HB 40

"An Act appropriating to the Department of Public Safety; and providing for an effective date."

Committee Report

HOUSE OF REPRESENTATIVES

SENATE

FINANCE

1-[illegible]-73

Feb 12, 1973

Date

Mr. Speaker

Mr. President:

The Committee on RESOURCES has had HOUSE BILL NO. 40 under consideration. A majority of the members of the Committee

☐ recommends it do pass

☐ recommends it do not pass

☐ recommends it do pass with attached amendment(s)

☐ recommends it be replaced with CS for _____ and that CS for _____ do pass

☐ (and) recommends it be referred to the _____ committee

☐ reports it back without recommendation

☐ (other) _____

MEMBERS SIGNING THE MAJORITY REPORT:

_____ _____ _____

_____ _____ _____

_____ _____ _____

_____ _____ _____

MEMBERS NOT CONCURRING IN THE MAJORITY REPORT:

_____ recommends:

_____ recommends:

_____ recommends:

_____ recommends:

_____ recommends:

_____

CHAIRMAN

HOUSE RESOURCES COMMITTEE WORK SHEET

BILL NO. 40 DATE 2/1 PAGE TITLE SPONSOR FURTHER REFERRALS

This Bill If Enacted Would: provide funds for bounty on wolves. wolverine & wolves on--

When Bill Considered by RA Committee:

Action Taken by Committee:

Amendments: Amended to Provide That:

Witnesses Testifying Before Committee: (summary of testimony)

Rep. Oral Freeman - Dist 1.2.3 - Anti [illegible]
$2,050 - 61 wolves - 1 man [illegible]
bounty for 33 wolves
[illegible] taking of wolves Getting rid
of 150 wolves a year.

Rep. Milo Fritz

Commissioner Chapple, Public Safety

Take this up with Fish & Game people

Huber moves to table the bill → Ellison objects - Huber (1)

All oppose (9-) How many certified [illegible] on [illegible]

Fish & Game testimony Tomorrow on HB #40 and funds.

House Bill #40

number of wolf pelts sealed by Dept of fish and Game from July 1, 72 to feb 5, 73

Game Unit #1	—	16
" " #2	—	3
" " #3	—	1
		20 sub total
also Game Unit #5*	—	2
		22 total

Southeast Alaska Unit are the only units open to Bounty.

(* Game Unit #5 is yakatak)

20 # of pelts
× 50. Bounty
1,000.00 total Bounty moneys

HOUSE RESOURCES COMMITTEE WORK SHEET

BILL NO. 40 DATE 2/17 PAGE TITLE SPONSOR FURTHER REFERRALS

This Bill If Enacted Would: Provide $6,000 for bounty on wolves

When Bill Considered by RA Committee:

Action Taken by Committee:

Amendments: Amended to Provide That:

Witnesses Testifying Before Committee: (summary of testimony)

Haugen - predator control

Frank Jones, Director of Game Control

1959 to present 1971 - 174 [illegible] 1972 - 17[illegible]

Sealed last [illegible] of July - no [illegible] with predator control

Sealing wolves in 1970 -

FORM 5A-2
[illegible]

STATE OF ALASKA

Inter-Department Route Slip

TO:
DEPT.: Alaska State Legislature

ATTN.: Representative [illegible] McGill

☐	Approval	☐	Note & Return
☐	Signature	☐	Initial & Return
☐	Comment	☐	Return As Requested
☐	Contact Me	☐	Return For Approval
☐	Prepare Reply	☐	Necessary Action
☐	For Your File	☑	Your Information

Remarks: [illegible] Findings [illegible] discussion of wolf bounties [illegible] of the [illegible] for [illegible] the attached Department [illegible]. This report and the attached [illegible] report [illegible]

From: [illegible]

Dept.: Fish and Game   Date 5 Feb 75

By: Don McKnight

ALASKA DEPARTMENT OF FISH AND GAME
JUNEAU, ALASKA

STATE OF ALASKA
William A. Egan, Governor

DEPARTMENT OF FISH AND GAME
James W. Brooks, Commissioner

DIVISION OF GAME
Frank Jones, Director

THE HISTORY OF PREDATOR CONTROL IN ALASKA

by

Donald E. McKnight

This report was compiled for interdepartmental use only.

