

The Woodland Steward

Promoting the Wise Use of Indiana's Forest Resources

2019 Indiana Forest Products Price Report and Trend Analysis

Jeffrey Settle and Chris Gonso

Survey Procedures and Response

Data is collected twice a year, but log prices change constantly. Standard appraisal techniques by those familiar with local market conditions should be used to obtain estimates of current market values for stands of timber or lots of logs. Please note, because of the small number of mills reporting logging costs, "stumpage prices" estimated by deducting the average logging and hauling costs (Table 4) from delivered log prices must be interpreted with extreme caution and are meant to only serve as a guide. Actual stumpage values you may be offered depend on many variables such as access, terrain, time of year, etc.

Data for this survey was obtained by a combination direct mail/email survey of a variety of forest product industries, including sawmills, veneer mills, concentration yards, and independent log buyers. Only firms operating in Indiana were included. The survey was conducted and analyzed by the Indiana Division of Forestry. The prices reported are for logs delivered to the log yards of the reporting mills or concentration yards. Thus, prices reported may include logs shipped in from other states (e.g., black cherry veneer logs from Pennsylvania and New York).

The survey was mailed to 17 firms and emailed to 32 firms. It is estimated these companies produce close to 90% of the state's roundwood production. Electronic reminders, follow-up phone calls and additional mailings encouraged responses.

Ten firms reported some useful data. Three mills reported producing 1 million board feet (MMBF) or more. One mill reported production of 5 MMBF or greater. Total board foot production reported for 2018 was 25 MMBF compared to 36 MMBF for 2017, and 70 MMBF for 2016. The largest single mill production reported was 20 MMBF. These annual levels are not comparable since they do not represent a statistical estimate of total production.

The price statistics by species and grade don't include data from small custom mills, because most do not purchase logs, or they pay a fixed price for all species and grades of pallet-grade logs. They are, however, the primary source of data on the cost of custom sawing and pallet logs. The custom sawing costs reported in Table 4 do not reflect the operating cost of large mills.

This report can be used as an indication of price trends for logs of defined species and qualities. It should not be used for the appraisal of logs or standing timber (stumpage). Stumpage price averages are reported by the Indiana Association of Consulting Foresters in the Indiana Woodland Steward, <http://www.inwoodlands.org/>.

Delivered Sawlog Prices

Ten mills reported delivered sawlog prices for the 2019 fall report. This is same number of mills that reported data from last fall's report. Sawlog prices for the premium species

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Calendar of Events

Due to the Covid-19 virus, some events may be cancelled or postponed. Please check back with meeting organizers about the status of events.

Upcoming LOCAL Cisma EVENTS: See <https://www.entm.purdue.edu/iisc/> for times, locations, contact info for upcoming invasive management meetings in various counties around the state.

August 20

2020 Indiana Cisma State Conference
9 AM – 4 PM
Noblesville, Hamilton County
Register at <https://bit.ly/2WYRdU7>.

Nov 6-7

IFWOA annual meeting
Clifty Falls State Park
Contact ifwoa1@gmail.com or
765-583-3501.

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The opinions expressed by the authors do not necessarily reflect those of the Woodland Steward Institute. The objectives of the newsletter are to provide general and technical natural resource information to woodland owners of Indiana, improve information distribution and build support for responsible forest resource management.

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2019 Indiana Forest Products Price Report *Continued from page 1*

(specifically black walnut and white oak) were higher than what was reported in the 2019 spring report.

