

2018 Division of Forestry Annual Report

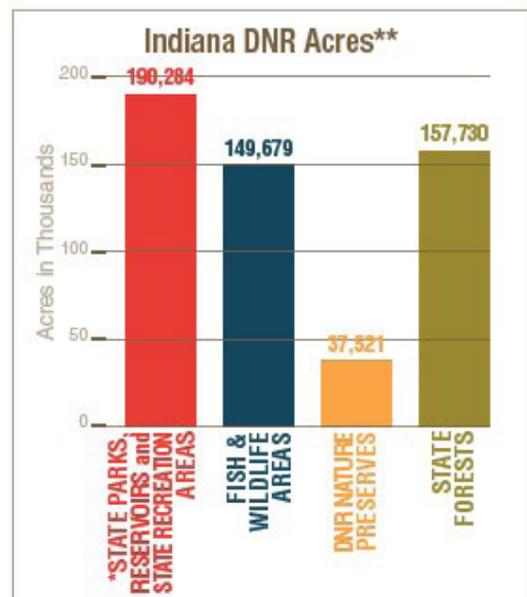
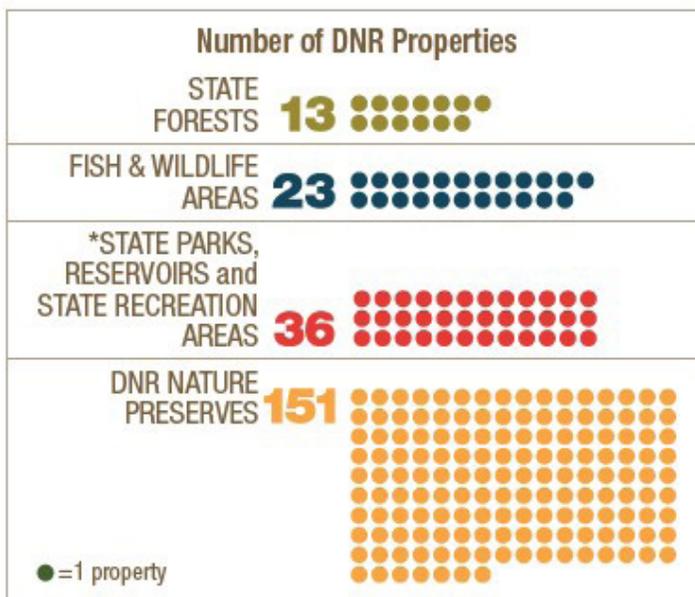


INDIANA'S STATE FORESTS

158,000 acres of sustainable forest at work and play

WORKING and RESEARCH FORESTS

The DNR State Forest system is one part of the broader DNR land conservation portfolio, which includes State Parks, Fish & Wildlife Areas, Reservoirs, State Recreation Areas, and Nature Preserves. The State Forests are uniquely managed under the principle of “multiple-use, multiple-benefit.” This means management is aimed toward providing wood products, wildlife, recreation and the conservation of unique resources. This multiple-use system includes the sustainable management and growth of “green certified” timber. It also includes the dedication and management of unique areas and, in partnership with the State Nature Preserve system, has set aside and dedicated nearly 3,500 acres as nature preserves in State Forests since January. This conservation management, based on science, provides combined benefits offered by no other lands in Indiana.



STATE FOREST RESOURCE MANAGEMENT

The Division of Forestry was awarded an AmeriCorps team in 2018. During its assignment, this team of seven young women and men from the AmeriCorps National Civilian Community Corps (NCCC) helped Morgan-Monroe and Yellowwood state forests with invasive species control and boundary survey projects. Exotic invasive plant species have become one of the biggest ecological problems facing the forests of Indiana. Species targeted during this project included bush honeysuckle, autumn olive, Oriental bittersweet, multiflora rose and crimson barberry. State Forests actively manage these invasive plants to promote healthy and diverse ecosystems. The boundary survey project retraced work performed by the Civilian Conservation Corps in the 1930s, in order to post property lines at Yellowwood State Forest.



In addition to the AmeriCorps team work, both State Forests continued normal operation. Hundreds of miles and thousands of acres of forest restoration, trail, boundary and forest improvement work was completed or contracted. This work positions these forests for continued health and productivity, providing jobs and other forest benefits for Hoosiers today and tomorrow. Primary work included control of invasive plant species (939 acres), trail maintenance and improvement (399 miles), forest and timber stand improvements (2,278 plus acres) and 121 miles of boundary work.

In 2018, forest certification programs and audits continue to independently recognize the State Forest system as “well managed forests.” Certification helps assure Indiana’s State Forests are managed sustainably for the use and enjoyment of both current and future generations. It also allows wood products from State Forests to participate in the “green certified” wood product markets.

The 158,300 acre State Forest system has been certified by the Sustainable Forestry Initiative® and the Forest Stewardship Council® (FSC®-C012858) “green certification” programs since 2007. Independent third-party audits are conducted annually to assess compliance with the rigorous certification standards. Audits in 2018 were conducted by Scientific Certification Systems and NSF International Strategic Registrations (NSF-ISR). The audit results found the State Forest system to be in compliance with the forest certification standards of well managed forests and issued no corrective actions.



Sustainable “green certified” wood products from State Forests in fiscal year 2017-2018 totaled 7,330,000 board feet equivalent, made up of 4.59 million board feet timber and 5,480 cords, producing gross revenues of \$1,117,236. These managed harvests were spread over 2,421 acres of the 158,000-acre State Forest system. Single-tree select cuts were the predominant harvest strategy. DNR Forestry sends 15% of timber-sale proceeds to county governments to help support volunteer fire departments—this amounted to \$210,554 in FY 2017-18. The annual timber harvest prescription for the State Forest system for FY 2018-19 is 10 million board feet.

Timber Sale Volume And Sale Prices the Last Ten Years			
<i>Fiscal Year</i>	<i>Timber Sale Volume (BFE)</i>	<i>Sale Prices</i>	<i>Revenue to Counties</i>
2008-2009	12,154,436	\$2,330,511	\$349,728
2009-2010	10,253,981	\$2,368,521	\$289,342
2010-2011	14,065,864	\$2,720,629	\$283,412
2011-2012	14,435,135	\$2,686,672	\$381,441
2012-2013	11,995,721	\$1,887,726	\$314,149
2013-2014	17,148,568	\$4,036,782	\$333,540
2014-2015	12,198,010	\$2,988,047	\$441,977
2015-2016	7,145,779	\$1,588,188	\$397,399
2016-2017	10,298,000	\$1,803,518	\$343,276
2017-2018	7,330,000	\$1,117,236	\$210,554
TOTAL	117,025,494	\$23,527,830	\$3,344,818

RESEARCH AND SITE CONSERVATION

State Forest Nature Preserves

In partnership with the State Division of Nature Preserves, the State Forest system participates in identifying the unique and special places in the State Forest system and formally sets those areas apart as state-dedicated nature preserves. The preserves on the State Forest system are managed in partnership with the DNR Division of Nature Preserves, to conserve and protect those special features and natural communities that set these areas apart from the rest of the forest. These preserves range in size from 10 acres, protecting important cave habitats, to more than 700 acres, conserving barren and related communities.

State Forest Natures Preserves		
Property	Preserve Name	Acres
Clark State Forest	White Oak	143.1
Clark State Forest	Virginia Pine-Chestnut Oak	23.6
Clark State Forest	Alum Cave	142
Clark State Forest	<u>Outbrook Ravine</u>	518.57
Harrison-Crawford State Forest	Post Oak-Cedar	266
Harrison-Crawford State Forest	Scout Mountain	40
Harrison-Crawford State Forest	Leavenworth Barrens	761.28
Harrison-Crawford State Forest	Batwing Cave	10
Harrison-Crawford State Forest	<u>Deam's Bluff</u>	258.86
Harrison-Crawford State Forest	Blue River Gravel Wash Barrens	78
Harrison-Crawford State Forest	Greenbrier Knob	144.2
Harrison-Crawford State Forest	County Line Glades	84.6
Jackson-Washington State Forest	Indian Bitter	35
Jackson-Washington State Forest	<u>Knobstone Glades</u>	60
Martin State Forest State Forest	Henshaw Bend	77
Martin State Forest State Forest	Tank Spring	60
Morgan-Monroe State Forest	Scout Ridge	14.5
Morgan-Monroe State Forest	<u>Sweedy Hollow</u>	150.1
Morgan-Monroe State Forest	Low Gap	320
Morgan-Monroe State Forest	Ravinia Seep Springs	52.4
Owen-Putnam State Forest	Pleasant Grove Valley	64.2
Owen-Putnam State Forest	Jordan Creek Seep Spring	46.72
Yellowwood State Forest	Crooked Creek	35
Yellowwood State Forest	Miller Ridge	30.6
Yellowwood State Forest	Lucas Hollow	42.78
Total		3,458.51



STATE FOREST RECREATION

State Forest Recreation, by the Numbers

State Forest recreation facilities include three gated properties and more than 158,300 acres of land and water to enjoy and explore. The scale of operations provides significant recreation opportunities within the DNR portfolio.

Scale of Forestry Recreation Opportunities

- 19 Family Campgrounds (650 sites)
- 6 Equestrian Campgrounds (200 sites)
- 47 Camping Cabins
- 2 Family Lodges
- 300 miles Hiking Trails
- 41 miles Bike Trails
- 270 Miles Horse Trails
- 140+ Lakes
- 3 Backcountry-style Trails
- 1 Shooting Range
- 2 Archery Ranges
- 2 Forest Education Centers
- 3 Swimming Beaches
- 30 Picnic Shelters



In addition to the historic and primitive Draper Cabin at Morgan-Monroe State Forest, camping cabins are now offered for reservation at these State Forest properties: Deam Lake SRA, Starve Hollow SRA and Greene-Sullivan State Forest.

- Fully furnished retreat cabins, such as Cherry Lake Lodge at Morgan-Monroe State Forest and the A-Frame Lodge at Covered Bridge State Forests, continue to be popular with guests. See more at www.in.gov/dnr/forestry/7694.htm
- Campground improvements underway at Clark State Forest and Greene-Sullivan State Forest are expected to come on line in 2020-2021, with modern restrooms and improved camping facilities. State Forests will also continue to offer primitive camping experiences. Campsites at Deam Lake State Recreation Area, Starve Hollow State Recreation Area and Greene-Sullivan State Forest can be reserved online at indianastateparks.reserveamerica.com.
- A comprehensive trail assessment was completed, looking at placement and condition of nearly 100 miles of recreation and management trails at Harrison-Crawford State Forest. This first-of-its-kind detailed assessment for the property will guide the forest on trail improvement projects in coming years.
- Annual recreation revenue was \$1.5 million in fiscal year 2018. These revenues have doubled since 2010, stemming from increased recreation opportunities, enhanced facilities and an improving economy.

Improved Lakes and Campgrounds

Narrow Lake- Greene-Sullivan State Forest



Lake renovation is complete at the popular Narrow Lake campground at Greene-Sullivan State Forest. This improvement project was part of a larger project to correct dangerous highwall conditions that existed on this lake, which was created during the 1940s strip mining of the area, prior to State Forest acquisition.

Starve Hollow Lake



The sediment removal project at Starve Hollow Lake comes to a close with the 2018-2019 dredging season. In total, the project removed nearly 200,000 cubic yards of sediment that had accumulated since lake construction in the mid-1930s. The project aims to help restore lake depth, storage capacity and recreation uses.

Playground Enhancements



Accessible playgrounds replaced aging playground equipment at several State Forests in 2018, including Starve Hollow Lake, Clark State Forest, Owen-Putnam State Forest, Greene-Sullivan State Forest, Martin State Forest and Deam Lake. Replacements are planned for other State Forests in 2019 to improve play areas for visiting families.

State Forest Trail Improvements



Trail side overnight shelters now welcome backpack trail hikers at two locations along the Tecumseh Trail, at Morgan-Monroe State Forest and Yellowwood State Forest. This was a joint project between the Division of Forestry and the Hoosier Hikers Council.



Forestry trail crews and many hard-working trail volunteers help improve trail experiences. Special thanks to ITRA, HHC, KHTA and others for their dedicated trail work. Pictured is trail work at Clark and Ferdinand State Forests.

State Forest Community Involvement

State Forests hosted 40 special events in 2018 with an estimated 6,081 participants. Organized hikes, trail runs and equestrian events are the most common sponsored events.

