

# OHIO

August 2006

*The many sides of the forest economy*

*Beauty, Employment, Industry, Recreation, Resources*





## Letter from State Forester

*Ohio's forest products industry contributes \$15 billion to the Ohio economy, employs over 119,000 people and generates payrolls that exceed \$4 billion dollars.*

*The forest economy is influenced by a wide variety of market segments that include timber harvesting, lumber and veneer production, furniture and cabinet manufacturing, paper manufacturing and a healthy export market for logs and lumber. Economic contributions are also made by non-timber related products such as maple syrup and Christmas trees.*

*Forests are unique in that their values can be enjoyed in a wide variety of ways. They can be expressed in terms of recreational enjoyment such as hiking, camping, hunting, fishing or the simple enjoyment of autumn colors. Forest values also can be expressed in returns to environmental quality like clean air and water, such as when forests protect municipal watersheds. Recently, a new value has been created with the advent of the carbon credits market.*

*The list of benefits that the forest provides is extensive to be sure, but would not be complete if it did not include the economic returns that are provided in employment, output and income. This report details those values and the benefits they have on the economy of Ohio.*

*John Dorka, State Forester & Chief  
Division of Forestry  
Ohio Department of Natural Resources*





## Highlights

The state of Ohio has approximately 8.1 million acres under forest cover, which is 30% of Ohio's land area.

The forests in Ohio are composed of 96% hardwood tree species and 4% softwood tree species.

Ohio harvests 300-400 million board feet of timber annually and grows one billion board feet of wood each year. The ratio of net growth (total growth minus mortality) to removals is 2.4:1, which means that Ohio forests are growing more than twice the volume of timber that is removed.

Ohio's forest products industry contributes \$15.1 billion to Ohio's economy and employs over 119,000 people with annual payrolls of \$4 billion.

The **primary wood** products industry contributes \$803.6 million to Ohio's economy in the form of outputs. It employs over 5,500 people and generates annual payrolls of over \$103 million.

The **secondary wood** products industry contributes \$4 billion to Ohio's economy in the form of industry outputs. It employs over 43,000 people and generates annual payrolls of \$1.3 billion.

The **paper industry** contributes \$7.5 billion to Ohio's economy in the form of outputs. It employs over 29,000 people and generates annual payrolls of more than \$1.4 billion.

More than 3.7 million hunting, fishing and wildlife watching enthusiasts spend over \$2.3 billion in the State of Ohio.





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### **Introduction**

A publication about numbers could be overwhelmingly complex. The intent of this publication is to highlight the very important role that forests and the wood products industry play in this state. The two major sources of data for this publication are provided by Economist Dr. Leroy Hushak, Professor, [Retired] The Ohio State University, using the economic input-output model IMPLAN. Second is USDA Forest Service Analyst Richard Widmann's analysis of the Forest Inventory and Analysis [FIA] Program data for Ohio conducted in 2005. The source of numbers interpreted in this publication are listed in the references.

### **The Natural Beauty of Wood**

Trees provide wood for products that we as consumers use everyday. In addition to its natural beauty, the uniqueness of wood is its variability and its versatility. The manufacturing companies that depend on wood in today's market must be very efficient. There is no "waste" in wood products manufacturing facilities. Markets must be found for all parts of the tree. The versatility of the raw material is a benefit when seeking markets. However, the variability of wood can be both a curse and a blessing. A curse because often the consumer wants a uniform piece free of defects. A blessing because each piece has its own unique character.

Over 60% of the hardwood lumber produced in Ohio is made into high quality furniture, architectural millwork and flooring. These products are purchased by a consumer who clearly wants the natural beauty of wood.

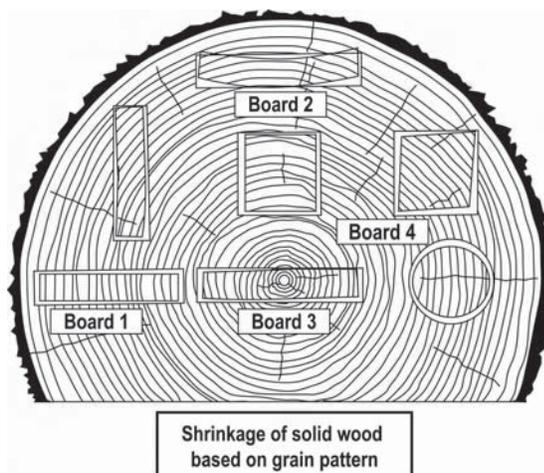
*The "natural beauty" of wood is a result of:*

**Color** may range from white [maple] to a dark chocolate brown [black walnut]. Within each tree there can also be great differences in wood color. The wood in the outer portion of the log [sapwood] of black walnut is a cream color while the center [heartwood] is the chocolate brown.



**Texture** is determined by the relative size of the cells within the annual ring. The cells in red oak vary greatly in size, therefore it is considered a coarse textured species. Cells in hard maple are of similar size, thus it is considered fine textured wood.

