CENTRAL HARDWOOD NOTES

The Central Hardwood Forest

The central hardwood forest covers a vast area of the United States where the dominant native vegetation is hardwood trees. it is one of the largest forest areas in the country and contains about 100 million acres. The forests include more than 70 hardwood tree species, several conifers, many shrubs and herbaceous plants, and a large number of animal species. This great richness of plants and animals is the result of a wide diversity of soils, geology, geography, and climate. Although much of the original forest was cleared for agriculture, woodlands remain a dominant feature of the landscape. Aside from scenic beauty these forests provide recreation, water, timber products, fuel, and essential habitats for wildlife. The social and economic benefits of the central hardwood forests, while of great value, can be increased substantially with better management.

Central hardwoods, area of application.

Plant and animal associations within the central hardwood forest are both broad and diverse, yet they have enough in common for us to prescribe management techniques in these Notes. For this purpose the central hardwood forest is defined as the general area included in the oak-hickory forest cover type in the National *Atlas,* Major forest *Types,* 1967. However, the Notes do not cover the deep south or the east. Even so, much of the technical information can likely be applied to similar forest types outside the area in the figure. Two forest types geographically associated with the oak-hickory type, the elm-ash-cottonwood (bottomlands) and the oak-pine, are included in the /Votes. But the maple-beech-birch and oak-gum-cypress associated types are excluded.

Climatic factors provide boundaries for the central hardwood forest on the north, south and west. Mountains provide a general boundary on the east. Within this broad forest area, there are numerous plant and animal communities or ecological associations. The area is biologically diverse because of wide differences in site factors which often change abruptly within short distances. In the hill country one can go from a small stream bottom with moist site species to a ridgetop with dry site species in a span of only 600 to 1,000 feet; 3 or 4 different forest types might be encountered. Without a sharp change in topography-such as a bluff or a bench-there would be no sharp boundaries between the forest types. Species associations merge into one another as microclimate and moisture change.

Because of the species and site variation much of the information in the Notes is presented by site, species or species groups. Where possible, reference is made to four distinct tree associations: (1) oak-hickory, (2) oak-pine, (3) mixed hardwoods, and (4) bottomland hardwoods.

The present forests are far different from those at the time of European settlement more than 300 years ago. The impact of man-caused fire, grazing, cutting, and clearing for agriculture followed by abandonment have made profound changes in the mix of tree species and their size, age, and condition. Understory vegetation and animal populations are also greatly different. Even though some of the past impacts were drastic, most of the forest sites still retain their original capacity to support healthy plant and animal populations. Both the gypsy moth and air pollution could potentially change the growth and composition of central hardwoods. In spite of the long history of clearing for agriculture the forest acreage in the central hardwoods has been fairly stable for the past few decades. Future net losses of forest land, through continued encroachment from urban expansion and stripmining for coal, will probably be minimal.

As far as we know, today's forest includes nearly all of the tree species found at the time of settlement. American chestnut, due to the blight, is now gone from the overstory but still persists in the understory as sprouts that live only a few years. American elm has been greatly reduced in many areas due to disease. Aside from these two tree species there is no specific evidence that significant plant genetic potential has been lost. Several species of large mammals have been eliminated but most other animal species have viable populations.

Most of the forest stands are middle-aged having been harvested near the turn of the century. Current growth of the forest exceeds what is removed through harvest and mortality and the growing stock has increased steadily. The negative side of this situation is that economic opportunities to manage young stands are poor due to lack of markets for small, low quality trees. Demands for large, high quality trees

exceed supplies and real prices for this kind of raw material continue to increase. Demand for hardwood timber is projected to nearly double by the year 2030. What really happens in terms of how much timber is harvested and how the forests are managed in the future will depend upon the decisions of thousands of owners in the region. Three-fourths of all the forest land is controlled by small, private, nonindustrial owners who have many different reasons for owning and many different attitudes toward managing their land.

The central hardwood forest provides raw materials for an economically important forest industry that takes advantage of some of the unique characteristics of hardwoods for hundreds of uses. Some of the world's most valuable woods come from this area. Fine furniture, paneling and flooring made from hardwoods have been highly prized since colonial times. And large amounts of central hardwoods are used every day in the manufacture of railroad ties, pallets, lumber and paper. Wood for energy is becoming a more important forest product. These forests also provide an essential part of the environment for one-fourth of the U.S. population. Scenic beauty, water, wildlife and recreation are all very valuable products of the central forests.

The prospects for more benefits from the central hardwood forest are improving as they mature. This does not mean that future forests will automatically be more productive and more profitable. Unless more deliberate management is applied to private land, we may simply go through another cycle of harvesting without regard for future timber crops and without concern for wildlife, water, recreation and esthetics. There is good reason to believe that many forest land owners and managers would improve both comsumptive and nonconsumptive uses of forest land if given practical treatments and alternatives. The land and the growing stock still has the inherent ability to produce quality products for both domestic and international consumption. Through better management and more dedicated land stewardship we can improve present forests for our own benefit and furture forests for generations to come.

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