Annual open house and public comment events were held across the system in December 2018 to invite the public to view operations, meet property personnel and comment on property projects and concerns. Some events featured tours of facilities, short hikes and talks on forestry and natural-resource topics of interest.

Volunteer opportunities at State Forests continue to expand, ranging from one-time projects and campground hosts to long-term efforts and contributions by individuals and groups. Campground host opportunities can be found at <https://www.in.gov/dnr/parklake/files/sp-Campground-Host-Summaries.pdf>. Other projects include horse campground improvements at Greene-Sullivan State Forest and Salamonie River State Forest, with the help of local clubs and the Indiana Trail Riders Association. Trail work was also done at Clark State Forest by the Friends of Clark/Deam Horse Trails. Also noteworthy is the continued hiking trail work along the Knobstone and Tecumseh trails by adopt-a-trail volunteers, the Hoosier Hikers Council and the Knobstone Hiking Trail Association.



State Forest Facility Improvements

State Forest Facilities

Repair, renovation and updates to facilities are an ongoing part of State Forest operations, with many facilities receiving facelifts and some new construction in 2018.

State Forest facility improvements and construction projects rely heavily on in-house labor, skills and wood materials. This has kept costs down and allowed significant accomplishments to occur over the last several years. Partnerships with the Indiana Department of Correction have also been instrumental in these accomplishments, as has valued assistance from many volunteers.

On the next few pages is a sampling of 2018 projects.

Pike State Forest



The CCC-era office and service building at Pike State Forest receives phase 1 of its exterior facelift. New siding, windows, doors and roof will secure this building for years to come. This in-house project is scheduled to be completed in 2019.

Martin State Forest



Turning lemons into lemonade. When an errant semi veered off U.S. 50 and clipped the 1970s entrance sign at Martin State Forest, property personnel took this opportunity to recapture a bit of history. The long-standing stone pillars built by the Civilian Conservation Corps in the 1930s were once again called back into service to grace the Martin State Forest entrance sign.

Martin State Forest



As 2018 wound down, Martin State Forest staff put the finishing touches on the new Martin Lake shelter house. Available for reservation, the shelter includes electricity, a picnic patio and a nearby playground.

Deam Lake Recreation Area



In partnership with Silvercreek Water Corporation, the obsolete water tower at Deam Lake was replaced, at no cost to the State, with a new tower to better serve the community and the recreation area. The tower color scheme was selected to blend into the surroundings, and the logo was added to help direct visitors to Deam Lake.



Morgan-Monroe State Forest



Construction draws to a close on the new Morgan-Monroe State Forest-Fire Control Headquarters, with interiors featuring a rich selection of renewable Indiana hardwoods, much of which was grown and produced in the State Forest. Watch for our grand opening in May 2019.



Volunteers at Salamonie River State Forest



Volunteers at Salamonie River State Forest



Culvert repair on the Ferdinand State Forest entrance Road

*Some
select photos of additional
events and facility
improvement
projects*



Fish stocking at Narrow Lake- Greene Sullivan State Forest



Firewood processor helps fuel facilities and produce campfire wood at Starve hollow SRA



The main hall at the new Morgan Monroe State Forest-Fire Control Headquarters

PRIVATE LANDS

The mission of the Cooperative Forest Management (CFM) section is to promote forest stewardship on Indiana's privately owned forest lands by providing forest management information and technical assistance to owners and others, in order to ensure continued forest benefits, both tangible and intangible, for present and future generations.

The CFM budget is \$2.1 million (81% salaries/fringe; 19% supplies and technology). Primary funding comes from state appropriations and revenue generated on state forests. Additional funding comes through grants from the U.S. Forest Service.

The state is divided into 20 districts. Each district includes between two and 10 counties. District sizes are based on the amount of forested acreage in each county and the number of tracts in each county enrolled in the Classified Forest & Wildlands Program (CFW). A district forester is assigned to each district. District foresters work one-on-one with landowners and are perceived by the public as unbiased providers of forestry information.

Full staffing includes 20 district foresters, two assistant district foresters, two CFM staff and an assistant state forester. At the beginning of 2018, four district forester positions (districts 2, 13, 14 and 17) and the assistant state forester position were unfilled. During the course of the year, two district foresters (districts 10 and 11) resigned to relocate to another state. In addition, the District 4 forester, Allen Royer, retired. Teams of district foresters and staff are covering open districts. In 2018, three new district foresters started.



New CFM Faces with Counties Served



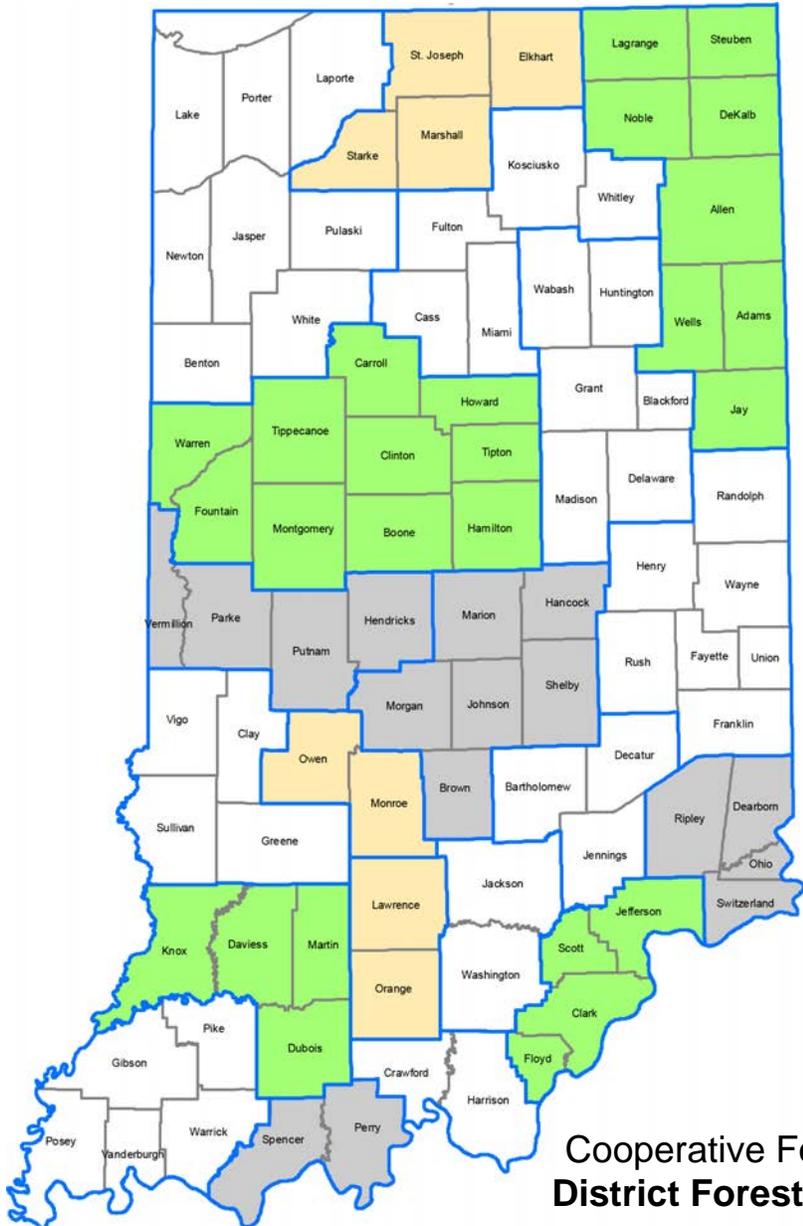
Quentin Beahrs
District 3
 Allen, DeKalb,
 LaGrange, Noble and
 Steuben



Travis Dunn
District 11
 Daviess, Dubois,
 Knox and Martin



Zach Musser
District 13
 Boone, Carroll, Clinton,
 Fountain, Hamilton, Howard,
 Montgomery Tippecanoe,
 Tipton and Warren



Legend

- Eligible for Retirement
- Working <2 years
- Vacancy

Cooperative Forest Management Section
District Forester Status as of 12/31/2018

Allen Royer: Completes Career of Service

For more than 40 years, Allen Royer served the citizens of Indiana. At the beginning of his career with the Division of Forestry, Allen held several positions—from marking timber on state forests to running efficiency studies in sawmills—but his calling was working with private woodland owners. Since the late 1970s, Allen has been meeting with landowners, walking their property with them, and providing them options to conserve and manage their land.

Although Allen retired this summer, he continues to be actively involved with the forest and wildlife conservation community. He keeps busy working on his land in Putnam County, spending time with his family, hunting and going on adventures with his wife Peggy.



CFM performs the following duties related to private lands forest management:

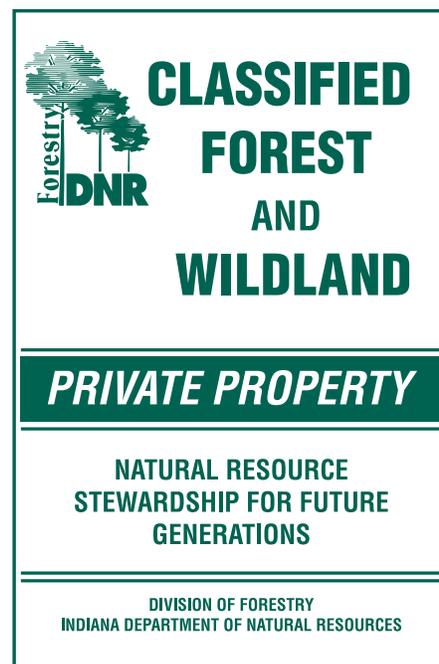
- Provides technical forestry assistance to private forest land owners.
- Administers the CFW, which includes:
 - Preparing stewardship plans for people interested in enrolling acreage in CFW.
 - Enrolling acreage in CFW.
 - Performing re-inspections on CFW parcels as required by law.
 - Performing all necessary duties required by Forest Stewardship Council® (FSC-C071226) third-party certification.
 - Withdrawing property from the program when requested or required by law.
- Serves as a technical service provider to the Natural Resources Conservation Service concerning the management of the Conservation Reserve Program (CRP) and the Environmental Quality Incentives Program (EQIP).
- Provides forestry education opportunities to landowners and other interested parties on a wide variety of forestry activities.

CLASSIFIED FOREST & WILDLAND PROGRAM

CFW is one of the nation's oldest and most successful conservation programs. The purpose of the program is to encourage private landowners to manage their property for timber, wildlife habitat and water quality. In return, the property tax on enrolled land is reduced.

Program Enrollment

The net program increase for 2018 was 294 tracts, totaling 10,773 acres. CFW is a voluntary program— landowners can withdraw or revise their amount of enrolled land at will. In 2018, a total of 37 tracts were completely withdrawn, and 154 applications were revised. A total of 919 acres were withdrawn. The rate of program enrollment is returning to rate experienced before property tax reform. That reform resulted in record-breaking enrollments from 2004-2015.



The Division of Forestry has an online application, the Indiana Forest Resource Management System (INFRMS, <http://www.in.gov/dnr/forestryexchange/default.aspx>), to track land enrolled in CFW. Landowners with land in the program can also log into the program to file their required annual report, submit completed management activities and view maps of their property. County offices can request access to the application to review classified lands in their counties.

CFW Reinspections

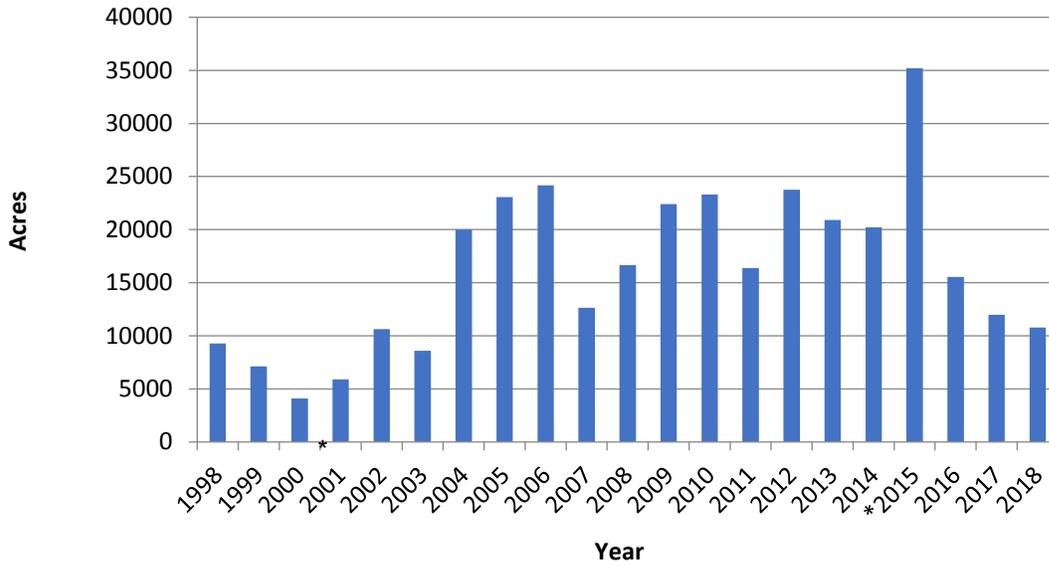
CFW tracts have to be visited once every seven years by the Division of Forestry (IC 6-1.1-6-19). At the re-inspection, the district forester makes sure the land is meeting the program requirements. The landowner can walk with the forester and ask questions specific to the property. CFW inspected 2,303 tracts totaling 121,817 acres in 2018.