(Printed February, 1973)

PREDATOR CONTROL IN ALASKA

The History of Organized Predator Control Programs in Territorial Alaska

Alaska has a history of intermittent control of predatory animals by the Fish and Wildlife Service and its predecessor agency, the Bureau of Biological Survey, that dates back some 40 years. In 1927, appropriations were made by the territorial legislature to hire a man to make general investigations and to teach trappers how to trap wolves and coyotes.[1] This program was renewed in the mid 1930's on a similar basis, and in the late 1930's another agent was assigned to do wolf control work on the reindeer ranges of Northwestern Alaska.

During the early 1940's, as a result of increasing concern over predation on game animals, reindeer and domestic stock by wolves, effort was expended by the Fish and Wildlife Service on investigations into control methods suitable for use under Alaska conditions. By 1946, the matter of wolf predation became a prime concern of the Alaska Game Commission, nonresident sportsmen hunting in Alaska, and several national conservation organizations. As a result of the efforts of these groups, Congress in 1948 made an appropriation of $100,000 to the Fish and Wildlife Service for the purpose of inaugurating a predatory animal control program in the Territory of Alaska. In September, 1948, an agent of the Branch of Predator and Rodent Control was assigned to Alaska to organize and direct the program.

The territorial legislature in 1953 enacted legislation providing for a cooperative control program between the Territory of Alaska and the Fish and Wildlife Service, and appropriated funds for this purpose.[2] Originally the cooperating agency was the territorial treasurer, but in

1957, responsibility for territorial cooperation was shifted to the newly formed Alaska Department of Fish and Game.

Although wolf control operations received greatest attention during territorial times, control of other predators was also extensive. Sheep ranchers on Umnak and Unalaska islands demanded control of foxes in the late 1950's, and considerable effort was expended to aid these individuals. The brown bear-cattle conflict on Kodiak Island required the assistance of predator control agents throughout the 1950's and has recurred since statehood.

In addition to the previously mentioned predator control activities of federal and territorial agencies, the 1951 territorial legislature appropriated $50,000 to the Alaska Department of Fisheries for the control of hair seals, sea lions and other predators on fish during the 1951-53 biennium.[3] The Stikine and Copper River districts were selected for initial experiments on hair seal control. Expert hunters were hired in each area during 1951; and at the Copper River area, seal control using dynamite "bombs" was started. In 1952, the seal control program was expanded to include the Taku River district. From 1951 to 1958, approximately 36,000 seals and 90 sea lions were killed by personnel of the program.[4]

In the Department's 1954 and 1955 Annual Reports a statement of policy was formulated regarding predator control. It was stated that no animal would be hunted to a point that threatened it with extinction. It was recognized that predators provide benefits to their prey as well as being detrimental and that an overenthusiastic control program could easily result in unfavorable circumstances for the species being protected. Since control programs lack residual benefits, it is necessary that the

most efficient methods are used. Thus, rather than widespread control programs or bounties, an intensive program localized in time and space to where the depredations occur should be used.

In 1954, a joint control-biological investigation program was initiated with beluga whales in Bristol Bay.[5] Several hundred of these marine mammals were killed during the summers of 1954 and 1955, but this program's direction was changed when it was determined that salmon depredations by belugas were inconsequential to overall salmon populations. Research has been done recently that indicates that belugas can be kept out of rivers by the playing of tapes of killer whale vocalizations.[6]

The History of Bounty Payments in Territorial Alaska

In 1915, the first territorial legislature established a $10 bounty on wolves.[7] Subsequent to that time, eight other species of birds, mammals and fish were placed on the bounty list. In 1917, the bald eagle was included on this list.[8] But in 1953, public sentiment resulted in federal legislation which made killing of eagles unlawful.[9] During the bounty period approximately 93,000 eagles were killed.

