

# The Importance of Forest Resources

## Lesson 1: The Importance of Forest Resources

Forests cover approximately 12.4 million acres of Missouri's total land area of 44 million acres. Approximately 11 million acres of this total forest area are in the Ozark region. This is the heavily forested land where trees occupy 75 to 95 percent of the total land area. The remaining 2 million acres consist of scattered farm woods throughout the state. There is always some clearing going on to make more pasture, but nature is constantly reforesting these clearings with sprouts and seedlings. Therefore, the amount of forest lands in future years should remain about the same.

Forests' resources produce a highly diverse range of benefits. The most obvious of these is associated with wood products. In some parts of the state, wood industries are key elements in the local economy, providing jobs for a significant portion of the work force. Aside from these products, forests provide other valuable benefits which are not normally sold.

### Benefits of Missouri Forests

**Water:** Forest cover has a direct effect on the quality and availability of water. Rain passing through the upper layer of a well-stocked forest (the canopy) is deflected by leaves and branches to the point where its speed is reduced. As it travels downward it is intercepted by other layers of vegetation until finally it hits a layer of dead leaves covering an absorbent 6 to 12 inches of organic matter.

In this situation, substantially less run-off occurs than with other land use conditions. Water seeps into the ground and then gradually finds its way into streams or other bodies of water, making itself available long after the rain has ceased. Surface run-off, on the other hand, not only moves out of the local area quickly, but generally carries with it a heavy load of sediment not found in ground water.

**Recreation:** Forest lands provide recreational opportunities. Much of the state's tourism and recreational activities occur in the heavily forested areas of Missouri. Many of these areas also have very attractive bodies of

water, made so by forested watersheds which keep the water clean and provide an aesthetic backdrop.

**Wildlife habitat:** Forests are complex, interrelated communities of plants and animals. When forests are eliminated, so are the food and cover for many species of wildlife. Sound management practices, which include the proper harvesting of trees, can often enhance wildlife habitat. Also affected are a wide variety of associated plants.

**Other non-marketable benefits:** In the winter, trees outside insulate and reduce the chilling effects of wind. In summer, trees provide shade. Also, trees provide year-round windbreaks that slow wind erosion and canopy cover that reduces soil erosion. These windbreaks also reduce cold and heat stress on livestock.

**Timber products:** Missouri produces a great variety of forest products that are manufactured mostly from fine hardwoods, shortleaf pine, and red cedar. Missouri leads the nation in the production of walnut for prime cabinets and gunstocks. Missouri is also a center for producing cedar novelties and closet lining and leads the production of white oak barrel staves and charcoal. Several mills manufacture fine oak flooring, hickory and ash handles, and oak railroad ties. In addition, Missouri timber is used for veneer, fence posts, boxes, pallets, and pulpwood.

These varied market outlets and the promise of expanding future markets will add income to timber landowners. The future outlook for marketing quality wood from Missouri's 12.5 million acres of timber is bright.

### Career Opportunities in Forestry

Careers in the field of forestry are of great diversity. All forestry occupations are concerned with developing, maintaining, cultivating, and protecting forests and woodlands, as well as with harvesting their products. Some of these occupations include being a professional forester, a forestry nursery person, or a Christmas tree farmer.

**Forest conservation occupations:** These occupations are concerned with planting tree seedlings; pruning and thinning trees to improve quality of stand; locating and

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combating fires, insects, pests, and diseases harmful to trees; and controlling the erosion and leaching of forest soil. Some of these tasks may be undertaken by a fire warden, forester aide, smoke jumper, fire ranger, forest firefighter, or tree planter.

**Logging and related occupations:** These occupations are concerned with felling trees and cutting them into logs or products such as cordwood, firewood, and posts using chain saws, axes, wedges, and related tools. Some of the more common occupations concerned with these practices are: felling-bucking supervisor, tree-shear operator, buckler, logger, skidder operator, and log scales.

**Other forestry related occupations:** Many of these occupations are based on using, processing, and/or marketing forest products. For example, wood machining occupations are concerned with shaping wooden parts. Wood processing occupations deal with wood products (such as plywood, particle board, compressed-sawdust fuel logs) and wood particles (such as chips, sawdust, and powder), removing moisture from wood, and treating wood with preservatives.

