

Valuing Kentucky's Woodlands and Their Owners

by Jeff Stringer, Billy Thomas, Bobby Ammerman, Alison Davis

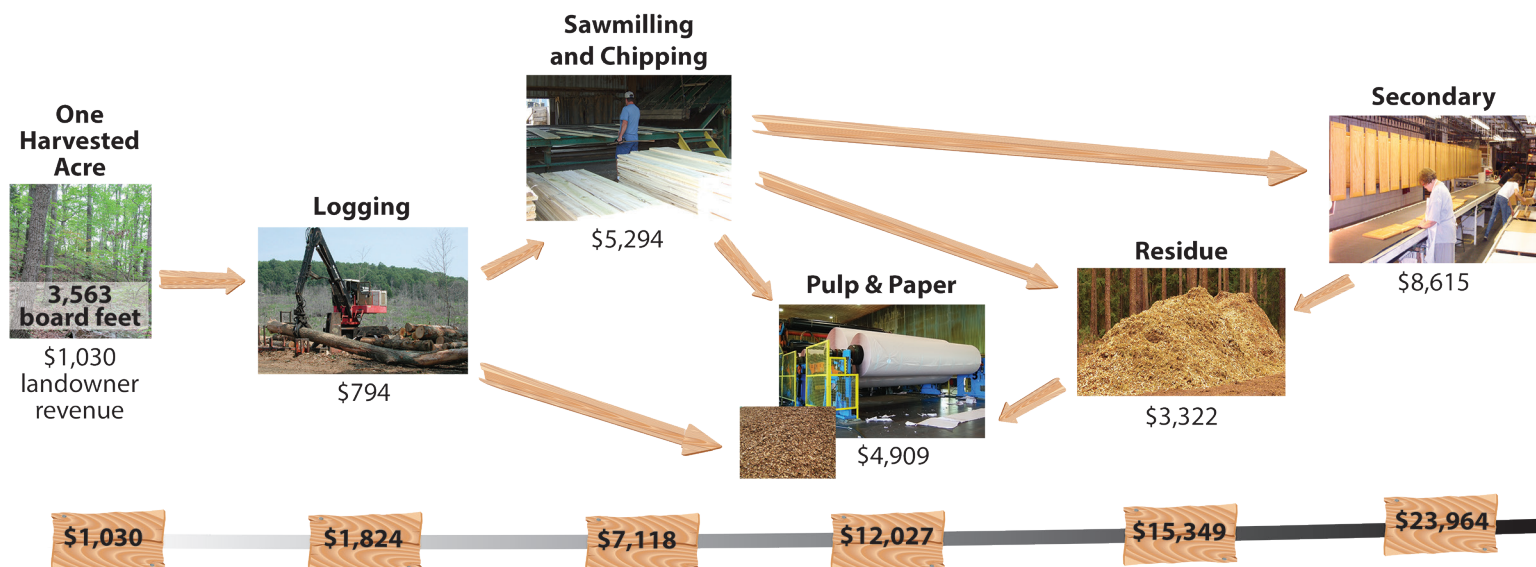
The forest industry in Kentucky is a significant economic force, estimated to have provided \$14.6 billion dollars to the state's economy in 2015. While the forest industry is credited for this economic contribution, it is family forest owners who provide the timber resources that are responsible for a significant portion of this \$14.6 billion, a fact that is often overlooked. This article provides information on the forestry sector's contributions to Kentucky in 2015 with a focus on the importance of woodland owners providing the timber resources that drive the sector.

2015 Economic Value of a Harvested Woodland Acre in Kentucky

A large part of the \$14.6 billion forestry sector contribution is based on the harvesting of Kentucky's woodlands. Economic, timber product output, and timber sales data, the later provided by members of the Kentucky Association of Consulting Foresters, were combined to determine the economic impact of an average acre of harvested timber in Kentucky. This includes revenues for landowners selling timber and revenues from logging, milling, residual products such as bark, and secondary industries that use lumber and other primary products. Therefore, every acre of timber that is harvested yields significant returns, not just for the landowner, but for the Commonwealth as a whole. Analysis shows that each acre of woodland harvested in 2015 was responsible for producing \$23,964 in direct revenues and