Indiana Classified Forest Certified Group

Landowners with at least 10 acres of classified forest can choose to have their land certified through the Forest Stewardship Council (FSC - CO71226) by joining the Indiana Classified Forest Certified Group. This is a free benefit of CFW. Certification provides recognition that the forest is being managed in a way that provides forest products while protecting water, soil, plant, wildlife and special features. It also allows timber from classified forests to be sold as being FSC certified. There are approximately 485,000 acres in the certified group.

In fall, certification auditors come to Indiana to review the program. They visit properties, talk with landowners and review program records to determine if the Forest Stewardship Council standards are being followed. The auditors then provide a report on what is going well and areas where improvement is needed. The full 2018 Classified Forest FSC audit report is at https://www.in.gov/dnr/forestry/files/fo-FM_RPT_Surveillance_ICFCG_2018.pdf.

Acres Increase by Year Classified Forest & Wildlands Program



* 2015 had two enrollment periods due to change in assessment date from March 1 to January 1

District foresters visit timber harvests (pre-harvest, active harvest, post-harvest) occurring on certified classified forests. The purpose of the visits is to ensure that harvest is occurring in a manner that will have the least long-term impact to the property. In 2018, district foresters made 311 timber harvest inspections.

General CFM Assists and Referrals

District foresters not only work with CFW landowners, but also provide forestry assistance and education to the general public and refer landowners to private-sector foresters for services not provided by the Division of Forestry. In 2018, the following assists and referrals were made:

- Referrals to private professional foresters: 1,957 referrals.
- Outreach/Education: 101 events, 2,220 participants.
- Incidental Assists (emails, phone calls, etc.): 3,796 assists. No acreage figures are kept.

FOREST WILDLIFE MANAGEMENT

INDIANA BAT HABITAT CONSERVATION PLAN (HCP) AND BAT MANAGEMENT UPDATE

In 2018, division staff completed the Environmental Assessment (EA) that accompanies the Indiana Bat Habitat Conservation Plan (HCP) for State Forests, as part of an application to the U.S. Fish and Wildlife Service (USFWS) for an Incidental Take Permit. The EA is currently being reviewed by the USFWS, and a final version is expected to be completed in 2019.

Following the USFWS review of the draft Indiana Bat HCP in 2017, division staff also completed updates to the plan and supporting data in 2018. The next step will be for the USFWS to complete its administrative review of the updated plan and its supporting documents and materials, which is expected during 2019. The HCP is a necessary component in the application for an Incidental Take Permit, which authorizes limited incidental take of Indiana



bats during regular State Forest management activities. The HCP will direct the division's Indiana bat conservation program for State Forests over the next 20 years, and includes strategies to minimize risk of incidental take on State Forests, programs to increase awareness of Indiana bat conservation on privately owned forests in Indiana, measures to fully mitigate the impacts of unavoidable incidental take and a monitoring program designed to evaluate the effectiveness of impact minimization measures and mitigation activities. Once approved, this HCP and the accompanying Incidental Take Permit will be among the first ever granted to a State Forest management agency for the conservation of the Indiana bat. The division takes great pride in its leadership role on this important issue and believes its HCP will serve as a model for other forest management agencies to follow.

The division continues to manage the federally threatened Northern long-eared bat on State Forests under guidance provided by the USFWS and conservation measures detailed in its final 4(d) rule for the species. By following this guidance, the division can fully avoid prohibited incidental take of Northern long-eared bats, as specified by the 4(d) ruling. A key conservation measure is avoidance of known maternity roosts during summertime management activities. To date, 185 Northern long-eared bat maternity roosts have been identified on Morgan-Monroe State Forest and Yellowwood State Forest.

WILDLIFE RESEARCH SUPPORT AND OUTPUT

- In 2018, DNR Forestry provided direct support to 14 research projects investigating the ecological effects of forest management on State Forests. All of this support went to researchers involved with the Hardwood Ecosystem Experiment (HEE, www.heeforeststudy.org/), a long-term project based at Morgan-Monroe and Yellowwood.
- DNR Forestry provided support to nine graduate/post-graduate researchers in 2018, working on questions related to forest management and ecological impacts.
- DNR Forestry-supported researchers published eight articles in peer-reviewed scientific journals in 2018. HEE accomplishments since 2006: 59 peer-reviewed research articles, 27 theses and dissertations, and six peer-reviewed extension publications and technical report collections.

RECENT SELECT HARDWOOD ECOLOGICAL EXPERIMENT (HEE) PROJECT SUMMARIES:

- A recent study of radio-tracked cerulean warbler (state endangered) fledglings has found positive habitat preferences for the occurrence of grapevine, vertical vegetation density, ground cover and canopy cover. Negative relationships were found between fledgling locations and white oak, basal area, and the abundance of mature trees. Preliminary findings suggest that cerulean warbler fledglings may use different habitat types than the mature forest stands where the species typically nests.
- Recent research on the effects of prescribed fire on spiders indicates that burning significantly changes the taxonomic composition of spider communities. Additionally, the diversity of spiders within burned sites drops significantly after burning.
- A bat study completed in 2018 found that recent shelterwood establishment cuts at Morgan-Monroe and Yellowwood were among the areas used most by species such as Indiana bat, Northern long-eared bat, red bat and tri-colored bat. Similar to earlier HEE studies, this one found no evidence showing any bat species avoided harvested areas.
- Capture rates for some species of bats mirror statewide declines due to the devastating affliction known as white-nose syndrome (WNS). Tri-colored bats, Northern long-eared bats and little brown bats have each experienced a notable drop in captures and are believed to be the species most affected by WNS in Indiana. Northern long-eared bats were once among the most abundant species captured at Morgan-Monroe and Yellowwood. In recent years, captures have dropped dramatically ever since WNS was first detected in Indiana, in 2012.
- Study results published in 2018 found that federally endangered Indiana bats used recently harvested sites and forest openings for roosting during the summer maternity period. Ongoing research focuses on multiple Indiana bat maternity colonies at Morgan-Monroe and Yellowwood. Findings indicate female Indiana bats select maternity roosts located in canopy gaps, edges and openings. Radio-tracked Indiana bats and Northern long-eared bats (federally threatened) appear to preferentially forage in recently harvested patch cuts and hinned hardwood stands.

FOREST HEALTH

For the forest health report, please click on this link:

[https://www.in.gov/dnr/forestry/files/fo-Forest Health Highlights 2018.pdf](https://www.in.gov/dnr/forestry/files/fo-Forest_Health_Highlights_2018.pdf)

FOREST RESOURCE INFORMATION

IN 2018, THE DIVISION OF FORESTRY:

- Provided 2,025 technical assists upon request to various customers on topics of marketing, utilization, various training opportunities, efficiency, forest industry certification, best management practices, and forest resource/industry data.
- Managed a Forest Stewardship Council Chain of Custody group, consisting of 68 small to medium forest industry companies, and conducted 26 internal audits and coordinated eight external audits by our certifying body (Scientific Certification Systems). Estimated economic impact of this group is \$11 million.
- Completed three documents highlighting log pricing, logging costs, residue costs, custom costs and lumber pricing.
 - 2018 Indiana Forest Products Price Report and Trend Analysis (spring 2018)
https://www.in.gov/dnr/forestry/files/fo-spring_2018_Timber_Price_Report.pdf
 - 2018 Indiana Forest Products Price Report and Trend Analysis (fall 2018) – completed and should be available on website soon.
 - 2018 Indiana Maple Syrup report https://www.in.gov/dnr/forestry/files/fo-maple_syrup_report_2018.pdf
- Created a PowerPoint comparing green lumber prices, standing timber prices and delivered log prices.
- Coordinated and/or provided instruction for various training opportunities for forest industry professionals and DNR employees—chainsaw and skidder training (21 days with 186 attendees) and best management practices (three days with 26 attendees).
- Coordinated two field days/demonstrations for forest industry professionals and three presentations on forest products data/information:
 - Conducted tour of forestry products industry for Indiana State Department of Agriculture staff.
 - Conducted tour of forest products industry for members of the Northeast Area Association of State Foresters Forest Utilization Committee.
 - Presented information to Purdue forestry class regarding opportunities within the Division of Forestry and general Forest Resources Program information.

- Presented PowerPoint to participants at annual IFWOA meeting on lumber pricing, log pricing and standing timber prices.
- Presented PowerPoint on maple syrup production and economic contribution to participants at the annual Indiana Maple Syrup Association meeting.
- Monitored 35 harvest sites on State Forests and 38 harvest sites on Classified Forest and Wildland (CLF&W) lands, for a total of 73 harvest sites, for Best Management Practices (BMPs) for application/effectiveness. BMP monitoring reports were produced for the monitoring completed on the State properties, which can be found at https://www.in.gov/dnr/forestry/files/fo-1996-2017_State_Forest_BMP.pdf, and for the CLF&W program carried out in 2017, which can be found at https://www.in.gov/dnr/forestry/files/fo-1997-2017_Classified_Forest_BMPS.pdf. A comprehensive BMP monitoring report is released every five years. The last was published in 2017. It covered the results of all BMP monitoring from 1996 through 2016, and can be found at http://www.in.gov/dnr/forestry/files/fo-1996_2016_State_Forest_BMP_Report.pdf.
- Completed three reports, all of which are on the DNR Forestry website. Three logged-area analysis studies were conducted in 2018. These were part of a five-year study to increase knowledge of harvest efficiencies, produce better estimates of residual volume left in the woods after a harvest and to find better tree taper equations, among other things. Graduate students from Purdue FNR and IU SPEA are using CFI data for research papers and classroom projects.
- Had state employee field staff collect forest inventory data from 190 FIA plots across the state. Collected annually, the information provides an excellent picture of the forest resource in Indiana. Some highlights from this research show Indiana has 4.913 million acres of forestland, 2.1 billion live trees (or 440 trees/acre on average) and net volume 10.86 billion cubic feet (or an average of 2,210 cubic feet/acre). A five-year analytical report can be found at http://www.in.gov/dnr/forestry/files/fo-IN_Forests_2013.pdf.
- Concluded, through its Forest Resources Information (FRI) section, the 11th year of the Continuous Forest Inventory (CFI) program. CFI, which closely resembles the U.S. Department of Agriculture Forest Inventory & Analysis Program, provides an up-close view and valuable, timely and current data regarding the forest resources on State Forest properties. Data were collected from 766 plots. The latest property report can be found at https://www.in.gov/dnr/forestry/files/fo-State_Forest_CFI_Report_2013_2017.pdf. Another inventory program coordinated by FRI concluded its 7th year on private lands enrolled in the Classified Forest & Wildlands program. These 652 plots are measured in identical fashion to the property plots. Findings can be found at https://www.in.gov/dnr/forestry/files/fo-Continuous_Forest_Inventory_Classified_Report_2013_2017.pdf.
- Working in conjunction with the American Hardwood Export Council (AHEC) and the Hardwood States Export Group (HSEG), ISDA's Hardwood Economic Development program manager, Chris Gonso, attended multiple international trade shows. In 2018 more than 400 trade leads were generated from attendance at these trade shows, in growing and emerging markets that included China, the Middle East, Vietnam and Mexico. These trade leads are directed via email and/or visits to Indiana's primary hardwood exporting

companies. Additionally, over 1,700 qualified trade leads have been collected from 2011 to 2018 alone. These leads have resulted in an overall increase in market share for the hardwood community with approximately more than \$1 million of new business in veneer, lumber and log sales in 2018 alone.

