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SOUTHEASTERN BROWN BEAR STUDIES

by
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Project Progress Report
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JOB PROGRESS REPORT (RESEARCH)

State: Alaska

Cooperator: Robert E. Wood

Project No.: W-17-5 Project Title: Big Game Investigations

Job No.: 4.7R Job Title: Movements and Populations of Brown Bear in the Hood Bay Drainage of Admiralty Island.

Period Covered: July 1, 1972 through June 30, 1973

SUMMARY

Eighteen brown bears were trapped with Aldrich foot snares along fish creeks in Hood Bay on Admiralty Island from September 2 to September 26. Bears were marked and life history information was collected.

Observations of bears utilizing beaches in Hood, Gambier and Pybus Bays were conducted from June 3 through June 10. Minimum numbers of bears using the beaches were 31 in Hood Bay, 29 in Gambier Bay and 14 in Pybus Bay. Some movement of marked bears from Hood Bay to Gambier and Pybus Bays occurred.

The pendant-type collaring arrangement that was used proved unsatisfactory, but Jumbo Roto ear tags were a definite aid in establishing the minimum numbers of bears present in Hood Bay.

Spring counts of bears are easily obtainable and are felt to be a good indicator of the bear populations present.

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BACKGROUND

On February 9, 1968, U.S. Plywood-Champion Papers, Inc. was awarded the Juneau Unit timber sale in the Tongass National Forest. This sale includes significant portions of the better brown bear *(Ursus arctos)* habitat on Admiralty Island. Information presently available on brown bears in this area is confined almost entirely to data from hunter harvested bears, and little is known of total populations, productivity, movements and habits. Logging will greatly alter the existing habitat through clear-cutting, road building and introduction of greater numbers of people. Access for hunting will also be improved.

This study was initiated to evaluate the effects of clear-cutting and logging related activities on brown bears. Hood Bay was chosen as a study area because of its large population of bears, its geographic location with respect to other bays of importance to bears, its excellent salmon streams, and the fact that it is one of the first areas within the Plywood-Champion sale scheduled for logging.

The first phase of the study was to determine if brown bears could be captured under Southeast Alaska conditions in sufficient numbers to obtain information on productivity and movements. Work conducted during the past year has shown the Aldrich foot snare produced a satisfactory bear per unit of effort ratio (Wood, 1973), and this year's effort was directed toward capturing and tagging as many bears as possible.

OBJECTIVES

To determine the density, productivity and sex and age composition of the brown bear population in the Hood Bay drainage on Admiralty Island and to measure movements of these bears within and between the Hood Bay drainage and adjacent drainages.

PROCEDURES

Aldrich foot snares were used to trap bears from September 2 through September 26, 1972 along salmon streams in Hood Bay. Eighty percent of the trapping effort was expended on the two major salmon streams in the bay. Seventeen of the 18 bears trapped were caught along these two streams.

Most of the trapping was done by two men, with a maximum of 23 snares set at one time. Trail sets along fish creeks were used exclusively with the snares anchored in place. The foot snares used were a larger modification of the Aldrich foot snare developed for use on black bears *(Ursus americanus)*.

Bears trapped were immobilized using drugs, dosages and procedures reported by Glen and Miller, 1970.

A first premolar was taken for aging purposes. Weights were estimated and body measurements were taken.

A numbered nylon Jumbo Roto tag was placed in one ear and a metal Ketchum-Tamper-Proof cattle ear tag was placed in the other ear. Collars with Nasco-Flex nylon cattle markers were placed on most bears.

Spring observations to evaluate bear movements and obtain minimum population estimates were conducted simultaneously in Hood, Pybus, and Gambier Bays from June 3 through June 13, 1973. Skiffs were used to patrol the beaches and tideflats to locate bears utilizing beach vegetation, and efforts were then made to ascertain presence or absence of ear tags and/or collars. The number of different bears observed in each bay was estimated.