**Grain pattern** is determined by the location in the log where the board or veneer was cut. Each board or veneer in a piece of furniture is slightly different based on the appearance of the annual rings. In the illustration below, Board 1 is considered a quarter-sawn board with the annual rings appearing as lines running the length of the piece. This type of cut is used to highlight other cell structures which add depth to the appearance. Board 2 is considered plain or flat sawn with the annual rings appearing as “v’s” on the piece.



**Moisture** plays an important role in the manufacture and care of solid wood furniture. Wood will equalize to a moisture content based on the environment. Drawers in a dresser will be loose in the winter [dry air] and tight in the summer [moist air]. Again, the location of the board in a log determines how the piece will react to moisture loss and thus

shrinkage. The drawing illustrates how boards will shrink depending on their location in the log. Board 3 will result in cracks that extend to the pith. Board 4 illustrates how shrinkage patterns follow the annual rings. Lumber in solid wood furniture is dried to eliminate the possibility of warp.

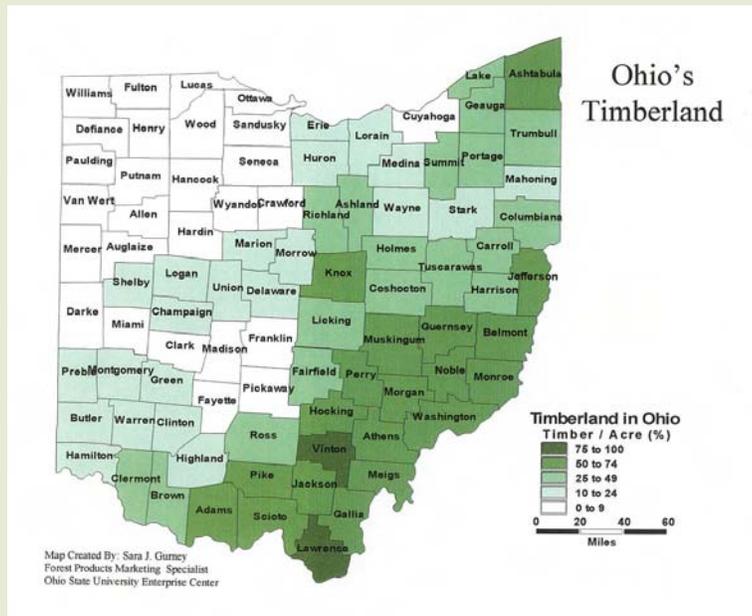
**Knots** are the result of branches and can add great character to a piece of furniture. When the piece is sawn the knot can be either “red” resulting from a live branch or “black” resulting from a dead branch.



# Ohio Forest Resources

## History

It is believed that Ohio was as much as 95% forested when the first settlers arrived. By 1910, those settlers and the masses that followed as the nation expanded westward had cleared and converted Ohio's forests into farmland leaving only 10% of the state forested. Public policy, private interests, the conversion of marginal agricultural land back to forests, and efforts by the Ohio Division of Forestry resulting in the reforestation of 1 million acres has been the catalyst that allowed the forests to regenerate in Ohio. Today the Ohio Department of Natural Resources, Division of Forestry reports that Ohio is 30% forested.<sup>1</sup>



## Forest Area

The state of Ohio has approximately 8.1 million acres under forest cover. Most of this land is located east of I-71 with the densest acreage in eastern and southern Ohio. [see map] Ohio's forests are located in the western foothills of the Appalachian mountain range, which runs from Canada to northern Georgia and Alabama. Ohio's forest is located in the northern portion of the Appalachians, which is known for its high-quality temperate hardwoods.





# Ohio Forest Resources

Ohio harvests 300-400 million board feet of timber annually and grows one billion board feet of wood each year.

This is an annual net gain of timber volume of 600-700 million board feet.<sup>1</sup>

