



Precision Forestry

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Precision agriculture is a concept that is accepted and practiced on row crop acreage, particularly throughout the Midwest where land is well suited for tillage. Precision agriculture uses satellite technology to guide the application of fertilizer/herbicides/lime etc. at precise rates, varying throughout the field depending on the soil characteristics. This method makes best use of these soil additives, assuring that no area receives too much or too little. Each acre is treated uniquely, as though there are a series of small fields all falling within one larger field, working together for maximum profit.

Though not commonly practiced in forestry, this same “precision” management concept can be applied. Most privately owned forests have considerable habitat diversity. Site factors, such as soil, will vary according to position on the slope (ridge tops and upper slopes are less productive than mid and lower slopes). Slope aspect, or direction the slope faces, also has a measurable impact on productivity (south and west slopes are less productive than north and east slopes).

Further, past practices within a forest often result in an assortment of tree species, varying in age and in different condition. For example, if portions of the forest were previously exposed to livestock pasturing, ground fire, timber harvesting or even row cropping, these areas will have different attributes than other portions of the forest that were not exposed.

Too often, a generalized broad-brush forestry prescription is made and implemented in forests when instead, due to its diversity, the forest needs “precision forestry.” Many private forests are more a conglomerate of small, unique stands, falling within the larger forest tract. Each of these smaller stands should, based on both economics and ecology, be managed with careful analysis of what it indicates is needed.

For example, a 75-acre hardwood forest tract may have 20% of its acreage with poor quality trees, previously mismanaged and without good economic potential. This area could be regenerated (clearcut) to create young growth and early successional habitat. An additional

50% of the acreage might have fine quality, middle-aged sawtimber, needing to be thinned to gain some monetary return and to energize the remaining trees so that they’ll be ready for a follow-up harvest 15-20 years hence. The balance (30%), simply too young for commercial harvest, is overstocked thus experiencing suppressed growth. Here an owner could implement “crop tree release” by deadening weed trees with a chainsaw, thereby assuring a future forest with well-spaced, highly desirable crop trees.

In the Southeast, we are experiencing an increase in the number of forest landowners, with each owning smaller acreages. This situation is ideal for precision forestry. With precision forestry, essentially all crop trees are allowed to reach their economic maturity, rather than be sacrificed (harvested) too early. Plus, precision forestry creates great diversity in habitat, age structure, and species . . . conditions highly desirable for those landowners who consider the other uses of their forest (recreation, wildlife, and aesthetics) equally important! 🌲