FINDINGS

Fall Tagging

Trapping efforts indicated that the bears in Hood Bay are concentrated on two creeks during September. These two creeks probably receive over 90 percent of the salmon spawning activity in the bay. The North Arm Creek spawning area is mainly intertidal and courses through a large tidal grass flat, while the South Arm Creek contains very little intertidal spawning area and is heavily timbered to its banks. Bear activity on the more open North Arm Creek is oriented toward hours of darkness, but considerable activity takes place during daylight hours on the South Arm Creek. Many bear beds and trails are located within 300 yards of both creeks and apparently bears spend considerable time within this area when not fishing.

As many as 23 snares were set at one time, but when those set on the smaller streams failed to produce, they were removed. For most of the trapping period about 12 snares were in operation. One hundred and eighty-one trap days were used to take 11 bears in the North Arm and 108 trap days were used to take the seven bears in the South Arm. One bear died in a snare and one received a broken leg. None of the eight bears tagged in the previous year were recaptured or observed. Tagging information is listed in Appendices I and II.

Spring Observations

Observations conducted in Hood Bay from June 3 through June 10, 1973, indicated a minimum of 31 different identifiable bears were using the beaches during this period. In 47 observations during this period we saw 88 bears. Although in many instances it was impossible to determine whether or not a bear was tagged, we were able to determine that 9 were tagged and 29 had no tags. At least seven of the nine tagged bears observed were different individuals and we estimated that 22 of the 29 untagged bears observed were different. Both ratios (9 tagged:29 untagged and 7 tagged:22 untagged) indicated that approximately one-third of the Hood Bay population during this period consisted of tagged bears. At the time these observations were made, a maximum of 25 previously tagged bears were alive on Admiralty Island.

Observations in Pybus Bay were made June 3 through June 12. Twenty-four bear sightings were made involving a minimum of 14 different bears. Only five bears, including a sow with two cubs, were observed closely enough to ascertain presence or absence of ear tags. No tagged bears were seen during this observation period, but a report of a bear with white ear tags was received from a temporary protection officer on June 18, 1973.

Gambier Bay observations indicated a minimum of 29 different bears were seen between June 5 and June 14, 1973. Thirty-nine bear sightings were made and in 19 of these it was possible to determine that no ear tags were present. We did however, receive a report from the same temporary protection officer that he had contacted two fishermen who had seen a bear with a white ear tag in Gambier Bay on June 19, 1973.

The Pybus Bay tagged bear would have moved a minimum of seven miles from its capture site in Hood Bay and the Gambier sighting reflected a movement of at least 10 miles from the capture site.

The collaring arrangement used was unsatisfactory. Numbered pendants were readable to 150 yards with a 20X spotting scope but retention of the collars by the bears appeared to be poor. One sow with two, 9-month-old cubs was collared in September 1972 and had lost the collar by the following June. A 3.5-year-old male collared in September 1972 was recaptured after five days and the pendant was badly chewed. One other bear collared in September 1972 was observed in June 1973 with the rope collar present but the numbered pendant missing. Another small male, collared in September 1972 and shot in September 1973, had retained the collar, but the pendant was badly chewed and faded. It was readable only at close range.

The Jumbo Roto ear tags were visible at distances up to 200 yards under ideal conditions, but only when the bear was facing away from the observer. The metal cattle ear tags were not as visible as Roto tags. Saflag material, which was placed under the Roto tags on several bears, was much more visible than the tags alone.

Litter Size

A limited number of sow/cub sightings made incidental to observation and tagging operations provide some indication of litter size. Combining the sightings for the past two years, we saw 8 sows with 14 cubs-of-the-year (1.75 avg.) and 9 sows with 18 cubs 1.5-years-old or over (2.0 avg.).

DISCUSSION

Spring beach counts provide a fairly accurate and easily obtainable estimate of the number of bears in a bay. Presence of observable tags or collars, by aiding in recognition of individual animals, is a help in determining minimum numbers of bears, in addition to providing movement data.

Comparison of the spring population estimates made prior to logging with estimates made during and after logging should indicate major changes in bear numbers. Changes in bear numbers in the bay being logged could be attributed to logging or related activities if corresponding changes were not recorded in surrounding bays.