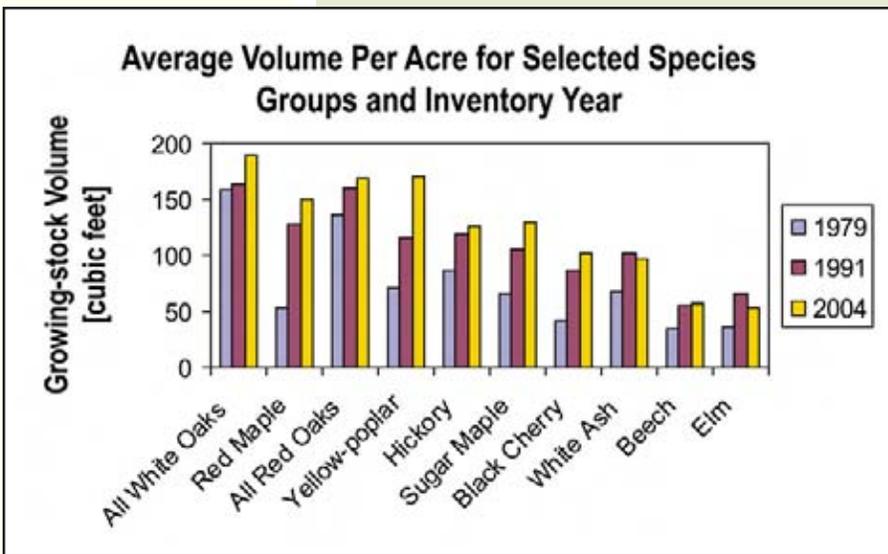
## Composition

The forests in Ohio are dominated by hardwoods, which account for 96% of Ohio's tree species. Softwoods make up the remaining 4%. There are over 100 different species of hardwoods and 25 different species of softwood grown in Ohio<sup>1</sup>. "Though there are a great many [hardwood] species, between 10 and 20 tree species comprise the majority of all trees in Ohio forests...The most abundant species are the red and white oaks, which make up almost 25% of the total tree volume, followed by red [soft] and sugar [hard] maple, which comprise 18%. Yellow poplar and hickory make up another 18%, and white ash accounts for 8%."<sup>2</sup>

## Growth and Removals

In 1952 there was an estimated 11.2 billion board feet of wood in all sawtimber trees. By 1991, the inventory had increased to 30.3 billion board feet. This increase occurred while approximately 400 million board feet per year, or a total of more than 13 billion board feet of wood, was harvested from Ohio's forests.<sup>3</sup> The 1991 survey showed that more than 1 billion board feet of wood is being grown each year... Overall, the ratio of

net growth (total growth minus mortality) to removals for all growing stock was 2.4:1, which means that Ohio forests are growing more than twice the volume of timber that is removed. Almost all species of trees are growing significantly more volume than is currently being removed.



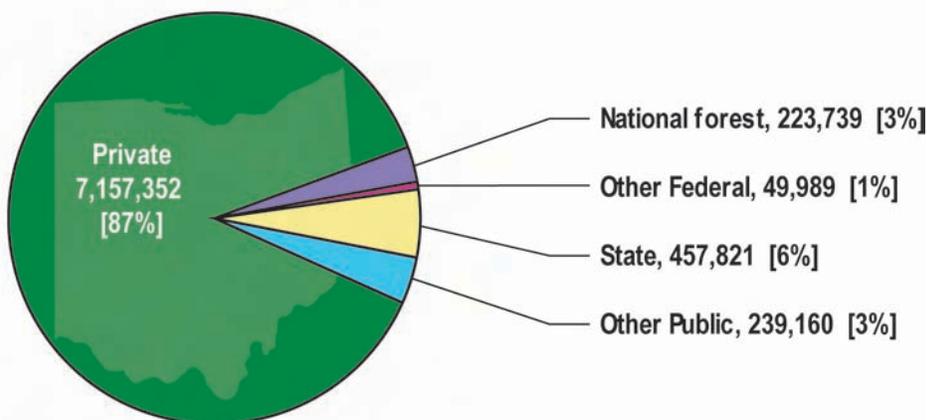
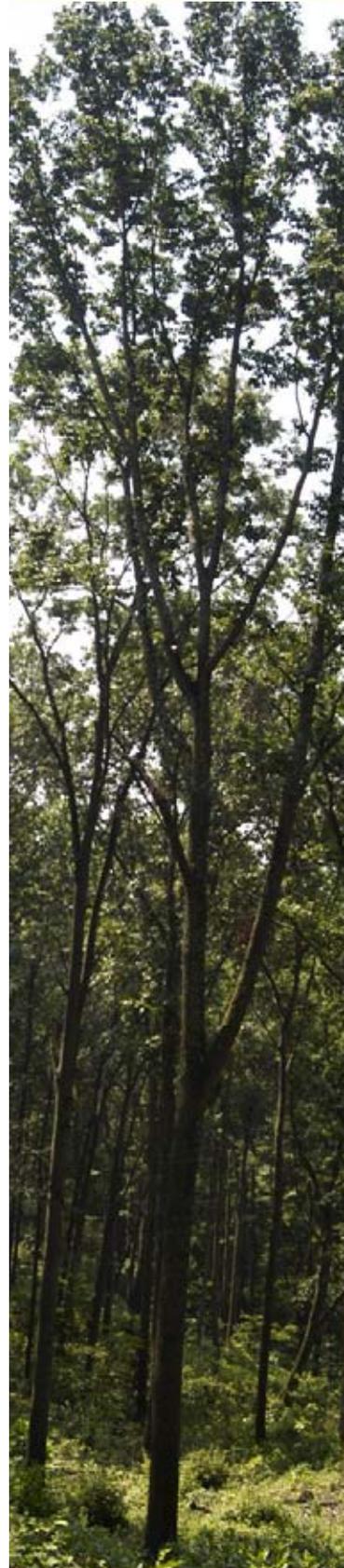
Source: USDA Forest Service FIA Data<sup>20</sup>



Today there is an estimated 40 billion board feet of standing timber in Ohio's forests.<sup>4</sup>

