BUILDING YOUR OWN
'DEER FACTORY'

Make Your Woods Better For Bucks

When you learn to see the forest through the eyes of a whitetail, you realize that proper care of the woods is just as important as any other aspect of your management program.

by Dr. James C. Kroll

"We have some of the most beautiful woods you ever have seen," many landowners tell me, "but we don't see that many deer. Why not?"

The problem usually is one of forest protection — not too little, but too *much*. You must manage a forest for deer, not just *protect* it. The whitetail is not an old-growth forest species; rather, it thrives on the new growth created by habitat disturbances. How can we use this knowledge to produce greater numbers of healthy bucks where you hunt?

A DEER'S-EYE VIEW OF THE WORLD

The head of a standing whitetail generally is held about four feet above ground level, and that's the maximum height at which the animal would prefer to feed. Although a deer can stand on its hind legs and reach to about six feet into trees, that is not ideal. Such behavior suggests that an ample supply of highly preferred food is not available near ground level.

With this 4-foot zone in mind, walk around in your hunting area, stopping periodically to ask yourself "What is there for a deer to eat right here *on a year-round basis?*" If the answer is "Not much," then you obviously have some work to do.

MANAGING WOODLANDS FOR WHITETAIL FORAGE

The total amount of plant material growing on a given acre of ground is a function of two variables: available moisture and light. Both have major impacts on growing deer forage.

Soils play an important role in moisture availability. A perfect soil is made up of an equal mix of sand, silt and clays, allowing it to absorb water and make it available to plants.

Unfortunately, there is little you can do on your property to change the basic moisture-holding capacity of the soil itself. However, there *are* things you can do to make the soil better for plants.

Increasing the forage production of a forest can be as simple as taking out some trees. But how many of which types? Photo by Keith Brooks.

A soil with higher organic matter tends to hold more moisture and yet still make it available to plants. Because organic matter comes from leaves, twigs and other debris falling to the forest floor from above, a canopy of some type is important in improving innate soil fertility in forested habitats.

The second factor, light, is the one you can do more to control. The amount of light reaching the forest floor is directly influenced by the density, or closure, of the canopy. Canopy is the uppermost layer in any plant community, whether grasslands or majestic forests, but in this case we are referring to tree canopies.

The two canopy types that let the least light reach the ground are dense stands with the treetops tightly intertwined and those with several layers of vegetation. You can have a relatively sparse stand of trees, but many layers beneath the canopy still keep light from reaching the forest floor.

The composition of tree species in the canopy also affects light availability. Hardwoods provide more shade than do conifers (pines, cedar, etc.) during the growing season; conifers tend to have lighter crowns and let more light pass, even at higher densities. Mixed pine-hardwood stands tend to be intermediate in light reduction.

Armed with this knowledge, take a walk around your place and evaluate the types of forests present. This is where a good aerial photograph comes in handy. Make notes about the relative forage production potential of each forest or stand. Record whether the top layer is composed mostly of hardwoods, conifers or a mixture, and note the number of layers of vegetation present.

Studying the understory plants will tell you a lot about their growing conditions. In general, good deer forage should impede you as you walk, with the tops striking you at roughly chest height.

Classify the relative age of each stand: seedlings, saplings, young forest or mature forest. Once you have completed your assessment, it is time to develop a plan to ensure good forage production on a perpetual basis. *(Continued)*

HOW MUCH FORAGE CAN YOUR WOODS GROW?

If you are doing a good job of woodland management, on an acre of forest you can expect during the growing season to produce about 1,000 total pounds of vegetation within the 4-foot "deer zone." I wish all of this forage could be eaten by deer, but in most areas only about a third turns out to be good deer food. We now are down to roughly 300 pounds per acre. Good land stewardship dictates that we not allow the deer to eat more than half of the available forage, thus reducing the available total to around 150 pounds per acre.

The average whitetail will eat about 8-10 pounds of plant material per day, so this hypothetical acre will support a total of 15-19 "deer-days" per year. Using this figure, without any crops or supplemental feed it will take about 25 acres to support a single deer for a year. Some areas have higher productivity and some lower, due to precipitation and other climatic factors, but that is a good estimate.