## Forestry Assistance Available from Missouri Agencies

Timber growers may receive professional forestry assistance from a variety of private and public sources. No matter what your situation, there is probably an organization or individual that can help you find publications, technical advice, educational programs, financial assistance, or associations to help you manage your woodlands.

Public agencies include the Missouri Department of Conservation (and its branches of the Forestry Division, the George O. White State Forest Nursery, the Wildlife Division, and the Fisheries Division); Missouri Department of Natural Resources; Missouri Department of Agriculture; School of Natural Resources at the University of Missouri; United States Department of Agriculture; and the Missouri Soil and Water Districts Commission (SWDC).

Private organizations include the Missouri Christmas Tree Producers Association, National Walnut Council, American Tree Farm Program, Missouri Forest Products Association (MFPA), and Missouri Consulting Foresters Association.

Offices of the state forestry agencies and the county extension service have lists of professional consulting foresters. The following descriptions of agencies and associations (taken from University of Missouri Extension's Agricultural Guide G5999, *Forestry Assistance for Landowners*) will give an idea of the assistance which is available.

State Forester's Office, Forestry Division  
Missouri Department of Conservation (MDC)  
P.O. Box 180  
Jefferson City, MO 65102  
(573) 751-4115  
<http://mdc.mo.gov/forest/>

The Missouri Department of Conservation, through its Forestry Division, offers free technical advice and services to landowners. The state is divided into 17 forestry districts with each district having professional foresters to give on-the-ground advice and assistance in tree planting, species selection, woodland management, fuelwood cutting, timber stand improvement, timber sales and tax treatment of these sales, harvesting and marketing, insect and disease detection, and woodland wildlife management. Assistance with utilization and marketing of timber products is also available to wood industries and private landowners.

Foresters will prepare management plans and give you advice on available financial assistance programs. Landowners can receive cost-share payments for specific forestry practices such as timber stand improvement and tree planting.

Missouri Department of Natural Resources (DNR)  
P.O. Box 176  
Jefferson City, MO 65102  
(573) 751-3443  
<http://www.dnr.mo.gov/>

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The Department of Natural Resources regulates standards for air, water, minerals, and energy, as well as administering the extensive system of state parks and historic sites in the state. Land survey staff restore original public land survey corners to insure accurate location of property boundaries. DNR's soil and water conservation program promotes good farming practices to prevent erosion and runoff. The staff assists counties in forming soil and water conservation districts to encourage watershed protection and proper land management (see section on Missouri Soil and Water Districts Commission).

Missouri Department of Agriculture  
P.O. Box 630  
Jefferson City, MO 65102  
(573) 751-4211  
<http://www.mda.mo.gov>

The Missouri Department of Agriculture licenses and regulates applicators of pesticides, conducts surveys with the assistance of other state and federal agencies to locate and control the spread of serious insect pests and plant disease, and establishes preservative retention standards for treated timber products. This department also aids pecan and other nut growers, fish farmers, and produce growers in marketing their products.

School of Natural Resources  
University of Missouri-Columbia  
103 Anheuser-Busch Natural Resources Building  
Columbia, Missouri 65211  
(573) 882-7045  
<http://www.snr.missouri.edu>

As a Land Grant Institution, the University of Missouri has three functions: teaching, research, and extension. The School of Natural Resources offers a 4 year program in fisheries and wildlife sciences; forestry; and parks, recreation, and tourism as well as graduate level programs in all of these disciplines. Faculty research focuses on natural resource problems faced by Missouri landowners. The goal of the school's extension staff is to ensure transfer of research information to potential users. The extension specialists at the university provide technical information to county extension staff and landowners, as well as hold or help coordinate educational programs regarding

renewable natural resources for landowners, industry, professionals, FFA, and 4-H and youth organizations.

