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SITKA BLACK-TAILED DEER STUDIES

Work Plan E Job No. 1-6

July 1, 1957 - June 30, 1958



ALASKA GAME COMMISSION

JUNEAU

JOB COMPLETION REPORTS

Project W-3-R-12 Alaska June 30, 1958

Wildlife Investigations

Work Plan E

SITKA BLACK-TAILED DEER STUDIES

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Not for Publication

(The results described in these reports are preliminary and often fragmentary in nature. Conclusions are subject to change with further investigation and interpretation.)

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Job. No. 1

Development and Testing of
Direct & Indirect Census Methods

ABSTRACT

Heavy snow accumulation favorable for testing of aerial and ground deer censusing methods did not occur during the past winter. Consequently, further development and testing of census methods will be delayed until suitable snow conditions exist.

OBJECTIVES

To obtain more accurate and uniformly applicable methods of determining numbers of deer on Southeast Alaska ranges.

TECHNIQUES USED

Deer count tabulation sheets, drawn up in 1956, were distributed to cooperating personnel, however, opportunity for their use did not exist due to the mild, open winter.

FINDINGS

Deer were well dispersed throughout the winter onto "transition-~~al~~" ranges normally occupied only during late fall and early spring. Concentrations of deer in the beach fringe areas were relatively light in view of the total populations present. Consequently, aerial beach counts were ineffective and counts by boat were useful only as a source of sex and age ratios.

RECOMMENDATIONS

Continuation of the development and testing of census methods should be done when suitable conditions again permit.

Prepared by: _____ Approved by: _____

David R. Klein
Wildlife Mgt. Biologist

Robert F. Scott
Supervisor, Game
Restoration

Date: June 30, 1958

ABSTRACT

The snow-free winter, while favorable for deer survival, resulted in poor conditions for obtaining aerial and ground counts of deer. Consequently, the few counts obtained were of a limited and fragmentary nature.

OBJECTIVES

To determine trends in total population numbers and age and sex composition.

TECHNIQUES USED

Generally aerial and surface counts of deer are made throughout the winter to determine trends in total numbers of deer by areas and also to determine the sex and age composition of the herds. During the past winter, however, suitable snow conditions did not exist to enable effective counts to be made. Counts obtained were of a limited and fragmentary nature.

FINDINGS

Late summer alpine counts made on Kupreanof Island and the mainland show the high proportion of bucks present in these areas. Results of these counts are shown in Table 1.

Winter beach counts, in which sex and age segregation was possible, were made in December and are included in Table 2. The number of fawns represented in the counts is disproportionately high apparently due to the preference of fawns for the beach area immediately after the accumulation of new snow.

RECOMMENDATIONS

The winter beach counts should be continued.

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Date: June 30, 1958

TABLE 1

LATE SUMMER ALPINE DEER COUNTS
1957

Date	Location	Total Counted	No. Antlered	No. Antlerless	No. Unidentified
8/24	Sherman Peak	48			
8/27	Sherman Peak	67	35	20	12
*8/27	Sherman Peak	21			
*8/28	Duncan Canal Mt.	44			
9/2	Horn Cliffs, Mainland	19	6	13	

*Aerial Counts

TABLE 2

WINTER COMPOSITION COUNTS - WRANGELL NARROWS
Dec. 31, 1957

Does	Yearlings	Fawns	Bucks	Unidentified Adults	Total
32	12	43	8	7	102

ABSTRACT

Does comprised 26 percent of the total harvest. Age distribution of harvested deer continued to show a significant trend toward older age deer which is associated with a decreasing rate of increase. A large portion of yearling "antlerless" bucks were taken during the "any deer season", reaching 33 percent of the total antlerless deer taken in the Juneau area. The greatest buck kill occurred during Nov. 3-16, while the greatest kill of does was during Oct. 19-Nov. 2. Does were more difficult to hunt during the rut, while the reverse was true of bucks. Hind foot measurements continue to reflect herd welfare. The average weight of male deer killed was 108 pounds, while does averaged 71 pounds.

OBJECTIVES

To evaluate sex and age composition and physical characteristics of the deer harvested during the legal open season.

TECHNIQUES USED

Deer jaws, weights and measurements were obtained from as large a sample of hunter-killed deer as possible. Through local publicity and cooperation from other Fish and Wildlife Service personnel, 481 deer jaws were collected from hunters during the 1957 legal harvest. Whenever practical, chest girth and hind foot measurements and dressed weights were taken along with information relative to sex and date and location of the kill. Chest girth measurements were taken immediately behind the shoulders with the chest cavity closed. Hind feet were measured from the tip of the hoofs to the proximal end of the calcaneus. Weights obtained were from eviscerated "field dressed" animals, with head, hide and feet attached.

FINDINGS

Sex Breakdown of Kill: The sex breakdown of the total legal kill was 74 percent bucks as compared to 85 percent in 1956. The doe kill increased from 15 percent of the total kill in 1956 to 26 percent in 1957. There were 103 days of open season on bucks in 1957 (Aug. 20 - Nov. 30) and 99 days in 1956. The antlerless season was 14 days in 1956 and 47 days in 1957 (Oct. 15 - Nov. 30).

Male Age Distribution: The age distribution of male deer killed during the season from various areas throughout Southeast Alaska is shown in Table 1. The proportionate ratios of varying age deer represented in the kill for all of Southeast Alaska is shown graphically in Figure 1, in comparison with the age distribution for previous years (1953-1957). Areawise breakdowns of these values are presented in Figure 2. In comparing the 1957 age distribution of the kill with

previous years (Fig. 1) a gradual shifting of the balance of the population from a larger percentage of young animals in 1953 to more old animals in 1957 becomes apparent. This trend apparently indicates a gradual reduction in the rate of population increase. This increase in the proportion of older deer in the population is one of the best indicators of under-harvest among deer populations. Normally, heavy hunting pressure removes a significant percentage of bucks before they enter the older age groups.

The gradual stabilization of the majority of the deer herds is apparently a reflection of range conditions as the upper density limits are being reached. While there are exceptions throughout the entire deer range where local scarcities exist, generally, deer populations are drastically in need of the stimulus to health and production that could be obtained by an adequate harvest.

In the evaluation of age class data from hunter-harvested deer, it should be born in mind that these ratios are proportionate representations of the legal harvest and some variation exists between them and the herd itself. The greatest difference occurs in the 1½ year age class which is not equally sampled by the hunters. Indications are that approximately 50 percent of the 1½ year male deer do not have "visible" antlers, although this value varies from area to area with population pressure and quality of the range. Consequently, many of these young bucks are unavailable to the hunter except during the antlerless portion of the season. The longer antlerless season in 1957 increased the availability of this group to the hunter over previous years.

The delayed antler development of 1½ year bucks from some areas has been apparent in past years, however, this year a larger sample of "nubbin" bucks was obtained due to the lack of a 3 inch antler law and the longer "antlerless" season. Admiralty Island deer have consistently shown a low portion of 1½ year deer in the harvest which was inconsistent with the large percentage of 2½ year deer appearing in the kill year after year. This year's harvest figures indicate that about 33 percent of the "antlerless" deer shot by Juneau hunters were 1½ year male deer.

Female Age Distribution: This year a sample of 53 female deer jaws was collected. Age ratios of female deer represented in the kill are shown in Table 2 with bar graph comparisons of the 1955, 1956 and 1957 values in Figure 3. Knowledge of the age composition of the female segment of the population is of particular value in understanding herd potential. Information from male jaws only is frequently misleading, particularly when viewed alone and without supporting data.

