Buckthorn to Bacon

First hog grazed then seeded and grazed by sheep.

Second hog grazed then seeded and grazed by sheep.

Buckthorn seedlings grazed.

Current sheep grazing.

Buckthorn – the word has almost become profanity among managers of Minnesota's natural resources, including its private woodland owners. Originally introduced by European settlers who liked the fast growth and thick hedges it produced, buckthorn is an exotic invasive species that forms an impenetrable understory. It can cause long-term decline of woodland and wetland areas by competing with native tree seedlings and woodland plants. As a result, both common and glossy buckthorn have been declared noxious weeds by the Minnesota Department of Agriculture.

What makes buckthorn so tenacious is that it re-sprouts from the buds at the base of stems if it's not cut close enough to the ground. Effective treatment requires either uprooting the plant, or cutting it and then treating the stumps with the herbicide glyphosate.

Ogilvie area farmer/rancher Nancy Lunzer, found herself struggling as she compared treatment options for the buckthorn on her 72.5-acre ranch. She has 34 acres of hardwood forest, 26 acres of pastureland, and 12.5 acres of cropland. She wanted to get rid of the buckthorn without destroying her natural windbreak and without leaching herbicide and silt into area wetlands.

"I love frogs and toads," Nancy warmly attests. "I am not going to risk having pesticides enter the wetlands and lowlands on my ranch."

"Costs for controlling buckthorn in our area typically run $170 to $250/acre for the initial mechanical removal of a moderate buckthorn understory with an additional estimated cost of $150/acre herbicide treatment (if landowner applies it) and $300 if contracted," Nancy explains. "It will need to be treated annually for at least 4 years until the seed bank is depleted."

The traditional methods of controlling buckthorn were not conducive to Nancy's farm, which is home to seven species of reptiles and amphibians, 10 species of mammals, and 47 species of birds. The entire area of buckthorn on her property drains into wetlands during spring snowmelt and run-off during heavy rains. Clear-cutting the area was undesirable to her because the mature trees provide a windbreak to the homestead and livestock areas.

Nancy tried grazing goats on the buckthorn, but found they were not able to adequately control the buckthorn when they grazed it.

"They tended to graze to about one foot high and no lower," says Nancy. "The buckthorn actually thrived on the frequent trimming and branched out with re-growth on many stems."

In 2010, Nancy applied for an NCR-SARE Farmer Rancher grant and was awarded $5,979 to determine whether Berkshire hogs could clear a small area of buckthorn.

NCR-SARE Farmer Rancher grant refers to the North Central Region Sustainable Agriculture Research and Education. It is a US Department of Agriculture program that offer an array of competitive grants for researchers, agricultural educators, students, farmers and ranchers in the United States.

Rancher Nancy Lunz worked with Department of Natural Resources Forester Tony Miller to develop a plan. She used her grant to acquire Berkshire hogs the first year, and then Duroc/Berkshire pigs the second and third years to "graze" the buckthorn. (Berkshire hogs are a breed known for their foraging ability.) Six hogs were moved into a series of small, enclosed areas, and partitioned with temporary electric fence. In addition to forage, the hogs were supplemented with corn and soybean meal and food waste.

And "graze" they did! "The hogs worked day and night rooting up vegetation in search of grubs, earthworms, roots, mushrooms, acorns, and butternuts," Nancy says. "They turned the top 6-8 inches of soil, digging out stumps, rocks and roots and gleaning anything edible from the forest floor. They trampled the downed vegetation breaking it up underfoot and driving it into the soil."

According to Nancy, the pigs cleared 2.25 acres of buckthorn in 2011. They worked the ground around the large trees and boulders without disturbing deep-rooted tree species and without compacting the soil. Once the buckthorn was sufficiently removed, she removed the pigs, and the area was planted to shade tolerant grasses.

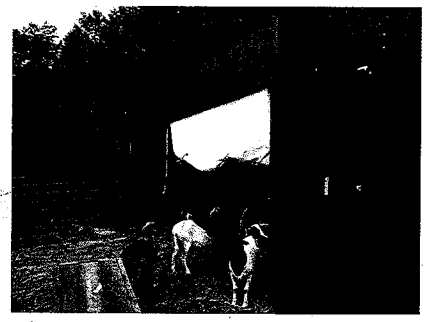
Once the grasses were established, Nancy followed the pigs with allowing sheep to graze during subsequent years. Grazing with sheep during subsequent years will keep pressure on returning buckthorn seedlings. Sheep are browsers as well as grazers and will forage on both grass and broadleaf plants. Buckthorn seeds remain viable in the soil for 4-5 years, so a multi-year plan is important for success.

"The most impressive result for this project was the ability to eradicate buckthorn from many of the most highly infested areas in the forest," says Nancy. "Those worthless areas were revived into pastures for grazing sheep. The buckthorn was removed and doesn't seem to be making a comeback."

Forester Tony Miller was pleased to see that the seed bank was depleted in the soil, as evidenced by little or no buckthorn regeneration following the project.

"Since there seemed to be limited hope on the horizon for a biological control, and considering the expense and effort required for chemical/mechanical control or the use of prescribed fire, the use of livestock definitely provides a promising alternative in some cases," Tony testifies. ■

Facing west to neighbors. Buckthorn in the background.



Fly screens for sheep shelter.

Grazing sheep.

Hog grazed and then let grow, no buckthorn reestablished.

Neighbors buckthorn problem.