves and black bears is thought to be a significant mortality factor in Unit 3 (Smith et al. 1986). Increasing deer populations on Mitkof Island could be related to declining bear and wolf densities. In 1984 a captured fawn was fitted with a radio collar, and it survived through the winter of 1984-85 before shedding it. Two fawns were fitted with radio collars in June 1985; one was killed by a black bear within 2 weeks, while the other survived and shed its collar in October. Three fawns (2 males and 1 female) were collared in June 1986; all survived through the winter of 1986-87 before shedding their collars. The 1986 fawns were monitored periodically from the road system until snowfall; after snow rendered roads impassable, they were monitored from the air once a week in conjunction with Etolin Island elk survey flights.

Woronofski Island, near Wrangell (Figure 1), accounted for the bulk of the deer killed in Unit 3; 151 hunting trips,

providing 386 days of hunting recreation, were made to that island. The eastern islands of Unit 3 (Hunter Survey Area 19), which includes Etolin, Kadin, Sokolof, Zarembo, Etolin, Wrangell, and Vank Islands accounted for most of the hunting activity in 1986. Conclusion, Coronation, and the Level Islands (Hunter Survey Area 20) accounted for 29 hunting trips, 69 days of hunting recreation, and 14 deer.

In Subunit 1B most of the hunting effort was in the Horn Cliffs to Cape Fanshaw area (Hunter Survey Area 16, Fig. 1): 54 hunting trips, 380 days of hunting recreation, and a harvest of 48 bucks. LeConte Bay and Stikine River (Hunting Survey Area 17) accounted for 35 trips, 143 days of hunting recreation, and 14 deer. The mainland area from Babbler Point to Cape Fanshaw (Hunter Survey Area 18) was lowest in hunter effort and harvest: 30 trips, 38 days of hunting recreation, and 8 bucks. Because the winter was mild and habitat conditions were excellent in most of Subunit 1B and Unit 3, winter mortality was not substantial during the winter of 1986-87, except perhaps on Conclusion Island.

Management Summary and Recommendations

Deer populations are continuing to increase in Unit 3 in most locations. Although the winter of 1986-87 was mild, the Onslow-South Etolin Islands area (VCU 473) showed a decline in deer. Based on pellet group surveys and spotlight counts on Mitkof Island, a huntable deer population exists in the Woodpecker Cove area. Pellet group data in VCU 448 on Mitkof Island showed an increase from 0.78 groups/plot in 1983 to 1.65 groups/plot in 1987 (Table 1); in 1986 preliminary pellet group data from adjacent Woewodski Island (VCU 448) indicated that a similar population rebound was occurring. The Game Division recommended to the Board of Game that a 2-week, bucks-only season be established for 1987 in Unit 3; however, it was opposed by the Petersburg Fish and Game Advisory Committee and subsequently rejected by the Board. A proposal by Game Division to increase the bag limit in the open areas of Unit 3 to 2 antlered deer was also rejected by the Board of Game.

Increased sampling effort is recommended for Mitkof Island to document deer population increases and help inform the public of the need for positive management of the deer resource. Both spotlight census and pellet group count techniques should be used. Visible acreage on spotlight survey routes should be calculated using a rangefinder (Fafarman and DeYoung 1986). Coronation Island should also be sampled through pellet group transects in spring 1986. Deer management plans aimed at

obtaining desired numbers of deer in Unit 3 and Subunit 1B will be developed by 1988 and should provide future management direction for the expanding deer populations.

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Table 1. Deer pellet group data[a] for Unit 3, 1984-87.

Year	$\bar{X}$	N	95% C.I.	70%/C.I. deer/mi²
		Etolin Island (VCU[b] 473)		
1984	0.37	321	0.28-0.46	12-32
1985	0.59	334	0.48-0.70	21-49
1986	0.62	347	0.37-1.75	21-53
1987	0.42	336	0.31-0.52	14-36
		Conclusion Island (VCU 417)		
1987	2.66	207	2.32-3.01	103-208
		Woronkofski Island (VCU 461)		
1985	1.63	646	1.45-1.81	64-125
1986	--[c]			
1987	2.23	201	1.85-2.61	82-180
		Little Island Level (VCU 435)		
1985	--			
1986	1.39	122	1.07-1.70	48-118
1987	--			
		Big Level (VCU 435)		
1985	--			
1986	1.66	382	1.42-1.90	63-131
1987	--			
		Castle (VCU 435)		
1984	0.19	312	0.12-0.26	5-18
1985	--			
1986	--			
1987	0.51	305	0.37-0.65	16-45
		Mitkof Island (VCU 448)		
1984	0.89	295	0.69-1.08	31-74
1985	0.72	209	0.58-0.85	26-59
1986	--			
1987	1.65	195	1.36-1.94	60-134

[a] Based on 1- x 20-m continuous plot transects.
[b] VCU = Value Comparison Unit (U.S. Forest Service).
[c] Not sampled.

