



Loblolly pine plantations in the South constitute a large proportion of the upland habitat needed to grow forage for deer

*In loblolly pine plantations*

## Keep Forage Low To Improve Deer Habitat

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Studies show that it is feasible to grow deer forage as well as timber in a southern pine plantation

Depending on their age and how they are managed, southern pine plantations can provide sizable amounts of forage for deer. Since millions of acres of upland deer habitat are already in plantations, and millions more are slated for planting, the browse they yield will become increasingly important to southern deer herds—and to the sportsmen who are interested in seeing the herds prosper.

Studies in a loblolly pine plantation in central Louisiana have provided leads as to how deer forage may be increased by stand management.

Suitability of a plantation for deer is directly related to the kind and amount of forage in the understory. This, in turn, is governed by the amount of light that forage plants receive. The forage must also be kept within reach of the animals.

For the first 3 to 5 years after pines are planted, a wide assortment of grasses, forbs, and browse provides good food for deer. On sites burned or disked just

before planting, most of the forage will consist of herbage. On other sites, low shrubs and hardwood sprouts usually are abundant among the pine seedlings.

Within approximately 5 years after planting, depending upon species and spacing, crowns of the young pines close. Food plants, both browse and herbage, decline with the decrease in light. Even though a scattering of herbs, shrubs, and hardwoods remain, there isn't much forage. Main contribution of the plantation to deer at this stage is for cover, which is of value only if food is nearby.

After stands are first thinned they again produce substantial forage. This initial thinning, which usually can be made when pines are 15 to 20 years old, opens the canopy and increases light penetration to the understory. The shade-tolerant shrubs and young hardwoods that pioneered under the pines grow faster, and new forage plants become established. The heavier the cut, the greater the response.

Additional thinnings to maintain rapid

timber growth are required as canopies reclose, generally at intervals of 4 or 5 years.

By the time the stands are about 30 years old, browse plants usually are abundant in the understory, and yields are directly related to the intensity of previous thinnings. Yields from a 30-year-old loblolly plantation near Woodworth, Louisiana, illustrate the point. Stands that had been thinned lightly, 5 and 10 years previously, to a basal area of 100 square feet of pine per acre yielded only 154 pounds of oven-dry browse per acre. Those thinned to a basal area of 85 square feet per acre yielded 179 pounds of browse. Stands heavily thinned to 70 square feet of pine per acre yielded 199 pounds. Of the total browse, about 64 percent was from species palatable to deer.

Much of the hardwood understory in the 30-year-old stand had, however, grown beyond reach of the deer. A multi-layered midstory had begun to

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**Above, deer forage is scarce in this 20-year-old loblolly plantation just before first thinning. Below, 10 years later, and after two heavy pulpwood thinnings, browse is prolific. By stand age 35, browse increase had ceased**



form, producing no forage that deer could reach and suppressing growth of plants in the zone where the animals could browse. Density of this midstory tended to be directly proportional to intensity of pine removal—the heavier the thinning, the denser the midstory.

This development changed forage yields. Browse production of this plantation at age 35 ranged from 194 pounds of oven-dry material per acre in stands heavily thinned to 255 pounds with light thinning. Thus, forage in the understory was no longer governed by the dominant pines but rather by density of the midstory.

A hardwood midstory not only lessens forage but also competes with pines for growing space and soil moisture. To prevent such developments, thinnings or

stand improvements should remove hardwoods that have grown beyond the reach of deer. An exception would be individual hardwoods that will yield mast or commercial timber. Controlling such unpalatable species as sweetgum and hickory can provide additional light and growing space for yellow jessamine, ratan, blackgum, flowering dogwood, and American beautyberry, which are dependable browse species.

Burning at 4- to 5-year intervals is normally prescribed to reduce fuel accumulations. It also helps keep the hardwoods and other browse plants within the reach of deer. The effect can be important, especially in the case of vines. In addition, fire improves the nutritional quality of deer browse for 2 to 3 years.

In summary, then, it is feasible to grow deer forage as well as timber in a pine plantation. In making commercial thinnings, foresters usually leave a pine stand of 60 to 80 square feet of basal area per acre. In such stands, an adequate if not bountiful supply of browse usually develops.

Most plantations managed for timber should therefore afford good deer habitat for 10 to 15 years after the first thinning. If hardwood midstories are avoided and browse is kept low by periodic burning, forage should continue to be plentiful until the stand is harvested. Then, if regeneration areas on the forest property are of moderate size and interspersed among established stands, slight shifts in home ranges should permit deer to adjust to the period of browse scarcity that will follow regeneration.