### Forest Ownership

According to 2005, United States Department of Agriculture, Forest Inventory Analyses data, of the 8.1 million acres of forestland in Ohio, 87% or 7.1 million acres is privately owned. A total of 76% or 6.2 million acres are owned by 397,000 families. Sixty percent of these families own less than 10 acres and more than a third hold parcels between 10 and 50 acres. Private corporations own approximately 930,000 acres of forestland. The state and federal governments own 10% of Ohio's forested land with the federal government owning more than 270,000 acres and the state owning more than 450,000 acres.<sup>5</sup> The Ohio Department of Natural Resources, Division of Forestry manages 185,000 acres in 20 State Forests in 21 counties. They also manage one state nursery that produces more than 3 million seedlings annually for reforestation.<sup>6</sup>



Source: USDA Forest Service FIA Data<sup>5</sup>



# Ohio Forest Resources

## Forest Management

A simple definition of forest management is “providing a forest the proper care so that it remains healthy and vigorous and provides the products and the amenities the landowner desires.”<sup>7</sup> Landowners’ objectives can vary widely and will impact the exact management plan that is developed and implemented.

Timber harvesting is the main mechanism used to manage a woodlot. The exception to this is when preservation is the owner’s goal. Of the 397,000 family forest land owners in Ohio, 1,850 participate in Ohio’s Tree Farm Program, which is part of the American Tree Farm System. These landowners have management plans for over 350,000 acres of woodlands in Ohio.

Various departments and divisions in the state that control forest land have a variety of objectives other than timber production. Therefore, some state agencies have no forest management plans while others have very specific objectives including the enhancement of wildlife habitat, preservation of natural areas and providing recreation and aesthetics.



# Ohio Forest Economy

## Introduction

Ohio's forest products industry contributes \$15.1 billion to Ohio's economy and employs over 119,000 people with payrolls of \$4 billion.<sup>8</sup> The industry contributes over \$405 million in sales and excise taxes annually and approximately \$136 million in payroll taxes. Forest product companies are classified as primary, secondary or tertiary. Primary companies harvest timber and other forest products as well as process these products into intermediate goods such as lumber and veneer. Secondary companies further process these intermediate products into finished goods or components of finished goods like furniture, cabinets, flooring, and moulding. These finished goods are then sold to the consumer directly or through wholesalers and retailers. Tertiary companies include suppliers and manufacturers of forest and wood products machinery as well as furniture and building material retailers.

## Primary Industry: *Timber Harvesting*

The forest that we enjoy today in Ohio represents the commitment of our forefathers to a healthy and productive resource and a testament to their active management of the forestlands. Forest management replicates nature through the harvesting of timber. Timber harvesting is the felling and removal of trees from the forest as well as the transport of logs to sawmills and veneer mills.

The forest manager may use different timber harvesting techniques to improve the health and productivity of a timber stand. The removal of mature and diseased trees opens the forest canopy allowing sunlight to reach the forest floor, which encourages regeneration of new growth, reduces competition for nutrients, and supports the growth of healthy trees. These benefits are similar to those achieved during the natural deterioration of mature trees and wildfires.

## Logging

Industry output	\$ 286.5 million
Total value-added	\$ 144.8 million
Employee compensation	\$ 14.0 million
Employees	2,145





# Ohio Forest Economy

## **Lumber, Veneer and Plywood**

Sawmills and veneer mills are the major way that timber is transformed from a raw material into intermediate products. The main outputs of these facilities are lumber and veneer. These intermediate products are dried, graded and stored before being transported to secondary manufacturers which produce such items as furniture, flooring, doors, windows, and wooden pallets. The plywood manufacturers in Ohio are small companies that produce specialty products like molded chair seats and backs.

These primary manufacturers also produce bark, wood chips and sawdust as by-products of their manufacturing processes. These residues are used to produce mulch, playground surfaces, animal bedding, and paper products. Sawmills and veneer and plywood manufacturing contribute \$320 million and \$157 million to Ohio's economy respectively. Combined they employ over 3,000 (sawmills 1,936, veneer and plywood 1,081) people and have a combined payroll over \$84 million (sawmills \$49,900,000, veneer and plywood \$34,230,000).<sup>8</sup>

### **Sawmills**

Industry output	\$ 320.1 million
Total value-added	\$ 70.0 million
Employee compensation	\$ 49.9 million
Employees	1,936

### **Veneer & Plywood**

Industry output	\$ 157.5 million
Total value-added	\$ 42.5 million
Employee compensation	\$ 34.2 million
Employees	1,081



### Secondary Industry: *Furniture Manufacturing*

The hardwoods grown, harvested and processed in Ohio such as red and white oak, hard and soft maple, poplar, hickory and ash as well as walnut and cherry are sought after by furniture manufacturers around the world. These furniture manufacturers transform lumber and veneer into tables, chairs, beds, and dressers. Ohio has furniture manufactures in every corner of the state. The largest furniture production region is in the Amish country of Holmes and surrounding counties. The furniture industry in Ohio contributes \$795 million to the state's economy and employs over 7,600 people with a payroll of \$240 million.<sup>8</sup>



#### Furniture

Industry output	\$ 795.2 million
Total value-added	\$ 333.4 million
Employee compensation	\$ 240.9 million
Employees	7,683

