

Preliminary Report: Distribution, Movements and Seasonal Use Areas of Radio Tagged Moose in Upper Beaver Creek, 1985-1988.

Bruce M. Durtsche and T. Winston Hobgood

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Introduction

The moose population the Beaver Creek area is relatively low because of poor calf survival in summer (Nowlin, 1987). The main cause of calf mortality appears to be predation by bears and wolves. A total of approximately 400 moose seen during a 1985 survey of upper Beaver Creek (Haggstrom, 1985) may indicate population stabilization following the downward trend of recent years. Moose habitat in the area is dominated by spruce forest, with stands of riparian willow along rivers and streams which provide important late winter browse. Early successional stages of vegetation following fires are commonly utilized by moose in early winter, but are only a small portion of the overall moose habitat in the area. The quantity and quality of moose habitat in the overall area has been reduced by past wildfire suppression activities and habitat loss from placer mining in the Nome Creek valley and other areas. These observations and conditions, coupled with the necessity for information to input into the Bureau of Land Management (BLM) Resource Management Planning and decision-making processes for the White Mountains National Recreation Area (ANILCA, 1980),

provided the impetus to obtain detailed information concerning moose use and movements in the area. Investigations to determine the distribution, movements and important seasonal use areas of moose in upper Beaver Creek were cooperatively conducted by BLM and ADF&G.

Methods

Moose were captured using a Bell 206B or Hughes 500-D helicopter and Cap-Chur dart gun with standard capture techniques previously used by the ADF&G. A PA-18 airplane was used to locate and guide the helicopter to the moose to be tagged. The airplane also observed darted animals and communicated the status of the animal to the helicopter by radio. M99 (Etorphine: ten mg dosage) injected intramuscularly was used for immobilization and M50-50 (Diprenorphine: twenty mg dosage) injected intramuscularly or intravenously was administered for recovery. Telonics, Inc. radio collars and receivers were used with canvas and vinyl identification collars (orange) riveted to radio collars to facilitate visual recognition of individual moose.

Monitoring surveys to relocate collared animals and for general reconnaissance were flown in fixed-wing aircraft (PA-18, C-180 and C-185). Surveys were flown one or more times every two weeks between April 1 and October 31 and one or more times monthly between November 1 and March 31 each year.

Relocation survey information included location, presence of calves with radio-collared cows and others, group size, vegetation at the relocation site, moose trails and other signs of use. Information was recorded on pre-printed data forms and 1:250,000 scale USGS quadrangle maps. Location data were transferred to 1:63,360 scale USGS quadrangle maps as soon as possible after survey flights for later analysis.

Preliminary Results

General

Twenty-three moose were radio-collared in the White Mountains during 1984-1988. Ten cow moose ($n=10$) have provided sufficient data to be incorporated into the preliminary results (Appendix A). All moose were captured in the Beaver Creek headwaters on April 18 and 19, 1985 (Table 1).

One hundred nine ($n=109$) survey flights to relocate radio-collared moose were flown between April 19, 1984 and August 9, 1988. These relocation surveys resulted in six hundred thirty three ($n=633$) relocations (Table 1).

Distribution

Distribution maps for radio collared moose are presented in Appendix A.

Moose 150.831: Spring movements occur during late April and early May of each year and cross the Twin Buttes area and down the Little Chena River to the calving area. Calving took place in the North Pole/Tanana River/ Salchaket Slough area during the third week of May of each year. Movement from the calving-early summer use areas occurs during late July, August and early September through the Little Chena River valley to winter use areas. Winter use occurs during late September-early October through mid-April in the Nome Creek, Chatanika River and Twin Buttes areas.

Moose 150.486: Spring movements occur during late April and early May of each year and cross the Kokomo Creek and Fairbanks Creek areas to the calving area. Calving took place in the Columbia Creek/Steele Creek area south of Chena Hot Springs Road and east of Birch Hill during the third week of May of each year. Movement from the calving-early summer use areas occurs during late July, August and early September through the Fairbanks Creek and Kokomo Creek valleys to winter use areas. Winter use occurs during late September-early October through mid-April in the Nome Creek, Chatanika River and Kokomo Creek west of Twin Buttes areas.