Of significance is the large proportion of 1½ year deer represented in the 1957 doe harvest. This is apparently a reflection of the greater availability of these younger does which are unaccompanied by fawns. Older does are generally more wary, particularly when they are accompanied by fawns. The reduced proportion of 2½

year does can be traced back to the heavy fawn losses which occurred in the late winter of 1956. This loss showed up in a low 1½ year group in the 1956 harvest. It is obvious from examination of this data that the effect of the loss of one year's fawn crop can be absorbed in a population without greatly effecting continued production. This is true as long as the population is composed of several age groups. However, the accumulation of several year's fawn losses will result in a reduction of a large portion of producing does.

Chronological Age and Sex Distribution: Age distribution of male deer killed throughout the season showed considerable variation. As in past years, young deer constituted the major portion of the early harvest, while following the onset of the rut this condition was reversed. Mature bucks, which were at higher, more inaccessible elevations during the early portion of the season, moved to lower areas as frosts killed the alpine vegetation and the physiological drive of the rut stimulated increased movement of these deer.

Some interesting chronological variations in the proportions of each sex represented in the kill were apparent in this year's harvest. During the "any deer" season, which extended from October 15 through November 30, the kill of bucks was greatest during the two week period November 3-16. The kill of does was greatest during the period October 19 - November 2 and decreased through the rest of the season (see Table 3). This decrease in the kill of does is not what would be expected under this type of season. Most hunters would rather shoot bucks, and many do so, up to the last two weeks of the season, after which they plan to take does for better quality meat and as a last resort. However, this philosophy has not resulted in the heaviest kill of does occurring in the last two weeks of the season as would be expected. Does, which are readily available prior to the rut, become more seclusive as the rut progresses. While at any one period during the rut a proportion of the does may be in heat and remain with or are in search of bucks, the larger segment of the doe population, which have not entered estrus or have already been bred, remain in the denser vegetation, actually hiding from the bucks. Both Cowan and Severinghaus (in "The Deer of North America", Stacpole Co., 1956) report similar behavior of coast deer in British Columbia and white-tailed deer in New York. While does are readily available prior to the rut and become shy and elusive during the rut, the opposite situation appears to exist with respect to bucks. There is good indication that immediately prior to the rut, as the mature bucks are completing the physiological changes which accompany the breeding season, a period of inactivity exists. This apparently lasts for one to two weeks during which feeding ceases almost completely and the bucks become lethargic, spending their time resting in the denser vegetation undisturbed by other deer.

Hind Foot, Chest Girth and Dressed Weights: The hind foot, chest girth and dressed weight measurements are recorded in Table 4, 5 & 6 for male deer and Table 7 for female deer. The hind foot measurement has proved to be the simplest of the three measurements to

obtain accurately, being less subject to variation through misunderstanding by cooperators and requiring a minimum of equipment and effort. Also, the hind foot appears to be a better key to population welfare than chest girth and less subject to temporary weather and sexual-physiological changes. Chest girth and dressed weight are useful in reflecting the progression of the rut and also are good indicators of summer and fall physical recovery among large bucks. Adipose deposition in adult males, as reflected in chest girth and dressed weight, rather than an indicator of range quality, more nearly reflects the length and auspiciousness of the growing season.

Chest girth and dressed weight measurements among bucks reflected a gradual weight increase through the season until the onset of the rut. Percent increase of weight was greatest among young deer and decreased with age. Young deer which utilize for growth almost all food energy metabolized, above that required for body maintenance, do not start to put on fat until the end of summer. Older deer that are growing more slowly or have attained full body growth, start to develop fat reserves early in the summer. Consequently, accumulation of fat, which is directly reflected in chest girth and dressed weight increase, is gradual and nearly complete at the beginning of the hunting season in old deer, while young bucks have to acquire their winter fat reserves in a much shorter period prior to the rut.

Figure 4 shows the relationship between average hind foot measurements from areas throughout Southeast Alaska. The variations which occur from area to area are quite likely reflections of both genetic characteristics and range condition, which may or may not be brought about through population pressure. Generally, these hind foot measurements agree quite closely with information of herd welfare obtained from browse studies, winter mortality surveys and composition counts.

Average dressed weights of deer harvested are shown in Table 6. In addition, some extreme weights of deer killed were available from records of deer Derbys held locally. The heaviest deer known was a 219 pound buck killed on Woronkofski Island by a Wrangell hunter. The largest deer known to be brought into Southeast Alaska towns during the 1957 season are as follows: Ketchikan - 160 pounds (Salmon Bay); Wrangell - 219 pounds; Petersburg - 182 pounds (Duncan Canal); and Sitka - 165 pounds (Nakwasina Passage).

Average weights of deer harvested were slightly heavier for most age classes than in previous years and quite likely reflect the very favorable summer growing season of 1957. Comparable weights for deer harvested in 1953 are shown at the bottom of Table 5.

RECOMMENDATIONS

Effort should be made to increase the harvest to the level required to maintain high productivity and good herd welfare without jeopardizing the range. Since existing seasons and limits have been unsuccessful in accomplishing an adequate harvest, season manipulation is necessary. Increased take of does, the producing

segment of the population, is essential to hold our deer populations at their present high level of productivity.

Continued relaxation of controls on predators will be necessary in those areas where adequate control of the herds is not being accomplished through hunter harvest (Mgt. Unit 3).

The collection of information from hunter-killed deer should be continued as an index to population welfare.

Prepared by: _____	Approved by: _____
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Date: June 30, 1958

TABLE 1

AGE GROUPS BY PERCENT OF MALE
DEER REPRESENTED IN THE 1957
LEGAL HARVEST BY LOCATION OF KILL
(Aug. 20 - Nov. 30)

LOCATION	Age in Years					Sample of Jaws
	1½	2½	3½	4½	5½+	
<u>Management Unit #1</u>						
Cleveland Peninsula	6	31	6	38	19	16
Revilla, Gravina, Annette Is.	13	29	29	13	17	24
Total for Unit #1	10	28	27	22	13	60
<u>Management Unit #2</u>	20	24	20	20	16	25
<u>Management Unit #3</u>						
Wrangell Narrows	23	18	27	28	4	71
Mitkof, Kup. & Kuiu Is.	15	23	29	23	10	224
Wrangell, Etolin, War. and Zarembo Is.	10	18	27	14	32	22
Total for Unit #3	15	23	28	22	12	246
<u>Management Unit #4</u>						
Peril Straits to Sitka	19	0	25	25	31	16
So. Admiralty Is.	37	7	26	15	15	46
Total for Unit #4	31	4	22	15	27	89
Average for all Southeast	18	20	26	21	15	420

FIGURE 1 AGE DISTRIBUTION OF HUNTER-KILLED MALE DEER IN SOUTHEAST ALASKA, 1953-1957

(Data from Table 1)