Hardwood Species

Black walnut prices were up for all sawlog grades by an average of almost 14% (Table 1). Sawlog grades of prime and #3 had the biggest increases of 8% and 34%, respectively. White oak sawlog prices were also higher than the spring report. Overall, prices were 11% higher. Prime sawlog prices were up 27%, and #3 grade sawlogs were up 19%. White oak sawlog prices had an increase of almost 11%. From an overall standpoint, prices were higher than what was reported in the spring 2019 report. Ash sawlog prices were up almost 6%, hickory prices were only up 3%, hard maple sawlog prices were up almost 21%, tulip poplar prices up 2%, and cherry prices were up 18% but caution should be taken because demand for cherry is sluggish. Grades 1-3 were up 3%. Although demand for soft maple is decent and markets are good, sawlog prices were down 7% from the spring report. Red oak sawlog prices were off 8% compared to March 2019 figures. Red oak was a large percentage of the total volumes sent to China, so the tariffs have hit this species especially hard. Several in the industry have commented that one can hardly give away red oak. Please note the price information is meant to be used only as a guide. Several variables can have significant impacts on pricing data, such as number of responses, access to timber, topography, diesel fuel costs, and closeout costs.

Softwood Logs

Price data for softwood (pine and cedar) should also be looked at with caution as only five mills reported data. Pine sawlog prices were up significantly at 43%, and red cedar prices were off by 13%.

Veneer Log Prices

The number of mills reporting veneer log prices continues to be a problem. Depending on species, there were between 1-3 mills reporting (Table 2). This is a concern as far as how accurate of a picture the data presents. Please keep this in mind as you view the results below. The limited

Table 1. Prices paid for delivered sawlogs by Indiana sawmills, September 2019.

Species/ Grade (\$/MBF)	19-Sep Range (\$/MBF)	No. Responses		Mean¹		Median		Change (%)	
		19-Mar	19-Sep	19-Mar	19-Sep	19-Mar	19-Sep	Mean	Median
White Ash									
Prime	550-650	2	3	650	600	650	600	-7.7	-7.7
No. 1	390-550	4	4	473	485	470	500	2.5	6.4
No. 2	320-400	4	4	368	380	375	400	3.3	6.7
No. 3	300-380	3	4	267	333	300	320	24.7	6.7
Beech									
Prime	250-400	2	3	300	317	300	300	5.7	0.0
No. 1	250-400	3	3	317	317	300	300	0.0	0.0
No. 2	200-350	3	3	317	283	300	300	-10.7	0.0
No. 3	150-380	3	4	250	283	250	300	132.0	20.0
Cherry									
Prime	600-2000	3	3	667	1100	700	700	64.9	0.0
No. 1	500-600	6	4	608	563	650	575	-7.4	-11.5
No. 2	400-480	6	4	467	420	450	400	-10.1	-11.1
No. 3	300-380	4	4	275	345	300	350	25.5	16.7
Hickory									
Prime	500-700	3	3	500	567	500	500	13.4	0.0
No. 1	400-450	6	4	465	435	445	445	-6.5	0.0
No. 2	350-400	6	4	407	373	395	370	-8.4	-6.3
No. 3	250-380	4	4	275	308	300	300	12.0	0.0
Hard Maple									
Prime	800-2000	3	3	773	1200	800	800	63.7	0.0
No. 1	500-600	6	4	600	575	600	600	-4.2	0.0
No. 2	400-500	6	4	458	450	400	450	-1.7	12.5
No. 3	300-400	4	4	275	345	300	340	25.5	13.3
Soft Maple									
Prime	400-600	3	3	500	500	500	500	0.0	0.0
No. 1	320-500	6	4	428	405	375	400	-5.4	6.7
No. 2	250-400	6	4	380	325	325	325	-14.5	0.0
No. 3	200-380	5	4	325	295	325	300	-9.2	-7.7
White Oak									
Prime	1000-2000	2	3	1100	1400	1100	1200	27.3	9.1
No. 1	600-800	5	4	740	750	800	800	1.4	0.0
No. 2	400-600	5	4	535	519	500	538	-3.0	7.6
No. 3	300-400	3	4	300	358	350	365	19.3	4.3
Red Oak									
Prime	450-700	2	3	600	583	600	600	-2.8	0.0
No. 1	300-500	5	4	514	413	500	425	-19.6	-15.0
No. 2	240-450	5	4	430	348	400	350	-19.1	-12.5
No. 3	250-400	3	4	300	333	350	340	11.0	-2.9
Tulip Poplar									
Prime	500-600	4	3	575	550	575	550	-4.3	-4.3
No. 1	400-550	7	3	493	483	500	500	-2.0	0.0
No. 2	300-450	6	3	375	367	375	350	-2.1	-6.7
No. 3	250-400	4	4	275	320	300	315	16.4	5.0
Black Walnut									
Prime	1500-3000	1	3	2000	2167	2000	2000	8.4	0.0
No. 1	1200-1500	4	4	1250	1325	1200	1300	6.0	8.3
No. 2	900-1000	4	4	913	975	825	1000	6.8	21.2
No. 3	380-800	4	4	463	620	500	650	33.9	30.0
Softwood									
Pine	150-500	2	3	205	293	205	230	42.9	12.2
Red cedar	150-500	2	2	375	325	375	325	-13.3	-13.3