Moose 150.536: Spring movements occur during late April and early May of each year and cross the Trail Creek, Washington Creek, Wickersham Creek and Chatanika River areas to the calving area. Calving took place in the Emma Creek/Alder Creek area south of the Old Nenana Highway during the third week of May of each year.

Movement from the calving-early summer use areas occurs during late July, August and early September through the Goldstream Creek, Chatanika River and Trail Creek valleys to winter use areas. Winter use occurs during late September-early October through mid-April in O'Brien Creek and the area of its confluence with Beaver Creek.

Moose 150.881: Calving took place in the Beaver Creek valley in the vicinity of the Trail Creek and O'Brien Creek confluences during the third week of May of each year. Movement from the calving-early summer use areas occurred during late June through Wickersham Creek and Globe Creek to the Tatalina River to the edge of Minto Flats. During August and early September movements were retraced through the Globe Creek and Wickersham Creek valleys to winter use areas. Winter use occurs during late September-early October through mid-April in O'Brien Creek and the area of its confluence with Beaver Creek.

Moose 150.505: Calving took place in the Beaver Creek valley in the vicinity of the Brigham Creek and Trail Creek confluences during the third week of May of each year. Movement from the calving-early summer use areas occurred during late June through Wickersham Creek and Globe Creek to the Tatalina River to the edge of Minto Flats. During August and early September movements were retraced through the Globe Creek and Wickersham Creek valleys to winter use areas. Winter use occurs during late September-early October through mid-April in O'Brien Creek and the area of its confluence with Beaver Creek.

Moose 150.547: Calving took place in the Beaver Creek valley in the vicinity of lower O'Brien Creek and lower Trail Creek during the third week of May of each year. No detectable movement from the calving-early summer use areas to winter use areas occurred. Winter use occurs during late September-early October through mid-April in Bear Creek, Quartz Creek and the Beaver Creek valley above the Brigham Creek confluence.

Moose 150.851: Calving took place in the Beaver Creek valley in the vicinity of lower O'Brien Creek during the third week of May of each year. No detectable movement from the calving-early summer use areas to winter use areas occurred. Winter use occurs during late September-early October through mid-April in Bear Creek, Quartz Creek and the Beaver Creek valley above the Wickersham Creek confluence to the Nome Creek confluence.

Moose 150.516: Calving took place in the Beaver Creek valley in the vicinity of Herman's Landing and northwest toward the Colorado Creek headwaters during the third week of May of each year. No detectable movement from the calving-early summer use areas to winter use areas occurred. Winter use occurs during late September-early October through mid-April in O'Brien Creek and Brigham Creek.

Moose 150.841: Calving took place in the Beaver Creek valley and the Brigham Creek confluence area during the third week of May of

each year. No detectable movement from the calving-early summer use areas to winter use areas occurred. Winter use occurs during late September-early October through mid-April in the Brigham Creek, O'Brien Creek and the Beaver Creek valley above the Wickersham Creek confluence to the Roy Creek confluence.

Moose 150.526: Calving took place in Brigham Creek and the Beaver Creek- Brigham Creek confluence area during the third week of May of each year. No detectable movement from the calving-early summer use areas to winter use areas occurred. Winter use occurs during late September-early October through mid-April in the Brigham Creek, O'Brien Creek and the Beaver Creek valley above the Wickersham Creek confluence to the O'Brien Creek confluence.

Summary

Distribution, movements and seasonal use areas for radio-collared moose from upper Beaver Creek were similar from 1985 through 1988. Of ten cow moose tagged in the area on April 18, 1985, seven calved in upper Beaver Creek and three calved in the Fairbanks vicinity 35 to 50 miles south of winter use areas in the Beaver Creek watershed. All moose exhibited fidelity toward the same calving location from year to year.

Movements of moose to calving areas occurred during late April and early May. Two moose demonstrated a post-calving move to the edge of Minto Flats during late June and returned to Beaver Creek during August. Movements to winter range areas generally occurred during late July and August ending with arrival on winter use areas in late September and early October. Moose that calved in Beaver Creek did not exhibit the marked spring or fall movements to calving or winter use areas of moose that did not calve in upper Beaver Creek.

Winter use areas for all moose included the upper Beaver Creek watershed, especially Bear Creek, Quartz Creek, O'Brien Creek, Brigham Creek, Nome Creek and Beaver Creek itself above the Wickersham Creek confluence. Eight of the tagged moose wintered exclusively in the upper Beaver Creek area and two wintered in the Nome Creek area of Beaver Creek and south to the Chatanika River and the area west of Twin Buttes.