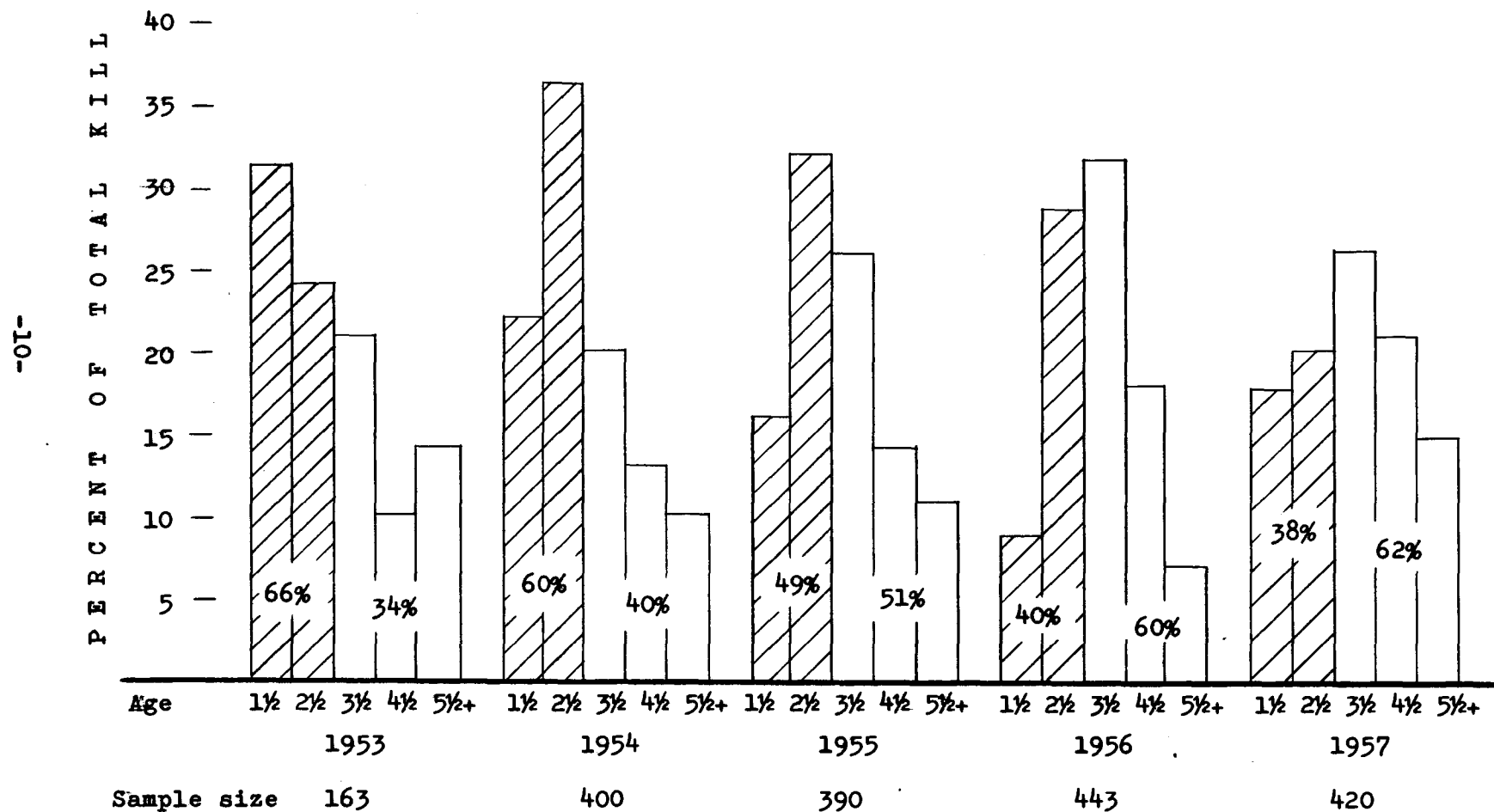


FIGURE 2 AGE DISTRIBUTION IN THE LEGAL KILL OF MALE DEER IN
MANAGEMENT UNITS 1 - 4, 1957

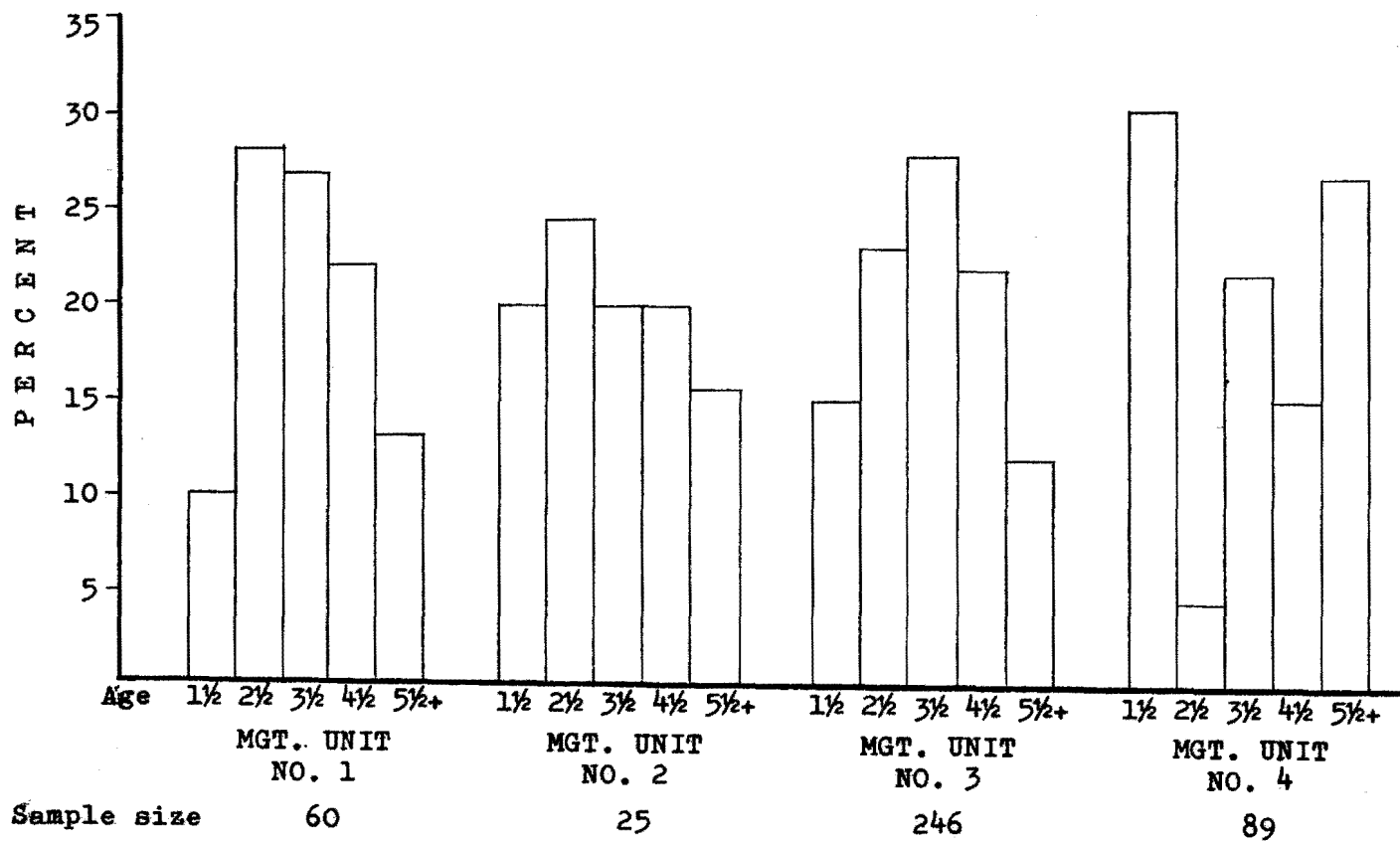


TABLE 2

AGE GROUPS BY PERCENT OF FEMALE
DEER REPRESENTED IN THE 1957 LEGAL
HARVEST, SOUTHEAST ALASKA
(Oct. 15-Nov.30)

1½ Yrs.	2½ Yrs.	3½ Yrs.	4½ Yrs.	5½+ Yrs.	No. Jaws
32	11	30	13	13	53

TABLE 3.

