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WILDLIFE RESEARCH UNIT STUDIES

by

David R. Klein, Leader

Volume XIV
Project Progress Report
Federal Aid in Wildlife Restoration
Project W-17-5, Jobs 19.11R, 19.12R and 19.13R

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JOB PROGRESS REPORT (RESEARCH)

State: Alaska

Cooperators: Howard Anderson, Dr. Peter Lent, John Coady and Richard Bishop, A.D.F.&G.

Project No.: W-17-5 Project Title: Research Unit Studies

Job No: 19.11R Job Title: Movement and Activity Patterns of Moose in the Chena River Drainage

Period Covered: August 1, 1972 to April 30, 1973

SUMMARY

Six radio transmitters were placed on moose in the Little Chena River drainage. Four of these moose were subsequently relocated for several months until malfunctioning transmitters and heavy cover made relocation impossible. Because it appeared that it would be impossible to obtain sufficient data for an M.S. thesis, Unit involvement in the project was terminated.

OBJECTIVES

1. Determine seasonal movements of moose breeding in the headwaters of the Little Chena River

   A. Time of Movements

   B. Areas utilized during each season

2. Determine what habitat factors influence winter movement and distribution

   A. Food availability

   B. Snow conditions

3. Investigate accessibility of the study herd to hunting

4. Gather information on daily activity patterns and habitat use of moose in winter, relative to environmental conditions, which may be useful in planning and interpreting aerial censuses.

RESULTS

August, 1972:

My research proposal was written and accepted and a review of the literature was conducted.

Alaska Department of Fish and Game biologists Dick Bishop and John Coady selected the study area in September. The study area was a 15 or 16 year old burn, approximately 35 square miles in area, located south of Twin Buttes on the upper Little Chena River drainage. A flight was made over the study area by the investigators, Dick Bishop and John Coady to check for trails leading into the area. Two trails were located, but only one looked usable. This trail was checked out on the ground with a four-wheel drive pickup and was found to be usable, although quite rough in places.

Ten transmitters were ordered for the project during this period (six by ADF&G and four by ACWRU). Only three had been received by the end of August.

October to December, 1972

Six transmitters were received and field-tested. Their range was very limited and they were returned to the manufacturer for rebuilding in October. Because of delays and inadequacies associated with these six, the order for four additional transmitters was cancelled.

In November, the six transmitters were received again, and when field-tested, they were found to be acceptable.

Alaska Department of Fish and Game biologists Dick Bishop and John Coady placed the six transmitters on cow moose in the study area on the upper Little Chena River drainage on November 21 and 22. Pulsed transmitters with a whip antenna and mounted on a flexible web belt collar were used. Each moose also had a tag and a colored flag placed in each ear for visual identification. A tooth was removed from each moose for aging. A helicopter was used to conduct the tagging operation because of the rugged terrain, heavy brush and standing dead timber. While the tagging was being done, the investigator flew with biologist Robert LeResche in a super cub and helped spot moose on the ground for the tagging crew.

The tagged animals were located using a small fixed-wing aircraft with a three-element yagi antenna mounted on the wing strut. Only five of the six moose could be located on November 25; also, the same moose had not been relocated on November 22. One week after tagging, one of the five remaining transmitters was very weak and was not located again during December. The other four moose were located from the air once a week by John Coady.

January to March, 1973

During January, three of the radio-tagged moose moved south of the tagging area, with the general movement being down the drainage; the distances moved were approximately seven, fifteen and twenty miles. Only one of the moose used the Little Chena River as its route of travel; the other two moose used Iowa Creek which is to the west of the Little Chena River and flows into it. The moose were then located in three different areas; one is at an approximate altitude of 1700 feet, one is on the Chena River, and one is located on a ridge above the Chena River. The other two tagged moose have not left the burn area in which they were tagged. The locations of the moose were obtained from the air at approximately one-week intervals by John Coady.

During this period, the weak transmitter was detected sporadically. Also during this period, one other transmitter stopped functioning and could not be received even when the moose was seen visually.

During January, four attempts were made to locate and make visual contact with the tagged moose from the ground. Two of these attempts were successful, and both the tagged moose and her calf were seen. Only radio contact was made during the other two attempts. In each case, moose located from the ground were disturbed in the process, thus reducing the value of these very limited observations.

In February, three attempts were made to locate visually and follow the tagged moose on the ground. Radio contact was made in all three attempts, but the moose were not seen visually. During the first attempt, the moose was located from the air by John Coady approximately one hour after I had initiated a search for her; the moose was running when she was sighted from the air by John Coady.

Mark Boyce and the investigator attempted to go into the main study area on snow mobiles on February 10, but were turned back by bad snow conditions four miles from the area where the moose were located.

No further field work has been attempted. It became obvious that due to a number of factors (small number of functioning transmitters, heavy cover in areas where accessible, radio-tagged moose were located), the amount of information obtainable was too little to justify continued efforts on the ground. The aerial portion of the study was being successfully carried out by Department of Fish and Game personnel, and no participation by Unit personnel in this phase of the study was requested or required.

