Alaska Department of Fish and Game
Division of Wildlife Conservation
December 1999

Moose Habitat Enhancement at Thomas Bay

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Research Performance Report
Federal Aid in Wildlife Restoration
1 July 1998–30 June 1999
W-28-1 Project 1.**0**

MOOSE HABITAT ENHANCEMENT PROGRESS REPORT

STATE: Alaska **Project:** 1

COOPERATORS: U.S. Forest Service, Petersburg Ranger Dictrict; Alaska Department of Natural Resources (DNR)

GRANT: W-28-1

TITLE: Moose Habitat Enhancement at Thomas Bay, Alaska

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PERIOD: July 1, 1998–June 30, 1999

SUMMARY

In an attempt to restore and improve habitat quality for moose at Thomas Bay, Alaska in 1997, the Alaska Department of Fish and Game initiated a multiphased habitat enhancement plan on state lands. Although moose populations at Thomas Bay responded favorably to the initial increase in available browse resulting from extensive clearcut logging between 1958 and 1975, dense, closed canopy forests, caused by natural regeneration of second-growth stands, have reduced available understory browse vegetation. As a result, moose habitat quality at Thomas Bay has been declining each year. This annual report summarizes progress on improving habitat for moose at Thomas Bay from July 1, 1998 to June 30, 1999. Phase one of the habitat improvement project, the clearing and reopening of approximately 10 miles of preexisting logging roads at Thomas Bay, was completed in June 1998 at a cost of $10,500. Habitat enhancement efforts will be focused on precommercial thinning of select second-growth stands to improve browse plant production and habitat quality for moose on state lands at Thomas Bay. The cooperators selected and delineated 4 second-growth units (379 acres) for treatment. The authors developed a state construction contract for precommercial thinning work and a tentative schedule for habitat enhancement activities.

Key words: *Alces alces***,** browse, regeneration, Thomas Bay.

CONTENTS

SUMMARY i
BACKGROUND 1
OBJECTIVES 2
CLEARING OF EXISTING ROADS 2
HABITAT MANIPULATION 2
PROJECT EVALUATION 2
METHODS 3
RESULTS 3
CLEARING OF EXISTING ROADS 3
HABITAT MANIPULATION 3
DISCUSSION 4
ACKNOWLEDGMENTS 4
LITERATURE CITED 4
APPENDIX I. Thomas Bay Moose Harvest Summary 1972–1998 6
APPENDIX II. Thomas Bay Moose Habitat Enhancement Plan 1998 Activity Schedule 7

BACKGROUND

Moose *(Alces alces)* are widely distributed in Alaska (LeResche et al. 1974) and are popular for meeting human subsistence, sport, and esthetic needs. Isolated populations of moose are in Southeast Alaska (Klein 1965, LeResche et al. 1974) and are important locally. Thomas Bay moose probably emigrated from the nearby Stikine River (ADF&G 1990). LeResche and others (1994) noted that a small population of moose at Thompson Bay (sic) was probably dependent on secondary succession following logging. In 1978 the Thomas Bay moose population was estimated at 180 animals. The 1987 harvest of 22 moose and the 1988 harvest of 27 moose (of which most were yearlings) indicated a population of 200 moose (ADF&G 1990). The current moose population at Thomas Bay is estimated to be 250 animals (Doerr pers. commun.). A summary of hunter effort and moose harvest in Unit 1B (Thomas Bay) from 1972 to 1998 is presented in Appendix I.

Moose populations at Thomas Bay responded favorably to the initial increase in available browse resulting from extensive clearcut logging between 1958 and 1975, but the dense, closed canopy forests caused by natural regeneration of second-growth stands is eliminating available browse. As a result, the quality of moose habitat at Thomas Bay has been declining. The loss of habitat and the resulting decline in food availability is of great concern to biologists and hunters. Left untreated, the dense, closed canopies characteristic of young, naturally regenerating second-growth conifer stands will shade and eventually eliminate understory browse vegetation, further reducing moose carrying capacity. The only way to prevent further decline of moose habitat is to institute habitat manipulation procedures (ADF&G 1990).

OBJECTIVES

1. Increase moose numbers and harvest at Thomas Bay by thinning and partially clearing dense second-growth stands to increase browse production and improve and extend habitat suitability.

2. Clear existing roads and trails to facilitate habitat manipulation activities and improve public access to project area.