United States Department of Agriculture  
U.S. Forest Service  
Mark Twain National Forest  
401 Fairgrounds Road  
Rolla, MO 65401  
(573) 364-4621  
<http://www.fs.fed.us/r9/forests/marktwain/>

The U.S. Forest Service manages the federal lands of the Mark Twain National Forest in Missouri for multiple benefits of timber, recreation, watershed protection, grazing, and wildlife. The staff at the North Central Forest Experiment Station located in Columbia conduct research on oak culture and management. The Forest Service's State and Private Forestry Division in Broomall, Pennsylvania, cooperates with the State Forester on programs to benefit private woodland owners.

Missouri Soil and Water Districts Commission  
(SWDC)  
Department of Natural Resources  
P.O. Box 176  
Jefferson City, MO 65102  
(573) 751-4932  
<http://www.dnr.mo.gov/env/swcp/index.html>

The Missouri Soil and Water Districts Commission develops statewide programs of resource conservation. These programs are administered locally by county SWDCs (co-housed with USDA Soil Conservation Service). Currently, a state-funded Soil and Water Conservation cost-share program offers financial incentives to owners of agricultural land to install erosion control projects and practices. Being developed is a Soil and Water Conservation loan interest-share program. Both have as eligible projects the establishment of protection of woodlands.

Missouri Christmas Tree Producers Association  
Missouri Department of Conservation  
P.O. Box 180  
Jefferson City, MO 65102  
(573) 751-4115

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The Missouri Christmas Tree Producers Association is a non-profit organization of Christmas tree growers and technical persons dedicated to the promotion of the interests of the Christmas tree growing industry in Missouri. Objectives include advancing the production of high quality Christmas trees, promoting research related to Christmas tree production, keeping members informed about current research findings, conducting educational meetings and tours of successful Christmas tree plantations, sharing information and experiences among members, and encouraging the use of natural Christmas trees. Members receive the midwest magazine *Christmas Trees* and have the opportunity to join the National Christmas Tree Association.

Walnut Council International Office  
Wright Forestry Center  
1007 N 725 W  
West Lafayette, IN 47906-9431  
(765) 583-3501  
<http://www.walnutcouncil.org/>  
and  
Missouri Chapter of the Walnut Council

The National Walnut Council is composed of walnut growers, university researchers, foresters, and walnut buyers and manufacturers. The common interest of all these individuals is growing and using black walnut. Landowners can exchange ideas, problems, and gain information on the planting, growing, and tending of walnut trees for nut, lumber, and veneer crops.

American Tree Farm System  
American Forest Foundation  
1111 Nineteenth Street N.W., Suite 780  
Washington, D.C. 20036  
(202) 463-2462  
<http://www.treefarmssystem.org/>  
or  
Missouri Tree Farm Program  
Missouri Forest Products Association  
611 E. Capitol, Suite 1  
Jefferson City, MO 65101  
(573) 634-3252  
<http://www.moforest.org/treefarmssystem.htm>

The Tree Farm System is a national program, sponsored by wood-using industries and coordinated by the American Forest Foundation to promote sound forest management on privately owned woodlands. To qualify as a Tree Farm, your woodlands must be privately owned with 10 or more acres which are managed for the production of timber and forest products and protected from fire, insects, disease, and grazing.

Your woodlands can be inspected free of charge by a forester to help you develop a management plan and to determine if your woods qualify for the Tree Farm Program. Owners of approved woodlands receive the green and white Tree Farm sign to post on their land and receive woodland management information.

Every year, Missouri Tree Farmers are recognized for their wise forest management through the State Tree Farm awards. Contact the State Tree Farm Program or your local forester for more information.

Missouri Forest Products Association (MFPA)  
611 E. Capitol, Suite 1  
Jefferson City, MO 65101  
(573) 634-3252  
<http://www.moforest.org/>

The Missouri Forest Products Association provides services to sawmill owners, loggers, wood products manufacturers, and forest landowners. Landowners can receive information and services relating to markets, insurance, waste utilization, and legislation. The MFPA is also co-sponsor of the Missouri Tree Farm Program.