a total economic contribution of \$39,743 to Kentucky's economy (Figure 1). In 2015, the average value of standing timber was \$0.29 per board foot or \$1,030 of revenue for the landowner for each acre harvested. The average harvested acre also provided \$794 in direct revenue for the loggers who cut and haul the timber. The majority of our timber is processed at mills in Kentucky resulting in \$5,294 in direct revenues for sawmills and \$4,909 for pulp and paper mills. By-products such as bark from the mills also are an important revenue generator, yielding \$3,322 per acre of timber harvested. Finally, our secondary industries that manufacture finished furniture, furniture parts, flooring, barrels, and a host of other products contribute significant added value to the forest sector yielding \$8,615 per acre of harvested timber. In total, one acre of timber harvested results in \$23,964 to the Commonwealth in direct revenue and a total of \$39,743 including indirect and induced revenues. Does this mean that every acre of woodland harvested in Kentucky is worth \$1,030? Not necessarily, because of a wide variety of variables such as location, age, quality, quantity, access, and market demand, the timber value of a woodland acre will also vary. It is also important to understand the significant economic contribution that each step in this chain provides as well as the significant investments in personnel and equipment costs that are required to convert standing trees into the wood products we all use every day.

Figure 1. Cumulative Direct Economic Impact of a Harvested Woodland Acre



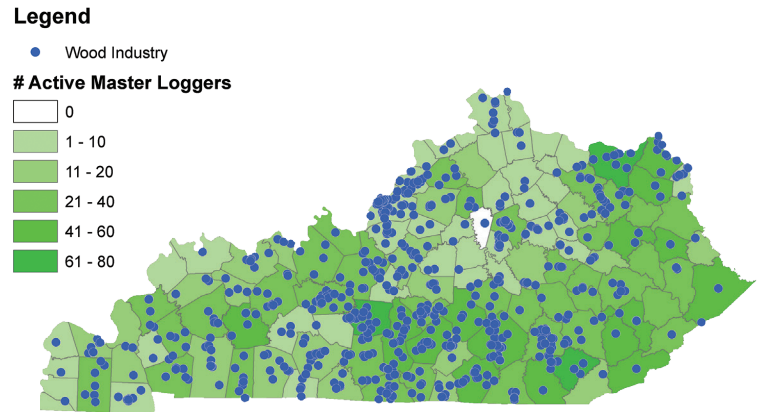
The Forestry Sector in 2015

The forestry sector, from logging to manufacturers of finished wood products, had an estimated direct economic impact of \$9.1 billion and a total economic impact of \$14.6 billion in 2015. This represents a significant increase over 2014 and an upward trend since 2012, when statistics were first compiled by the authors for this sector¹. This economic sector also directly employed 28,408 and contributed to total employment of 62,455, resulting in over \$1.5 billion in earned income. This sector includes 713 manufacturing facilities and more than 1,200 logging firms. The presence of this industry in 109 out of 120 counties as well as loggers in 119 out of 120 counties indicates broad distribution of the \$14.6 billion and highlights the importance of this sector to rural communities (Figure 2). However, as indicated by the clustering of industries in urban areas, forest industry is also an important economic force in many of our metropolitan areas. These industries include sawmills, pulp and paper mills, and a wide variety of secondary producers such as cabinet, barrel, and flooring manufacturers. The number of facilities increased slightly as 10 new facilities came online in 2015. Since the recession that started in 2008, the overall forestry sector has been steadily gaining ground with increases through 2015.

Kentucky Log Values

The majority of our timber resource is harvested as roundwood, ranging from veneer logs to pulpwood, and the Kentucky Division of Forestry tracks the delivered prices for all of these. The 2015 sawlog production estimate of 762 million board feet indicates that Kentucky remains one of the leading national producers of hardwood forest products. While the overall strength of the forestry sector increased in 2015, the year resulted in mixed pricing trends for many roundwood products. Sawlogs used to produce lumber varied significantly by species. For example, grade one logs (higher quality logs yield high quality lumber) of yellow-poplar and black walnut exhibited increases in delivered mill prices in 2015 (Figure 3). Yellow-poplar increased by over 6 percent and black walnut increased 22 percent, the latter continuing a significant upturn since the end of 2013. However, other important species such as white oak, red oak, and ash remained stable or declined in value in 2015. Red oak lost 13 percent of its delivered log value for the highest grade logs, and white oak decreased 11 percent in value. Delivered price for higher quality ash logs remained stable in 2015; however, lower quality ash logs lost significant value in 2015. Hickory had increased significantly in value in