number of responses is an important key to remember. This report should serve only as a guide rather than “the rule”. Prices were reported by both veneer mills and sawmills. Sawmills resell their veneer-quality logs to veneer mills, exporters, overseas importers and manufacturers. On occasion, sawmills may produce specialty cuts like quarter sawn with the marginal veneer logs. The variation in veneer log pricing is due to the mix of veneer mills, sawmills and loggers reporting their values. This difference in values could be reduced if prices were only from veneer manufacturers.

Markets are mostly slower than what was reported in spring 2019. With a large volume of veneer logs being exported, the trade war/tariffs appear to be having significant impacts on the market. Early, many thought the tariff issues would be resolved sooner rather than later but that has not been the case. White oak veneer log prices were off by 10% compared to the spring report’s figure. Only data from prime veneer logs can be used for comparison due to no comparable data being reported for white oak select veneer logs in the spring report. The same concern surrounds walnut. Only one mill reported data for select grade walnut veneer logs, so comparing spring 2019 data to this fall’s report does not accurately portray the market conditions. For prime walnut veneer logs, prices were 30% higher compared to those in the spring report. Again, keep in mind that only two mills reported walnut veneer pricing.

Because there was only one mill reporting on three cherry veneer log diameters, we do not feel the data accurately represents the cherry veneer log market. However, we feel the veneer log is comparable to the cherry sawlog market, which is sluggish to very weak. Responses on red oak veneer closely resembled those for cherry. However, in red oak’s case, those few responses closely mirrored those from the spring report—there was less than 1% difference. Hard maple pricing data between prime and select veneer logs offset each other, with prime pricing data showing a 9% decrease and select showing a 10% increase. Due to no pricing data being received for yellow poplar in the spring report, we cannot draw an accurate

Table 2. Prices paid for delivered veneer logs by Indiana mills, September 2019.