Hair seals were placed on the bounty list in 1927,[10] coyotes in 1929,[11] Dolly Varden char in 1931[12] and wolverines in 1953. Bounties on Dolly Varden were removed in 1941, when it was determined that many salmon were being bountied as Dolly Varden. The total cost of bounties from the time of their establishment to statehood in 1959 was nearly $3,000,000 apportioned to the various species as shown in Table 1.

Table 1. Expenditures for bounties from their establishment to 1959.

Species Bountied	Total Cost
Wolf and coyote	$1,530,743
Bald eagle*	164,561
Hair seals	1,174,084
Dolly Varden char*	96,344
Wolverine	31,875
Total	$2,997,607

*Bounties on eagles and Dolly Varden were repealed before statehood.

Data in Table 2 show bounty appropriations and claims for coyotes and wolves in Alaska from 1915 to 1958. This information was published in the 1958 Annual Report of the Alaska Department of Fish and Game.

Policies of the Alaska Department of Fish and Game in regard to predator control with the bounty system were initially reported in the Annual Report for 1958. In this report, Calvin Lensink, a biologist for the Department, stated: "Predator control is a necessary and valuable tool of wildlife and fisheries management. To be most useful, this tool should be applied at the right place, at the right time, and in the most efficient way possible. All of these requirements can be met by a carefully designed program, but none of them is achieved with the bounty system."

Predator Control in Alaska Since Statehood

Formal Predator Control Programs

The Fish and Wildlife Service formally ended its programs to control wolves in Alaska in early 1960. In 1963, however, federal personnel accompanied by state technicians reinstituted a wolf control program on

Table 2. Bounty appropriations and claims for wolves and coyotes, 1915-1958.

Biennium	Bounty Rate		Regular Appropriation	Deficiency Appropriation	Total Appropriation	No. Wolves Bountied	No. Coyotes Bountied
	Wolf	Coyote					
1915-16[1]	$10	None	$ 20,000	$	$ 20,000		
1917-18	15		10,000		10,000		
1919-20	15		7,500		7,500		
1921-22	15		5,000	2,000	7,000	467	
1923-24	15		8,000	2,500	10,500	700	
1925-26	15		12,000	10,000	22,000	1,467	
1927-28	15		30,000	12,000	42,000	2,800	
1929-30[2]	10	$ 5	25,000		25,000		
1931-32	15	15	40,000		40,000		
1933-34	15	15	25,000	4,000	29,000		
1935-36	20	20	40,000	45,000	85,000		
1937-38	20	20	80,000	85,000	165,000		
1939-40	20	20	165,000		165,000		
1941-42	20	17.50	165,000		165,000		
1943-44	20	17.50	75,000		75,000		
1945-46	30	25	60,000	60,000	120,000	1,906	1,733
1947-48	30	25	60,000	1,213	61,213	2,356	2,342
1949-50[3]	50	30	125,000	15,345	140,345	1,229	765
1951-52	50	30	100,000	1,185	101,185	1,360	844
1953-54	50	30	75,000	12,500	87,500	1,239	738
1955-56	50	30	75,000	22,500	97,500	1,531	922
1957-58	50	30	77,288	55,000	132,288		
TOTALS			$1,202,500	$327,243	$1,530,743		

[1] Chapter 3, SLA 1915. Bounty on wolves established.
[2] Chapter 117, SLA 1929. Bounty on coyotes established.
[3] Chapter 18, SLA 1949. Present bounty law for wolves and coyotes.

the Seward Peninsula in response to reported depredations on domestic reindeer. This activity was started without prior state approval but was monitored in part by state personnel.

In 1961, the commissioner of the Department of Fish and Game issued a permit for the use of poison to Mr. William Waugaman of Fairbanks. The permit provided for the use of poison in killing wolves in drainages of the Wood River.