Table 2. Deer harvest data for Units 1B and 3, 1982-1986.

Unit	Year	No. of hunters	% Success	Hunter days/deer	Total deer killed	% Bucks
1B	1982	59	9	46.8	5	100
	1983	90	23	11.0	21	100
	1984	70	7	3.2	5	100
	1985	94	42	6.7	39	100
	1986	119	58	5.8	69	100
3	1982	302	28	14.3	83	100
	1983	290	26	16.1	83	100
	1984	400	33	2.2	130	100
	1985	428	39	5.3	166	100
	1986	412	48	3.4	201	100

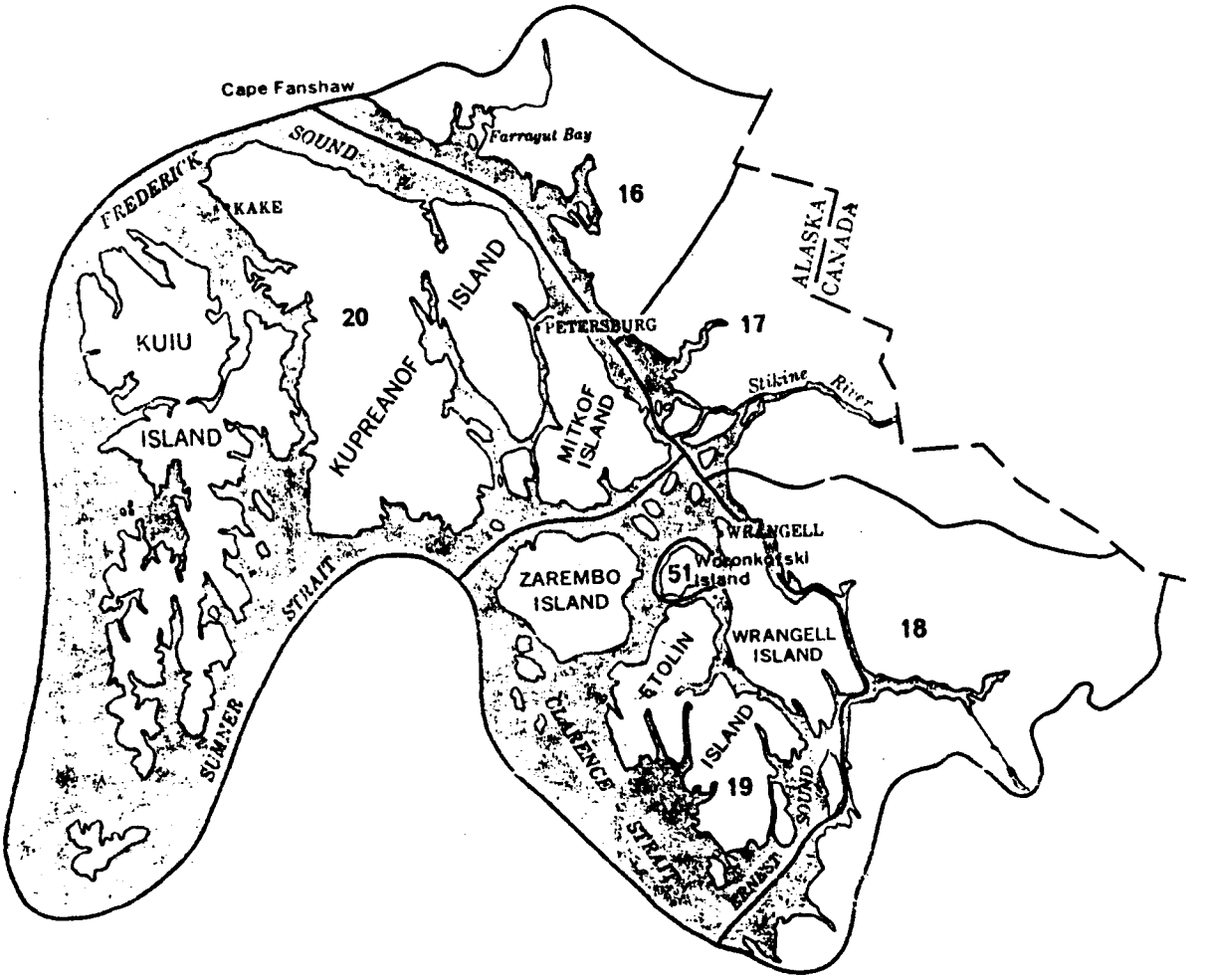

Figure 1. Hunter survey areas.

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SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 1C

GEOGRAPHICAL DESCRIPTION: Southeast mainland from Cape Fanshaw to Eldred Rock

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Hunting Regulations No. 27

Population Status and Trend

Based on the many sightings reported throughout the late winter and spring, deer numbers appeared high on Douglas Island. Islands of southern Lynn Canal are presumed to exhibit similarly high population levels, while the status of deer on the mainland is undetermined.

Thirteen radio-collared deer were transplanted to Portland Island in Auke Bay in August of 1986. The objective of this research effort was to determine the relationship between pellet group density and a known number of deer in a finite area. Deer were last relocated on Portland Island in May 1987, and by June 1987 no deer remained. The fate of the 13 transplanted deer were as follows: (1) capture-related stress mortality, 1; (2) other Portland Island mortalities, 2; (3) swam to other locations, 6 (3 to Admiralty Island, 2 to Douglas Island, and 1 to Coghlan Island); (4) drowning mortalities, 2 (one found dead on Shelter Island beach; the other floating dead between Portland and Shelter Islands); and (5) fate unknown, 2.

In spring 1987 pellet group transects were evaluated at Portland Island, Douglas Island, Tracy Arm, and Shelter Island sites (Table 1). For Douglas and Shelter Islands, which had been evaluated in 1985 and 1986, the counts were down slightly from 1986 but higher than 1985. While this could indicate a slight decrease in deer numbers since 1986, the relatively open, snow-free winter of 1986-87 was probably conducive to animals being more dispersed, thus contributing to lower counts in trend areas.