### *Cabinet Manufacturing*

Kitchen cabinets are the hallmark of value in homes today. Solid cherry, maple or oak cabinets improve the appearance of any room. Wooden cabinets are not only found in our homes, but also in our schools, work places and public buildings. There are over 330 cabinet manufacturers in Ohio and more than 90% of these companies have less than twenty employees.<sup>9</sup> Ohio's cabinet manufacturing industry contributes \$768 million to the economy and employs 10,216 people with a payroll of \$314 million.<sup>8</sup>

#### Cabinets

Industry output	\$ 768.1 million
Total value-added	\$ 404.3 million
Employee compensation	\$ 314.1 million
Employees	10,216



# Ohio Forest Economy

## Containers and Pallets

Everyday goods from frozen food to computer parts are moved across the United States on wooden pallets and in wooden containers. Ohio is a major supplier of these containers and pallets. In 2000, there were 201 pallet manufacturing firms located in Ohio. This number ranked Ohio second in the nation for the number of pallet firms.<sup>10</sup> These operations not only provide a vital function for commerce, but they also utilize low grade lumber, maximizing the use of the whole tree. Container and pallet manufacturers contribute \$646 million to Ohio's economy, employ 9,873 people, and pay wages of \$243 million.<sup>8</sup>

### Containers & Pallets

Industry output	\$ 646.3 million
Total value-added	\$ 299.2 million
Employee compensation	\$ 243.0 million
Employees	9,873

## Building and Architectural Products

Many industries use wood products in their manufacturing processes and business operations. The construction and remodeling industries are one of these. They are large consumers of wood based products such as trusses, doors, windows, flooring and millwork along with cabinets mentioned previously. These same products are used by manufacturers of prefabricated and mobile homes. Businesses of all kinds use wooden showcases, partitions and shelving in their facilities. Companies that produce these intermediate goods contribute a combined output of \$1.8 billion, employ over 15,000 people and have direct payroll of more than \$516 million.<sup>8</sup>



### **Building & Architectural Products**

Industry output	\$ 1,870.0 million
Total value-added	\$ 720.4 million
Employee compensation	\$ 516.6 million
Employees	15,504

### **Paper Industry**

The paper and pulp industry in Ohio is very large. It includes companies that process logs and wood chips into pulp for the production of paper, to manufacturers of paper and corrugated cardboard, to companies that produce special coated papers and packing material, to cardboard box, stationary and sanitary paper product manufacturers. The paper industry contributes \$7.5 billion to Ohio's economy, employs over 29,000 people, and has a direct payroll of more than \$1.4 billion.<sup>8</sup>

### **Paper & Pulp**

Industry output	\$ 7,524.0 million
Total value-added	\$ 2,290.3 million
Employee Compensation	\$ 1,451.7 million
Employees	29,807

### **Printing and Publishing**

Newspapers, magazines and books are of course made from wood fiber. The type of paper determines the tree species used in the manufacturing process. Newsprint is made from predominately softwood species such as pine. Glossy magazines and books have a higher content of hardwood species. The paper industry provides an important market for lower grade softwood and hardwood species. Combined, the printing and publishing industries contribute over \$8.6 billion to Ohio's economy, employ nearly 69,000 people with a payroll of more than \$2.7 billion.<sup>8</sup> Since these industries are more removed from the direct consumption of wood fiber, data regarding the printing and publishing industries was not included in this publication.



For every paper industry job, there are approximately 3.25 jobs created outside the industry.

### Company Profile: Glatfelter [Formerly MeadWestvaco] Chillicothe, OH

Glatfelter’s primary product is carbonless paper, which is commonly used for business forms. Glatfelter is the second largest producer of carbonless paper in the United States, with over 30% of the market share. They also manufacture book publishing paper, uncoated paper and other specialty grades to service the needs of customers.

The mill in Chillicothe has been an active, influential presence since 1890 and is equipped to perform virtually every step of the papermaking process. The Chillicothe operation includes a woodyard, pulp mill, four boilers, three paper machines, three coaters, and numerous finishing machines. They produce their own electricity and recycle materials to maximize efficiency. Other important support operations include a log merchandising yard in Piketon and wood supply yard in Washington, West Virginia.

#### GLATFELTER COMPANY STATISTICS:





# Ohio Forest Economy

## Exports

Ohio wood product manufacturers ship product across the nation and around the world. In 2004, Ohio companies exported more than \$235 million worth of logs, lumber, veneer, panel products and other value added wood products. Ohio wood product exports have risen 158% in value since 1996, when we exported \$91 million worth of goods.<sup>11</sup>

Canada is Ohio's number one wood products trading partner receiving 30% of Ohio's total exports in 2004. Germany, China, Italy, Hong Kong, Spain, United Kingdom, Japan, Taiwan, and South Africa are the remaining top ten foreign destinations for Ohio wood products.