3. Measure plant and animal responses to habitat manipulation treatments. Implement a sampling system to provide data on post-treatment browse production and utilization (Telfer 1980) and moose abundance (Neff 1968). Evaluate effectiveness of second-growth treatments for enhancing moose populations at Thomas Bay.

CLEARING OF EXISTING ROADS

Phase one of the Thomas Bay moose habitat improvement project involved the clearing of approximately 10 miles of existing logging roads that were inaccessible due to dense vegetative growth and downed trees. Clearing and reopening the existing roads were intended to facilitate habitat manipulation activities and improve access for both consumptive and nonconsumptive users. Although hunting with motorized land vehicles is prohibited at Thomas Bay, roads are nonetheless important for access and help distribute hunting pressure (ADF&G 1990). A minor increase in browse production is expected as a result of road maintenance activities.

HABITAT MANIPULATION

Phase two of the project involved the actual habitat enhancement work. Habitat manipulation, in the form of precommercial thinning, will permit sunlight to reach the forest floor, allow for greater production and availability of understory forage plants, and delay canopy closure and understory loss (Harris and Farr 1979, Doerr and Sandburg 1986). Unless the dense second-growth stands in the project area are thinned to reduce tree density and canopy cover, moose and deer populations are expected to decline. Increased production and availability of understory forage plants, from thinning dense second-growth stands, will increase the browse value of the habitat (DellaSalla et al. 1992) and maintain or increase moose numbers and harvest in the Thomas Bay area for approximately 20–25 years (Doerr pers. commun.).

PROJECT EVALUATION

The third and final phase of the project will involve post-treatment evaluations of vegetative and moose responses to habitat manipulation. We will use standard pellet group counts and browse utilization surveys to compare moose abundance and browse utilization in both control and treated second-growth stands. By necessity the post-treatment evaluation will not take place for several years to allow time for thinning residue and slash to decompose and for the desired vegetative response. Information gained will allow us to evaluate the effectiveness of thinning dense second-growth stands as a means of enhancing moose and deer habitat and numbers in Southeast Alaska.

METHODS

Due to the wet climate, rugged terrain, and the temperate rainforest environment characteristic of Southeast Alaska, methods used to enhance moose habitat in other parts of Alaska (prescribed burns, scarification, crushing, whole tree clearing, chaining, etc.) are not considered feasible in this region. We considered 3 primary methods of treating second-growth stands to improve habitat suitability for moose: set-spaced pre-commercial thinning, variable-spaced thinning, and small patch or strip-clearing.

While primarily a silvicultural technique for enhancing tree growth and wood fiber production, precommercial thinning of dense second-growth stands provides a secondary benefit of temporarily enhancing and prolonging habitat suitability for moose and deer for an additional 20–25 years. We considered 3 set-spacing thinning treatments (16' x 16', 18' x 18' and 20' x 20'). Variable-spacing thinning, small patch ($\leq$2 acre openings), and strip-clearing are techniques that emphasize improving wildlife habitat suitability and species diversity within young second-growth stands. Working with U.S. Forest Service silvaculturists, we decided a combination of these techniques would best provide the desired vegetative response. We combined a set-spacing thinning treatment with an allowance for up to 50% overall variation in spacing.

As part of moose habitat enhancement efforts, 4 second-growth units (379 acres) deemed most likely to respond favorably to habitat manipulation were selected for treatment. We selected units for treatment based on their probability of producing the desired vegetative response, given the current extent of forest regeneration, species composition, degree of canopy closure, and amount of residual understory vegetation (Appendix II). Some older harvest units have already developed dense, closed canopies and as a result contain little or no understory browse. These initial efforts, therefore, focused on treating those units in imminent danger of losing residual browse due to canopy closure, but which still retained enough residual understory browse vegetation to recolonize units following treatment. Creating canopy gaps by thinning or partial clearing of second-growth stands will reduce canopy cover, permitting sunlight to reach the forest floor, and encourage rapid expansion of residual understory browse vegetation in treated units (Nyberg 1986). Selection and prioritization of units for treatment in this manner will improve and extend browse productivity while avoiding the time necessary to reestablish understory vegetation in more advanced closed canopy, second-growth stands.

RESULTS

CLEARING OF EXISTING ROADS

Phase one of the habitat improvement project, the clearing and reopening of approximately 10 miles of pre-existing logging roads at Thomas Bay, was completed in June 1998 at a cost of $10,200.