Mortality

Twenty-five percent of all Southeast Alaska deer harvest ticket holders were mailed the 1986 Deer Hunter Questionnaire. When the sample was adjusted for undeliverable questionnaires and a 51% response rate, we concluded 12.7% of all harvest ticket holders were sampled (Table 2).

In 1986 deer hunters in Subunit 1C harvested an estimated 434 deer, 68% of which were bucks. The average hunter killed 0.40 deer and expended 4.4 days afield for each deer taken. The success rate for the estimated 991 hunters was 27%. The total harvest figure was down from that for 1985 but higher than the harvests for 1980-84; the success rate was down from those for 1984 and 1985 but higher than the success rates for 1980-83 (Table 2).

Management Summary and Recommendations

The recent series of mild winters have allowed deer populations to maintain high population levels in areas with suitable habitat. As long as such conducive weather conditions prevail, seasons and bag limits should remain liberal so that the public can take advantage of high numbers of deer. Should the 1987-88 winter be a harsh one, the establishment of more conservative bag limits should be evaluated.

Development and logging activities, especially in areas of critical winter habitat (i.e., old-growth forest), have the potential for diminishing the deer carrying capacity. Such activities should be monitored, and measures to protect such habitat should be recommended by Department biologists and implemented by land managers.

At this time, no changes in seasons or bag limits are recommended.

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Table 1. Deer pellet-group data[a] for Subunit 1C, 1984-1987.

Location	VCU[b] number	Year	Pellet groups		95%CI	
			n	$\bar{x}$	Lower	Upper
Portland Island	27	1987	381	0.99	0.87	1.12
Douglas Island	36	1985	239	1.30	1.10	1.51
		1986	235	1.97	1.68	2.25
		1987	262	1.76	1.53	2.00
Tracy Arm	65	1987	200	1.28	1.00	1.56
Shelter Island	124[c]	1984	300	1.52	1.34	1.70
		1985	296	2.52	2.24	2.81
		1986	292	3.24	2.91	3.57
		1987	288	2.91	2.57	3.24

[a] Based on 1- x 20-m continuous transects, running from sea level to about 1,500 feet in elevation.