In 1963 and 1964, local wolf control programs were carried out in the Neets Bay and Chickamin River areas in Southeast Alaska concurrent with the release of elk and moose calves in experimental introductions.

In 1967, the Alaska State Legislature House Finance Committee directed the Division of Game to conduct wolf control programs in three areas and provided $13,400 for this specific purpose. This program was initiated in the vicinities of Petersburg and Wrangell in the spring of 1968 by animal control agents and biologists of the Department staff. Both steel traps and strychnine were employed to take wolves. Nine wolves and two wolverines were removed in this operation; but, since poisoned animals do not always die near enough poisoning sites to be located, more wolves may, in fact, have been killed. In addition, in 1967 an animal control agent was hired to work out of Fairbanks; several wolves were taken by aerial gunning and considerable study of wolves was undertaken in the Interior area.

In 1959, harbor seal control operations at the mouths of the Stikine and Copper rivers, originally initiated by the Territorial Department of Fisheries in 1951, were continued by the Alaska Department of Fish and Game. Approximately 1,500 seals were killed that year in the Stikine

area and 975 were removed from the Copper River area. Formal seal control programs were discontinued after 1959.

Other marine mammal control programs active since statehood have been a sea lion reduction of 4,000 animals on Sugarloaf Island in 1963, and a combination control-research program on beluga whales which resulted in the removal of 20 of these animals from the Kvichak River in 1958-59 and seven in 1965.

The Kodiak bear-cattle conflict, which started prior to statehood, continued after the Alaska Department of Fish and Game assumed regulatory and management jurisdiction of the state's wildlife. In 1963, Department personnel killed 35 bears on Kodiak Island in response to demands by cattlemen. This program was continued annually with five bears being removed by Department personnel in 1964, 18 in 1965, 5 in 1966, 9 in 1967, 5 in 1968 and one in 1969, the last year of Department involvement. In all instances, only bears actually thought to be involved in cattle depredations were destroyed.[13] After 1969 it was left up to the ranchers to control the bears. They are allowed to kill the bears only after exhausting all other means of protecting their cattle.

In 1961 and 1962, the Bureau of Sport Fisheries and Wildlife conducted limited control of black bears in the upper Little Susitna River valley. This control, designed to remove bears preying on cattle, was supported in part by the state.

A very limited control program on foxes at Kotzebue was initiated in 1968 by the Department as a result of a rabies scare in that area. The removal of less than 10 foxes resulted in the alleviation of the problem.

Bounty Policies

Current Alaska Statutes (Title 16, Chapter 35, Article 2) designate bounties on wolverines, wolves and coyotes of $15, $50 and $30, respectively. Article 3 of the same statute specifies that there is a bounty of $3 on every hair seal inhabiting the inland and coastal waters of Alaska west of 159 degrees west longitude or north of 69 degrees north latitude, except the waters south of 58 degrees north latitude.

The Alaska Board of Fish and Game has been delegated the authority to make rules and regulations it considers advisable in accordance with the Administrative Procedure Act (A.S. Title 16, Chapter 05, Article 2). Included in this authority is the designation of game management units or parts of game management units in which bounties for predatory animals shall be paid.

As far back as 1957 the Alaska Fish and Game Commission went on record as opposing the bounty system.[14] Since then there has been a gradual reduction in the number of game management units where bounties are paid. In 1967 Southeast and Southcentral Alaska were removed from the area where bounties are paid for seals. Table 3 presents seal bounty records from 1964 to the present and shows the effect of the 1967 restrictions.

In 1959 a "bounty information form" was made part of the certifying procedure for wolf, coyote and wolverine bounty claims. Resultant information concerning the annual harvest of these species was increased in quality and quantity by this means. Table 4 summarizes the number of wolves and wolverines bountied from 1959 to the present.

In 1968, the state legislature amended the bounty laws to specify that only wolves taken in the game management unit where a hunter lives

Table 3. Seal bounty records showing the effect of restricting bounty payments in 1967.