Further discussions among all the personnel involved failed to arrive at any mutually agreeable modifications of the project suitable to the investigator as the basis for an M.S. thesis project. Therefore, it has been decided that it would be best to terminate the Unit's involvement in the project.

Prepared by:

Howard L. Anderson
Graduate Student

Submitted by:

Peter C. Lent
Wildlife Assistant Unit Leader

JOB PROGRESS REPORT (RESEARCH)

State: Alaska

Cooperators: Mark Boyce

Project No.: W-17-5 Project Title: Research Unit Studies

Job No: 19.12R Job Title: An Analysis of Two Beaver Populations in Interior Alaska

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

SUMMARY

Over 200 beaver carcasses were collected from the Chena River drainage. Observations of activity were made at each colony soon after breakup. Trappers were contacted to obtain data on harvest.

OBJECTIVES

1. To compare the productivity, age and sex structure of a trapped and untrapped beaver population.

2. To compare the distribution of beavers along two streams in relation to variations in vegetative types and physical characteristics of the streams.

3. To evaluate the aerial cache count technique of censusing beaver populations:

   a. in relation to average colony size
   b. by comparison with canoe surveys
   c. by investigating other variables that may affect the accuracy of aerial counts

4. To evaluate predation on these beaver populations

5. To attempt a computer simulation of beaver populations.

GENERAL

Over 200 beaver carcasses were collected from the Chena River drainage. Specimens were obtained by trapping, shooting and by purchasing carcasses from trappers. Frequent visits to trappers and a payment of $3.00 per carcass yielded excellent cooperation from trappers. I found it impossible to gain reliable data from only one trapper. However, it is known which colonies he trapped, and his beavers may be deleted from the data analysis. Several colonies were completely trapped out. This was determined by placing fresh green saplings under the ice and checking periodically for signs of feeding activity.

Collections from the "untrapped" population on Birch Creek were much less successful, with only 30 beavers collected. Fewer trappers, inaccessibility and violence of breakup contributed to the poor take. Beavers will be collected by trapping and shooting during the September cache construction period, when beavers are concentrated into distinct colony groups, and activity level is high.

Observations of activity were made at each colony location soon after breakup on both streams. A violent breakup was accompanied by high water on Birch Creek. Many lodges were destroyed and other colonies were forced to evacuate lodges until water levels receded. A number of inactive lodges located on adjacent sloughs and oxbow lakes were active during high water. After water levels receded, most of these inactive lodges were evacuated. All flooded lodges not destroyed by breakup were reoccupied when water levels dropped to normal levels. Ice breakup on the Chena River was not violent and no lodges were destroyed.

A canoe trip was made to Birch Creek Village, a remote Indian Village on Birch Creek. High beaver densities are present, but harvest is very low. It was obvious that the few trappers in the village considered trapping under the ice for beavers to be too much work. A later season would stimulate harvest, allowing trappers to take beavers in open water. Many natives expressed an interest in localized legalization of traditional spring beaver shooting.

Prepared By:

Mark Boyce
Graduate Student

Submitted By:

Peter C. Lent
Wildlife Assistant Unit Leader

JOB PROGRESS REPORT (RESEARCH)

State: Alaska

Cooperators: Bob Summerfield and Dr. D. Klein

Project No: W-17-5 Project Title: Research Unit Studies

Job No.: 19.12R Job Title: Population Dynamics and Seasonal Movement Patterns of Dall Sheep in the Atigun Canyon

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

SUMMARY

Field studies were initiated in the Atigun Canyon area in March 1973. During March 28 - April 2, sheep were found in greatest abundance on snow-free south-facing slopes on the north side of the canyon. Lick use began on June 10, but high, swift water in the Atigun River prevented sheep on the north side from using the lick. These sheep were seen eating soil on the riverbank directly across from one lick. The true sheep population for Atigun Canyon was estimated to be 175-200 animals, reflecting a downward trend from 1970 and 1971. It was assumed that predation by wolves was a major factor in sheep mortality in this area.

OBJECTIVES

1. To characterize the Dall sheep population of Atigun River with respect to its population structure and dynamics.

2. To determine the traditional seasonal home ranges of Atigun River sheep and the patterns of movement between and within the seasonal home ranges

   a. Time of movements
   b. Areas utilized during each season
   c. Major routes of travel between areas

3. To record other aspects of Dall sheep behavior, life history, and ecology which will aid in interpretation of population and movement data and be of general scientific value.

General:

Field observations of sheep on their winter ranges were made by B. Summerfield and D. Klein from March 28 - April 2, 1973 during a trip into the Atigun Canyon area on skis. On May 23, 1973, B. Summerfield and field assistant, D. Allen, set up a tent camp near the center of the canyon, and field activities have continued through the present date. Ground surveys of the area have been conducted on a regular basis, and one aerial survey was made using a Cessna 185 on May 29.

Population Size, Distribution, and Movements -- During March 28 - April 2, sheep were found in greatest abundance on the mid- to upper-level slopes on the north side of the canyon. These south-facing slopes were mostly snow-free and presented the best opportunities for grazing. The sheep were feeding more frequently than resting during this period.