[b] VCU = Value Comparison Unit (U.S. Forest Service).

[c] Comparison of transects counted all four years.

Table 2. Deer harvest data[a], Subunit 1C, 1980-1986.

Year	Total hunters	% Success	Hunter days/ deer[b]	Deer/ hunter	Total deer killed	% Bucks
1980	760	21	11.3	--[c]	245	71
1981[c]						
1982	1,030	19	13.7	--	290	55
1983	860	20	8.0	--	390	56
1984	950	41	9.1	--	395	67
1985	1,096	28	7.5	1.2	527	62
1986	991	27	4.4	0.4	434	68

a All numbers are estimates based on the results of a mailed-out questionnaire sent to a random sample of deer harvest ticket holders.

b For 1980 and 1982-85 computed by ratio of sums (total hunter days/total deer killed); for 1986 computed by mean of ratios (deer per day for each hunter averaged for entire subunit).

c Data unavailable.

DEER

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 4

GEOGRAPHICAL DESCRIPTION: Admiralty, Baranof, Chichagof, and adjacent Islands

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Alaska Hunting Regulations No. 27.

Population Status and Trend

No quantitative or qualitative data are available; however, it can be intuitively concluded that the population in Unit 4 is at a high level as a result of favorable climatic conditions. Pellet group surveys suggest deer densities in some areas of Unit 4 may exceed 200 deer/mi^2 on winter range.

Mortality

Because the winter of 1986-87 was virtually free of snow at low elevations, apparently little winter mortality occurred. None of the established winter mortality transects were examined because of budget and manpower constraints; however, approximately 31 miles of vertical transects were run to determine pellet group counts. No instances of known winter mortality were observed. Additionally, no instances of winter mortality were observed during other field activities, nor were any reported by the public.

Harvest estimates for 1986 are based on a standard random questionnaire that was described in the 1982 deer report. The 1986 estimates are based on a 12.1% sample of all harvest ticket holders.

The harvest survey information shows that persons pursuing deer in Unit 4 in 1986 had good success, taking an estimated 10,257 deer (Tables 1-2). Characteristics of the harvest were similar to those of 1984, except that more hunters spent more time afield and took more deer in 1986. The harvest figures are somewhat below those obtained in the 1985 season. In an effort to understand this lower calculated harvest in 1986, success figures for hunters from Juneau, Sitka, Petersburg, and Hoonah were examined. Hunters from these communities regularly take about 85% of the harvest in Unit 4. The same

pattern of reduced reported harvest was evident for all 4 communities, so no conclusions are evident.

Continuing mild winter weather and resultant high overwinter survival suggested that the lower reported harvest is not a result of herd reduction through natural causes. No other factors are suspected that might result in a reduction of the harvest. Weather conditions, specifically a lack of snow during the hunting season, were comparable for all 3 years. The 1985 survey, which stressed the economics of deer hunting, may have influenced hunters to respond differently than the regular harvest-oriented questionnaire.

The West Admiralty hunt was regulated by a registration permit system that is described in the 1983 and 1984 reports. As in 1984 and 1985, no Game Division funds were available to administer this hunt. The Subsistence Division staff issued and collected these permits in Angoon; 51 permits were issued, and 39 permit holders actually hunted for a total of 79 days. Twenty-six deer were taken. Forty of the permittees were residents of Angoon, and they took 73% of the harvest. No one harvested more than 1 deer.

Management Summary and Recommendations

Mild wintering conditions during recent years have been favorable for overwinter survival. This suggests that the deer population in Unit 4 may be near all-time-high densities. Harvest levels and pellet group densities support this assumption. Current hunting regulations are quite liberal. The Department has attempted to enhance the public's awareness of the magnitude and dynamic nature of the deer population in Unit 4. A strong public demand for increased opportunities for consumptive use has been expressed. The demand has been accommodated through Game Board action that will become effective in regulatory year 1987-88: bag limit was increased to 6 deer for all hunters, the season was extended to the end of January for subsistence hunters, and all others will be able to hunt until 7 January.

Winter mortality and accelerated timber harvests that are concentrated in the critical high-volume stands of old-growth timber continue to constitute the major impacts on the deer populations in Unit 4; the former is temporary, while the latter is permanent.

No additional changes in season or bag limit are recommended.

