

Midrotation Pine Management Benefits Landowners, Wildlife

By Karen Brasher

Photo by Wes Burger

When it comes to competition, athletic fields are not the only arenas in Mississippi. The state's 3 million acres of plantation pine are sites of fierce competition for available sunlight and nutrients.

Undesirable hardwoods in the understory of the plantations compete with pines and wildlife, said MSU forestry professor Andy Ezell.

"Forest managers know that managing competition is essential for timber production, but it's often overlooked that undesirable trees in pine plantations impact wildlife habitat," Ezell said.

Ezell, along with wildlife and fisheries scientists Steve Demarais and Wes Burger, have studied how thinning, selective herbicide use and prescribed burning can improve both timber production and wildlife habitat quality.

"Wildlife populations are influenced by the structure and composition of plant communities, so specific habitat requirements of targeted wildlife species must be understood and emphasized in planning," Demarais said. "Conditions that limit sunlight and nutrients for pine production also degrade habitat quality for these wildlife species."

Midrotation thinning allows sunlight to reach the understory for several years, and the sunlight improves wildlife habitat on the forest floor. A pine plantation reaches the midrotation period in about 15 years.

The heavier the thinning, the longer sunlight can promote wildlife habitat. Dense, undesirable hardwoods capture sunlight and compete for resources with pines. Removal of undesirable hardwoods with the selective herbicide imazapyr eliminates this problem. In addition, prescribed fire eliminates the pine straw litter and promotes germination of beneficial plant communities.

The MSU research also found that midrotation removal of dense, undesirable hardwoods significantly increases pine height and diameter growth.

"The responses are not immediate, but after four years the combination of herbicide and fire increased pine basal area by 29 percent compared to untreated plots," Ezell said.

Initial results indicate that fertilization provides a better pine growth response than hardwood control. However, long-term studies indicate that pine growth resulting from midrotation herbicide applications and prescribed burning surpasses growth spurred by fertilization.

The research also found that midrotation treatments benefit the deer population by improving the food supply.

"An inadequate supply of high-quality forage is the habitat factor that most frequently limits antler quality in the Southeast," Demarais said. "Correcting this limiting factor is the key to improving deer habitat quality in managed midrotation pine stands."

The cost of producing high-quality protein with the midrotation treatment regime is one-third the cost per pound of producing protein in food plots.

Food plots produce more protein per acre so they should continue to be used, but producing quality forage under managed pines is the key to optimizing deer and timber products, Demarais added.

The open forest structure created by thinning, herbicides and prescribed fire stimulates the development of a lush understory composed of native grasses, legumes, forbs and shrubs.

"This open forest structure provides essential habitat for many pine-grassland bird species," said Wes Burger.

Midrotation stands managed with a midrotation treatment regime support more individual birds, more bird species and more species of regional conservation concern, including turkey, bobwhite quail and nongame species, Burger added.

"Many of these species have exhibited long-term population declines in Mississippi because of fire exclusion and the loss of open pine-grasslands," Burger said. "Active pine management with midrotation treatment practices can reintroduce the characteristics of natural pine-grassland habitat for these species."

Midrotation practices, the foresters and wildlife specialists agree, result in a win-win situation for Mississippi's forest landowners and its wildlife.