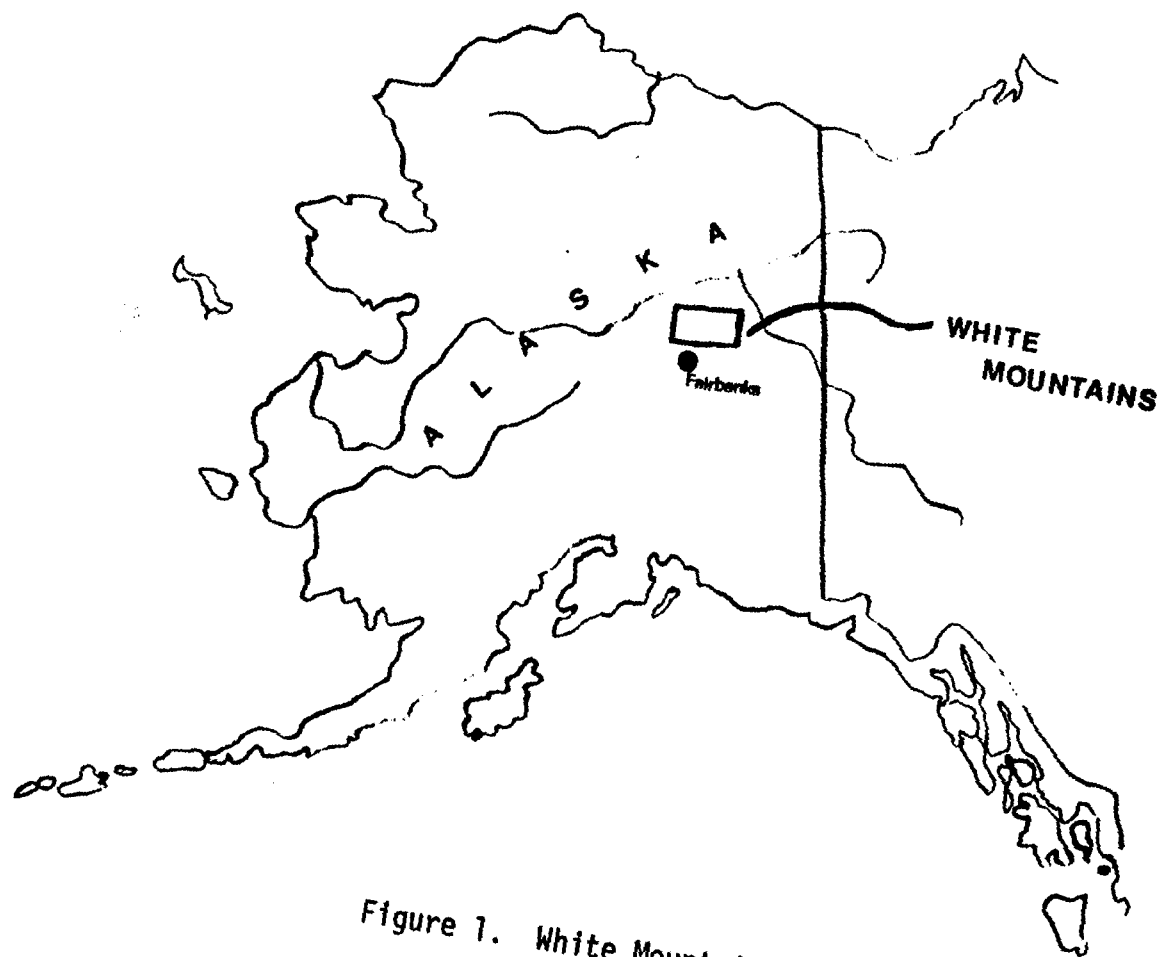


Figure 1. White Mountains vicinity map.

Figure 2. Frequency and number of relocations of radio collared moose in upper Bear Creek.

<u>Moose</u>	<u>n=</u>
831-430	63
486-280	64
536-	69
881-1.660	65
851-460	65
505-470	66
516-440	69
841-980	69
526-	70
547 (11.17.96)	33
(40)	<u>633</u>