

# Enhancing Moose Habitat through Willow Tipping



## If the Moose are Hungry Now, the Village will be Hungry Later

When the people in the village of Dillingham noticed a decline in the local moose population, specifically poor calf survival, they knew they should take action. As a subsistence village, they rely on moose and salmon for traditional food. Without moose, villagers would be forced to change from their traditional local diet.

Choggiung Limited, the Village corporation of Dillingham, Alaska, contacted the Natural Resources Conservation Service (NRCS) to see if help was available to improve the declining quality of their moose forage. NRCS investigated sites within the village's traditional hunting areas, as identified by elders and tribal members, to determine the quality and quantity of moose habitat and develop alternatives for improvement. The sites revealed moose had browsed the willows so heavily the trees displayed a reverse hedge effect – in other words, the moose browsed the willows bare as far up as they could reach, eight to ten feet! In some cases, even the willow trunks were stripped of bark which occurs only when no other vegetation is available. Willow stands in this condition simply cannot sustain a stable moose population.

NRCS biologists, U.S. Fish and Wildlife Service biologists, and village residents scrutinized the correlation between moose population and willow stand health, carefully considering forage availability and quality with seasonal use patterns. Late in winter, cows, female moose, are in critical stages of gestation. Also late in winter, nearly all the nutritious willow leaves and stems have been consumed. A hypothesis formed: Cows carrying new calves were not finding nourishing food, so calves were born weaker, sickly. Sick calves and underfed





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cows result in high mortality and the moose population suffered. It seemed obvious, then, the solution to improving and increasing forage quality and availability for all area moose was to make better and more willow browse available.

How do people improve hundreds of acres of willow in remote, roadless, wet, brushy tundra? In a world of immediate gratification, large gas powered equipment, and “get it done yesterday” attitudes, the Alaska answer may be difficult to accept: manual labor and perseverance. The improvement plan involved local people manually “tipping” tall willows over, forcing new growth (basal sprout) from partially severed trunks. The work had to be performed in midwinter with chainsaws, handsaws and brush whackers in areas with only snow machine access. The trick was to work on frozen ground, which is easier to traverse than boggy marshland. To keep the willows alive, first the trees must be completely dormant, then the willow trunks must not be entirely severed; instead, a viable amount of cambium (the soft woody layer just inside the bark) needed be left intact for optimum stem regrowth. The new stems provide nutritious browse necessary for healthy cow moose. Because of the regrowth, the food supply will last through the winter. The willows’ regrowth is like a fully stocked pantry.

With a plan in place, the Village sought a work crew with the tools and winter gear to do the job. Winter work in western Alaska is as hard to come by as good moose browse. The regional village corporation forestry crew eagerly stepped up. This crew was normally without work or income during the winter, had the tools and skills, and understood harsh tundra outdoor winter work. In first winter, the crew completed a test plot of “tipped” willows. The next summer, people eagerly watching stem regrowth and waiting to see how moose would respond the following late winter. Just as the biologists and village residents hoped, the willows regrew bushy stems supplying a whole winter’s worth of moose food (and it is presumed the spring calves were born healthier – herd health research is impractical at this time).

The plan, tested over the course of a year and a half, proved successful. The work crew, eager for winter employment, undertook larger willow “tipping” plots during the next winter. As the work was completed on the plots, other villages along the river took notice. NRCS is now looking at numerous new clients and additional moose habitat improvement projects.

NRCS in Alaska is proud of improving moose habitat, the wide-ranging affects of sustaining village subsistence food sources, putting an otherwise unemployed crew to work in winter, and gaining new customers for the agency.

The willow “tipping” plots in this project are located 34 water miles up the Nushagak River from Dillingham, in southwest Alaska, off the shores of Bristol Bay. The villages in southwest Alaska are an off road villages, meaning people must fly or boat to get there. Access to southwest Alaska villages is by plane or boat only. The village of Dillingham, a hub for the region, is an hour and a half flight from Anchorage.