## Ohio Wood Product Exports [2004]

World	\$ 235.1 million
Veneer	\$ 91.1 million
Hardwood Lumber	\$ 82.2 million
Logs	\$ 36.4 million
Panel Products	\$ 7.2 million
Chips	\$ 1.0 million
Softwood Lumber	\$ 1.0 million
Other Value-added	\$ 16.1 million

## Non-timber Forest Products

### *Maple Syrup*<sup>12</sup>

Maple syrup production in Ohio is a sustainable non-timber family forestry activity that dates back to the mid-1800s. At that time Ohio was the largest producer of maple syrup, the third largest producer of maple sugar and the largest producer of the total maple production in the United States. Ohio is currently the fourth largest maple syrup producing state, producing about 69,000 gallons in 2005. Maple syrup products annually provide an average of \$5 million to Ohio's economy and supplemental income to many rural forest landowners.





## Ohio Forest **Economy**

Maple syrup operations are located in 69 of Ohio's 88 counties with the largest concentration in northeast Ohio. Ninety percent of Ohio's maple syrup operations are family-owned and operated. Twenty-five percent of these producers are of Amish heritage, and almost all producers indicated that producing maple syrup was a secondary source of income.

There are an estimated 374,724 taps in the state, of which 62% are associated with the approximately 596 bucket collection operations. The average-sized bucket operation has 417 taps with the smallest operation having four taps and the largest having 5,000 taps. The 291 maple operations which utilize advanced tubing collection systems tend to be larger with the average sized operation having 720 taps. Commercial operations with over 1,000 taps account for 14% of all operations and 48% of all taps.

The majority of the sugarbushes across Ohio are located in second or third-growth stands; however, there are a handful of orchard-type plantations. The average Ohio sugarbush is 27 acres with a range of 0.25 to 190 acres and can include sugar maple (*Acer saccharum* Marsh.), as well as black maple (*Acer nigrum* Michx. f.), red maple (*Acer rubrum* L.), and silver maple (*Acer saccharinum* L.).

### **Christmas Trees**<sup>13</sup>

Christmas tree production is an attractive, profitable agroforestry enterprise in Ohio which has contributed substantially to individual incomes and the economy of the state. Ohio's climate and land are suitable for the production of a variety of Christmas tree species, and its large urban population and close proximity to other heavily populated states provide ample markets. The Ohio market alone is estimated at more than 1.4 million real Christmas trees per year.



### Christmas Trees [1994]

Total number of growers	552
Total number of trees	9.4 million

Scotch pine, white pine, blue spruce, Douglas fir, Fraser fir, and Canaan fir account for close to 90% of the Christmas trees planted in Ohio.

### Other Specialty Forest Products

The forests of Ohio produce other non-timber products also known as specialty forest products, such as herbs, mushrooms, berries, nuts, and wildflowers, which can be used and sold for food, medicine, and decoration.<sup>14</sup> These products provide supplemental incomes to landowners. Specialty timber products fall into four categories: medicinal and botanicals; forest-based food products; woody decorative florals; and handicraft products and specialty woods.<sup>15</sup>

#### **Medicinal and Botanicals**

Medicinal herbs like ginseng, goldenseal and black cohosh are the most commonly known products and in the highest demand. Catnip leaves, sassafras root, as well as echinacea, St John's wort, and elderberry fruit and flowers are also products in this group.<sup>15</sup> Forest herbs have traditionally been wild-harvested, which has led to scarcity of plants such as ginseng and goldenseal. Today, these and other herbs are being cultivated for profit in the forest.<sup>14</sup>

American ginseng is one of the world's most valued plants and can be found throughout the woodlands of eastern North America. Since the mid-1700's American ginseng has been sought in the United States for trade with China. Daniel Boone exported twelve tons of the root in 1788.<sup>16</sup>





## Ohio Forest **Economy**

### ***Tree and Shrub-based Food Products***

Searching out forest based foods is a favorite pass time for hikers, campers, and woodlot owners. Many of these products find their way to the kitchen table. These tree and shrub-based foods include mushrooms, nuts and fruit. Mushroom hunting for morels or chanterelles is an activity enjoyed by many Ohioans. Ohio also has growers of high value gourmet mushrooms like shiitake and oyster, which can be intentionally cultivated on logs or wood chips in a forest setting. The forest also produces a wide range of edible nuts that include black walnut, Chinese chestnut, pecan, hickory, butternut, hazelnut and ginkgo nuts. Commonly harvested fruits include raspberries, blackberries, chokecherry, elderberry, persimmon and paw paws.<sup>15</sup>

### ***Woody Decorative Florals***

The forest makes its way into the home of many Ohioans as decorative elements. “Any woody plant that has a colorful or unusually shaped stem, bud, flower, fruit or even leaf can become a decorative floral product.”<sup>15</sup> These include dried and fresh flowers, vines, pine cones, and practically anything else that can be fashioned into wreaths, garlands, or baskets.<sup>14</sup>

### ***Handicraft Products and Specialty Woods***

Specialty woods and other natural materials are often used by local artisans in handicraft products such as bent willow furniture, walking sticks, wood carving with “character” woods, pine cones and potpourri products.<sup>15</sup> These products provide income to the artisan as well as utility and style to the consumer.