Species Grade Log Diam.	19-Sep Range (\$/MBF)	No. Responses		Mean		Median		Change (%)	
		19-Mar	19-Sep	19-Mar	19-Sep	19-Mar	19-Sep	Mean	Median
Black Walnut									
Prime									
12-13	4000	2	1	2,000	4,000	2,000	4,000	100.0	100.0
14-15	5000-5250	3	2	3,767	5,125	4,000	5,125	36.0	28.1
16-17	6000-6500	3	2	4,667	6,250	6,000	6,250	33.9	4.2
18-20	7500-8000	3	2	5,767	7,750	7,500	7,750	34.4	3.3
21-23	10000	3	2	7,333	10,000	10,000	10,000	36.4	0.0
24-28	10000-12000	2	2	6,500	11,000	6,500	11,000	69.2	69.2
>28	0	2	0	7,500	-	7,500	-	-100.0	-100.0
Select									
12-13	3500	1	1	1,000	3,500	1,000	3,500	250.0	250.0
14-15	4000-4500	1	2	1,200	4,250	1,200	4,250	254.2	254.2
16-17	5000	1	2	1,300	5,000	1,300	5,000	284.6	284.6
18-20	5500-6000	1	2	1,700	5,750	1,700	5,750	238.2	238.2
21-23	8000	1	1	1,800	8,000	1,800	8,000	344.4	344.4
24-28	0	1	0	2,500	-	2,500	-	-100.0	-100.0
>28	0	1	0	4,000	-	4,000	-	-100.0	-100.0
White Oak									
Prime									
13-14	2000-2500	1	2	1,800	2,250	1,800	2,250	25.0	25.0
15-17	2400-3250	2	3	2,600	2,817	2,600	2,800	8.3	7.7
18-20	3500-3750	2	3	3,350	3,383	3,350	3,200	1.0	-10.4
21-23	3500-4500	2	3	4,250	4,000	4,250	4,000	-5.9	11.1
24-28	4500-5500	1	3	4,500	5,000	4,500	5,000	11.1	-100.0
>28	0	1	0	5,000	-	5,000	-	-100.0	-100.0
Select									
13-14	1700	0	1	-	1,700	-	1,700	0	0
15-17	1700-2800	0	2	-	2,250	-	2,250	0	0
18-20	2200-3000	0	2	-	2,600	-	2,600	0	0
21-23	2200-3500	0	2	-	2,850	-	2,850	0	0
24-28	2200-4000	0	2	-	3,100	-	3,100	0	0
>28	0	0	0	-	-	-	-	0	0
Black Cherry									
Prime									
12-13	0	1	0	3,000	-	3,000	-	-100.0	-100.0
14-15	0	1	0	3,500	-	3,500	-	-100.0	-100.0
16-17	3000	1	1	4,000	3,000	4,000	3,000	-25.0	-25.0
18-20	4000	1	1	5,000	4,000	5,000	4,000	-20.0	-20.0
21-23	5000	1	1	6,000	5,000	6,000	5,000	-16.7	-16.7
24-28	0	1	0	8,000	-	8,000	-	-100.0	-100.0
>28	0	1	0	8,000	-	8,000	-	-100.0	-100.0
Select									
12-13	0	1	0	300	-	350	-	-100.0	-100.0
14-15	0	1	0	300	-	350	-	-100.0	-100.0
16-17	0	1	0	3,500	-	400	-	-100.0	-100.0
18-20	0	1	0	4,000	-	400	-	-100.0	-100.0
21-23	0	1	0	5,000	-	400	-	-100.0	-100.0
24-28	0	1	0	7,000	-	-	-	-100.0	0.0
>28	700	1	0	700	-	-	-	-100.0	0.0
Red Oak									
Prime									
16-17	1500	1	1	1,000	1,500	1,000	1,500	50.0	50.0
18-20	1700-2000	1	2	1,000	1,850	1,000	1,850	85.0	85.0
21-23	0	1	0	1,000	-	1,000	-	-100.0	-100.0
24-28	0	1	0	1,000	-	1,000	-	-100.0	-100.0
>28	0	1	0	1,000	-	1,000	-	-100.0	-100.0
Select									
16-17	0	0	0	-	-	1,550	-	0.0	-100.0
18-20	1500	0	1	-	1,500	1,500	1,500	0.0	0.0
21-23	0	0	0	-	-	1,550	-	0.0	-100.0
24-28	0	0	0	-	-	1,550	-	0.0	-100.0
>28	0	0	0	-	-	1,600	-	0.0	-100.0
Hard Maple									
Prime									
16-20	2000-2800	1	3	2,500	2,267	2,500	2,000	-9.3	-20.0
>20	2250-3500	1	3	2,500	2,750	2,500	2,500	10.0	0.0
Select									
16-20	0	0	0	-	-	-	-	0.0	0.0
>20	1500	0	1	-	1,500	-	1,500	0.0	0.0
Yellow Poplar									
Prime									
16-20	1000	0	1	-	1,000	675	1,000	0.0	48.1
>20	1000-2000	0	2	-	1,500	550	1,500	0.0	172.7
Select									
16-20	0	0	0	-	-	2,750	-	0.0	0.0
>20	1500	0	1	-	1,500	3,250	1,500	0.0	0.0

Table 3. Prices of miscellaneous products reported by Indiana mills, September 2019, free on board (fob) the producing mill.