CHRONOLOGICAL DISTRIBUTION OF THE DOE HARVEST

October 19 - November 30, 1957

10/19 - 11/2	11/3 - 11/16	11/17 - 11/30
37%	30%	26%

FIGURE 3 AGE DISTRIBUTION OF FEMALE DEER KILLED IN LEGAL HARVESTS DURING 1955-1957 IN SOUTHEAST ALASKA

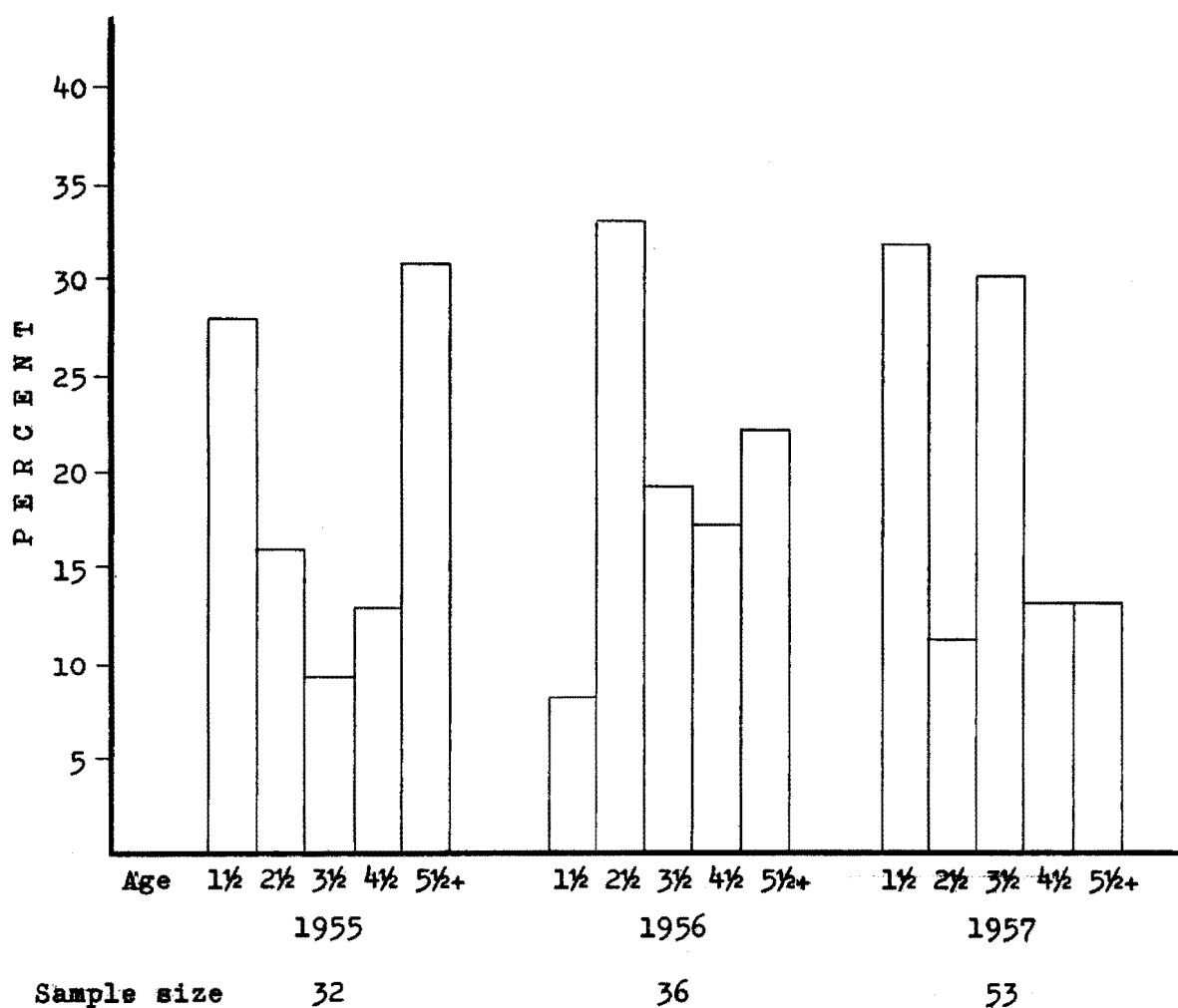


TABLE 3a

CHRONOLOGICAL AGE DISTRIBUTION AMONG DEER
IN THE 1957 HARVEST, SOUTHEAST ALASKA

	F E M A L E		M A L E										
Date of Kill	No. % Samples		1½ Yrs. % No.		2½ Yrs. % No.		3½ Yrs. % No.		4½ Yrs. % No.		5½+ Yrs. % No.		Percent of Total Kill
8/20-9/3			30	3	10	1	30	3	20	2	10	1	2
9/4-9/18			33	1			66	2					<1
9/19-10/3					25	1			50	2	25	1	<1
10/4-10/18	16	4	20	5	16	4	28	7	8	2	12	3	5
10/19-11/2	18	20	20	22	17	19	17	19	19	21	7	8	23
11/3-11/16	7	16	16	36	19	43	25	57	20	46	15	34	49
11/17-11/30	16	14	9	8	15	13	29	25	13	11	18	16	19

TABLE 4 HIND FOOT MEASUREMENTS OF MALE DEER IN THE 1957 HARVEST, SOUTHEAST ALASKA
(Inches)

LOCATION	1½ Yrs.		2½ Yrs.		3½ Yrs.		4½ Yrs.		5½+ Yrs.	
	Aver- age	No. Samples	Aver- age	No. Samples	Aver- age	No. Samples	Aver- age	No. Samples	Aver- age	No. Samples
ALL OF UNIT #1	16.50	1	16.54	6	17.00	11	17.17	3	17.25	3
UNIT #2 Prince of Wales Is.	17.19	4	17.38	2	17.13	2	17.25	1	17.25	1
Wrangell Narrows	16.08	6	17.28	7	17.41	11	17.28	10	17.25	3
Mitkof, Kupreanof & Kuiu Is.	16.16	16	17.20	29	17.23	30	17.29	25	17.25	14
ALL OF UNIT #3	16.15	17	17.16	31	17.22	31	17.29	25	17.25	18
So. Admiralty Is.	16.20	11	17.13	2	17.21	7	17.15	5	17.25	2
ALL OF UNIT #4	16.22	15	17.13	2	17.05	9	17.03	8	16.93	10
ALL OF S.E. ALASKA	16.29	37	17.03	41	17.14	53	17.22	37	17.15	32

**FIGURE 4 AREAWISE COMPARISON OF HIND FOOT MEASUREMENTS:
FROM HUNTER-KILLED MALE DEER OF THE 3½ YEAR
AGE CLASS, S.E. ALASKA, 1957**