Note: Additionally, through association with the American Hardwood Export Council (AHEC,) most funding for the international trips was paid with federal dollars.

- Hosted, through the Hardwood Program manager, more than 10 importers from Turkey, Vietnam and China on site visits. A number of these importer or manufacturer visits and/or inquiries resulted in first-time purchases and the beginning of new business relationships and international ties.



THE INDIANA HARDWOOD REPORT

2018 in Review

Introduction

Indiana's hardwood industry has an annual economic impact of over \$10 billion and supports 70,000 jobs -- 44,000 in primary and secondary manufacturing and 26,000 in ancillary sectors. 4.1 of Indiana's 4.9 million forest acres are privately owned and statewide timber growth exceeds removals for harvest and natural tree mortality by 2.3 times.ⁱ Indiana is renowned for producing high quality hardwood timber for products, such as grade lumber and veneer, as well as substantial amounts of industrial wood for shipping and construction purposes. This diversity of products is made possible by Indiana's diverse and productive hardwood forest resource. According to the assessment conducted, Indiana has a substantial and sustainable forest resource base, providing materials for a variety of wood-using industries, as well as recreation, wildlife habitat, environmental services, and quality of-life benefits. Forest area, volume of wood, and percentage of sawtimber trees have all been on the increase. Indiana is well known for its ability to produce some of the highest quality forest products in the world. The Hoosier state ranks:

- 1st nationally in the production of wood office furniture and hardwood veneer
- 2nd in wood kitchen cabinets and countertops, manufactured homes
- 3rd in engineered wood products
- 4th in pre-fabricated wood buildings
- 5th in upholstered household furniture

The wood-using industry relies on one of Indiana's most valuable renewable natural resources. Proper management of Indiana's timber helps guarantee primary wood-using firms a supply of quality wood fiber. These sawmills and veneer plants, in turn, provide top-quality materials for secondary industries to produce paneling, fine furniture, cabinets and similar finished products.

This report contains market information on log, lumber and veneer manufacturing sectors. The report contains data regarding green lumber prices per species as well as pallet cants and ties. Also included are comments and graphs depicting a variety of data related to the export of Indiana wood products. We hope you find this paper both informative and helpful.

The Department of Natural Resources (DNR) is committed to sound forest management practices on all state forests and to being SFI and FSC certified.

Domestic Market Comments

Ash

Throughout much of 2018 mills that could afford to buy ash logs often resold them as quickly as they purchased them, with large volumes being exported. Other mills ceased buying ash logs due the rising price and thus the inability to profit from processing them. Early to mid-2018 saw ash as many of the mills' hot and best species. Finding lumber was difficult due to the increasing mortality associated with emerald ash borer and rising log exports, kiln dried (KD) lumber prices rose steadily and peaked in late spring. Mills continue to export logs but due to phytosanitary rules, they are debarking them before shipping. Lumber market comments have been mixed with some reporting their lumber is moving easily and others saying demand was just OK. Availability and log quality prevented overproduction and restricted price declines. The average price for green 4/4 ash lumber across all grades declined about 3% for 2018.

Cherry

The first few months of 2018 saw high demand for cherry lumber driven almost exclusively by China. American producers were told to ship all they could. Sawmills searched high and low for additional supplies, which became harder to get as log exports reached record levels in the spring. Lumber prices rose to record levels and some moulding and furniture manufacturers were forced to stop buying because of the higher prices. To demonstrate just how fast the markets can change, most are now reporting cherry to be a problem. Sawmills that reported no price pushbacks early in 2018 saw prices fall as much as \$200/MBF in a two-week period. Fortunately, later in 2018 lumber exports rose, and log exports steadied but those positives did not offset the 10.5% price decline in 4/4 green lumber prices across all grades from QRT1 to QRT4.

Hickory

With the species hickory, both domestic and international markets are narrow when compared to other hardwood species. Residential flooring accounts for the lion's share of the domestic production, and 86% of the lumber exports were to either Mexico or China. Demand was good in early 2018 for all of these markets. Throughout 2018 lumber pricing was virtually unchanged with over pricing being up less than 1%.

Hard Maple

At the beginning of 2018, common grade hard maple was a much easier sell than the upper grades, as cabinet manufacturers and flooring plants purchased steady volumes. KD 4/4 #1C were \$55/MBF higher in May than April. Demand remains relatively unchanged with the common grades moving better than the uppers. One reason for the consistent demand may be that hard maple accounts for only 2% of total U.S. hardwood exports, so it is not affected as significantly as other species with regard to tariffs. Green hard maple lumber prices rose 6.5% throughout 2018.

Soft Maple

Early 2018 saw a mixed bag of comments regarding the soft maple markets. Some producers commented that soft maple was moving in all grades and thicknesses while others reported demand as just OK and yet another commented that their paint-grade material had lost ground to European beech. As we moved through 2018, #2C pricing held up better than #1/Btr primarily to the strong low-grade markets. Similar to hard maple, soft maple doesn't account for a large percentage of export volume but what little export activity there was trended lower since July. Producers report upper-grade soft maple will move but is a tough sell. Upper-grade soft maple has been in a downward spiral for two years and throughout 2018 green 4/4 lumber prices declined 8%.

Red Oak

Red oak moved well early in 2018 with not much change in pricing. There was not much concern about China being oversupplied. Exports were peaking in April, as just under 2017 record volumes and a strong domestic market gave producers some extra leverage with foreign buyers. Flooring plants were buying large volumes of #2/3A lumber, and all was well with the red oak world until ... downward price pressure began to increase in May, bringing concerns that China was oversupplied. Lower lumber prices became the norm, as did splitting tariffs between buyer/seller. Exports were off by 24% between Q2 and Q3. Mills, for the most part did not overproduce red oak lumber, in part due to poor logging conditions. Lumber prices across all grades leveled off but in the end, were off almost 9% from Q1 to Q4.

White Oak

Early 2018 saw positive white oak comments on the markets. Most noted steady to strong demand, and some producers commented: “White oak was just crazy.” All grades and thicknesses moved easily. Exports rose steadily, reaching a record 30MMBF in May. A few European buyers complained about price but they continued to buy. As we continued throughout 2018, white oak pricing held up much better than red oak. Although white oak pricing did decline, it did not crash. Exports to Vietnam rose almost 50% in Q3, which helped to offset the 42% decline to China. Mills did a good job of not overproducing lumber, and pricing rebounded almost 6% from Q1 to Q4.

Poplar

For most of 2018 poplar has been the steadiest of all hardwood species. Producers commonly refer to poplar as the steady eddy of the market. Supply and demand were in good balance for entire year. As with other hardwood species, the common grades moved better than the upper grades. As we continued through 2018 domestic demand was good for most grades and thicknesses. The moulding/millwork sector provided the most stable and demanding market for poplar. Export markets were trending up as well, especially to Vietnam. This helped to offset a slower China market. Overall lumber pricing throughout 2018 was up 7%.

Walnut

Walnut lumber exports rebounded in early 2018 from slower exports in the fall/winter of 2017 with pricing correspondingly higher. Log pricing was higher as well but mills were still able to sustain some profit margins. Common grades were moving better than the uppers, and many producers noted their walnut was selling within two days of hitting the kilns. Lumber prices peaked in June. Availability increased in July. Inventories began to grow, and lumber was hard to move. Together, these two factors led to lower pricing. Walnut lumber exports were steady throughout 2018, while log exports declined slightly. Lumber pricing fell almost 5% from Q1 to Q4.

Green Hardwood Lumber Prices (December 2018)

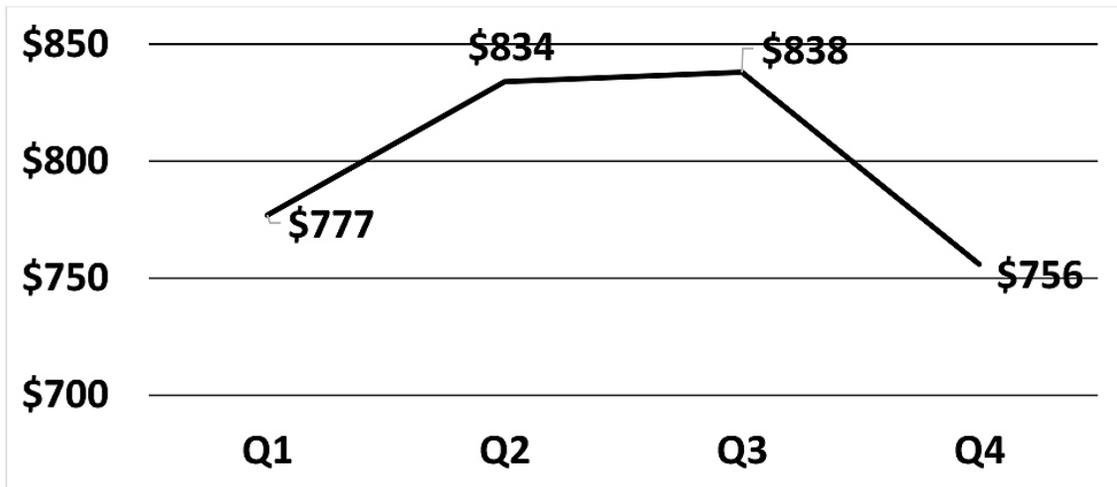
Dollars per one thousand board feet (MBF), 4/4 (1-inch-thick) Appalachian Market Area

	FAS	#1C	#2A	#3A
Ash	1085	825	505	
Cherry	1270	835	435	
Hickory	890	595	460	
Hard Maple	1180	965	635	435
Soft Maple	1080	750	380	
Red Oak	925	705	690	625
White Oak	1745	1045	665	635
Poplar	865	485	390	
Walnut	2670	1635	975	

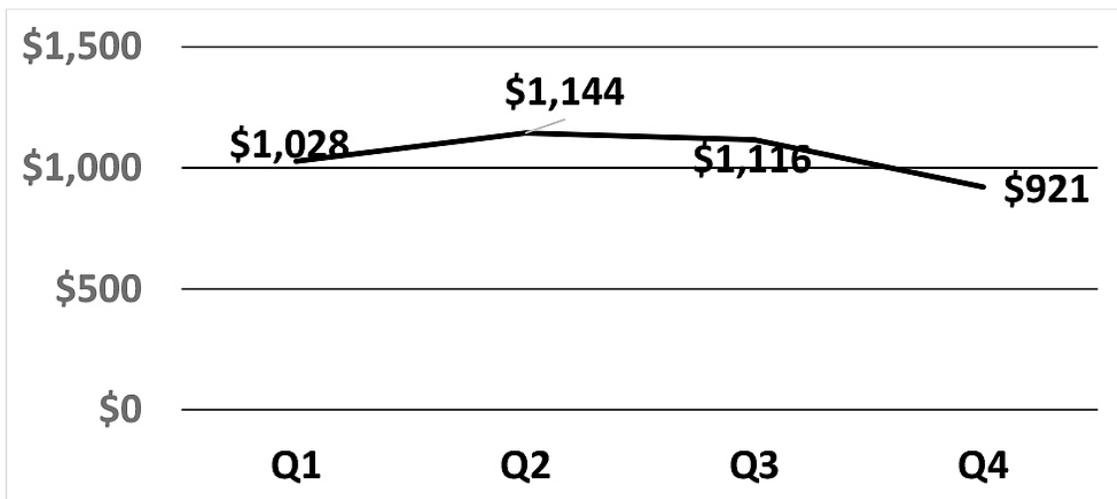
Source: Hardwood Review P.O. Box 471307, Charlotte, N.C. 28247-1307

The following graphs compare green 4/4 lumber prices per species across all grades for each quarter of 2018. Also included are comparisons for pallet cants and ties. Data were obtained from weekly reports from the Hardwood Review Weekly.