	No. Responses	Range 19-Sep	Mean 19-Mar	Mean 19-Sep	Median 19-Mar	Median 19-Sep
Pallet logs, \$/MBF	2	150-380	318	265	430	265
Pallet logs, \$/ton	2	42-50	0	46	0	46
Pulpwood, \$/ton	1	150	0	150	0	150
Pulp chips, \$/ton	2	16-29	22	23	20	23
Sawdust, \$/ton	3	6-35	35	18	35	13
Sawdust, \$/cu. yd.	1	10	8	10	6	10
Bark, \$/ton	3	4-10	5	6	5	5
Bark, \$/cu. yd.	1	10	5	10	5	10
Mixed, \$/ton	1	6	0	6	0	6
Mixed, \$/cu. yd.	0	0	0	0	0	0

conclusion in comparing the few responses received for this report.

Low Grade / Industrial Products

The change in prices paid for or received for various raw-wood products between the spring 2019 report and the current report are shown in Table 3. Raw-wood products are of lower quality, and sometimes smaller logs are purchased in batches of random species to be sawn into cants or chipped. The cants are re-sawn into boards used for pallets, blocking, railroad ties or other industrial applications that have a strong market. It is estimated that as much as 60% of the lumber produced goes into an industrial market. Some mills restrict purchases to specific species or exclude specific species, depending on the markets they sell to. The price for pallet and cant logs decreased by 20% from the 2019 spring report. Pallet manufacturers are consuming consistent volumes of pallet lumber and cants; however, supplies are plentiful, with only a few localized exceptions. Prices are declining in most areas. Tie-treating operations are readily absorbing all the crossties sawmills can produce. Some worry the market will become saturated, but there is no evidence of that happening yet. Price data for sawdust varied greatly from \$6/ton to \$35/ton. Bark prices were more than 20% higher than what was reported in the spring 2019 report. Coarse mill residue (chips) prices were 4% higher than in the 2019 spring price report.

Until about the 1970s, sawdust, chips and bark would have been burned or landfilled by many mills. Those materials now have many more uses. Sawdust can be used to make fuel

Table 4. Custom costs reported by Indiana mills, September 2019.


	No. Responses	Range 19-Sep	Mean 19-Mar	Mean 19-Sep	Median 19-Mar	Median 19-Sep
Sawing (\$/MBF)	1	350	325	350	325	350
Sawing (\$/hour)	0	0	0	0	0	0
Logging (\$/MBF)	1	250	175	250	175	250
Hauling (\$/MBF)	1	80	100	80	100	80
Distance (miles)	1	70	75	70	75	70
\$/MBF/mile	0	0	0	0	0	0

pellets, burned as a heating source, or used as animal bedding. Wood chips are produced primarily from slabs sawn off of debarked logs. The decline in the pulp and paper industry is a threat to this market. Bark used for landscape mulch is now a large market. In some facilities, all or some portion of these byproducts is used to fire efficient low-emission boilers to heat dry kilns year-round and to heat facilities in the winter. Attempts have been made to cogenerate electricity at mills, stand-alone generating plants, and biofuel. Success has been limited by the low cost of electricity purchased off of the grid, below-cost price received if sold into the grid, the high cost to produce biofuels, and in many cases public opposition.