Fiscal Year	Bounty Payments	No. Seals Bountied
1964-65	$155,025	51,675
1965-66	211,386	70,462
(Legislation to restrict bounty area to Bering and Chukchi seas and the Arctic Ocean - July, 1967)		
1966-67	40,902	13,634
1967-68	21,442	7,147
1968-69	14,905	4,968
1970-71	17,328	5,776
1971-72	9,087	3,029

Table 4. Summary of wolves and wolverines bountied in Alaska - 1959 to present.

Year	Number Wolves	Number Wolverine
1959	227	213
1960	520	420
1961	725	441
1962	869	383
1963	757	445
1964	818	551
1965	825	420*
1966	1,360	659
1967	1,679	694
1968	1,714	578
1969	1,008*	242*
1970*	225	
1971	179	
1972	179	

*Bounty records incomplete.

could be bountied.

In 1969 bounty payments for coyotes and wolverine were discontinued in all units. At this time wolf bounty payments were discontinued in eight of the 26 units.

Currently wolf payments are available in theory in Game Management Units 1, 2 and 3; however, the legislature made no money available for bounty payments of any type so no bounties are being paid out.

Literature Cited

[1]1927 Territorial Legislature Session Laws, Chapter 33 (HB 69).

[2]1953 Territorial Legislature Session Laws, Chapter 87 (SB 93).

[3]1951 Territorial Legislature Session Laws, Chapter 127 (SB 43).

[4]Annual Report. 1958. Alaska Department of Fish and Game.

[5]Annual Report. 1954. Alaska Department of Fisheries.

[6]Vania, John. 1971. Sea lion and beluga report. Federal Aid in Wildlife Restoration, Projects W-17-3 and W-17-2, Job Nos. 8.1R and 8.2R.

[7]1915 Territorial Legislature Session Laws, Chapter 3 (SB 11).

[8]1917 Territorial Legislature Session Laws, Chapter 12 (HB 39).

[9]Public Laws 86-70 and 87-884.

[10]1927 Territorial Legislature Session Laws, Chapter 48 (SE 36).

[11]1929 Territorial Legislature Session Laws, Chapter 74 (HB 116).

[12]1931 Territorial Legislature Session Laws, Chapter 117.

[13]Eide, Sterling H. 1965. The nature of brown bear predation on cattle, Kodiak Island, Alaska. Presented at 45th Annual Conference of Western Association of State Game and Fish Commissioners, Anchorage, Alaska.

[14]Alaska Fish and Game Commission Resolution No. 2. November 22, 1957.

THE WOLVES OF CORONATION ISLAND

by

Harry R. Merriam [1]
Alaska Department of Fish and Game

Introduction

On October 27. 1960, four timber wolves (Canis lupus ligoni), all approximately 19 months old, were released on Coronation Island in Southeast Alaska. At the time of the transplant deer were present on the island but there was no knowledge of prior occupancy by wolves. The wolves were taken from a den on Kuiu Island when about one month old and were held in captivity until their subsequent release.

Wolves are indigenous to most of Southeast Alaska with the exception of Admiralty, Baranof and Chichagof Islands. The Stika black-tailed deer (Odocoileus hemionus sitkensis) is present in varying degrees of abundance throughout Southeast Alaska and normally is the major food item for wolves. In areas where deer and wolves co-exist wolves must influence deer populations, but the importance of this relationship has not been demonstrated. Deer populations in this northern region fluctuate greatly depending on the severity of the winter. Many people feel wolves should be controlled to provide more deer for the hunter and a bounty system initiated by the Territorial Legislature in 1915 is still in effect.

The objectives of the project are to determine the impact of wolves on a deer population, factors which control wolf numbers and changes in the habitat induced by the introduction of a predator species.

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[1] Presented at the 15th Alaskan Science Conference, Fairbanks, Alaska, September 2, 1964.