Twenty-one sheep were seen on the south side of the Atigun River where they had probably spent most of the winter. No sheep tracks were observed crossing the canyon.

In late May, sheep were grazing much lower on the slopes than previously. These areas apparently "green-up" earlier in the spring than the higher slopes, and the sheep move there accordingly. On a few occasions, sheep were seen only a few feet from the river. As the upper slopes began to turn green in early June, a movement of sheep back to higher elevations was noted.

Fresh sheep tracks were observed in the western mineral lick on the south side of the canyon on May 23, but no sheep were actually seen using this lick until June 10. One ewe was seen in the eastern lick on June 9, and nine other sheep were seen grazing just above it. Sheep on the north side of the canyon have shown an increasing interest in the licks through the first half of June, but the high water in the river has thus far prevented these sheep from reaching them. Several sheep, as well as the tracks of unseen sheep, have been observed to come down to the river, then turn and go back the way they had come. As of mid-June, regular surveys of the river for tracks have revealed that the high, swift water has definitely prevented any sheep from crossing the canyon.

Although the sheep north of the river have been unable to reach the licks, they have found areas which are apparently suitable substitutes. On May 30, a half-curl ram was seen eating soil on the river bank one mile down the canyon from the western lick. On several occasions, sheep have been observed eating soil on the steep slope above the river's edge directly across the canyon from the western lick. Lick use has increased through early June, 24 sheep being seen at the western lick on June 14.

Table 1 gives a classification of sheep observed in the canyon to date. There are a minimum of 167 sheep presently utilizing the canyon, with an estimate of the true population being 175-200. The majority of these are still found on the north side. This estimate represents a moderate decrease from the 222 animals found by R. Price in 1971, and a major decrease from the 299 counted by R. Anderson in 1970. While the reasons for this downward trend are at present still undetermined, the most probable factors include a heavy predation by wolves and a low recruitment of lambs over the past few years. Wolves and wolf-killed sheep were found in the canyon in 1970, 1971, and during the present study. Since May 23, the remains of 10 sheep have been found which died last winter. While it is difficult to determine whether sheep were wolf-killed or died from other causes, wolf feces were present with most of the remains found, and it can be assumed that wolves are a major factor in sheep mortality in the canyon. Table 2 is a list of 28 recent and old sheep remains found in the study area.

The first two lambs were observed in the canyon on May 28. These were seen in the near-vertical rugged cliffs of the northeastern portion of the canyon and were estimated at less than 24 and 48 hours of age. No lambing has occurred this year in the Guard House Rock area or in the cliffs directly across Gailbraith Lake from the Alyeska Pipeline Service Company construction camp - areas which both R. Anderson and R. Price noted as good lambing areas. As of mid-June, only 8 lambs are known to be present in the canyon, a figure which gives a lamb:ewe ratio of 10:100. It is possible that a few lambs are yet unborn; however, it seems clear that 1973 is a poor lambing year in Atigun Canyon. This may be the result of low lamb survival during seven continuous days of cold, rainy weather during June 6 - 12, near the peak of lambing time. Poor weather during this period made observations of lambing impossible.

Prepared By:

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Submitted By:

David Klein
Unit Leader

Table 1. Classification of Dall Sheep in Atigun Canyon During June, 1973.

	North Side	South Side	Total	% of Population
Ewes	60	21	81	48
Yearlings	16	2	18	11
Lambs	7	1	8	5
1/4 curl rams	19	9	28	17
1/2 curl rams	20	4	24	14
3/4 curl rams	2	3	5	3
full curl rams	2	1	3	2
total rams	43	17	60	36
Total	126	41	167	
Lamb:ewe ratio	12:100	5:100	10:100	
Ram:ewe ratio	72:100	81:100	74:100	

Table 2. Dall Sheep Remains Found in Atigun Canyon March 28 - June 15, 1973*

Number	Classification	Age [R: recent, died last winter 0: old, died previous to last winter]
1	ram, 1/2 curl, 6 1/2 yr. old	R
2	unknown	R
3	unknown	R
4	ram, full curl, 10 1/2 yr. old	R
5	ewe	0
6	ewe	0
7	ewe	0
8	ram, 1/2 curl, 5 1/2 yr. old	0
9	unknown	R
10	ram	0
11	ram, 3/4 curl, 8 1/2 yr. old	0
12	ram, 1/2 curl, 4 1/2 yr. old	R
13	ram, full curl, 10 1/2 yr. old	0
14	ewe, estimated 10 1/2 yr. old	R
15	ram	0
16	ram	0
17	ewe	0
18	ram, full curl, 9 1/2 yr. old	0
19	ram	0
20	ewe, estimated 12 1/2 yr. old	R
21	ram	0
22	ram	0
23	ram, 3/4 curl, age unknown	0
24	ram	0
25	ram	0
26	ram	0
27	ram, 3/4 curl, age unknown	0
28	ram	0

*A map showing locations is on file