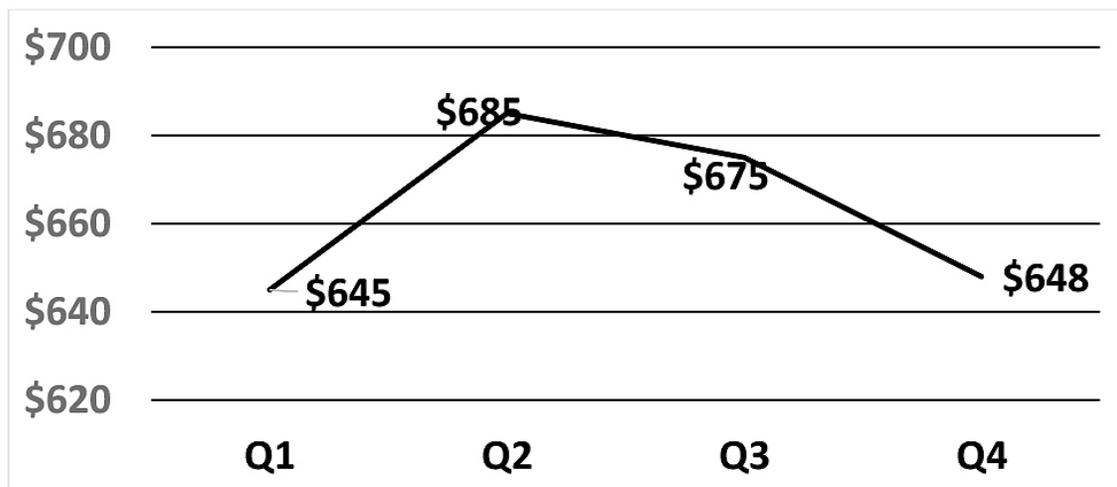
4/4 Green Ash (all grades)



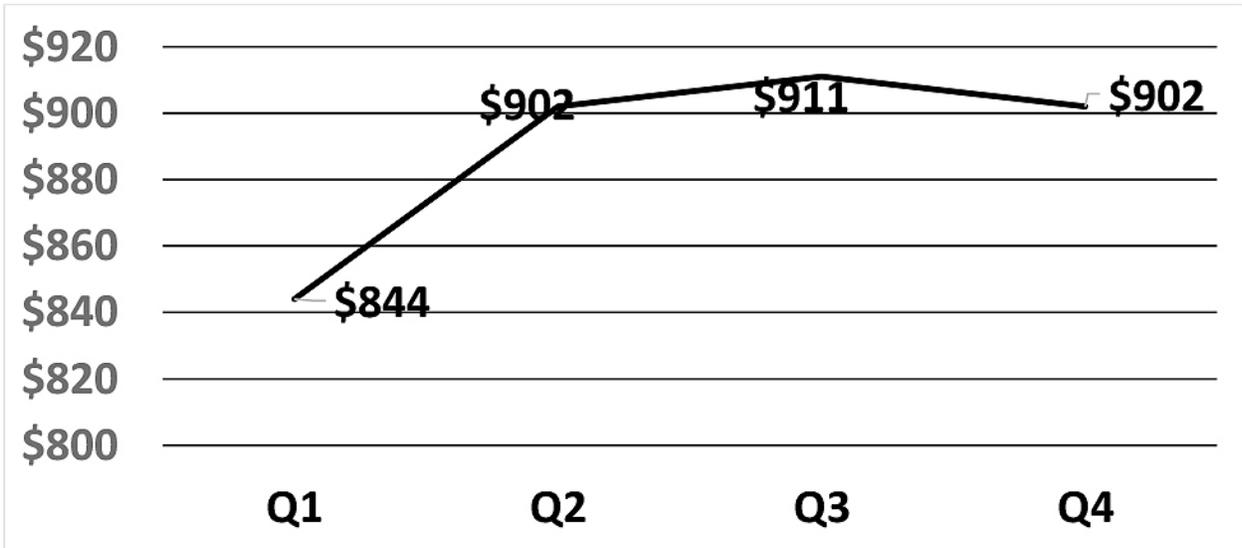
4/4 Green Cherry (all grades)



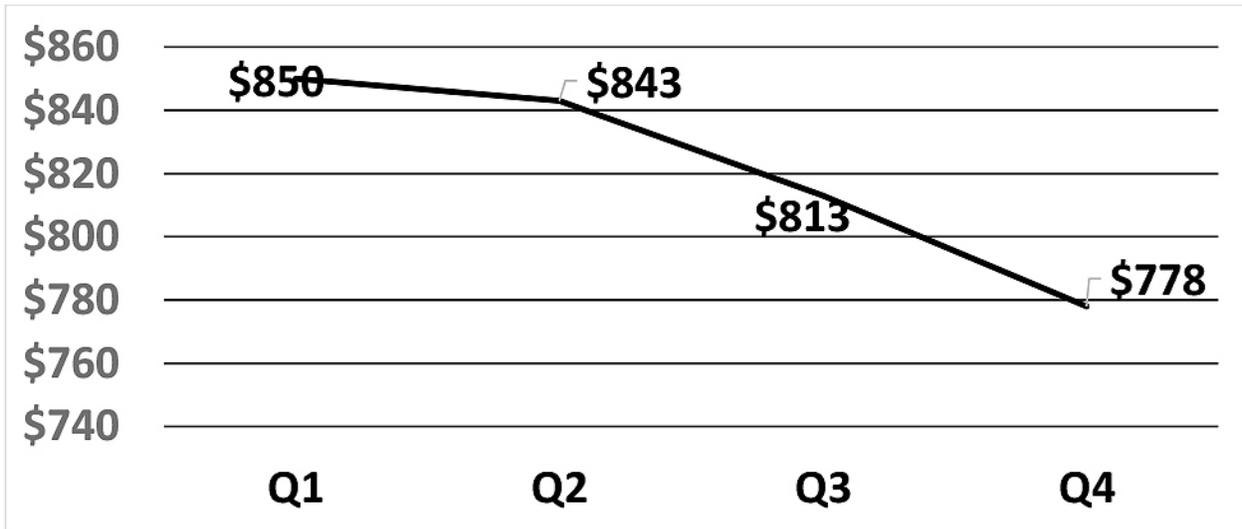
4/4 Green Hickory (all grades)



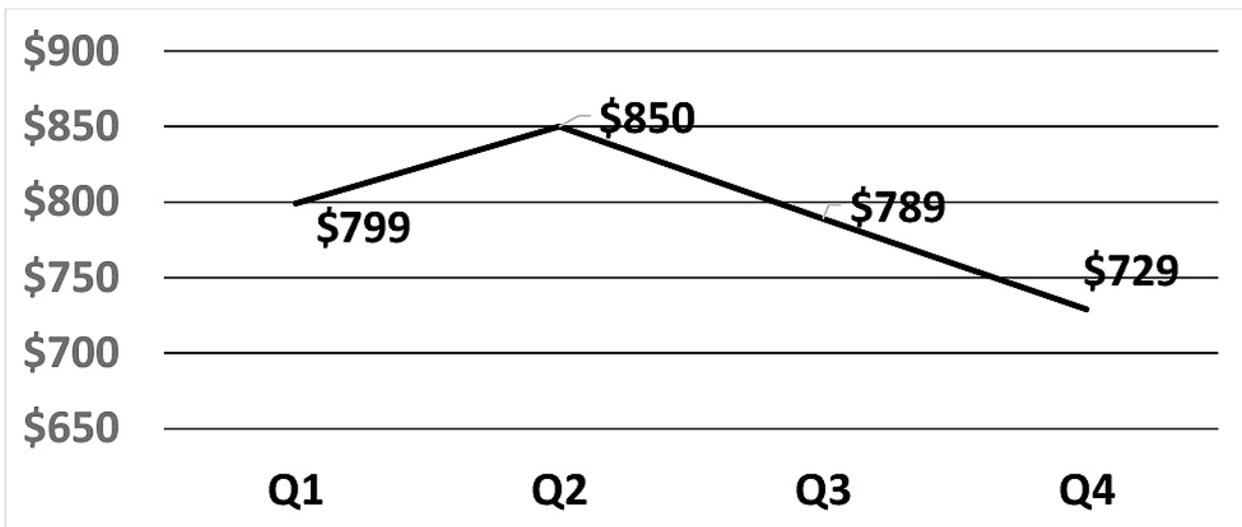
4/4 Green Hard Maple (all grades)



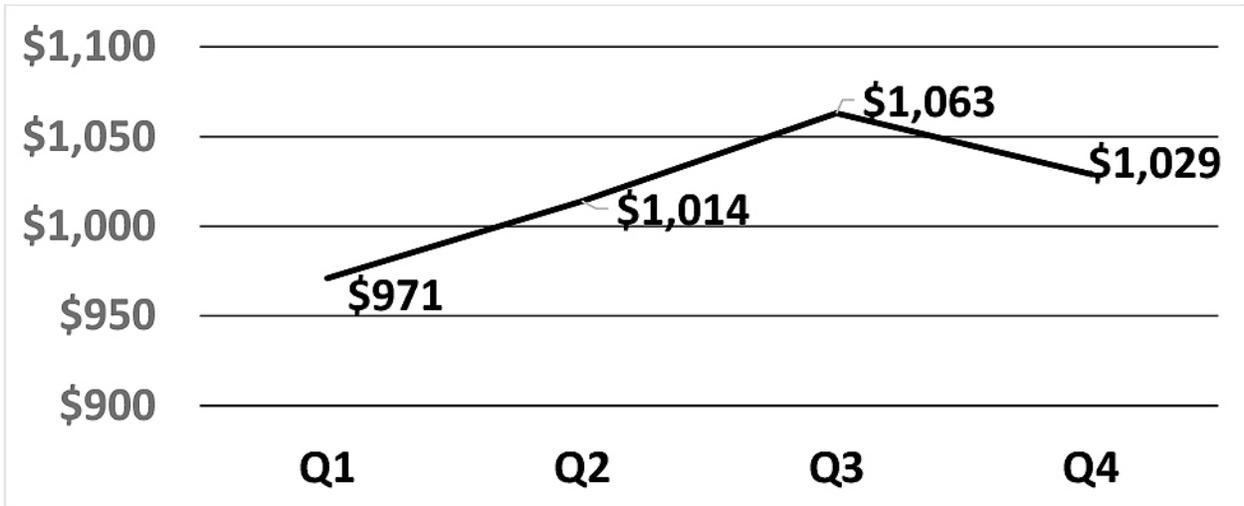
4/4 Green Soft Maple (all grades)



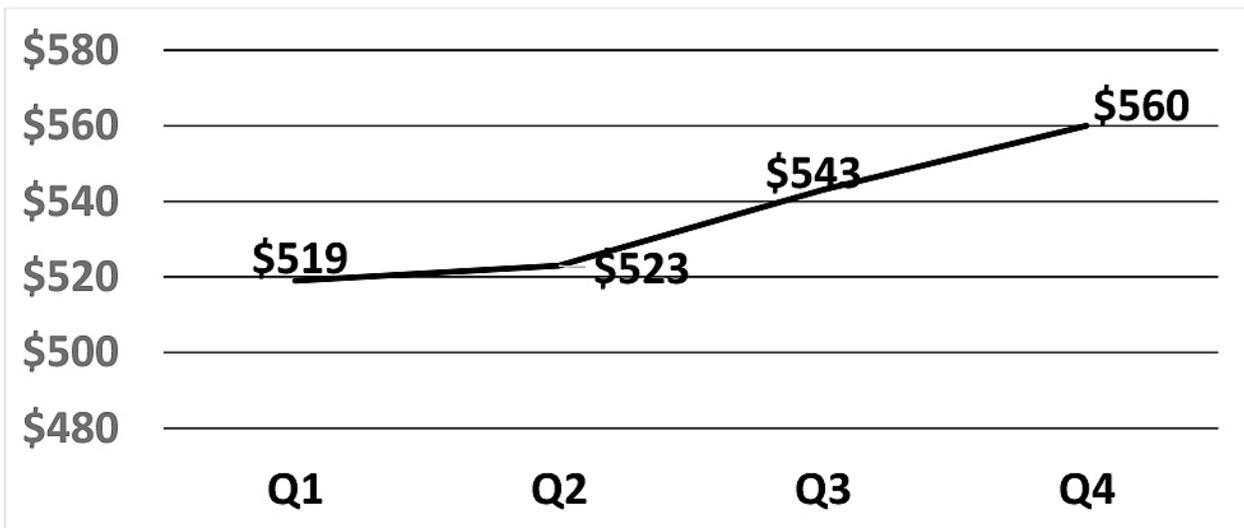
4/4 Green Red Oak (all grades)