Custom Costs

Costs of custom services increased from the spring report in the area of sawing (\$/MBF). The high cost of diesel fuel usually plays a large role in logging costs as well as sale layout and costs to close out sales implementing Best Management Practices (BMPs) (Table 4). Only one response was returned for logging costs, and it was reported at \$250 MBF. Although this was the only reported figure, the cost is probably accurate. Custom sawing costs are normally associated with portable sawmills. For many years, the common rate was \$250 MBF. The custom sawing cost reported was \$350 MBF. The average distance was reported at 100 miles, which is likely accurate. In most cases it is difficult to remain profitable if mills reach out over 100 miles for their logs. Keep in mind, though, with all of the custom cost information, we only on response was received.

Jeffrey Settle is a Forest Resource Information specialist with the Indiana Division of Forestry. Chris Gonso is a Hardwoods Program Manager with the Indiana State Department of Agriculture.




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2019 Indiana Tree Farmer of the Year

By Ken Day

Mark and Peggy Jones of French Lick, Indiana are the 2019 Tree Farmers of the Year. This farm has been in the family since 1883. The Jones' were selected because of outstanding stewardship and willingness to share their land management experiences with others. The Jones' accepted the award at the Tree Farm Breakfast at the Indiana Hardwood Lumberman's Association convention in Indianapolis on February 4, 2020.

Forest management has been guided by professional foresters with the goal of a healthy woodland which supports the goals of personal enjoyment, wildlife habitat, and timber income. The management plan was most recently prepared in 2014 and updated in 2019. The property has been regularly inspected as part of the Classified Forest program by the Indiana Department of Natural Resources (IDNR), Division of Forestry.

The woodlands consists of 118 acres of hardwoods and 1 acre of conifers. The last timber sale yielded 109,000 board feet of sawlogs. Cutting methods included single tree selection and group selection. Salvage operations were conducted after 2011 wind storm. Timber stand improvement, brush management, and invasive species control were implemented on the entire 119 acres through an EQIP grant from the USDA Natural Resources Conservation Service. They used best management practices through proper trail location and maintenance, water bar installation, and a timber bridge to prevent erosion and sedimentation.



2019 Indiana Tree Farmer of the Year, Mark and Peggy Jones, French Lick, Indiana

The Jones' share their woodland management experiences with others by hosting Forest Management Field Days in cooperation with IDNR Division of Forestry, Natural Resources Conservation Service, Orange County Soil & Water Conservation District, and Purdue University. In 2019 they hosted a wildflower hike with renowned Indiana wildflower expert Kay Yatskievych. Peggy has increased her knowledge by completing Forest Management for the Private Woodland Owner, a Purdue University Continuing Education Short Course.

In 2018, they received the Orange County Soil & Water Conservation Forest Stewardship Award. In 2017

the Jones' received the Charles Deam Forest Stewardship Award for District 3 Indiana Forestry & Woodland Owners Association for exceptional management through planning and implementation of good forest management practices. In 2011 the family was recognized with a Hoosier Homestead Award by Lt. Governor Becky Skillman.

The Tree Farmer of the Year is sponsored by Indiana Tree Farm. Recognition of outstanding professionalism in sustainable forestry practices is one of their objectives. Education is the other objective. Awardees are selected by the Indiana Tree Farm Committee which has 31 members representing a cross section of forestry professionals in the state.

Ken Day is retired Forest Supervisor of the Hoosier National Forest.

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2019 Indiana Logger of the Year

By Ken Day

Shipshewana Hardwoods, Shipshewana, Indiana is the 2019 Indiana Logger of the Year. Nick Brown, Logging Operations Manager accepted the award at the Tree Farm Breakfast at the Indiana Hardwood Lumberman's Association (IHLA) convention in Indianapolis, Indiana on February 4, 2020. Shipshewana was selected for professionalism, communication, concern for long-term sustainability, training, and use of new technology.