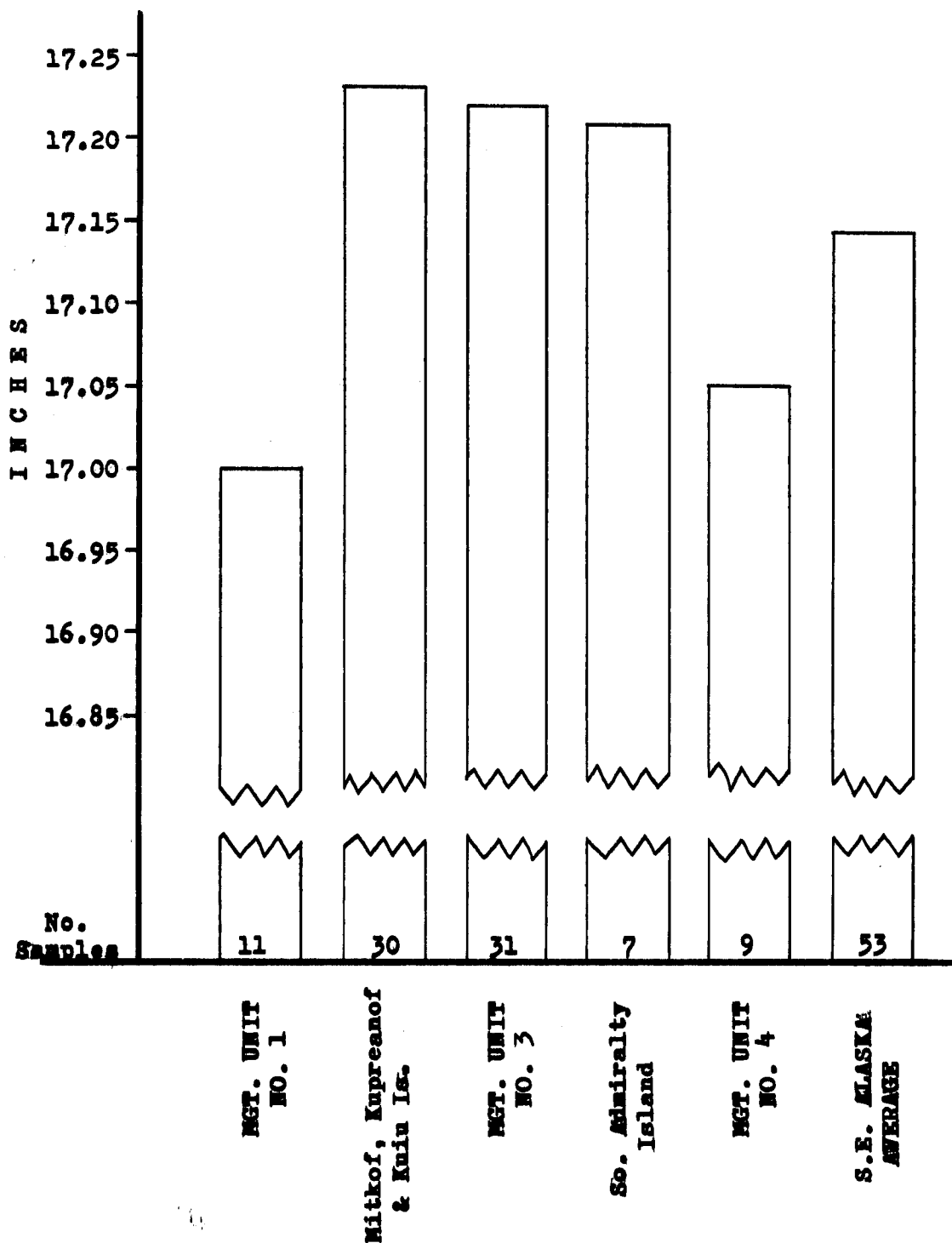


TABLE 5 CHEST GIRTH MEASUREMENTS OF MALE DEER IN THE 1957 HARVEST, SOUTHEAST ALASKA
(Inches)

LOCATION	1½ Yrs.		2½ Yrs.		3½ Yrs.		4½ Yrs.		5½+ Yrs.	
	Aver- age	No. Samples	Aver- age	No. Samples	Aver- age	No. Samples	Aver- age	No. Samples	Aver- age	No. Samples
ALL OF UNIT #1	31.31	4	32.81	9	36.03	9	39.83	6	39.94	4
UNIT #2 Prince of Wales Is.	28.50	3	35.00	1	37.25	2			37.25	1
Wrangell Narrows	31.14	7	36.90	8	37.00	10	37.10	10	37.50	3
Mitkof, Kupreanof & Kuiu Is.	31.40	18	34.56	33	35.77	38	36.48	32	37.47	15
ALL OF UNIT #3	31.38	19	34.53	35	35.80	39	36.48	32	37.60	17
So. Admiralty Is.	32.66	11	38.00	2	38.68	7	38.50	4	37.87	2
ALL OF UNIT #4	32.48	14	38.00	2	38.58	10	39.19	8	39.35	12
ALL OF S.E. ALASKA	31.54	40	34.36	47	36.35	60	37.39	46	38.49	34

TABLE 6

DRESSED WEIGHTS OF MALE DEER IN THE 1957 HARVEST, SOUTHEAST ALASKA
(Pounds)

LOCATION	1½ Yrs.		2½ Yrs.		3½ Yrs.		4½ Yrs.		5½+ Yrs.	
	Aver- age	No. Samples	Aver- age	No. Samples	Aver- age	No. Samples	Aver- age	No. Samples	Aver- age	No. Samples
ALL OF UNIT #1	70	2	78	3	118	7	133	8	143	4
UNIT #2 Prince of Wales Is.	78	4			107	1	142	1	137	2
Wrangell Narrows	67	4	105	7	124	8	133	13	128	3
Mitkof, Kupreanof & Kuiu Is.	66	15	96	27	112	34	122	35	126	16
ALL OF UNIT #3	67	16	97	28	113	36	122	35	124	19
So. Admiralty Is.	70	10	110	1	117	7	119	5	122	2
ALL OF UNIT #4	72	15	110	1	115	12	129	10	125	11
ALL OF S.E. ALASKA Weight range	70 44-108	37	95 70-140	32	114 84-140	56	125 83-163	54	127 88-182	36
ALL OF S.E. ALASKA, 1953	74	39	94	22	111	12	115	11	137	14

TABLE 7.

CHEST GIRTH AND HIND FOOT MEASUREMENTS OF
FEMALE DEER IN THE 1957 HARVEST, SOUTHEAST ALASKA
(October 15 - November 30)

LOCATION	1½ Yrs.		2½ Yrs.		3½ Yrs.		4½ Yrs.		5½+ Yrs.	
	Aver- age	No. Samples	Aver- age	No. Samples	Aver- age	No. Samples	Aver- age	No. Samples	Aver- age	No. Samples
CHEST GIRTH (Inches)										
ALL S.E. ALASKA	30.37	13	33.63	4	33.81	12	32.25	4	36.08	3
HIND FOOT (Inches)										
ALL S.E. ALASKA	15.57	14	16.25	3	16.05	10	17.31	4	16.38	2
DRESSED WEIGHT (Pounds)										
ALL S.E. ALASKA	61	11	77	4	73	9	82	5	77	2

ABSTRACT

Natural mortality in Southeast Alaska and the Prince William Sound area was very light during the past winter.

OBJECTIVES

To determine the sex and age composition and areawise breakdown of the natural mortality.

TECHNIQUES USED

Representative winter mortality beach transects were walked and deer mortality recorded in Southeast Alaska as outlined in Completion Report, June 30, 1957, Job #2. In the Prince William Sound area mortality surveys were conducted in a similar manner in conjunction with the browse studies.