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Table 1. Deer harvests by community for Unit 4, 1984-86.

Community	Harvest tickets issued			Total Unit 4 hunters			Estimated harvest		
	1984	1985	1986	1984	1985	1986	1984	1985	1986
Sitka	2,193	2,311	2,312	1,665	1,583	1,696	3,242	3,675	2,996
Juneau/Douglas	3,667	3,832	3,760	2,017	2,145	2,341	3,124	3,505	3,720
Petersburg	752	689	712	343	322	312	638	904	611
Ketchikan + 1A & 2 residents	3,280	3,458	3,664	116	75	203	242	80	353
Wrangell	658	687	740	88	51	106	182	127	189
Hoonah	303	338	696	245	260	496	561	807	1,290
Angoon	130	137	128	94	76	91	180	312	128
Pelican	98	89	112	64	59	71	149	88	141
Kake	75	154	120	32	102	38	76	203	113
Port Alexander	19	20	28	14	20	28	34	60	84
Tenakee Springs	45	50	52	37	44	87	60	149	98
Gustavus	47	38	52	33	12	52	53	28	83
Haines/Skagway	160	197	204	57	89	131	118	257	276
Elfin Cove	20	24	20	21	18	0	0	48	0
Funter Bay	10	4	16	29	4	5	71	16	11
Other	355	392	384	115	157	117	190	129	164
TOTALS	11,812	12,420	13,000	4,970	5,017	5,774	8,920	10,388	10,257

Table 2. Game Management Unit 4 deer harvest data.

Year	Total[a] kill	% Males	Days effort per deer	Deer per hunter	Winter mortality per mile of transect
1986	10,257	74	3.3	1.8	--[b]
1985	10,388	68	1.8	2.1	0.00[c]
1984	8,900	73	3.2	1.8	0.00[d]
1983	8,400	74	3.7	1.7	0.00[e]
1982	5,630[f]	72	4.7	1.3	0.00
1981	5,700[f]	77	3.8	1.5	1.25
1980	4,500	75	6.7	1.4	0.00
1979	950	70	4.5	1.0	0.00
1978	2,024	70	2.5	1.1	0.72
1977	2,945	N/A	1.6	1.2	0.00
1976	1,475	67	7.5[h]	0.7[h]	0.00
1975	4,247[g]	57	2.2[h]	2.1[h]	0.96
1974	7,118	57	3.1	2.3	0.41
1973	7,000	67	3.5	2.5	0.78
1972	2,500	54	4.9	1.4	0.64
1971	3,040	N/A	3.3	1.7	1.11
1970	4,040	56	N/A	2.1	1.61
1969	1,756	45	8.0	0.8	0.00

[a] Hunter questionnaire 1980-1986; harvest ticket/report data 1975-1979; hunter interview through 1974.

[b] Transects not examined.

[c] Eight transects examined.

[d] Thirteen transects examined.

[e] Seven transects examined.

[f] Range 4,190-7,227.

[g] Hunter interview data calculated harvest of 14,700.

[h] Data for Sitka hunters only below this year.

DEER

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 6

GEOGRAPHICAL DESCRIPTION: Prince William Sound

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Hunting Regulations No. 27.

Population Status and Trend

During late March, approximately 160 linear miles of tideland in Prince William Sound (PWS) were casually searched from either an 18-foot skiff or a 58-foot research vessel. Weather during the 9 days was moderately good; however, high seas and poor visibility due to rain resulted in poor survey conditions on approximately half of the important beaches. In addition to the poor sightability conditions, deer were not concentrated on beaches because of the lack of snow. Mild winter temperatures and frequent rains prevented snow accumulation below 1000 feet elevation on the large islands in PWS. As a result, only 15 deer were observed during the beach surveys.

Population Composition

Five of the 15 deer observed in March were fawns.

Mortality

Hunters may have harvested in excess of 3,000 deer during 1986. One hundred residents of Cordova who obtained deer harvest tickets were interviewed by phone. The results of these interviews indicated 159 deer were harvested (Table 1). Deer hunters in the sample had a 66% success rate and harvested an average of 1.9 deer. Based on these interviews, the calculated harvest by Cordova residents was 1,130 deer. A previous statewide deer questionnaire indicated that Cordova residents accounted for approximately 35% of the total unit harvest (Griese and Miller 1986). Assuming hunting effort and distribution of hunters have not changed significantly since the early 1980's, the harvest of deer in Unit 6 was approximately 3,229 (1,130 x 1/0.35). No winter mortality was reported or observed during the March survey.