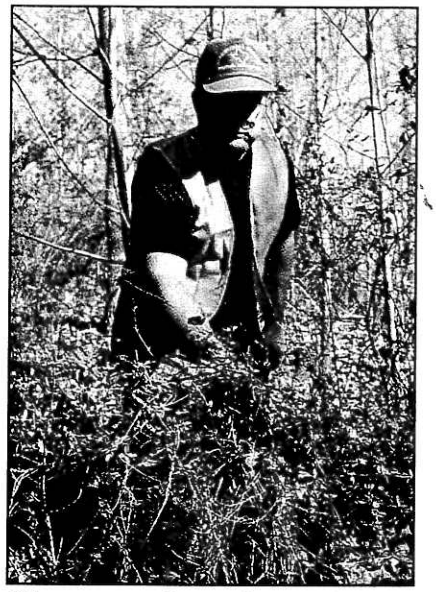
(Based on these numbers, it is easy to see why we at ***WHITETAIL*** so enthusiastically advise hunters and landowners to grow year-round food plots in addition to good woodland habitats. Our research shows that a single acre of highly productive food plot can sustain at least three deer on a full-time basis, far more than even the most productive woods. But even if you have a good plot program, it makes sense to maximize your forest production as well.)

THINNING THE WOODS

The last century saw a great deal of research on how forests can be manipulated to produce both plants and animals. What the research showed was that *a healthy deer woods is one periodically thinned to keep the canopy from closing in.*

Over the years many rules of thumb have been suggested for accomplishing this, but one of the simplest is "the D+ rule." Here is how it works:

Measure the diameter of the canopy trees at about four feet from the ground ("breast height"). You can do this randomly or, if you have time, measure as many as you can in the stand. Now average the diameters of these trees, giving you the "D."



Whenever you're in the woods, look around and ask yourself, "What is here for a deer to eat?" This is Japanese honeysuckle, a whitetail staple. Photo by Gordon Whittington.

Wildlife biologists often disagree on the correct number, but I prefer to use what I call the "D+12" rule. In other words, if the average diameter is 10 inches, add 12 to it, giving you 22. Armed with this value, you now can thin the stand to improve both forage and timber growth.

If the value is 22, simply start with any well-formed tree in the stand, then mark all trees within a 22-foot radius of it. Then remove them, either by cutting or injecting with an appropriate herbicide. Now move to the next good tree outside this radius and repeat the procedure until you have covered the entire stand.

Using this method to reduce stand density, I have doubled or tripled the productive capacity of a property for deer. If you wish, a mixed conifer-hardwood stand can be thinned by removing just the conifers or just the hardwoods, depending on your goal.

PLANT YOUR OWN WOODS

Most trees are planted in late winter or early spring. You can get them from commercial nurseries or the local forestry agency. Most states now have their own nurseries to provide trees to the public, and they offer free assistance to landowners in planning forests. Commercial timber companies also have assistance programs, some free of charge.

The number of trees to be planted per acre is an important consideration, as is how you are going to plant them. It normally takes about a day to plant one acre of trees, so you will need help. Again, agencies and companies are available to assist you.

You can plant either in rows or randomly. The former is easier, the latter more aesthetically pleasing. But however you plant the trees, spacing is important. In general, plant conifers on at least 12x12-foot spacing, hardwoods on 20x20-foot spacing.

Here is how to estimate the number of trees you need. Suppose you want to plant 10 acres to pines. There are 43,560 square feet in an acre. For a 12x12 spacing, there will be $43,560/144\ ft^2$, which comes to about 300 trees per acre. To plant 10 acres, you need to order 3,000 trees.

Most nurseries sell trees in lots of 100 or 1,000. Costs range from $25 to $150 per 1,000, depending on species. In Texas we normally pay about $30 per 1,000, so a 10-acre job there would cost about $100 plus labor.

TENDING YOUR TREE CROP

Planting trees is just the beginning. Stands must be nurtured, just as any other crop must be. This includes thinning at the proper time. Each time you thin, there is a corresponding increase in forage production.

The time it takes to get to this point depends on the region. In the South, from planting to thinning might only take five to eight years, while in the North it might take up to 20. The best rule of thumb is simply to *thin when the canopy closes*. Either thin as discussed or, if your trees are in rows, simply remove every third row. This produces trees with their crowns in the sunlight on at least three sides, which is conducive to good growth.