FINDINGS

Southeast Alaska: Approximately 15 miles of beach area were searched and only two dead deer were found. One of these was an accidental death from drowning and the other died of unknown causes. This absence of carcasses in the beach area was the product of light natural mortality and the failure of the deer to concentrate in these areas.

Prince William Sound: In the Prince William Sound area winter mortality was also light. No losses from starvation were found and only one carcass resulting from an accidental death was found. A mild winter with only minimal snow accumulation was also common to the Prince William Sound area.

RECOMMENDATIONS

The collection of natural mortality information should be continued on an annual basis.

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Date: June 30, 1958

ABSTRACT

Three additional browse enclosures were erected on the deer islands of Prince William Sound. Browse utilization inventories reflected the mild, snow-free winter. Degree of utilization of the key browse species averaged 43 percent for Southeast Alaska which was just half of the value of 86 percent for the last winter of moderately heavy use (1955-56). No significant change in density or vigor of browse plants was observed. Browse utilization was reduced in the Prince William Sound area over the winter of 1956-57.

OBJECTIVES

To determine the winter utilization of browse, trends in range condition (i.e., changes in density and vigor of browse species) and areawise quantitative and qualitative variations in browse conditions.

TECHNIQUES USED

Browse enclosure plots were checked and necessary repairs made. Three additional enclosures and associated study plots were established on Montague, Hinchinbrook and Hawkins Islands in Prince William Sound with the assistance of Forest Service district ranger, John Grove.

The vegetative study plots are located in associations of two's, with one plot protected from browsing by deer and the other plot unprotected. The plots are two milacres in area and rectangular in shape (6.6 ft. by 13.2 ft.). Five-foot cattle fencing, topped with one strand of barbed wire was used to fence off the protected plots. The fenced enclosures are approximately 13 ft. by 19 ft., allowing a three-foot buffer strip between the fence and the protected plot to minimize extrinsic effects of the physical presence of the fence on the vegetation within the plots. The study plots are marked at the corners by orange painted stakes and prominently blazed and painted trees on the adjacent beach. Outline maps showing the exact locations of the plots are filed with the Fish and Wildlife Service in Petersburg and the Forest Service in Cordova.

Browse inventory transects were walked in April and May after the period of winter utilization by deer. Eighteen transects were checked throughout Southeast Alaska and the degree of utilization, density and vigor of the key browse species (Vaccinium ovalifolium and V. parvifolium) were recorded as outlined in the Completion Report, Job No. 2, June 1957.

FINDINGS

The locations of the three browse enclosures erected in Prince William Sound are listed in Table 1 along with descriptions of the

area and vegetation present.

Information obtained from the browse inventory transects is summarized in Table 2. With few exceptions, the degree of utilization of Vaccinium was light during the past winter. The winter of 1955-56, when deep snows accumulated in February and March, was the last winter of heavy browse utilization. The past two mild, snow-free winters have allowed the deer to disperse over a much greater area of their range than is common with normal snow cover. Transitional ranges, which lie at intermediate elevations between the typical summer and winter ranges, were available to deer throughout most of the winter and relieved the pressure on the usual areas of winter concentration. The average degree of browse utilization for all of Southeast Alaska showed no significant variation from the 1956-57 value. Average utilization as shown in Table 2 was 43 percent for the past winter; just half of the value of 86 percent of 1955-56, the last winter of heavy use.

The density and vigor of the browse plants, as reflected by the inventory, show no significant change over 1956-57. Reduced pressure on the winter range through wide dispersal of the deer is apparently counteracted by the increasing deer population so that no noticeable recovery or deterioration of browse plants has taken place.

In the Prince William Sound area winter browse utilization was also lighter than in previous years. On Montague Island utilization of Vaccinium ovalifolium averaged 70 percent; which was less than last year's figure of 83 percent but still quite high in view of the mild winter. Hinchinbrook and Hawkins Island showed decreased browse use averaging less than 30 percent on each island. The intensity of use of the winter ranges on these islands corresponds quite closely with existing deer populations, which are highest on Montague Island and decrease progressively on Hinchinbrook and Hawkins Islands to the northeast.

Outwardly the effects of a mild winter appear beneficial to both the deer and the range. Winter mortality is light and pressure on browse species in the critical wintering areas is reduced. However, in the face of an already excessive and uncontrolled deer population, the effects of the past mild winter only tend to compound this problem by stimulating the deer to increased population levels.

RECOMMENDATIONS

Annual browse surveys should be continued as they directly reflect population pressure and trends in winter range conditions.

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Date: June 30, 1958

TABLE 1

BROWSE ENCLOSURES ERECTED ON
MONTAGUE, HINCHINBROOK AND HAWKINS ISLANDS
April, 1958

Station No.

- #18 Constructed: 4/24/58 Rocky Bay, Montague Island, ½ mi.
N.E. of head of bay on N. side.

Site Description: S.E. exposure, 30 ft. above mean high tide, 50 ft. from beach edge. Hemlock-spruce forest type, all aged stand, scattering of mature and over-mature hemlock, understory hemlock pole type.

PLOT WITHIN ENCLOSURE

<u>Vegetation:</u>	Ground cover - moss (<u>Thuidium</u> sp.)
<u>Vaccinium ovalifolium</u>	61 live stems, average height 1-3 ft. vigor - 2 utilization - 70%
<u>Cornus canadensis</u>	15 plants
<u>Rubus pedatus</u>	5 stems
<u>Maianthemum</u> sp.	86 plants
<u>Tsuga heterophylla</u>	42 seedlings
<u>Picea sitchensis</u>	2 seedlings
<u>Sphagnum</u> sp.	less than 5% ground cover

UNPROTECTED PLOT (12 ft. west of enclosed plot)

<u>Vegetation:</u>	Ground cover - moss (<u>Thuidium</u> sp.)
<u>Vaccinium ovalifolium</u>	32 live stems, average height 1-3 ft. vigor - 2 utilization - 70%
<u>Cornus canadensis</u>	16 plants
<u>Rubus pedatus</u>	8 stems
<u>Maianthemum</u> sp.	30 plants
<u>Tsuga heterophylla</u>	12 seedlings
<u>Sphagnum</u> sp.	less than 5% of ground cover
Deer pellet groups	2

- #19 Constructed: 4/25/58 Port Etches, Hinchinbrook Is., ¼ mi.
S. of entrance to Constantine Hbr. on Nucheck Peninsula.

Site Description: E. exposure, 30 ft. above maximum high tide, 20 ft. from beach edge. Hemlock-spruce forest type, all aged stand, scattering of mature and over-mature hemlock and spruce, understory hemlock pole type.

PLOT WITHIN ENCLOSURE

Vegetation: Ground cover - moss (Thuidium sp.)
Vaccinium ovalifolium 89 stems, average
height 1-3 ft.
vigor - 2
utilization - 20%

Cornus canadensis 40 plants
Rubus pedatus 374 stems
Rubus spectabilis 11 stems
Lysichiton americanum 6 plants
Tsuga heterophylla 74 seedlings, 1 tree
12 in. d.b.h.