Transplant Site

Coronation Island is situated at the outer edge of the Alexander Archipelago in Southeast Alaska, approximately 80 miles southeast of the town of Petersburg (55° 53' North latitude, 134° 15' West longitude). It is about ten miles long by three and one-half miles wide containing an area of 30 square miles. The shore line is irregular, indented by several bays and exposed on the west and south to the sweep of the Pacific Ocean. The ground formation is predominantly limestone and the highest point on the island is 1,960 feet. About 80 per cent of the island is forested, 11 per cent muskeg, 6 percent subalpine and the remainder, rock, alder slide and water. Forest cover is primarily Sitka spruce (Picea sitchensis) and western hemlock (Tsuga heterophylla) with smaller amounts of yellow cedar (Chamaecyparis nootkatensis) present. The influence of the marine climate results in milder winters with less snow accumulation than in most other areas of Southeast Alaska.

Pre-wolf Conditions

In 1959 when the author first visited the island, deer densities were not high compared to many other areas of Southeast Alaska; however, because of mild winters the deer population had probably remained stable for many years. In spite of the low deer density utilization of food species was so great that available forest understory was almost completely removed. The more palatable food species such as red huckleberry (Vaccinium parvifolium), blueberry (V. ovalifolium), black current (Ribes bracteosum), elderberry (Sambucus racemosa), skunk cabbage (Lysichitum americanum), ground dogwood (Cornus canadensis) and deer heart (Fauria cristi-galli) were present only

in locations inaccessible to deer. Even unpalatable species as rusty menziesia (Menziesia ferruginea), sword fern (Polysticum munitum), devils club (Oplopanax horridus) and hemlock and spruce reproduction were missing from the forest floor.

Klein (1963) demonstrated that deer on Coronation Island (especially males) were about 20 per cent smaller than deer of equivalent age on better ranges of Southeast Alaska. He also showed that the nitrogen content of rumen samples from Coronation Island deer was significantly less (4.47 compared to 6.42 for gross sample) than from Woronkofski Island, one of the better deer ranges which also supported a wolf population.

Remains of deer carcasses within the beach fringe evidenced some annual mortality and examination of bone marrow indicated it was probably from malnutrition.

Post-wolf Conditions

In October, 1960, two male of two female wolves were placed on the island. At least one pup was born in the spring of 1961. In July, 1961, both of the original females were killed by a fisherman; only one was lactating. In June, 1962, positive evidence of only two wolves was found. In April, 1963, an additional adult female was placed on the island. In August, 1963, a family group of three pups and two adults was seen. Tracks indicated the presence of two additional adult wolves. In July, 1964, a family group of four adults and two pups, two groups of three adults each and a single adult were seen. Sone of these sightings may have been duplications; however, there are at least seven adults and two pups on the

island at the present time. In July, 1964, fresh wolf tracks were encountered on all beaches. A well-defined wolf trail was present in the beach fringe along the entire northern shore of the island and trails were also present on the island proper.

Wolf scats have been collected and analyzed each year since the transplant. Table 1 lists the food items identified.

Table 1. Food items contained in wolf scats from Coronation Island.

Year	No. Scats	Frequency of Food Items (% in total scats collected)		
		Deer	Harbor Seal	Other
1961	146	78	43	2
1962	18	89	(checked only for deer)	
1963	45	89	53	27
1964	77	95	32	14

The primary food item of the wolves has always been deer. The incidence of deer remains in scats has increased from 78 per cent in 1961 to 95 per cent in 1964. Harbor seal (Phoca vitulina) is the second most important food item. It is not known whether these animals are actually killed or are dead animals which wash up on the beaches. Seals are common in the area and have been observed hauled out on gravel beaches at least 100 feet from the waters edge. Under these circumstances wolves could probably kill them. Most scats contained some wolf hair and other miscellaneous food items including mink, land otter, mice, birds and crabs. A large number of freshly broken cockle clam shells (Clinocardium spp.) were noted in the timber immediately adjacent to the beach. Tooth marks indicated that wolves had broken and probably eaten the clams. These clams are usually

only a few inches below the surface in sandy intertidal areas and could easily be dug by wolves.