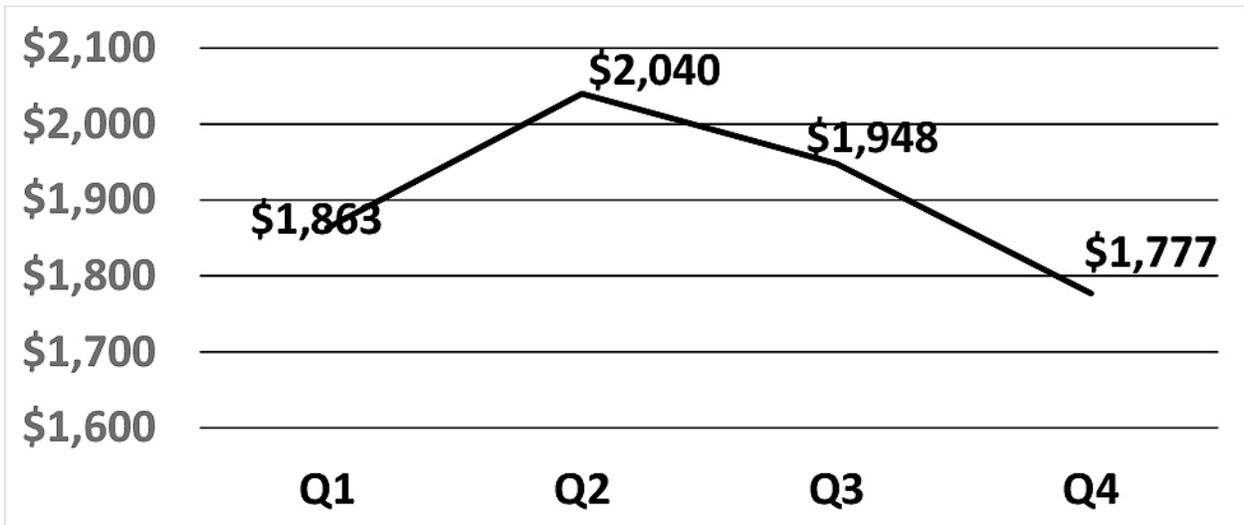
4/4 Green White Oak (all grades)



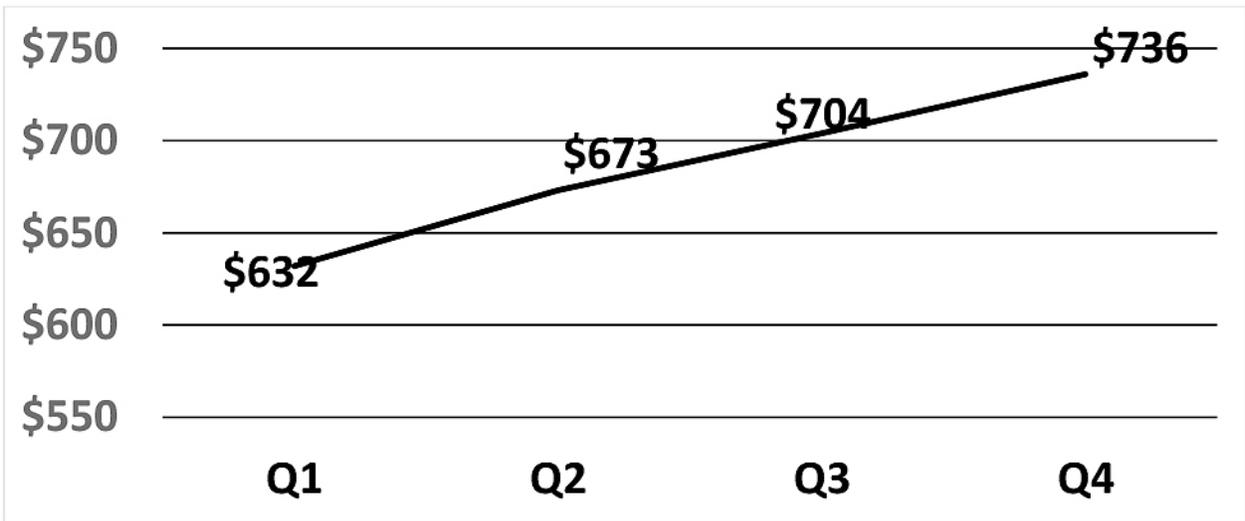
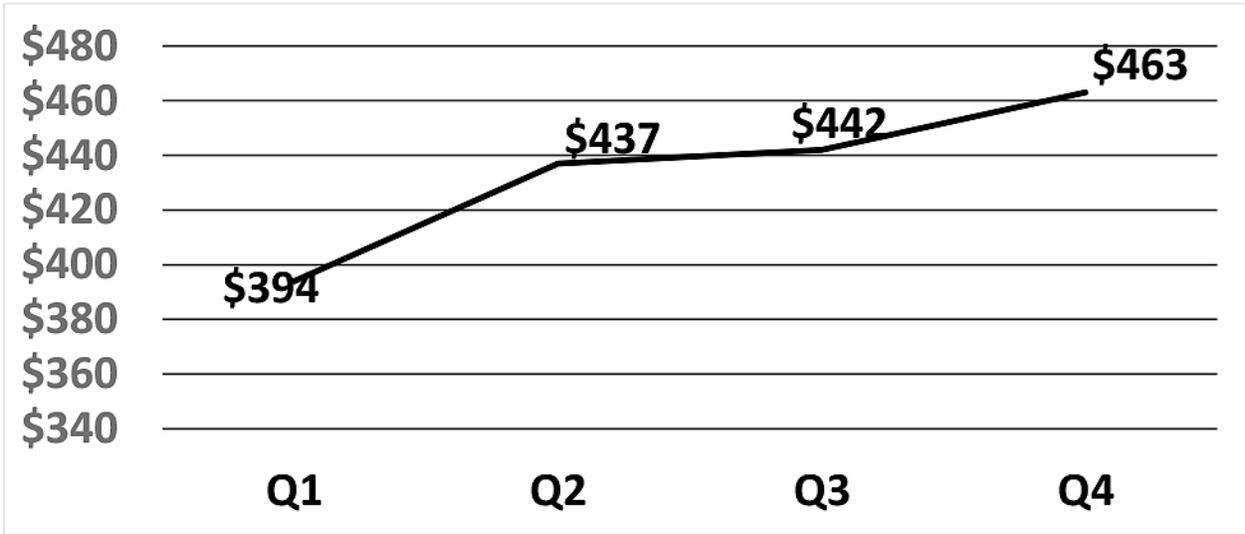
4/4 Green Poplar (all grades)



4/4 Green Walnut (all grades)



Pallet Cants



Exports

Indiana's export of hardwood products continues to be an important part of overall hardwood sales. According to data from the U.S. Census Bureau, log exports, primarily to Asia and China specifically, declined. The decline was likely due to tariffs imposed as part of a U.S.–

China trade dispute and imposed tariffs.

Lumber exports

increased slightly, and there was a modest increase in veneer exports by comparison. In 2018, Indiana exported just over \$30 million of logs, \$60 million of lumber, and almost \$70 million of veneer.



Figure 1: Indiana Export of Logs, Lumber & Veneer - Last 5 years
Data from the U.S. Census Bureau (1)

Logs

As stated above, Indiana log exports declined in 2018 for the first time in five years that log exports have declined. The decline was about 17% from 2017 levels.

Indiana log exports totaled \$30,932,951 in 2018. The destination of logs exported remained dominated by Asia (China) at 84% in 2018, down from 89% in 2017.

Europe increased 2% to 13% of log exports in 2018. This does not reflect an increase in sales to Europe, which were mostly flat from last year, but is an impact of the total value in log shipments to Asia, which fell by 21%.

By country, the top five markets were: China (60%), Vietnam (7%), United Kingdom (6%), Taiwan (4%), and Japan (4%). Indiana shipped logs to 29 different countries in 2018.

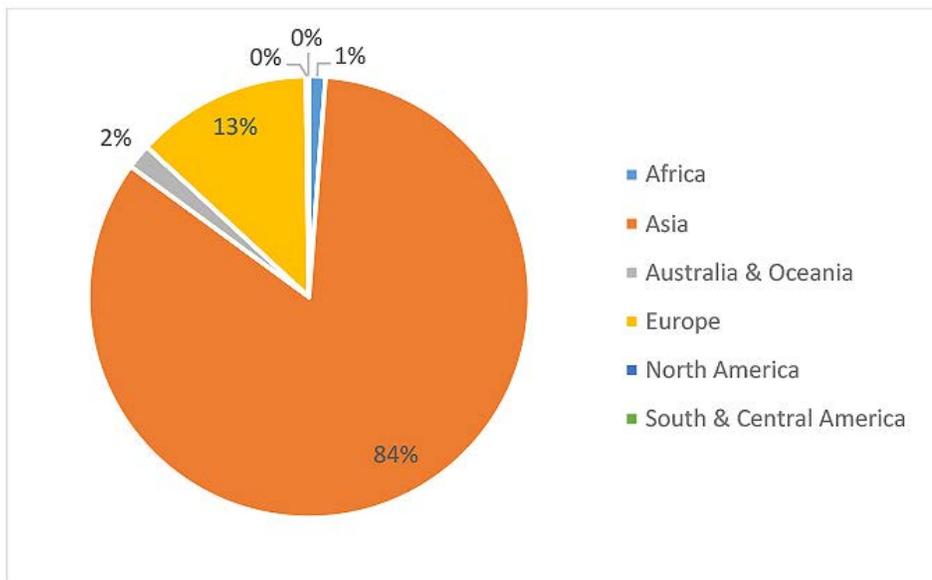


Figure 2: Indiana logs exports to the world by region, 2018
Data from the U.S. Census Bureau

Lumber

In 2018, Indiana lumber exports increased from 2017 by about 6% to \$60,777,280.

Regionally, Indiana exports of lumber to Europe declined by 24% and increased to Asia by 13%.

By country, China (49%), Canada (17%), Japan (14%), Vietnam (8%), and United Kingdom (3%) were the top markets for the year. Indiana shipped lumber to 29 countries in 2018.

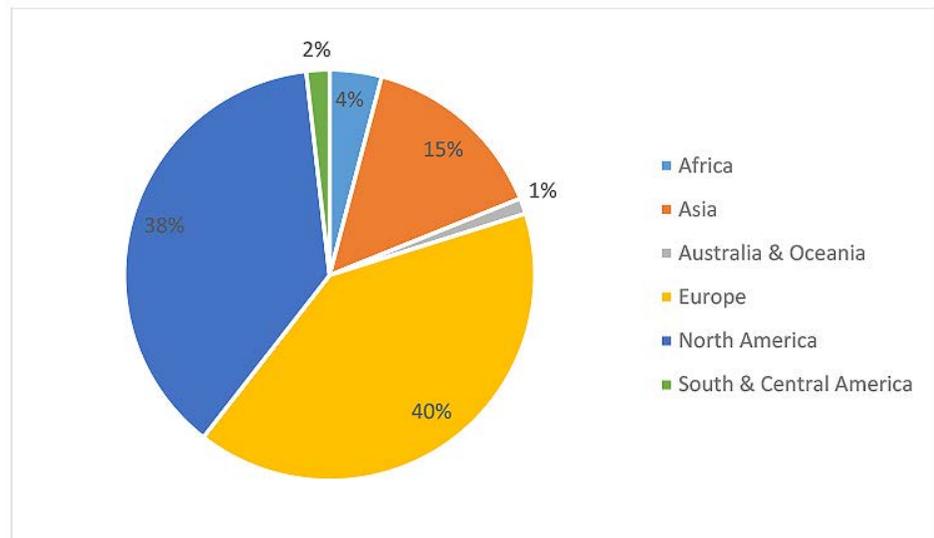


Figure 3: Indiana lumber exports to the world by region, 2018
Data from the U.S. Census Bureau

Veneer

Indiana exports of veneer were up 14% in 2018 to \$ 69,115,689.

Veneer exports are not as dominated by one region as the lumber and log sectors are.

Regionally, Indiana veneer sales to North America increased by about \$5 million from last year. Also significant, there was a \$1.6 million increase in sales to Asia. The other regions remained

relatively flat except for a significant increase in exports to South American and Central America, but the dollar value in Indiana is relatively small, as that region only purchases about 2% of the state's veneer exports. By country, top markets were Canada (35%), Spain (9%), Germany (7%), Portugal (6%), and Belgium (4%). Indiana shipped veneer to 42 different countries in 2018.