### **Wood Energy**

When thinking of forest products, most Ohioans visualize standing timber, lumber, plywood, or maybe furniture; energy production usually does not come to mind. But since the 1970s, energy has been a significant product



of forest-related biomass. In North America the use of wood in solid, briquette, pellet, or powdered form has become important for energy in homes, industry, and business. The emergence of wood biomass as a source of industrial energy came about because of the rapidly escalating cost of petroleum and natural gas during the 1970s.<sup>17</sup> The reemergence of wood as a cost effective renewable energy source has been driven again by high petroleum and gas prices. Many of Ohio's sawmills and paper mills utilize wood residues to produce steam and electricity for their facilities. Ohio has two paper mills that utilize wood biomass to heat and power their facilities.

#### **Company Profile: Akron Thermal Akron, OH**

Ohio is also home to Akron Thermal, a distributor of district heating and cooling services generated by burning a combination of 90% wood waste or chips and 10% chipped tires. Operating this system under a lease with the City of Akron, since 1995, more than \$10 million has been invested to improve the operations of the Akron system, which includes two plants. One plant produces 375,000 pounds of steam per hour with three boilers that are equipped to operate on natural gas, tire derived fuel, wood waste, or wood chips. The second plant is a coal and gas fired backup plant capable of producing over 350,000 pounds of superheated steam per hour. Akron Thermal has 20 miles of distribution piping that serves 17 million square-feet of building space in more than 200 businesses and residences in and around downtown Akron, including Children's Hospital, Akron General Hospital, Akron City Hospital (Summa) and The University of Akron.<sup>18</sup>

#### **Company Profile: Smurfit-Stone Corp. Coshocton, OH**

Produces 850 tons of corrugating medium [used in cardboard boxes] per day

Wood fired power house began operation in 1982

Consumes 900 tons of purchased biomass per day

Purchased biomass consists of: in-woods chips, sawmill by-products [sawdust, chipped slabs, end trims, and cutoffs] shredded pallets, ground particleboard, chipped/ shredded municipal wood waste

Approximately 50% of the purchased biomass comes from in-woods chips from land conversion tracts [development, mining, etc.]

#### **Employees:**

200 hourly

70 salaried



# Ohio Forest Economy

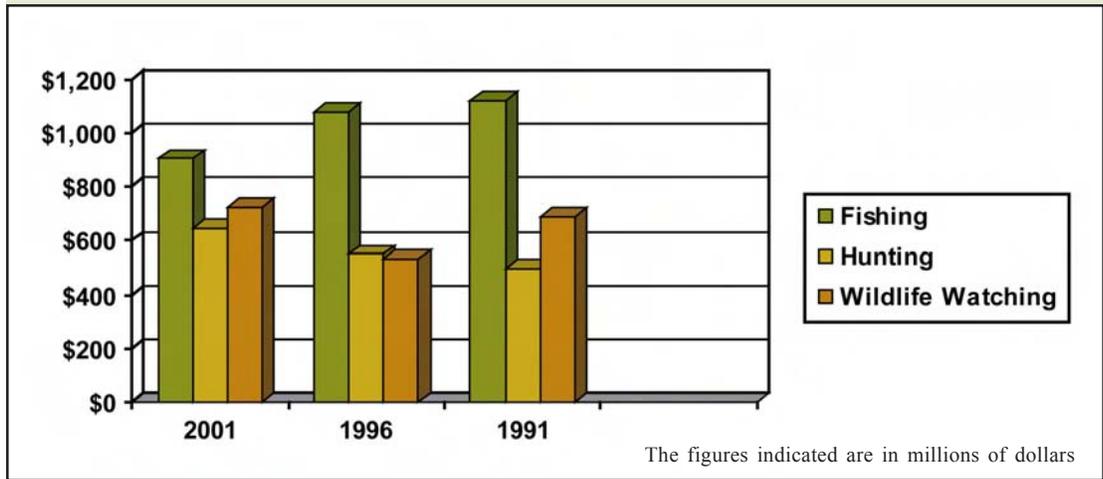
## Forest Related Recreation and Tourism

The opulent forests of Ohio offer many economic benefits beyond timber harvesting and processing. Recreational activities surrounding hunting, fishing, wildlife watching and tourism also contribute significantly to what we reap from the Ohio countryside.