It is not possible to accurately estimate the number of tagged bears remaining in Hood Bay because of the difficulty in assessing movement from the bay. There is also an unknown loss of bears through incidental encounters with local citizens. Very few of these bears are reported or utilized, so the number of tagged bears killed is unknown. The additional loss of tagged bears through unreported illegal kills by logging camp residents would probably be substantial.

ACKNOWLEDGEMENTS

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LITERATURE CITED

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APPENDIX I. BROWN BEAR TAGGING INFORMATION, HOOD BAY, JUNE 1971-JUNE 1972

Bear	Date Tagged	Sex	Age	LEFT EAR TAG Type	No.	Color	RIGHT EAR TAG Type	No.	Color	COLLAR No.	Color
01	7 June 71	F	9.5	Roto	2	Yellow	Roto	1	Yellow	None	
02	9 June 71	F	12.5	Roto	3	Yellow	Roto	4	Yellow	12	Radio
03	28 Aug. 71	F	-	Roto	5	Yellow	Roto	6	Yellow	None	
04	1 Sept. 71	F	2.5	Roto	8	Yellow	Roto	7	Yellow	None	
05	11 June 72	M	7.5	Roto	2	White	Roto	1	White	5	Radio
06	17 June 72	F	8.5	Roto	9	Yellow	Roto	10	Yellow	7	Radio
07	19 June 72	F	6.5	Roto	12	Yellow	Roto	11	Yellow	1	Radio
08	21 June 72	M	3.5	Roto	3	White	Roto	4	White	None	

APPENDIX II. BROWN BEAR TAGGING INFORMATION, HOOD BAY, SEPTEMBER 1972

Bear	Date Tagged	Sex	Age	LEFT EAR TAG Type	No.	Color	RIGHT EAR TAG Type	No.	Color	Collar Pendant No.	Color
09-72	7 Sept. 72	M	2.5	Metal	2112	Yellow	Roto	5	White	91	Yellow and Black
10-72	9 Sept. 72	F	-	None	--	--	Metal	2114	Yellow	30	Red
11-72	12 Sept. 72	F	12.5	Roto	13	White	Metal	2116	Yellow	92	Yellow and Black
12-72	12 Sept. 72	M	12.5	Metal	2117	Yellow	Roto	9	White	35	Red
13-72	13 Sept. 72	F	5.5	Metal	2118	Yellow	Roto	14	Yellow	40	Red
14-72	13 Sept. 72	F	-	Metal	2119	Yellow	Roto	15	Yellow	26	Unknown
15-72	14 Sept. 72	M	2.5	Metal	2120	Yellow	Roto	11	White	1	Red
16-72	17 Sept. 72	M	-	Roto	12	White	Metal	2121	Yellow	2	Red
17-72	19 Sept. 72	F	-	Metal	2122	Yellow	Roto	17	Yellow	4	Red
18-72	9 Sept. 72	M	-	Roto	7	White	Metal	2115	Yellow	31	Red
19-72	20 Sept. 72	F	16.5	Roto	16	Yellow	Metal	2123	Yellow	99	Unknown
20-72	21 Sept. 72	F	2.5	Roto	18	Yellow	Metal	2124	Yellow	33	Yellow and Black
21-72	21 Sept. 72	M	3.5	Roto	15	White	Metal	2125	Yellow	5	Red
22-72	22 Sept. 72	F	6.5	Roto	13	Yellow	Metal	2126	Yellow	3	Red
23-72	24 Sept. 72	F	-	Roto	20	Yellow	Metal	2127	Yellow	6	Red
24-72	26 Sept. 72	M	0.5	Metal	2128	Yellow	Roto	16	White	-	-
25-72	26 Sept. 72	F	0.5	Metal	2129	Yellow	Roto	21	Yellow	-	-
26-72	26 Sept. 72	F	10.5	Metal	2130	Yellow	Roto	22	Yellow	10	Red