

# CENTRAL HARDWOOD RESEARCH PRIORITIES

AS VIEWED BY

A STATE FORESTER<sup>1</sup>

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Central Hardwoods are an important resource in Illinois as well as in the surrounding states. They are important commodities to the economies of the Central States and important to the worldwide manufacture of fine furniture, fixtures and construction materials. They are also important in terms of their non-commodity values of wildlife, recreation, water and air quality, providing for an overall better quality of life.

Yet as important as this resource is, we have seemingly paid less attention to it than it rightfully deserves. Much greater potential can be achieved through more active management based on sound scientific principles.

Central Hardwoods cover 80 million acres in the eastern United States and represent 33% of the total forest cover. The commodity value of this resource is staggering. Far greater values are associated with the non-commodity and intrinsic values. Further, it has been estimated that with sound and active management of this resource the economic return could be increased by 7 to 10 times the present day values. But status quo will result in losses of a much greater magnitude.

Research on Central Hardwoods is desperately needed and justifiable.

To assist in identifying needed research on our Central Hardwoods, I sought the input of my counterparts in Iowa, Missouri, Indiana and Ohio. Therefore, the perspective I present today on research priorities in the Central Hardwoods is the collective consensus of five State Foresters. I must say that the response to my request for input was handled on an immediate response basis, indicating to me that all State Foresters share a concern that this topic of research on the Central Hardwoods needs immediate attention.

The research need that was identified as being most pressing in the majority of the states canvassed was Oak Regeneration/Hard Maple replacement.

**Oak Regeneration:** While some of the principles involved are known, we generally do not have good prescriptions on high quality oak sites. There is a need to know how and when to prescribe a shelterwood, group selection or clearcut system of even-aged management operationally with a high or higher degree of certainty. Recommendations developed in the Ozark Region do not apply throughout the Central Hardwood region.

Two aspects of oak regeneration need to be investigated: natural and planted. Past oak high grading has progressed to the point where natural regeneration of high quality oak may no longer be a viable option in many stands.

Tied rather closely to this is the need for additional research to identify and propagate the best oak seedlings, either in the wild or nursery environment, to develop the most economical methods of planting and bringing these seedlings through the rotation to achieve natural stand dominance.

Advances in tree improvement, seed handling, genetic engineering and tissue culture are needed on oaks and other fine hardwoods. These needs are becoming more pressing as the time, costs and space needs of nursery propagation become more prohibitive every year.

**Oak Decline:** High hazard areas of oak decline have been identified in the Central Hardwood Region. Some treatment measures applied apparently augment the spread of decline symptoms to adjacent stands; however, new research is needed to determine the causes and the correct means of managing these areas to minimize damage.

**Hardwood Utilization and Marketing:** Additional and/or new research is needed to find profitable product uses for our under-utilized species. These are more commonly referred to as low-grade hardwoods. With utilization and marketing research the profitable use of these species would enhance more active management of our forest stands. Can methods be found to over-

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come the barriers of utilizing oak, hickory and other "heavy hardwoods" in oriented-strand board or other composition board products? Also along these lines is the need to develop equipment for intermediate stand treatments. Perhaps even more basic is the need for more economical and effective and efficient methods of deadening trees in a TSI operation. The old axe/chainsaw girdling or felling methods are becoming cost prohibitive.

Growth/Yield Information: The lack of growth/yield responses to standard silvicultural practices applied in our Central Hardwood region and the corresponding economic implications of these practices are causing considerable problems. Our field foresters' clientele is constantly improving in educational levels and sophistication in understanding the involvement and activities that affect the environment. More and more their decisions are being based on economic considerations where some type of investment must be made to assure a future return or desired result, as opposed to biological considerations. There is a desperate need for better computer-based growth/yield programs and associated economic analysis software programs.

Uneven-aged Management Systems: Closely related to, yet separate from, the oak regeneration issue is the present uneven-aged silvicultural system we're using to manage oaks. The "q" factor approach is one method of single tree selection but it is difficult to apply. More practical and applicable approaches to using uneven-aged management practices are needed.

Political/Economical/Educational: More advanced research is needed to develop programs and means to communicate the benefits of forest management to the public and to elected officials. The image of forestry, the profession, our programs and practices has been tarnished. More effective means must be found to better represent the "truth of the woods" and our efforts.

Innovative Product Development: A visit to the supermarket by a forester is a disturbing experience. We find plastic milk jugs, meat on styrofoam, cereal in cellophane and all packed from the store in plastic bags and taken home to a formica kitchen. Our land fills are rapidly approaching capacity with a high percent of the material being wood, wood products, paper and wood residue.

Meanwhile, our sawmills are being covered with sawdust and our wood manufacturing plants are being crippled by wood dust problems.

Our wood-based paper plants are being threatened by cultivated short rotation or annual agriculturally oriented crops.

Biodegradable "plastic" bags are now being manufactured from corn products or by-products. Why can't wood be used as well? Wood burned in combination with fossil fuels could substantially reduce the CO<sub>2</sub> and SO<sub>2</sub> omissions.

New uses of wood and wood residue must be found before the market place goes to synthetics completely.

Urban Forestry Research: We must not forget as we discuss Central Hardwood Research that the same species and some of the same problems are found in our urban areas. Urban forest management is a growing concern throughout the United States. Intensified research efforts are needed. To effectively manage, enhance and expand the urban forests we need a survey to quantify it.

On a periodic basis the USDA Forest Service conducts forest inventories State by State. Yet a vast area of the forest resource is not included in a detailed manner to positively affect programmatic structure. This vast area includes the urban forests of the Nation.

We need additional research on species to plant, new cultivars, insect and disease control, product development from urban wood waste and more effective educational programs for urban forestry.

The above should not be construed to be a complete list of research needs in the Central Hardwood region. Some basic research is being conducted with State or private funds that deserves more time, attention and full research development. These projects include oak underplanting, seedling quality, seedling root morphology, tree improvement, nursery propagation techniques, oak mast production, insect and disease problems and agriforestry among others. The research needs are as diverse and numerous as the species in our forests. The common thread that runs through the Region is that the private landowner controls the vast majority of the forest resource base. Anything we can do through research and development that will encourage the wise use of this land and its products will have incalculable benefits. We, as State Foresters, land managers, and researchers must be the leaders in demonstrating how the latest and best technologies can be incorporated into land management. You, as forest researchers, must be the providers of this information.

By working together in this partnership arrangement we will find our forest lands more abundant, more productive and our resources better managed for future generations.