Figure 2. Kentucky Wood Industries and Master Logger Distribution 2015

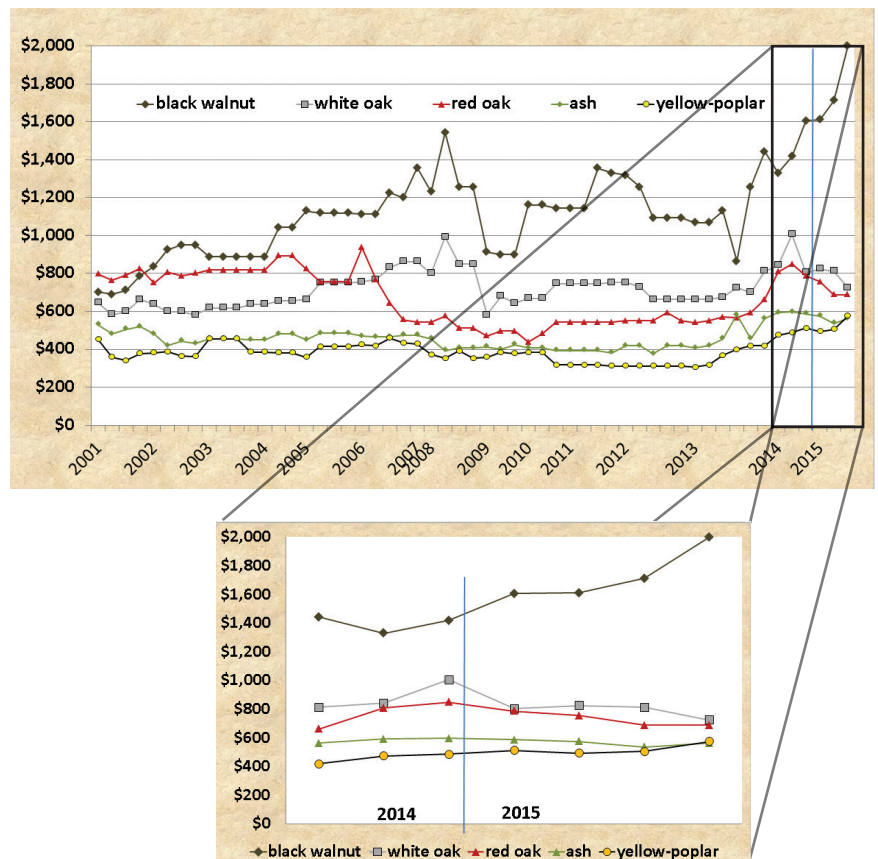


Source: Kentucky Master Logger Database and Kentucky Forest Products Industry Directory

2014 (greater than 30 percent for all grades) but all grades plateaued in 2015.

Tie logs, used for the production of railroad cross ties and stave logs for the production of barrels both continued an upward trend in delivered log prices in 2015. Tie logs increased compared to 2014 and oak tie logs reached almost \$400/MBF, outpacing non-oak tie logs, the first time this

Figure 3. Delivered Grade 1 Sawlogs Prices for Major Species in Kentucky



Source: Kentucky Division of Forestry's Delivered Log Price Data comparison between the 4th quarters of 2014 and 2015.

¹This article was based on "Forestry Economic Impact Report 2015", University of Kentucky, Cooperative Extension Service, Department of Forestry, FORFS 16-02. www.ukforestry.org

has happened since 2008 (Figure 4). Stave logs, high quality white oak logs used to produce barrel staves, reached \$1,300/MBF in the fourth quarter of 2015, a 27 percent increase compared to the fourth quarter of 2014 (Figure 5). This increase corresponds to the increase in projected worldwide whisky sales and is likely to continue.

Forestry Sub-sectors

The forestry sector is comprised of six sub-sectors, including logging, primary milling (primarily sawmilling), pulp and paper, secondary manufacturing (finished products and components), paper converters (industries that make finished paper products) and residues (primarily bark). While the entire forestry sector saw an increase in 2015, there were significant differences in how each sub-sector performed.

Logging: Logging firms had a direct economic impact of \$169 million in 2015, an increase of 27 percent over 2014. While this is the smallest sub-sector it arguably has the largest impact because of the harvesting and delivering the raw material for many of our forest industries.

Primary wood manufacturing: Primary manufacturing, comprised primarily of sawmills producing lumber, cross ties, and other dimensional products, increased significantly, over 32 percent, compared to 2014. This sub-sector increased production and revenues without a similar increase in employment. This indicates a capacity that has been under-utilized over the last several years.

Secondary manufacturing: In contrast to primary manufacturing, secondary manufacturing slipped to \$1.84 billion from \$2.04 billion in 2014, a 10 percent loss, with a reduction of approximately 1,000 employees. The reduction in secondary industry production is important as this sub-sector provides considerable indirect and induced impacts (almost equal to the direct contribution) to Kentucky's economy.