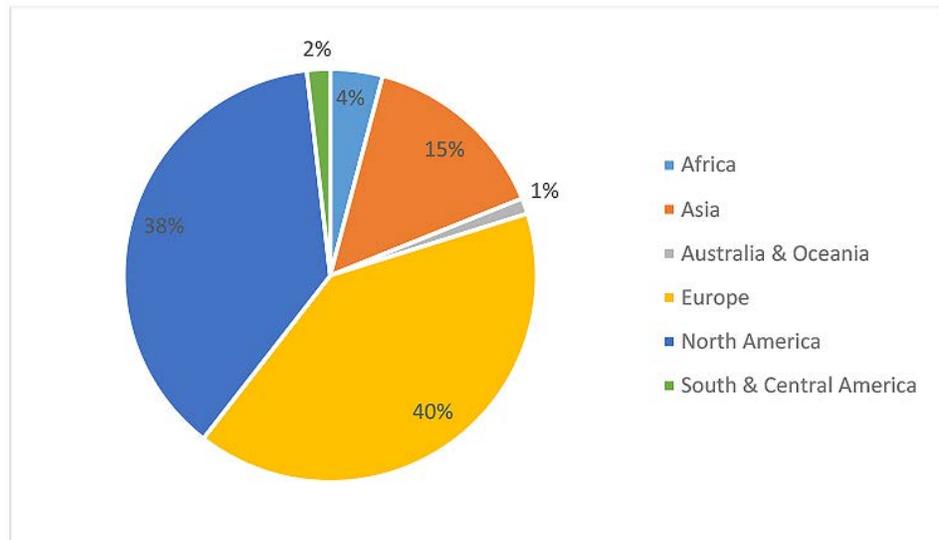


Figure 4: Indiana veneer exports to the world by region, 2018
Data from the U.S. Census Bureau

Notes:

- (1) Data from U.S. Census Bureau, Economic Indicators Division. State Exports by HS Commodities for logs (4403), lumber (4407) and veneer (4408).

FIRE

Fire Headquarters is located at Morgan-Monroe State Forest. Its primary program focus is wildland fire prevention and fire suppression for the state, and fire training. Other program areas include federal excess personal property, state fire assistance and volunteer fire assistance. Fire Headquarters also continues its cooperative work with Indiana's rural and volunteer fire departments, providing training for fire personnel, managing its grant assistance program and providing wildland fire prevention education throughout the state.

Other duties include constructing the Morgan-Monroe State Forest office (a major rehabilitation project); coordination of the rental cabin project for State Forest properties; cutting hazard trees along State Forest property roadways, campgrounds and shelter houses (which has been compounded by emerald ash borer infestation); cutting, skidding and hauling 250,000 board feet of timber for local projects; and doing logging-road construction/maintenance on State Forest properties.



FIRE SEASON WEATHER CONDITIONS

The spring of 2018 was wet, with most of Indiana getting above-normal rainfall. The month of October brought moisture, which continued throughout the fall. Unlike many parts of the country, 2018 was exceptionally wet for Indiana. Prescribed burns were accomplished between rains, mainly in grasses and light fuels. Few days were conducive to burning in the woodlands, due to the need for longer drying periods. The woodlands that were able to be burned were in the northern part of Indiana, toward the end of the year.

The above-normal rainfall in Indiana reduced the number and severity of Indiana wildland fires, but the same was not true in other parts of the country. Indiana assisted by sending qualified resources to Arizona, Colorado, Idaho, New Mexico, Oklahoma, Oregon, Florida, California, Washington, Nevada and Montana.



FIRE OPERATIONS

Prescribed fire was scattered and confined mainly to the grass fuel model. There were few days available to burn in the woods, due to the longer drying periods needed to cure shaded and protected fuels.

Fire Suppression Operations

- 1 wildfire burned 1 acre at Morgan-Monroe State Forest.
- No personnel injuries or losses of equipment.
- FHQ mobilized 1-20 person Type 2IA hand crew to Oregon.
- FHQ mobilized 1-10 person suppression module to Montana.
- 28 single resources were sent to 11 states to aid in fire suppression.
- State recuperated [REDACTED]\$138,147 from federal government for national mobility aid.

PRESCRIBED FIRE MANAGEMENT

- 9 prescribed fires managing 927 acres were conducted.
- There were few days available to burn, due to the longer drying periods needed to cure shaded and protected fuels.

TRAINING and PERSONNEL MANAGEMENT

Fire Headquarters staff tracks the training, experience and qualifications for 2,284 wildland fire-qualified personnel in Indiana within the Incident Qualification System. In 2018, staff conducted 13 classes ranging from one to five days long that provided instruction to 545 students. Many students were affiliated with rural volunteer fire departments or the DNR.



FEDERAL EXCESS PROPERTY PROGRAM

The Federal Excess Property Program (FEPP) enables DNR Forestry to screen and acquire excess federal property for distribution and service. While this particular program provides rural departments with four-wheel-drive vehicles that are typically used as brush rigs, many other items essential to rural fire protection (i.e., generators, tankers, pumps, etc.) are also available.

Acquisition value of \$2.5 million in non-consumable items was obtained and distributed to rural fire departments across the state.

A large quantity of consumable items, including small tools, disposable (“one-time-use”) items and miscellaneous equipment were also acquired and distributed to the rural fire service.

VOLUNTEER FIRE ASSISTANCE GRANTS

The Volunteer Fire Assistance (VFA) program, formerly called the Rural Community Fire Protection program, is a federally funded matching grant program. VFA is a cooperative program between Indiana DNR Forestry, the U.S. Department of Agriculture Forest Service and state and private forestry partners.

VFA is a matching grant program created to assist in organizing, training and equipping rural and volunteer fire departments. Grants are matched 50/50 up to a maximum of \$5,000.

Rural departments and city departments with a population base of less than 10,000 may apply for a VFA grant. Interested departments must complete an application and return it by March 31 each year. Applications received after March 31 will be considered for the next year’s grant cycle. Certain restrictions apply to grant funds.

In FY 2018, 64 rural and volunteer fire departments in Indiana had projects approved to fulfill a total funding request of \$285,311.



FIRE PREVENTION

Fire danger in Indiana was low to moderate during most of the 2018 fire season; however, the Western states experienced devastating losses of life and property. Past incidents tell us that awareness increases greatly during times of high fire activity.

The Ad Council continues its campaign through billboards, newspapers, television and radio advertising. The goal is to not only to create fire safety awareness, but also to maintain it when conditions and circumstances are good, not just when things go wrong.

Fire Headquarters' vast and unique partnerships over the years have been key to its success in fire prevention. In the past they have included high-profile events and personnel by combining wildfire safety messages in the form of posters, trading cards, calendars and other marketing tools.

The need to heighten public awareness about wildland fire has led DNR Forestry to adopt innovative methods to keep citizens and the fire-response community educated and informed. Education and targeted fire-prevention, safety and informational topics can be distributed through webinars. DNR Forestry continues to be involved in communities by presenting Smokey's Wildfire Prevention message at local schools, county fairs, safety fairs, youth groups, Indiana State Fair and Riley Children's Hospital.

Smokey Bear appeared 26 times with audiences of more than 22,500 attending DNR fire prevention programs. The success is largely due to partnerships with other public and private agencies, and units of government. One of the goals is providing cooperators, fire departments and DNR properties the tools to expand the message.

Five special programs were presented reaching 3,000 citizens. One successful education program on fire safety and burn prevention is through a partnership with MC Axe & The Fire Crew™ and special guest Kasey the Fire & Life Safety Dog™. The group comprises professional firefighters and public safety personnel who use an energetic blend of music, comedy and audience participation to deliver fire safety tips for inside and outside of the home, both here in Indiana and across the country.

Fire Prevention had 43 non-government organization contacts and maintains a minimum of 20 contacts.

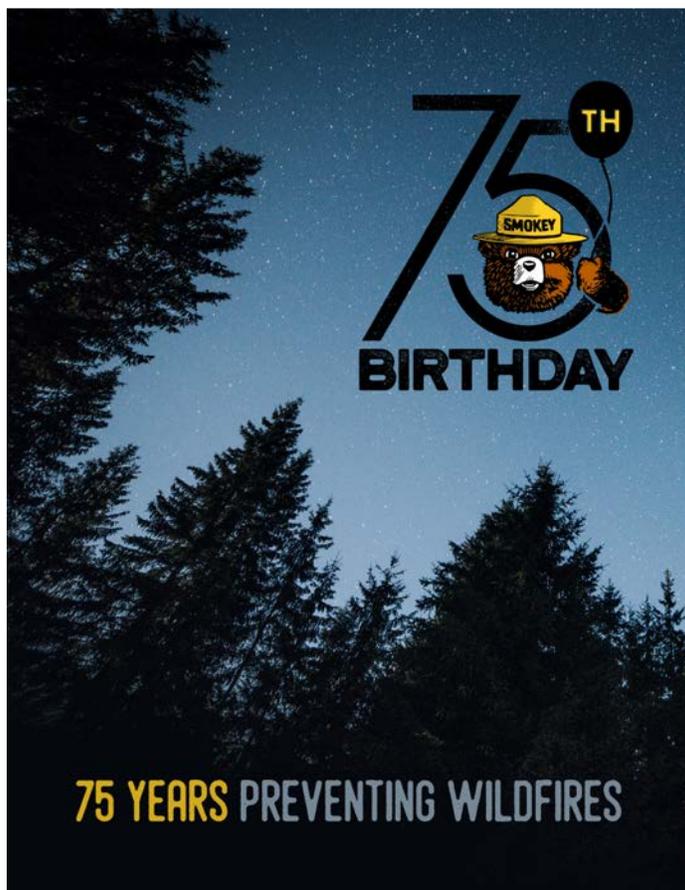


ONLY YOU CAN PREVENT WILDFIRES.
www.smokeybear.com

Smokey Bear's image comes in different forms. The iconic Smokey Bear costume, an inflatable walk-about (an individual inside the costume controls movements from within), stand-alone 13 foot and 8-foot inflatables, a Smokey Bear robot (a remote-controlled miniature Smokey in a firetruck with red lights, sirens and squirting water) and 6-foot cardboard cutouts are part of the tool kit. Having these options enhances and reinforces the fire-prevention message that has been instrumental in teaching wildfire safety to tens of thousands of Hoosier children.

Wildfire-prevention methods, materials, approach and delivery have all evolved over the years and will continue to do so with changes in culture, technology, educational mandates and human behavior.

Since 1944, Smokey Bear has taught millions of Americans about their role in preventing wildfires. Seventy-five years later, in 2019, Smokey is celebrating a milestone birthday. Please join us throughout 2019 in honoring Smokey Bear and his timeless message of wildfire [BM2] prevention.



NURSERY

IN 2018, the NURSERY PROGRAM:

- Completed the first entire season of using a new online tree ordering system with real-time inventory. Usage was much higher than expected, and made inventory available for ordering at any time. Real-time inventory made it easy for customers to view inventory at any time.
- Was assisted by Forestry Headquarters with all stock exchange needs with Jasper-Pulaski State Nursery (J-P). Help was needed to cover for an absence in CDL drivers, stemming from a retirement at J-P. Approximately 800,000 trees were shipped to J-P for storage and pickup to northern Indiana.
- Moved all Arbor Day and UPS shipping to Vallonia State Nursery. This created another time-consuming and time-sensitive task for Vallonia to perform. Some 200,000 trees were shipped via UPS across the state in the necessary timeframe for proper planting.
- Procured, tested and sowed three million tree seeds from Indiana seed collectors for production of next season's seedling crop. Another one million seeds were gathered through in-house collections. An additional 1.3 million seeds were procured from commercial vendors in order to obtain all of the nursery operation's seeding needs. These seeds were mostly sown in the fall of the year, in approximately 28 acres of seedbed space. Approximately 50 different species were collected and sown for seedling production.
- Grew research trees for the HTIRC and USFS in Ohio. These different species were used in various research plantings.
- Grew corn, wheat and soybeans on approximately 70 acres of fallow seedbed area to suppress weed growth and to build organic matter in the soil for future seedling-production areas. All crops were harvested and the wheat straw was baled for state nursery use as winter protection for the seedbeds.
- Benefitted from several new employees at both Vallonia and J-P. With new staffing came new training and learning the various aspects of nursery production.
- Safely shipped, 800,000 seedlings from Vallonia to J-P. Customers from the northern part of the state could pick up their tree orders from that northern location instead of having to travel south to Vallonia.
- Provided and shipped 55,000 trees to third-grade students across the state to celebrate Arbor Day. Each participating school also received a tree to plant on school grounds to bring awareness to the environmental benefits of planting trees.
- Sowed and produced 10 different varieties of wildflowers for use in a pollinators project for the monarch butterfly. Various wildlife biologists collected seed from these plants for planting on other state-owned properties. Additional plants were transplanted to other planting sites in projects across the state with various municipalities.
- Produced 2,000 extra-large bare-root seedlings for planting in urban landscapes through an Urban Forestry grant. These large seedlings were packaged and transported to several urban communities for spring planting. This grant will also continue through 2019[BM1].