Since the introduction of wolves deer numbers have been reduced. In 1959 deer were not as abundant on Coronation Island as in most other areas of Southeast Alaska, however, evidence of deer was common. Table 2 lists deer observations per day before and after the wolf introduction.

Table 2. Deer observations on Coronation Island.

Year	No. Man-Days	No. Deer	Deer per Day
1959	6	49	8.2
1960	Wolf Introduction		
1961	9	32	3.6
1962	3	6	2.0
1963	8	1	0.1
1964	7	1	0.1

In 1959 well-defined deer trails were present. By 1964 these trails had grown over with vegetation and were difficult to locate. However, some evidence of deer was present throughout the island and at least one fresh deer track was seen on each beach searched.

When the island was first visited in 1959 carcasses of deer were common within the beach fringe. Examination of the bone marrow showed that death was usually from malnutrition. In 1964 the remains of 11 deer were found. Only fragments of bone and hair were usually present, but in all instances except one the marrow was white and solid.

The most dramatic change on the island is the vegetative cover. Previously nearly every available plant was utilized by deer. The forest was open and park-like compared to the dense understory usually found in

Southeast Alaskan forests. Species which are generally unpalatable showed heavy use. This is the only site in Southeast Alaska where the writer has seen Sitka spruce hedged by deer. Inaccessible sites, such as roots of overturned trees, supported lush growth of several species of vegetation which were absent from the forest floor. Some plants of Vaccinium ovalifolium, V. parvifolium and Menziesia ferruginea, which had at some time in the past become established and grown too tall for deer to reach, had dense clumps of dead, browsed stubs about their bases.

In june of 1962 there were already signs of a decrease in utilization. Unpalatable species such as Menziesia ferruginea, Oplopanax horridus and the fern Polysticum munitum were beginning to appear. More desirable species as Cornus canadensis and deer fern (Blechnum spicant) were also becoming apparent. Careful observation revealed many small shoots of Vaccinium ovalifolium and V. parvifolium springing from hidden root systems. By July, 1964, changes in the vegetation could not be mistaken. The forest floor supported dense mats of Cornus canadensis and large clumps of Polystichum munitum. In many places the ground was green with small plants of Menziesia furruginea. Fauria crista-galli and Lysichitum americanum were present on the wetter sites and the old Menziesia ferruginea and Vaccinium spp. plants had lush green shoots about their bases which were less than four years old.

Conclusions

Wolves have now been present on Coronation Island for almost four years. They successfully adapted to wild conditions and produced pups at two years of age. At least one of the original males was still alive when four years

old (observed tagged animal). Wolf litters usually average seven or eight pups. Assuming a 1:1 sex ratio at birth and taking into account the death of the two original females during their second year, the maximum population at the present date could be 6 adult males, 5 adult females, 40 year-old animals and 40 pups; a total of 91 wolves. The actual population does not approach this number. Observations indicate there are between 7 and 11 adult and yearling wolves and 2 pups on the 30 square mile island at the present time. This is probably the highest wild wolf population per unit area in existence today. The presence of large amounts of wolf hair in some scats indicates that intra-specific strife may account for the slow increase in wolf numbers. Although their reproductive potential is great, wolves may rarely attain it. We have knowledge of three separate litters born on Coronation Island since 1960; however, the maximum number of pups known in any one litter is three.

Compared to most other areas of Southeast Alaska the present deer population on Coronation Island is low, but in spite of extremely heavy predation, wolves have not elimated the deer and in fact are presently utilizing them more than earlier. Deer numbers have been reduced; however, examination of bone marrow indicates that the remaining deer are in better condition than before wolves were present.

Changes in vegetative cover since the wolf introduction show that ranges in Southeast Alaska subject to heavy deer use recover rapidly when the pressure is released. Plants which appear to have been eliminated quickly re-established.

Literature Cited

Klein, David R. 1963. Physiological response of deer on ranges of varying quality. Ph.D. Thesis. Univ of British Columbia Vancouver, British Columbia.