Missouri Consulting Foresters Association (MCFA)  
P.O. Box 497  
Salem, MO 65560  
(573) 729-4641  
<http://www.missouriforesters.com/>

Consulting foresters furnish a variety of forest management activities on a fee basis. Services include woodland management plans, timber appraisals, forest and shade tree damage appraisals, marking timber, reforestation, timber stand improvement, marketing and sale supervision, surveying, mapping, and other services. Consultants

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can provide these services at a more intensive level and usually spend more time with individual clients than public foresters. A listing of the consulting foresters in the state is available from a state forester, extension forester, or the Missouri Consulting Foresters Association.

## Programs of the Forestry Division

The Forestry Division in the Missouri Department of Conservation is the agency primarily responsible for management, restoration, conservation, and regulation of forest resources in the state. The state forestry program encompasses many programs designed to maximize production on all forest lands.

**Fire control:** Protecting forest resources from indiscriminate burning is essential before any long range management program will be successful. The Forestry Division now provides direct fire protection to nearly 16 million acres and in an average year suppresses 3,500 fires that burn approximately 35,000 acres. The Forestry Division must maintain the necessary manpower, equipment, and facilities to detect and suppress all fires occurring within protected areas. In many forest districts, primarily in the heavily timbered Ozarks, woodland fire control is a significant responsibility.

**Fire prevention:** Another important aspect of the fire program is preventing fires from starting in the first place. Less than 1 percent of all fires start from lightning; 99 percent are man made. A good percentage of these are started through carelessness, and many are deliberately set. Prevention activities center around publicity, information, education, and, in some cases, law enforcement. During high fire danger periods the public is informed of the necessary precautions which should be taken. This information is disseminated through news releases, radio, and television.

**Insect and disease control:** Forest protection activities also extend into the area of insect and disease control. While the effects of forest fires are readily apparent, losses due to insects and diseases are much less visible and are spread throughout the entire forest resources of the state.

To address these concerns, the Forestry Division employs forest entomologists and pathologists to assist and train field foresters in the diagnosis and treatment of pest problems.

**State land management:** The Forestry Division is directly responsible for the management of 285,000 acres of state-owned land and 100,000 acres of forest in the Fisheries Division and Wildlife Division. In general, lands owned by the department are managed under the multiple-use concept. Production of wood products, improvement of wildlife and fisheries habitat, providing recreation, maintaining high quality watersheds, and preserving unique areas are the primary objectives.

**Urban and Community Forestry Program:** Over one-half of Missouri's residents live in the areas of St. Louis, Kansas City, and Springfield. When residents of cities such as St. Joseph, Joplin, and Columbia are added, it becomes apparent that Missouri has a substantial urban population. The Forestry Division provides this population with an Urban and Community Forestry Program, which has three major components: urban state forests, urban forestry technical assistance, and community forestry assistance.

Advice to communities, schools, and parks falls within the Community Forestry Program. Unlike Urban Forestry Assistance, detailed plans may be designed for long range vegetation planning and management. These plans will include recommendations for the selection of kinds and sizes of trees and the care of these trees or existing vegetation. During an average year, about one hundred Community Forestry Projects are planned around the state.

**George O. White State Forest Nursery:** Production of tree seedlings for planting on Missouri's private and public lands is the major objective of the State Forest Nursery located in Licking, Missouri. Approximately 14,00 seedling orders are processed in a year, and over 11 million trees and shrubs are distributed. Every person living in the state would have to plant at least two trees to reach this amount. Of these figures, some seedlings are in special bundles designed for wildlife cover, windbreaks, or conservation. These bundles contain such species as



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dogwood, redbud, Osage orange, autumn olive, black locust, and several species of oak.

Quite a bit of the nursery is devoted to shortleaf pines for planting on private, state, and federal lands. Seedlings are also utilized by youth groups, garden clubs, and others for community plantings, and trees are distributed each year to all fourth grade students in the state to celebrate Arbor Day. Seedlings can be ordered for a nominal cost from November until February on a first come, first serve basis.

**Tree Improvement Program:** In 1967, a formal Tree Improvement Program was established. The objectives of the program are selection and development of trees that are superior in initial survival, growth, and production characteristics. Black walnut and shortleaf pine are two of the highest priority species, with pecan and eastern cottonwood following.