The first thinning is a *non-commercial thin*, meaning you will have to foot the bill for the work; the trees you remove will be too small for anyone to buy. In most cases, however, the next thinning will come at a time when the trees are beginning to have economic value. Each time you thin thereafter, your return will be greater. (In the South, well-managed mature pine forest is worth about $1,500 per acre, a hardwood stand in the North perhaps

four times that.)

But managing a stand for good forage is not the whole picture. What about acorns? A healthy canopy of oaks of several species will ensure a good crop. With few exceptions, however, acorn-producing stands do not come into their own until they are at least 30 years of age, so you must be patient. In the meantime, you can do a lot to increase the mast crop.

The amount of acorns produced, measured in pounds per acre, is determined by the following, all of which are under landowner control:

- Tree age
- Crown diameter
- Fertility
- Tree species diversity

By practicing good forestry, you can ensure proper age and crown diameter. You also can determine, to some extent, the diversity of acorn species in your stand. Record the number of individual trees in the average acre per species. (This will require learning to recognize them, but it is not hard.)

If one species is too abundant and another too scarce, the next time you thin your stand, simply remove more of the overabundant species. In time this will result in a very diverse forest, and the more diverse the stand, the more stable the acorn crop.

What about fertility? I have had great success with fertilization of my acorn trees. It often is difficult to get around in the woods with a hand spreader filled with fertilizer, but that is what I like to use. (If your trees are in rows, you possibly could use a tractor- or ATV-mounted spreader.)

A general rule would be to apply *one pound of a balanced fertilizer (such as 12-12-12) per average inch of tree diameter per tree per acre.* In other words, if the average diameter is 10 inches and there are an estimated 100 trees per acre, apply 1,000 pounds of fertilizer per acre. Some biologists recommend using only phosphate (0-0-40) at the same rate. It is necessary to apply fertilizer only once every three to five years.

COVER MANAGEMENT

Most of what I am recommending here will improve cover as well as forage. This is worth remembering, for in my travels the No. 1 habitat problem I see is a lack of good cover.



Clearcuts less than 5 years old have some of the highest and most diverse forage production. As the canopy begins to close in and the light availability at ground level drops, so does the yield of good deer food. Photo by Ben H. Koerth.

Whitetails need about 30 percent cover, preferably distributed evenly over the landscape. Rarely do hardwoods provide adequate year-round cover, so you need to take a look at the amount of coniferous forest you have. Mixed pine-hardwood forests also can provide good cover.

A rule of thumb is that dense stands of conifers provide *thermal* cover (protection from the weather), while young conifer stands provide excellent *screening* cover (protection from predators). Unfortunately, young pine stands only stay in a positive screening condition for five to 15 years after planting, depending on geographic location. I recommend you manage your woods so that every block of 80 acres has at least one good cover source of at least 5-10 acres.

Small-patch clearcuts provide the best screening cover, while densely stocked mature stands (conifers and/or hardwoods) provide the best thermal cover. You want to hold some stands at a higher density of trees to produce this effect.

Summer thermal cover has a closed canopy but a very open understory to allow the flow of cooling air. *Winter thermal cover*, on the other hand, needs to be dense, with an understory that impedes cold airflow. Stands that are thinned regularly will do the job.

PUTTING IT ALL TOGETHER

Analyze the conditions in each part of your hunting area, looking for good distribution of cover and forage areas. If your timber isn't being managed to produce a sustained yield of good forage, develop a plan to meet that need. Contact your forestry agency and work out a sound plan for timber management. Most states provide this service free of charge or will put you in contact with a consulting forester. However, a word of caution: Most foresters are committed to producing wood fiber, so if not told otherwise, they tend to develop a plan to that end. If you work with a forester, remind him that your management goal is to optimize wood *and* deer forage. There must be tradeoffs.

You normally will face one of two situations: (1) no forest where there needs to be one, or (2) too much forest. In the former, you can develop a planting program, perhaps under the Conservation Reserve Program, that will provide immediate cover and later forage. In the latter, you can work out a program of forest harvest and thinning that will ensure a constant supply of forage.

CONCLUSION

With a good plan, you can make your woods a place where deer want to be. You even can use cover to "steer" them across the landscape in the way you want. Of course, they still will move *when* they want to, and there is not a lot you can do about that. But then again, as a hunter, I wouldn't have it any other way.