Picea sitchensis 47 seedlings
Ligusticum sp. 50 plants
Maianthemum sp. 58 plants
Alnus sinuata 9 seedlings
Grass 1 clump
Lycopodium sp. 2 plants

UNPROTECTED PLOT (8 ft. N. of enclosure)

Vegetation: Ground cover - moss (Thuidium sp.)
Vaccinium ovalifolium 71 stems, average
height 1-3 ft.
vigor - 2
utilization - 20%

Cornus canadensis 2 plants
Rubus pedatus 220 stems
Rubus spectabilis 2 stems
Lysichiton americanum 5 plants
Menziesia ferruginea 6 stems
Tsuga heterophylla 98 seedlings
Picea sitchensis 63 seedlings, 3 plants
1-3 ft.

Maianthemum sp. 56 plants
Ligusticum sp. 16 plants
Lycopodium sp. 5 plants
Grass 7 clumps
Deer pellet groups 2

#20

Constructed: 4/26/58 Canoe Pass, Hawkins Is., 1 mi. from
N.W. entrance on N.E. shore of Canoe Pass.

Site Description: S. exposure, 30 ft. above maximum high
tide, 200 ft. from beach edge. Hemlock-spruce forest
type, all aged stand, predominately hemlock, fair to poor
site bordering muskeg.

PLOT WITHIN ENCLOSURE

Vegetation:	Ground cover	- moss (<u>Thuidium</u> sp.)
<u>Vaccinium</u>	<u>ovalifolium</u>	161 stems, average height 1-3 ft. vigor - 2 utilization - 20%
<u>Cornus</u>	<u>canadensis</u>	458 plants
<u>Rubus</u>	<u>pedatus</u>	196 stems
<u>Lysichiton</u>	<u>americanum</u>	2 plants
<u>Mesziesia</u>	<u>ferruginea</u>	2 stems
<u>Maianthemum</u>	<u>sp.</u>	16 plants
<u>Picea</u>	<u>sitchensis</u>	1 tree 11 in. d.b.h.
<u>Lycopodium</u>	<u>sp.</u>	3 plants
<u>Sphagnum</u>	<u>sp.</u>	less than 5% ground cover
Deer pellet groups		2

UNPROTECTED PLOT (20 ft. S.E. of enclosure)

Vegetation:	Ground cover	- moss (<u>Thuidium</u> sp.)
<u>Vaccinium</u>	<u>ovalifolium</u>	83 stems, average height 1-3 ft. vigor - 2 utilization - 20%
<u>Cornus</u>	<u>canadensis</u>	259 plants
<u>Rubus</u>	<u>pedatus</u>	112 stems
<u>Maianthemum</u>	<u>sp.</u>	9 plants
<u>Lycopodium</u>	<u>sp.</u>	7 plants
<u>Sphagnum</u>	<u>sp.</u>	less than 5% ground cover
Deer pellet groups		1

TABLE 2 BROWSE INVENTORY OF SOUTHEAST ALASKA DEER RANGE
 (Vaccinium ovalifolium and parvifolium index species)
 April 1 - May 2, 1958

Area	Degree of Utilization %		Density of Plants Per 1000 sq.ft.	Vigor (Scale of 3)
	1957	1958		
<u>KETCHIKAN</u>	26	35	60	2.5
George Inlet, Revilla Island	23	40	74	2.2
Gravina Island	15	24	68	2.8
Helm Bay (East Side)	15	27	42	2.3
Helm Bay (West Side)	49	47	57	2.6
 <u>PETERSBURG-WRANGELL</u>	 54	 36	 58	 2.1
Onslow Island	17	16	80	2.7
Whale Pass, P. of W. Island	20	21	47	2.3
Zarembo Island	92	75	4	2.2
Duncan Canal, Kup. Island	63	41	45	2.4
Wrangell Narrows, Kup. Island	82	38	93	1.9
Fivemile Creek, Kup. Island	59	45	70	2.0
Big John Bay, Kup. Island	47	24	38	1.9
Blind River, Mitkof Island	54	26	83	1.7
 <u>JUNEAU-SITKA</u>	 41	 56	 36	 2.4
Pybus Bay, Admiralty Island	23	51	9	2.0
Gambier Bay, Admiralty Island	44	69	23	2.2
Mole Harbor, Admiralty Island	51	94	40	1.8
Point Hilda, Douglas Island	24	33	56	2.8
Deadman Reach, Baranof Island	63	17	27	2.7
Rodgers Point, Chichagof Island	51	32	30	2.5
Nakwasina Passage, Baranof Island	35	94	66	2.6
 <u>AVERAGE FOR ALL AREAS</u>	 44	 43	 50	 2.3

ABSTRACT

Ninety percent of the 1957 deer harvest was obtained during the last six weeks of the season. One out of every four deer killed was a doe. The hunter success varied from 59% at Ketchikan to 76% at Wrangell. Average success was 70%. The estimated total legal kill was 8,250, while the kill by licensed resident hunters was 4,900.

OBJECTIVES

To secure information relative to the total hunter kill, area and chronological distribution of the kill and hunter success.

TECHNIQUES USED

Hunter deer harvest information for the 1957 deer season was obtained from samples of deer jaws collected, field contacts with hunters and post-season hunter interviews.

The post-season hunter interviews were made in Juneau, Sitka, Petersburg, Wrangell and Ketchikan in a manner similar to the 1956 interviews. Hunters were asked where they hunted, the number and sex of the deer killed, days hunted and additional information about their hunts. The total kill for each town was figured on a proportion basis using the ratio of deer jaws collected from hunters interviewed to those collected from the entire town.

FINDINGS

The chronological distribution of the kill is shown in Figure 1. Ninety percent of the total deer harvest was obtained during the last six weeks of the season. Comparison of the breakdown of the kill by two week periods as shown in Figure 1 illustrates the importance of the latter half of the season in determining the total deer harvest. Consequently, any attempt at manipulation of the kill within the existing season must be directed toward this later period.

The results of the post-season hunter interviews are presented in Table 1. The higher hunter success and heavier kill in the central Petersburg-Wrangell area is consistent with the high deer population there. Hunter success was slightly lower than during 1956 for all towns checked with the exception of Juneau. Most hunters contacted attributed their decreased success to the mild, rainy weather which persisted during October and November. The weather discouraged hunters and caused the deer to remain inaccessibly high. About one quarter of the Wrangell hunters blamed poorer hunting on the presence of wolves in the areas they hunted, however, hunter success was higher for Wrangell hunters than any others. The average hunter success for all Southeast Alaska was 70 percent.

Approximately one out of every four deer killed was a doe (26%) Out of 445 hunters interviewed 105 (24%) shot one doe, 29 (7%) shot two does, one shot three does and none of the hunters interviewed shot four does.

The total kill figure for Southeast Alaska was arrived at by adjusting the 1956 harvest figure, as determined from the hunter questionnaires, by the percent variation in the 1956 and 1957 kills for all Southeast towns included in the hunter interviews. The estimated legal harvest of deer by licensed resident hunters for the two years is shown below:

1956=4,630 1957=4,900

The estimated total legal kill, including the take by nonresidents, hunters under 16 years of age and natives is as follows:

1956=7,780 1957=8,250

A breakdown of the areas receiving the greatest hunting pressure is shown in Table 2. This information was also obtained from the hunter interviews. Accessibility determines hunting pressure to a large extent, however, it is evident from the data in Table 2 that a significant number of both Ketchikan and Juneau hunters traveled considerable distances to reach more favorable hunting areas. Over 30% of the Ketchikan hunters traveled to areas north of Ernest Sound to hunt and 14% went as far as Kupreanof and Kuiu Islands. Among Juneau hunters, 7% traveled to Kupreanof and Kuiu Islands and 15% to Chichagof and Baranof Islands.