Management Summary and Recommendations

The estimated harvest of 3,229 deer in Unit 6 is the highest one on record. Using a sample of Cordova hunters, harvest data have been collected almost every year since 1965 (Table 2). The reported harvest, calculated from interviews with 100 Cordova residents, previously had peaked at 1,062 in 1968. However, concurrent with an increase in the state's population, the number of hunters (from areas other than Cordova) presumably increased during the 1970's and the 1980's. When the calculated harvest of 1,130 deer by Cordova residents is combined with an expected larger harvest by non-Cordova hunters, a record harvest for this period is implicated.

As previously recommended by Griese and Miller (1986), a statewide deer hunter survey should be conducted in 1987 to make adjustments to harvest projection figures used for Unit 6. Variability in deer hunter surveys in Cordova should be reduced by removing bias in the sample. In 1986 a sample of 100 Cordova deer hunters was randomly obtained from a list of all Cordova deer harvest ticket holders, and the survey was conducted by phone. In the past, Cordova deer were surveyed by means of hunter "encounters on the street"; this method likely resulted in biases.

The winter of 1986-87 was mild in most areas, and winter deer mortality was light. Heavy rains occurred throughout the winter, and little snow accumulated below an elevation of 1000 feet on the large islands and in north, east, and south PWS. The exception occurred in the western portion of PWS from Bainbridge Island north to Valdez; lower temperatures and heavy precipitation combined for greater-than-average snow accumulation. Deer in the western portion of PWS may have suffered higher mortality. The bulk of the deer population, however, was not stressed by environmental conditions up to mid-May.

May, June, and July were cold and wet, and fawn survival may have been lower than normal. Despite the reduced fawn survival, annual recruitment was probably at or above average.

No change in the deer season length or bag limit are recommended.

Literature Cited

Griese, H. J., and S. M. Miller. 1987. Summary of Alaska Game Management Unit 6 deer hunter surveys, 1980, 1983 and 1984. Appendix to: H. J. Griese. SP 1987. Unit 6 deer survey-inventory progress report. Pages 27-26 in B.

Townsend, ed. Annual report of survey-inventory activities. Part VI. Deer. Vol. XVI. Alaska Dep. Fish and Game. Fed. Aid in Wildl. Rest. Prog. Rep. Sp. Project. W-22-5. Job 2.0. Juneau. 30pp.

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Table 1. Results of deer hunter phone survey of 100 Cordova residents in Unit 6. 1986.

	Number	%
Harvest ticket holders	712[a]	100
Sample size	100	14
Did not hunt	17	17
Hunted (active hunters)	83	83
Unsuccessful	28	34
Successful	55	66
Deer killed	159	100
Bucks	93	58
Does	66	42
(Fawns)	(18)[b]	(11)
Means:		
Deer/Harvest ticket holder	1.6	
Deer/Active hunter	1.9	
Deer/Successful hunter	2.9	
Days/Active hunter	5.2	
Successful hunter Days/deer	2.0	

[a] Individuals listing Cordova address on deer harvest ticket overlays.

[b] Sex nonspecific, also included under male or female.

Table 2. Cordova resident deer hunter survey results in Unit 6. 1965-86[a].

Year	1965	1966	1976	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
No. of Cordova hunters	600[b]	600[b]	600[b]	600[b]	600[b]	600[b]	600[b]	600[b]	600[b]	600[b]	743[c]	807[c]	800[b]	800[b]	800[b]	800[b]	700[b]	800[b]	750[d]	750[d]	720[e]	712[e]
% did not hunt	19	17	23	24	-	26	41	51	24	41	45	53	44	31	46	38	30	34	-	-	21	17
% hunter	81	83	77	76	-	74	59	49	76	59	55	47	56	69	54	62	70	66	-	-	79	83
% success	75	69	60	83	-	73	56	33	66	53	62	49	45	54	46	44	67	52	-	-	48	66
Sample size	100	100	100	100	0	100	100	100	100	100	100	100	100	100	100	100	100	100	0	0	100	100
Reported deer killed	147	143	113	177	-	124	90	30	120	69	85	51	124	81	64	64	112	86	-	-	98	159
% male	66	62	59	57	-	59	52	43	47	43	60	53	60	53	60	67	61	53	-	-	68	58
Deer/active hunter	1.8	1.7	1.5	2.3	-	1.7	1.5	0.6	1.6	1.2	1.5	1.1	2.2	1.2	1.2	1.0	1.6	1.3	-	-	1.2	1.9
Legal bag limit	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5
Estimated deer kill by Cordovans	882	858	678	1062	-	744	450	180	720	414	631	412	992	648	512	512	784	688	-	0	705	1132