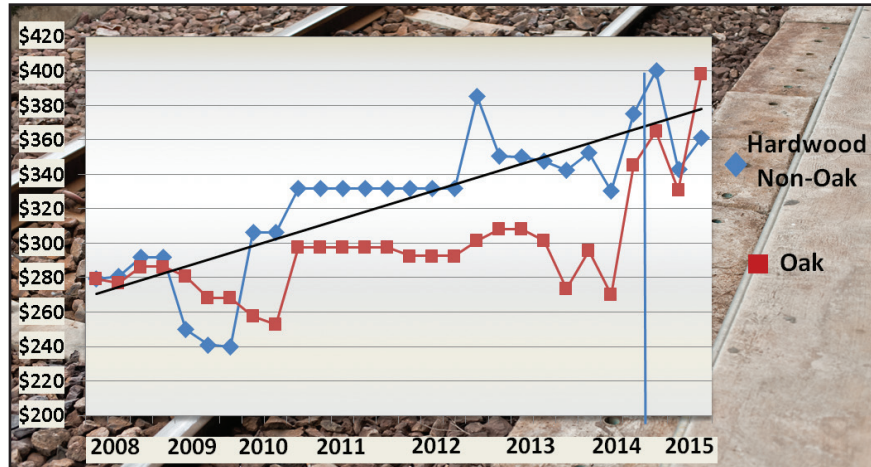
Pulp and paper: Kentucky's pulp and paper manufacturing occurs in two facilities: one located in Hawesville (Domtar Corp.) and one in Wickliffe (Verso Corp.). Pulp and paper decreased in 2015 due primarily to the idling of the



The pulpwood market in western KY is threatened by the recent closing of the Verso Mill.

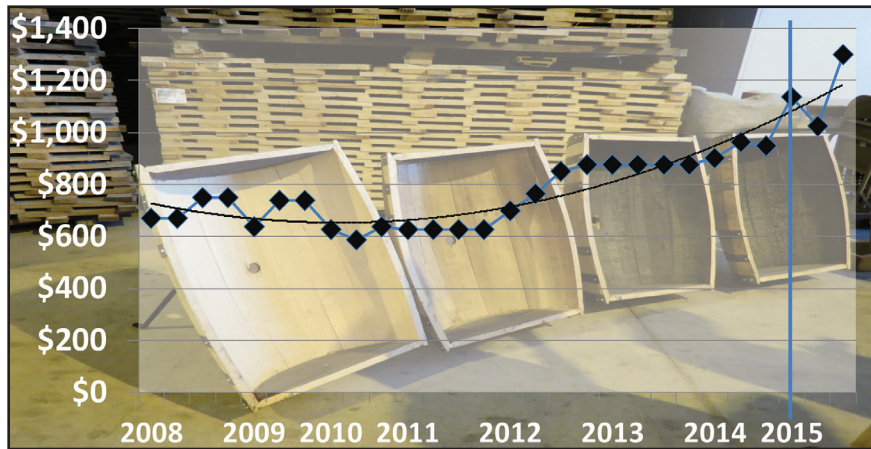
Photo courtesy: Jeff Stringer

Figure 4. Delivered Tie Logs Prices in Kentucky 2008-2015 by Quarter (\$/MBF)



Sources above and below: Kentucky Division of Forestry's Delivered Log Price Data

Figure 5. Delivered Stave Logs Prices in Kentucky 2008-2015 by Quarter (\$/MBF)



Wickliffe mill in November which is now scheduled to close this summer. This sub-sector is expected to decrease significantly in 2016.

Paper converters: Paper converters use paper produced in pulp and paper plants and manufacture-finished paper products, including packaging. This sub-sector is large and grew in 2015. Many of these facilities are located in urban areas and use paper that does not necessarily come from Kentucky.

Wood residue: Wood residues from both sawmilling and secondary manufacturers, including bark and wood mulch, increased in 2015, providing a direct contribution of over \$710 million, up 34 percent over 2014.

Sub-sectors outlook: Most economic forecasting indicates overall stability in 2016 for the sub-sectors with the exception of pulp and paper and logging. The idling of one of the two pulp and paper facilities in Kentucky in November 2015 may result in a 30 to 40 percent reduction of this sub-sector in 2016 if the plant does not reopen. Likewise, logging may be volatile owing to the reduction in this market for Western Kentucky loggers.