- Produced, packaged and shipped 2.235 million seedlings for reforestation efforts across the state of Indiana for approximately 3,000 customers.
- Provided the University of Minnesota 1 acre of nursery ground for the planting and research of hybrid poplar. This will be a several-year ongoing research project.
- Continued the partnership with the Department of Correction. The nursery is provided with up to 40 offenders daily during the lifting season and about 15 during the summer growing season. This partnership provides a labor force to the division while ideally teaching offenders a work ethic and giving them knowledge they might be able to use upon re-entry to society. These offenders are involved in all aspects of nursery production from weeding, sowing, harvesting and processing.
- Graveled all Nursery roads to assist with maintaining accessible routes to all seedbed areas. This amounts to miles of Nursery roads needing to be stoned for driving access capabilities.

Year	Total Seedlings Sold	Revenues	Expenditures	% Recovery
15-16	2,361,687	\$895,156	\$770,362	116%
16-17	2,328,770	\$853,830	\$1,090,073	78%
17-18	2,325,012	\$848,922	\$1,074,175	79%
18-19*	2,200,000	\$800,000	\$1,050,000	76%

* *Projected*

- Grafted about a dozen Anne Frank tree cultivars for future planting by the National Anne Frank Foundation. With only two Anne Frank tree specimens remaining for out-planting, a plan was developed to graft new specimens while maintaining the genetic makeup of the original Anne Frank tree. Efforts will continue in this area, and a planting is scheduled for early next year with one of the remaining specimens. Also grafted black cherry, hybrid butternut, and pecan selections to infill existing orchards.
- Completed seedbed fumigation of 23 acres of seedbed space for the planting of seed for the 2019-20 seedling crop. The majority of the acreage was sown this fall. The remainder was sown early this spring.
- Wrote an article for publication on pawpaw propagation for the fall 2018 Native Plants Journal.
- Presented grafting workshops in conjunction with USFS & NPS, INFGA, and the Daviess County Amish community.
- Is progressing with work to replace a cooler unit at J-P in order to safely store approximately 500,000 seedlings for reforestation plantings in northern Indiana.
- Upgraded JP Nursery electrical system and changed it from overhead to buried electrical service.
- Worked with USFS and University of Kentucky on a white oak extractive analysis by provenance for whiskey barrel production.
- Presented information of white oak provenance/progeny testing and its select program at the Northern Forest Genetics Association semi-annual meeting.
- Worked with Division of Nature Preserves on propagation/pollination/seed production of *Solidago squarrosa*.
- Measured white oak provenance/progeny test and marked cull trees to be removed.

COMMUNITY & URBAN FORESTRY

OVERVIEW

In 2018, the program continued to provide direct technical assistance or educational programs for 120 unique cities and towns, serving the approximately 3.1 million Hoosiers that live in the communities receiving technical/ financial assistance and educational programs. Assists are only counted once per community, following federal reporting definitions. Continued assistance within the same community is tracked but not reported as a metric. The Community & Urban Forestry (CUF) program consists of the Program Coordinator, Outreach Coordinator (position vacant Oct. 17, 2017 and filled Sept. 24, 2018)[BM1] and an intermittent Grants Administrator. Annual programming includes: Tree City USA application review and awards, attendance at Arbor Day events across the state, working on the DNR Division of Forestry and The Indiana Community Tree Stewards Facebook pages, making presentations for green industry and nontraditional audiences upon invitation, doing training for Indiana Community Tree Steward programs, managing grants, and responding to municipal and homeowner questions. The following are unique or notable program events from 2018.

OFFICE FLOOD

The CUF program and the entirety of the Division of Forestry Central Office was displaced by a flood in early January 2018. Staff relocated to open desks/spaces within other Indiana DNR divisions for four months. In addition to ad hoc office conditions, the CUF program worked to rescue, sort and dry documents, equipment and resources. During this time, they continued to present at annual conferences, review and mail Tree City, Line, and Campus USA program applications and resources, and receive and manage the Arbor Day Post[BM2]er Contest submissions. The CUF program staff physically rebuilt their office cubicles the week after Arbor Day.

GRANTS, PROGRAMS, CONTRACTS and SPONSORSHIPS

In 2018, CUF awarded a total of \$100,000 in sub-grants to communities and not-for-profit originations across the state. Sub-grants were awarded to nine communities and other groups in Indiana for community tree inventories and management planning, as well as for tree-planting and education programs.





The Indiana Arborist Association (IAA) was awarded a \$10,000 professional services contract. This contract funded the addition of a full day of urban forestry focused content, provided at the rate of \$50 to the traditionally 2.25-day conference. This made the attendance of volunteers, tree board members, non-arborist municipal staff and other nontraditional partners feasible. The first day of the conference had 250 register in advance, and 312 in attendance. The only cost passed on to attendees were those that could not be covered by federal grant funds, mostly for food and refreshments. In addition, this funding allowed for more national-level speakers for the duration of the IAA conference, which has tracks for Agency Institution and Municipal, Utility, Professional Practice and general sessions. This also supported one ISA Certified Arborist prep course and two proctored exam opportunities that led to the Town of Remington's parks director becoming certified.

The Indiana Arborist Association was provided a \$5,000 sponsorship. The sponsorship facilitated discounted prices for three Arbor Master training programs. Programs included: Precision Chainsaw Handling program (one day), Tree Climbing Methods, Work Positioning and Best Practice (three days), and Precision Tree Felling Chainsaw Safety and Handling (two days). Professional arborists from across the state, as well as municipal staff from South Bend and Bloomington attended these trainings.

INDIAN TREE BOARD FACE-TO-FACE MEETINGS

In 2018, CUF program coordinator, met with 30 of the approximately 70 municipal tree boards, commissions and subcommittees in municipalities across Indiana. Meetings included normal board business and a standard list of discussion prompts that covered new and existing board resources online (Vibrant Cities Lab and Tree Board University), ordinance review, invasive species updates, inventory and management planning, board recruitment and retention, goal setting and open opportunities for questions and discussion prompted by the communities' specific needs. Notes were taken based on prompts for each community and follow-up resources were provided. These meetings were valuable for collecting data that are missed in Tree City USA applications and to build relationships with board members and municipal forestry staff. They also provided the program with a better feel for the dynamics of the individual boards, the political climate in which they operate, and the opportunities they may be missing out on. These CUF-prompted, face-to-face interactions led to additional requests for information, assistance and site visits by CUF staff, primarily in communities with low CUF participation over the past five years. Coordinating the remaining 40 meetings is expected to be a bit more challenging, as these communities did not respond to the three prompts to schedule a meeting in 2018. Nonetheless, the process and interactions have proven beneficial for the program and the boards. Many meeting attendees noted they hope to see the Urban Forestry Symposium repeated in 2019.

TREE ORDINANCE WORKSHOP

In partnership with the Comunitree program part of the Northwest Indiana Planning Commission (NIRPC) and the Indiana Urban Waters Coalition, the CUF program led a four-hour Urban Tree Ordinance workshop in October 2018. Attendees included municipal staff, tree board members, urban forestry consultants, landscape architects, planners, NIRPC staff and interested citizens.

INDIANA TOLL ROAD AUTHORITY PARTNERSHIP

The Indiana Toll Road Authority (ITRA) manages the major toll road in northern Indiana on contract with the state. This year the CUF program was contacted by the ITRA about guidance on planting adjacent to the toll road. This contact led the training of 22 ITRA staff and 40 students on how to properly plant and mulch 2-year-old tree seedlings. These seedlings were made possible due to a Great Lakes Restoration Initiative (GLRI) project grant. A total of 200 trees were planted in the spring of 2018 as part of this project—100 on ITRA/State of Indiana property Interstate 90 corridor and 100 at Harris Township Park adjacent to the Indiana Toll Road. Both are near Granger. The survival rate will be documented in spring 2019, along with the planting of an additional 100 trees.

ARBOR DAY POSTER CONTEST

The Indiana Arbor Day Poster Contest (ADPC) was taken over by a committee led by DNR CUF staff. The committee worked in 2018 to grow participation and awareness of the competition. An estimated 3,090 posters were made, and 206 school finalists were submitted to the committee, which selected the top 12 posters for public voting. Each of the finalists received natural resources posters for their classroom. The top three winners received STEM-themed prize packages for the student and their classroom, as well as a tree planted in their honor.

SALUTING BRANCHES

The Community and Urban Forestry Program staff helped to coordinate the Indiana site for the National Saluting Branches day of service at the Indiana Veterans Home (IVH) and cemetery in West Lafayette. In 2018, the program grew from 20 participants to more than 90. Professional arborists and volunteers from across the state provided an estimated \$90,000 in tree care and removal services on Sept. 19, 2019[BM3]. Crews worked to reduce the number of dead and dying trees on the site that posed the greatest risk to onsite residents, staff and visitors. A total of



33 whole trees were removed and 45 stumps grounded in one day. Climbing arborists provided necessary pruning on 10 trees in high-traffic areas to improve safety for visitors and maintain the vitality of large, mature trees on site. Volunteers with the groups (West Lafayette Tree Friends, Tree Lafayette and Indiana Rolling Thunder), led by ISA-certified arborists and municipal foresters, planted a grove of 50 native upland hardwood trees to represent the 50 Vietnam veterans still listed as POW/MIA. Since the site is listed as historical, the planting was monitored by the Division of Forestry archaeologist, and a formal report was filed to the Division of Historic Preservation & Archaeology. Additionally, wood from dead oak, maple and ash trees has been collected for a future utilization project to return parts of these large trees back to the site in a meaningful way. Target products include benches for the grove, take-home items for volunteers in 2019, and potential interior woodworking/tables/trim/wall cladding as part of an entrance remodel in the main IVH facility building. Municipal forestry staff from Franklin, Remington, Lafayette and West Lafayette participated in this event.

INDIANA TREE CLIMBING COMPETITION

In October 2018, the CUF program participated in the IAA tree climbing competition, helping to coordinate the small arbor fair with an urban forestry and an entomology booth staffed by DNR personnel, as well as a kid's climb. Forty-two children participated in the kid's climb. Each family received a copy of the children's book produced by the U.S. Forest Service, "Why Would Anyone Cut a Tree Down?" Motivation for participation in this event included growing exposure for the CUF program, as well as promoting the field of arboriculture as a career path to young children. Awards for the competition were made from urban wood from downed trees in Bloomington. This was the first year that Indiana had women compete at the state level with four competing. Tree Stewards volunteered to help with the competition events as timers and with basic interpretation of the event. Municipal forestry staff from Valparaiso, Plymouth, Indianapolis and Porter County participated/volunteered in this event.

EDUCATION/INFORMATION SECTION

PROJECT LEARNING TREE

A total of 24 professional development workshops were conducted across the state in 2018 by 16 facilitators, training 320 participants. Included was the Natural Resources Teacher Institute, in which 18 educators completed a week-long immersion workshop that focused on Indiana forests and forestry. In 2018, Indiana PLT staff:

- Conducted two facilitator trainings and trained three new facilitators.
- Awarded Facilitator of the Year to Brian Plankis, environmental education consultant.
- Co-wrote article on PLT for The New Teacher Advocate, a publication of Kappa Delta Pi and facilitated sponsorship discussions between National PLT office and KDP.
- Conducted student programs on forests and forestry for more than 750 kids.

SIGNS, DISPLAYS, EXHIBITS

- Designed signs for Yellowwood and Jackson-Washington state forests and the Knobstone Trail:
 - Young Forest Demonstration Area
 - Yellowwood Storm Area
 - Knobstone Trail Southern Terminus
- Designed/worked with Communications on Morgan-Monroe State Forest Office
 - Morgan-Monroe History Timeline (23 panels)
 - Wood Species Panels (21 species)
 - Forest Management: It's For the Birds
 - Working on tickets for 6 more displays/exhibits

NATIONAL FFA FORESTRY CAREER DEVELOPMENT EVENT

- Led planning for field practicum portion of event, held at Morgan-Monroe State Forest.
- Developed and implemented activities including Tree ID, timber cruising, wood products ID, compass and pacing, team activity and team interview.
- A total of 40 state teams participated on Oct. 25.