[a] As determined from sample of 100 hunters.
[b] Estimated number of license buyers.
[c] Number of license holders.
[d] Estimated number of harvest ticket holders.
[e] Number of harvest ticket holders.

DEER

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 8

GEOGRAPHICAL DESCRIPTION: Kodiak and adjacent Islands

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Hunting Regulations No. 27.

Population Status and Trend

High productivity and overwinter survival of deer in Game Management Unit (GMU) 8 has resulted in a dense population that is continuing to increase.

Mortality

Results of hunter questionnaires for the 1983-84 and 1984-85 seasons indicated that the annual harvest and participation approached 10,000 deer and nearly 4,000 hunters, respectively. A comparable hunter questionnaire survey was not conducted for the 1986-87 season. Contacts with hunters and air-taxi and charter-boat operators in 1986 indicated that hunting pressure and harvest continue to increase.

In 1986 a limited sample of hunting effort and harvest data from 2 voluntary outfitter reports and field checks on the Kodiak National Wildlife Refuge (NWR) indicated that there has been little change in the sex ratio of the harvest and hunter success since the 1984-85 survey. A sample of 339 harvested deer included 246 males (72.6%) and 93 females (27.4%). In 1984-85 the calculated sex ratio of the harvest included 74% males. The mean harvest of deer per hunter was 2.3 (306/131), identical to that recorded for 1984-85. The mean number of days that hunters planned to be in the field on Kodiak (NWR) was 5.3, similar to the 5.8 days afield reported for all of GMU 8 in 1984-85.

The transporter-outfitter reports that are required by the U.S. Fish and Wildlife Service (USFWS) provided additional data on deer harvest and hunting pressure on the Kodiak NWR. In 1986, 15 outfitters reported taking deer hunting clients. A total of 267 clients hunted for 1,404 days, harvesting 859 deer. The mean number of deer per hunter (3.2) was greater than that reported in the previous data. Approximately 90% of

the reported use on the refuge occurred on the western coastline of Kodiak Island from Viekoda Bay to Uyak Bay.

Natural mortality during the 1986-87 winter was light, based on reports from spring brown bear hunters and residents of outlying areas of the archipelago. No winter mortality surveys were conducted during 1986-87. Two emaciated fawns were found dead in late April 1987 at widely separated locations on Kodiak Island. Aerial observations of numerous deer in late April and May on northern Kodiak Island indicated they were in relatively good condition. Two deer were reported killed in collisions with automobiles on northeastern Kodiak Island.

Management Summary and Recommendations

An increasing trend in both the deer population and the harvest apparently continued in 1986-87. In light of these trends and the ratio of 3 males:1 female in the harvest, it is evident that present hunting intensity is not controlling deer numbers. Major winter mortality of deer has not been recorded for over 15 years in GMU 8.

Commercial outfitting and transporting of deer hunters is steadily escalating. The USFWS began enforcing requirements for outfitter permits on the Kodiak NWR in 1985. Their recommended upper limit of 18 outfitters was attained in 1986.

Development of commercial enterprises catering to deer hunting is favorable to the economy, but conflict with local hunters will continue to be a management issue. Outfitters and guides are expressing an interest in management for trophy class deer, while local residents increasingly resent the competition from nonlocal hunters. The public has proposed exclusive local subsistence hunting areas and a reduction in the deer bag limit from 5 deer to 3 deer in part of northern Kodiak Island as solutions to reduce hunter density in easily accessible areas. The deer population can support higher levels of harvest, but increasingly crowded hunting conditions in some areas can be expected if present trends continue.

No changes in seasons or bag limits are recommended. It is recommended that a deer hunter survey be conducted for the 1987-88 season to evaluate recent changes in harvest and hunting pressure. As conflicts among resource users become more prominent, public demand for annual hunter surveys will increase.

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Federal Aid Project
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