RECOMMENDATIONS

Hunter deer harvest information should be gathered annually to determine the effectiveness of the harvest.

The take of doe deer cannot be significantly increased by increasing the season bag limit above 2 does per hunter. To increase the take of doe deer, special antlerless seasons are necessary.

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Restoration

Date: June 30, 1958

FIGURE 1 CHRONOLOGICAL DISTRIBUTION OF THE TOTAL 1957 DEER HARVEST, S.E. ALASKA
 (Data from Table 3, Job No. 3)

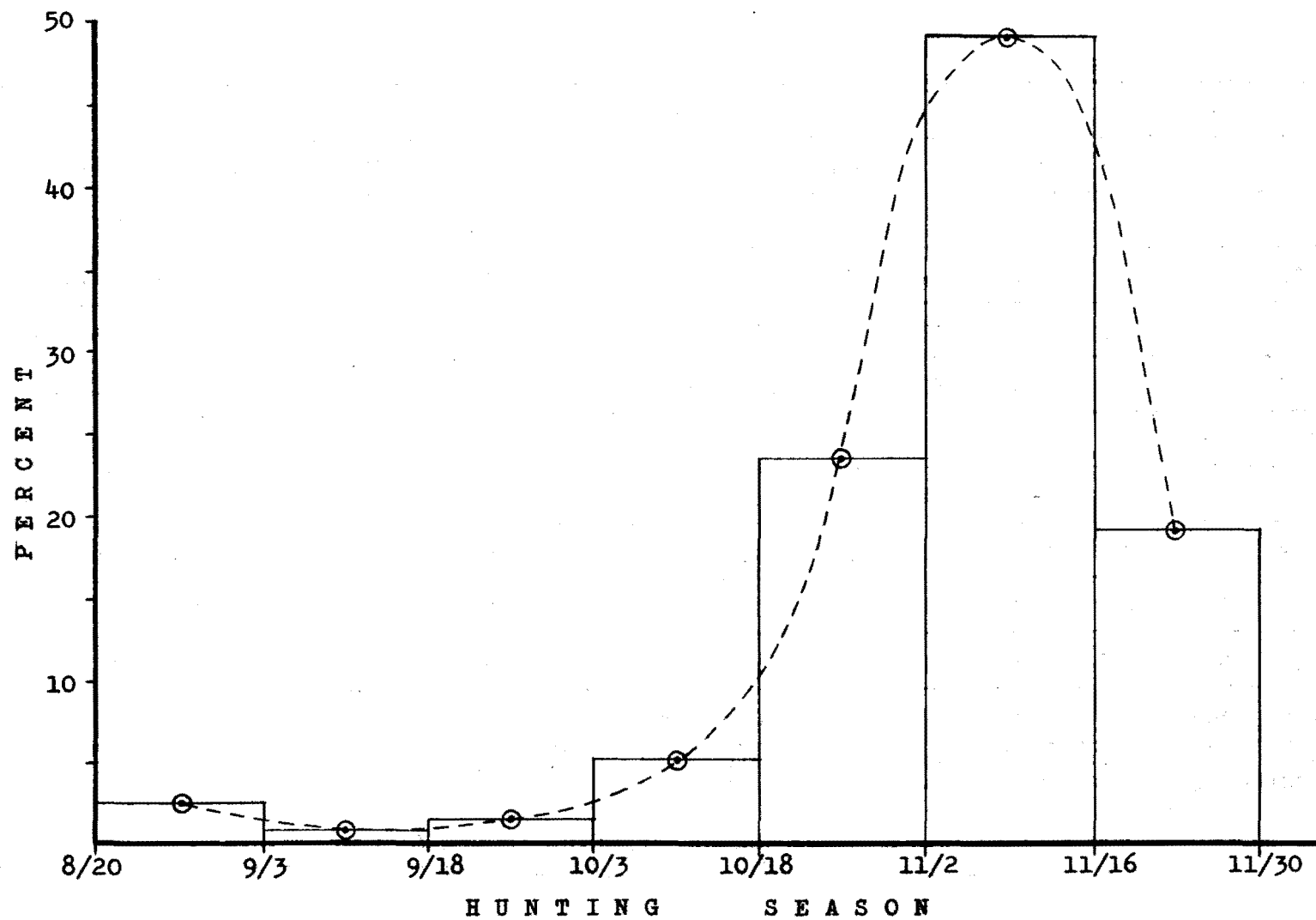


TABLE 1

THE DEER HARVEST AND HUNTER SUCCESS DURING THE 1956
AND 1957 DEER SEASONS, SOUTHEAST ALASKA

	Juneau		Sitka		Petersburg		Wrangell		Ketchikan	
	1957	1956	1957	1956	1957	1956	1957	1956	1957	1956
Hunter Success	66%	64%	60%	71%	74%	83%	76%	81%	59%	72%
Unsuccessful Hunters	34%	36%	40%	29%	26%	17%	24%	19%	41%	28%
Ave. No. Deer Per Hunter	1.5	1.2	1.2	1.3	2.1	1.7	1.8	1.7	1.2	1.3
Total Kill for Town	875	700	550	600	1100	1000	850	800	550	600
Percent Kill of Does	22%	21%	20%	22%	29%	15%	29%	12%	18%	3%
Total Kill of Does	200	150	110	130	320	150	250	100	100	20
Hunters Getting Limit	9%	16%	7%	20%	33%	31%	13%	35%	9%	23%
Ave. No. of Days Hunted Per Hunter	6.3	6.0	4.6	6.8	6.7	5.8	4.6	5.3	5.2	4.1
No. Days Hunted Per Deer Killed	4.2	5.2	3.9	5.3	3.2	3.4	2.6	3.1	4.3	3.2
Per. Antlerless Bucks Shot for Does	11%				4%		4%			
Per. Antlerless Deer which were Bucks	33%				12%		11%			
Sample Size	100	100	70	100	100	100	75	75	100	75

TABLE 2

AREAS HUNTED DURING THE 1957
DEER SEASON, SOUTHEAST ALASKAPetersburg Hunters:

95% hunted Mitkof and/or Kupreanof Islands
43% hunted Kupreanof Island only
14% hunted Mitkof Island only
6% hunted other areas

Wrangell Hunters:

37% hunted Wrangell Island
35% hunted Zarembo Island
28% hunted Etolin Island
19% hunted Mitkof Island
17% hunted Woronkofski Island
8% hunted Vank Island
7% hunted MacDonald (Sokolof) Island
19% hunted other areas

Ketchikan Hunters:

55% hunted Revilla Island
23% hunted Prince of Wales Island
18% hunted Cleveland Peninsula
14% hunted Kupreanof or Kuiu Island
12% hunted Gravina Island
6% hunted Etolin Island
6% hunted Zarembo Island
4% hunted Onslow-Stone group of islands
7% hunted other areas

Juneau Hunters:

69% hunted Admiralty Island
29% hunted Douglas Island
11% hunted Chichagof Island
9% hunted the mainland
7% hunted Kupreanof or Kuiu Islands
4% hunted Baranof Island
5% hunted other areas

TABLE 2 (con't)

Sitka Hunters:

70% hunted the islands adjacent to the channels south
of Salisbury Sound, including the Sitka area
23% hunted the islands adjacent to Sergius Narrows
and Peril Straits NE of Salisbury Sound
11% hunted Kruzof Island
11% hunted other areas