HABITAT MANIPULATION

Phase two of the project, the actual habitat manipulation work, was completed in October 1998 at a cost of $110,000. Four second-growth units (379 acres) were precommercially

thinned. Zaldivar's Forestry Corporation from Centralia, Washington won the contract to precommercially thin 198 acres at a cost of $51,480.00. This contract was awarded on August 3, 1998 and completed September 25, 1998. Rapid Tree Thinning from Sitka, Alaska was awarded the contract to precommercially thin 181 acres at a cost of $58,823.19. This contract was awarded on August 3, 1998 and completed October 1, 1998. Thinning operations were initiated in September and completed in early October, well ahead of schedule. While thinning operations were in progress, ADF&G staff remained on site to conduct routine inspections and monitor compliance with the state thinning contracts.

DISCUSSION

Without exception, those people who chose to comment on the Thomas Bay CIP, primarily hunters, commended the department's efforts to improve habitat for moose and increase access in the area. Due to unforeseen delays in getting the state construction contracts approved and awarded, it became necessary to conduct thinning operations concurrent with the 1998 moose hunt. While we were initially concerned that conducting thinning activities during the moose hunt would cause complaints, none was registered. Several hunters actually expressed a belief that thinning activities were beneficial to the hunt by improving hunter visibility and even attracting moose to the disturbed vegetation. In fact, several moose were observed foraging in the treated portions of units even while thinning was in progress. No conflicts between thinning crews and hunters were documented. On-site ADF&G personnel monitoring construction contract compliance were frequently asked when the department planned to extend its habitat improvement measures to additional units in the area.

ACKNOWLEDGMENTS

The following people assisted ADF&G staff with the design and implementation of the Thomas Bay moose habitat enhancement plan: Joe Doerr, Rich Jennings, and Tom Parker (U.S. Forest Service, Petersburg Ranger District). Allan Richards of Al's Backhoe and Orry Bell of Cascade Sand and Gravel performed all road-clearing work. Zaldivar's Forestry Corporation, Centralia, Washington, and Rapid Tree Thinning, Sitka, Alaska, performed all precommercial thinning work. Jerod Cook provided additional logistical support.

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Appendix I. THOMAS BAY MOOSE HARVEST SUMMARY 1972–1998

Year	Regulation and Season	Season Dates	Hunters	Total Harvest	Hunter Days	% Successful
1972	Harvest ticket	N/A	N/A	5	N/A	N/A
1973	Harvest ticket	"	"	3	"	"
1974	Harvest ticket	"	"	4	"	"
1975	Harvest ticket	"	"	8	"	"
1976	Harvest ticket	"	"	16	"	"
1977	Harvest ticket	"	"	13	"	"
1978	Harvest ticket	"	"	14	"	"
1979	Harvest ticket	"	"	21	"	"
1980	Harvest ticket	"	"	17	"	"
1981	Harvest ticket	"	"	12	"	"
1982	**season closed**					
1983	**season closed**					
1984	Registration permit 3 or more brow tines one side.	Oct. 1–15	91	12	286	13%
1985	Registration permit 3 or more brow tines one side.	Oct. 1–15	114	13	342	11%
1986	Registration permit 3 or more brow tines one side.	Oct. 1–15	154	15	721	10%
1987	Registration permit 3 or more brow tines one side.	Oct. 1–15	110	22	458	20%
1988	Registration permit Spike/fork	Oct. 1–15	120	28	504	23%
1989	Registration permit Spike/fork	Oct. 1–15	146	20	766	14%
1990	Registration permit Spike/fork	Oct. 1–15	162	23	751	14%
1991	Registration permit Spike/fork-50"/3 brow tine	Oct. 1–15 *	123	11 *	471	12%
1992	Registration permit Spike/fork-50"/3 brow tine	Oct. 1–15	111	25	594	26%
1993	Registration permit Spike/fork-50"/3 brow tine	Oct. 1–15	134	27	700	18%
1994	Registration permit Spike/fork-50"/3 brow tine	Oct. 1–15	128	11	793	9%
1995	Registration permit Spike/fork-50"/3 brow tine	Sept 15–Oct 15 *	106	15 *	530	14%
1996	Registration permit Spike/fork-50"/3 brow tine	Sept 15–Oct 15	110	20	794	18%
1997	Registration permit Spike/fork-50"/3 brow tine	Sept 15–Oct 15	146	18	946	12%
1998	Registration permit Spike/fork-50"/3 brow tine	Sept 15–Oct 15	114	20	783	18%

❖ Season closed early by emergency order