### Hunting, Fishing and Wildlife Watching

Biologists agree that the amount of forest cover is a major contributor to the health of wildlife populations that are the basis of the hunting and fishing industries. Approximately 1.5 million hunting and fishing enthusiasts spent \$1.7 billion in Ohio in 2001. An additional 2.9 million people participated in wildlife watching activities in Ohio the same year while spending \$623 million dollars.<sup>21</sup>

### Wildlife Related Recreation Expenditures



Source: U.S. Department of the Interior, Fish and Wildlife Service<sup>21</sup>

### Tourism

With Ohio being located within a day's drive of 60% of the US population the opportunity for forest related outdoor recreation is enormous. Tourism in Ohio is a critical economic development engine,



employing more than 525,000 Ohioans and generating \$30.7 billion in direct spending. Forest related tourism is difficult to define in direct economic terms because the available information does not discriminate between specific activities.<sup>22</sup> However, of 10.3 million travelers that visited Ohio in 2004, 10% or approximately 1 million of them experienced the forest in some manner. It is estimated that approximately 5% experienced the forest while hiking with another 5% camping and an additional 5% or 412,000 people canoeing, kayaking or bicycling.<sup>23</sup>





## Ohio Forest Industry Compared

Each state defines its forest product industries differently, which makes comparing specific industry sectors difficult. In order to look at how Ohio's industry performs relative to neighboring states, state-level economic information for the forest product industry, were compared to similar information for Pennsylvania, New York, West Virginia, and Indiana. The data used for this comparison is drawn from the 2002 Census of Manufacturing.<sup>19</sup>

<b>Establishments</b>					
<i>Description</i>	Ohio	Pennsylvania	New York	West Virginia	Indiana
Wood product mfg	684	1,027	614	259	600
Paper mfg	362	295	345	12	165
Furniture & related product mfg*	687	740	1052	59	412
<b>Value of Shipments (1,000)</b>					
<i>Description</i>	Ohio	Pennsylvania	New York	West Virginia	Indiana
Wood product mfg	\$2,511,337	\$4,096,795	\$1,436,900	\$1,620,031	\$2,976,716
Paper mfg	\$6,936,776	\$9,267,896	\$4,501,992	\$200,374	\$3,167,796
Furniture & related product mfg*	\$2,764,803	\$1,859,406	\$2,011,911	\$36,646	\$2,385,155
<b>Annual Payroll (1,000)</b>					
<i>Description</i>	Ohio	Pennsylvania	New York	West Virginia	Indiana
Wood product mfg	\$491,936	\$780,252	\$284,791	\$227,888	\$630,894
Paper mfg	\$1,051,548	\$1,218,609	\$791,334	\$27,363	\$462,863
Furniture & related product mfg*	\$523,234	\$500,529	\$561,519	\$9,891	\$544,586
<b>Paid Employees</b>					
<i>Description</i>	Ohio	Pennsylvania	New York	West Virginia	Indiana
Wood product mfg	17,121	26,917	9,630	8,947	20,255
Paper mfg	25,719	27,551	19,163	846	12,140
Furniture & related product mfg*	17,612	16,423	18,393	423	18,025

\*NAICS codes 33711, 337122, 337211, 337212, and 337215



## Conclusion

Ohio's forest products industry is vital to Ohio's economy. Its contribution exceeds \$15.1 billion and provides wages of \$4 billion to over 119,000 employees. Businesses that rely on the forest of Ohio are found in every corner of the state producing products from lumber to furniture to mulch and paper. Every day Ohioans use wood products in their homes, schools, and places of business. The forests also provide recreational opportunities like hiking, fishing, hunting as well as wildlife habitat. Healthy and productive forests are important to Ohio's economy, environment, and quality of life.



## Glossary

*Board foot.* A unit of lumber measurement 1 foot long, 1 foot wide, and 1 inch thick or its equivalent.

*Diameter at breast height [d.b.h.].* The diameter outside bark of a standing tree measured at 4-1/2 feet above the ground.

*Employee Compensation.* It includes all income paid to workers paid by employers.

*Forest land.* Land that is at least 10 percent stocked with trees of any size, or that formerly had such tree cover and is not currently developed for nonforest use.

*Growing-stock volume.* Net volume in, cubic feet, of growing-stock trees 5.0 inches d.b.h. and larger from 1-foot stump to a minimum 4.0 inch top diameter outside bark of the central stem, or to the point where the central stem breaks into limbs.

*Hardwoods.* Dicotyledonous trees, usually broad-leaved and deciduous.

*Indirect Business Taxes.* Includes primarily excise and sales taxes paid by individuals to businesses.

*Industry Output.* Value of shipments or sales by a company.

*Input-Output Model.* The model divides an economy into economic sectors, and then using the data base, models the interrelationships among these sectors in terms of purchases and sales of product among the economic sectors, the employment of labor or property [value added] as an input and the sale of product to consumers and exports which comprises final demand.



*Other Property Type Income.* Includes payment from interest, rents royalties, dividends and profits.

*Proprietary Income.* Any income a person receives for payment of self-employed work.

*Removals.* The net growing-stock volume harvested in logging, cultural operations [such as timber stand improvement] or land clearing and also the net growing stock volume on land that was reclassified from timberland to noncommercial forest land or nonforest land during the period between surveys.

*Softwoods.* Coniferous trees usually evergreen and having needles or scalelike leaves.

*Timberland.* Forest land producing or capable of producing crops of industrial wood [more than 20 cubic feet per acre per year] and not withdrawn from timber utilization.

*Value added.* Comprised of four components: employee compensation, proprietor income, other property income and indirect business taxes.



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# OHIO

*The many sides of the forest economy*



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