Kentucky Wood Exports in 2015

Wood related exports increased in 2015 with \$295 million shipped compared to \$272 million in 2014 (Table 1). While

Table 1. Top 5 Kentucky Wood, Paper, and Pulp Exports in 2015 (Millions)

Wooden Casks (Barrels)	\$103,287,884
Oak Lumber	\$67,927,578
Hardwood Lumber	\$25,085,404
Ash Lumber	\$15,898,818
Railroad Ties	\$12,341,996

Source: U.S. Department of Agriculture Foreign Agricultural Services

Asia significantly increased its imports of Kentucky wood products in 2015, Europe is still the leading export purchaser. Oaks continue to dominate Kentucky wood exports, led by wooden casks (barrels) at over \$103 million, followed by oak lumber at over \$67 million, accounting for over half of all wood-related exports.

While woodland owners are critical to Kentucky's economic health, the woods they own provide many environmental and societal benefits that largely go unappreciated. These include ecosystem services, such as clean air and water, carbon sequestration, biodiversity, and wildlife habitat, not to mention providing Kentuckians and thousands of visitors with recreational opportunities, aesthetic beauty, and many other intrinsic values. In total, the contributions of woodland owners to Kentucky is significant economically, environmentally, and socially. Our state, forest industry, and woodland owners all benefit from healthy, productive woodlands. Being better stewards of our resources is not only good for our environment but also for the industries that rely

on them. For those who are not woodland owners, we hope you gained a better understanding and appreciation for the contribution woodlands and their owners make to our lives and the need to support sustainable woodland management practices. If you are a woodland owner, thanks for all you do for Kentucky, and if you need assistance in better managing your woodland resources, visit www.ukforestry.org or give us a call.

Data Sources:

A number of data sources were used in this analysis including IMPLAN data for 2014 (IMPLAN is a nationally recognized economic modeling company that aggregates economic statistics and develops industry specific multipliers for calculating economic impact) that was adjusted to 2015 levels based on employment figures from the Kentucky Forest Products Industry Directory, which is maintained by the University of Kentucky, Department of Forestry Extension, and the Kentucky Division of Forestry (KDF). In addition, other sources include the USDA Forest Service's Timber Product Output, KDF's Delivered Log and Product Prices, the Forest Inventory Analysis, provided jointly by KDF and the USDA Forest Service, the Kentucky Master Logger Program, and Kentucky Forest Industries Association members also provided value data used in this report.

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About the Authors:

Jeff Stringer, Ph.D., is an extension professor at the University of Kentucky and is responsible for continuing education and research in hardwood silviculture and forest operations. He is also an editor of the Kentucky Woodlands Magazine.

Cooperative Extension Service, Department of Forestry, University of Kentucky, 201 Thomas Poe Cooper Building, Lexington, KY 40546-0073; Phone: 859.257.5994; Fax: 859.323.1031; E-mail: stringer@uky.edu

Billy Thomas, Extension Associate with the University of Kentucky Department of Forestry works primarily on non-industrial private forest issues and is the associate editor for the Kentucky Woodlands Magazine.

Cooperative Extension Service, Department of Forestry, University of Kentucky, 213 Thomas Poe Cooper Building, Lexington, KY 40546-0073; Phone: 859.257.9153; Fax: 859.323.1031; E-mail: billy.thomas@uky.edu

Bobby Ammerman, Extension Associate of Secondary Wood Industry with the University of Kentucky Department of Forestry, is responsible for technical outreach to the wood industry, forest certification, and entrepreneur assistance.

Cooperative Extension Service, Department of Forestry, University of Kentucky, Robinson Station, 130 Robinson Road, Jackson, KY 41339-9081; Phone: 859.257.9511; Fax: 606.666.2215; E-mail: bammerma@uky.edu

Alison Davis, Ph.D., is an Agricultural Economics extension professor in the University of Kentucky Department of Agricultural Economics. In addition to her work as an extension professor she is the Executive Director of the Community and Economic Development Initiative (<http://cedik.ca.uky.edu>).

Cooperative Extension Service, Department of Agricultural Economics, University of Kentucky, 411 Charles E. Barnhart Bldg., Lexington KY 40546-0276; E-mail: Alison.Davis@uky.edu; Phone 859.257.7260

Direct and Total Impacts

Direct vs Total Impacts Economic analyses often use the terms direct and total to refer to the nature of the economic impact of a given industry.

Direct economic impact refers to the economic activity (ex. sales and employees) directly associated with an industry sector.

Total economic impact refers to the complete economic activity associated with an industry sector and includes direct, indirect, and induced effects. Indirect includes the impact of the Kentucky forest and wood industries' purchasing goods and services from other industries while induced impacts reflects the spending of the labor income earned by employees of the Kentucky forest and wood industries. Total economic impact is the value that is often used to make economic policy decisions.