**Forest products utilization:** Direct assistance is given by the Forestry Division to loggers, manufacturers, and consumers. Area foresters and forest product specialists work with loggers to improve harvesting efficiency while also helping wood industries to better utilize and process these raw materials.

Presently about 60 percent of our wood residues are being utilized for a wide variety of products. More complete utilization of harvested timber and wood residues will favorably affect the wood industry in Missouri, help reduce potential pollution sources, and extend the forest resources.

**Research and planning:** Research projects conducted by the Forestry Division, often through contracts with the University of Missouri, are oriented to specific problems and needs facing forestry statewide.

**Information activities:** Increasing public awareness of forest resource related activities is done through presentations to groups, written articles, use of the media, distribution of pamphlets and brochures, exhibits at fairs, and working with schools. Through these programs, Missouri citizens can become caretakers of our natural

resources while also learning about many services available from the Forestry Division.

**Private land management assistance:** About 85 percent of Missouri's forested acreage is owned by private individuals. These landowners are highly diverse in terms of why they own forest lands and what they desire from their ownership. The Forestry Division has a very extensive program for helping these individuals realize their land ownership objectives. Foresters can recommend the number and types of trees to plant, inventory standing timber, develop management plans for cutting and forest improvements, give advice on woodland wildlife management, help select trees to harvest, and advise owners on timber sales and assistance programs.

In an average year, personnel assist with approximately 95,000 acres, make wildlife habitat recommendations on 10,000 acres, and help to sell about 30 million board feet of timber. This is enough to make crossties to build 250 miles of railroad, a distance that would connect St. Louis and Kansas City.

Several incentive and information programs are also employed to encourage better forest resource management. In some instances, landowners can receive cost share payments for conducting specific practices. Certain lands are eligible for the Forest Crop Land Program whereby landowners receive significant reduction in property taxes by agreeing to place their forest lands under approved management plans. The Department of conservation reimburses the counties to offset the property taxes lost through the Forest Crop Land practices. Good land managers are recognized through awards and enrollment in the Tree Farm Program. During an average year, the division approves about 6,000 acres for cost share payments and administers over 300,000 acres of Forest Crop Land. More than 500,000 acres are now listed as tree farms within the state.

## Classifying Land as Forest Crop Land

There are several benefits to forest landowners in classifying their forest lands as Forest Crop Lands under the Forestry Division state law. These benefits include:

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- ◇ Partial tax relief for 25 years
- ◇ Intensified fire control
- ◇ Continuing forest management assistance
- ◇ Timber trespass assistance

Landowners who are part of this program have several obligations designed to practice better forestry. These obligations include:

- ◇ Ownership boundaries must be marked.
- ◇ Reasonable efforts must be made to prevent and/or extinguish wildfires.
- ◇ Land shall be devoted primarily to growing trees. It may also be used for other purposes compatible with forest practices. Lands cannot be used for grazing livestock or erecting buildings.
- ◇ Forest crop lands shall be managed to produce timber and wood products according to the plan submitted by the owner, approved by the commission, and agreed to by the owner.
- ◇ Cutting must conform to practices outlined in the management plan.
- ◇ Owners must give written notice to the commission 30 days prior to cutting any timber. Notice is not necessary for cutting firewood, posts, or timber for use on the premises.

- ◇ Within one month following a commercial cutting, the owner shall file a sworn statement showing the quantity of timber cut and price for each species sold.

To classify land as Forest Crop Land, owners should contact the Forestry Division of the Missouri Department of Conservation.

## Summary

Missouri has many acres of valuable timber providing income and jobs from timber and tourist industries as well as providing beauty to all. The Forestry Division of the Missouri Department of Conservation aids in developing the potential of this natural resource through its numerous programs.

## Credits

Holland, I.I., G.L. Rolfe, and D.A. Anderson (ed.). *Forests and Forestry*. 5th ed. Danville, IL: Interstate Publishers, 1997.

Stelzer, H.E. *Forestry Assistance for Landowners* (Guide G5999). Columbia: University of Missouri Extension, revised 2007. Accessed May 28, 2008, from <http://extension.missouri.edu/explore/agguides/forestry/g05999.htm>.