Shipshewana has several of their own logging crews and also uses other contract logging crews, most notably Royer Logging. This is a unique business relationship that is mutually beneficial. Shipshewana has better access to capital, timber, training, technology, and materials such as mats, bridges, trucks, and loaders. Royer brings a mechanized feller to the partnership which offers increased production, safer working environment, and less soil impact and damage to remaining forest. The seven year sawlog production averaged 6.4 million board feet and veneer averaged 1.2 million board feet.

Concern for the soil and water resource caused them to be among the first in the state to adopt best management practices and invest in mats and temporary bridges, use of corduroy roads, and gravel where needed. The use of the mechanized feller also reduces damage to the residual forest.

Shipshewana is noted for excellent communication with the landowner, loggers, and truckers. Any problems that arise are quickly solved. Examples of the kinds of problems that occur are changes in conditions, safety concerns, or accidental damage to residual trees. They even conduct a post-harvest survey with the landowner. Their goal is to ensure each operation is successful, resources protected, and the landowner satisfied.

Training has been an integral part of the success of Shipshewana. During the past five years their staff has participated in Cutter 1, 2, 3, and 4, and Skidder 1 and



2019 Indiana Logger of the Year, Shipshewana Hardwoods, Shipshewana, Indiana, Nick Brown (left) and Troy Hizar (right).

2 of Game of Logging Training, Best Management Practices, lumber grading, CPR and first responder training, and safety training. They also invited consulting foresters to attend this training as well. Crews are outfitted with hard hats, chaps, chain saw proof boots, eye and ear protection, high visibility clothing, two-way radios, and an emergency beacon.

The use of technology is impressive using both hand held devices and a fleet management program. The hand held devices are used in the field to track landowner and forester contacts, timber access, seasonal restrictions such as hunting or crops, soils, need for mats or bridges, aerial photographs, maps, number of trees and volume harvested daily, woods inventory, yard inventory, and historical data. The fleet program allows them to

see real time locations and operations of skidders, loaders, and trucks. They track speeding, hard braking or cornering, hours, and any violations.

Outreach is important to Shipshewana. They have participated in Soil and Water Conservation District field days, high school agriculture classes, and state legislation on natural resource issues. They along with Royer's also participate on Rapid Response Teams for disasters, most notably Pine Bluff, Arkansas flood and Braidwood, Illinois tornado relief.

Shipshewana Hardwoods was nominated by Tom Crowe of Crowe Forest Management, LLC. The Logger of the Year is sponsored by Indiana Tree Farm to recognize outstanding professionalism in sustainable forestry practices. Awardees are selected by the Indiana Tree Farm Committee which consists of 31 members representing a cross section of forestry professionals in Indiana.

Ken Day is retired Forest Supervisor of the Hoosier National Forest.

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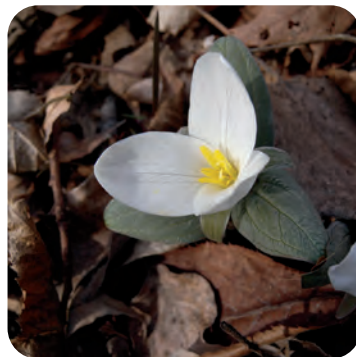
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Into the Woods *By Dan Childs*



Skunk Cabbage



Snow Trillium



Bloodroot



Virginia Bluebells

Growing up in rural southern Indiana, our church would often sponsor scavenger hunts for the teens in the community. These were fun activities to mainly keep us busy and out of trouble. But they also helped to promote team work, unity and a sense of accomplishment; all without the aid of smart phones and Google, I might add!

Scavenger hunts can also be a fun activity for you in your own woods or wherever you like to hike trails. This hunt involves searching for and identifying native wildflowers in bloom throughout the growing season. What follows is an outline of what to look for and record starting in early spring and commencing in late summer. So, grab a pencil and paper (or your smart phone) and make a list of these ten native wildflowers described in the following paragraphs and see if you can successfully find all ten specimens this year. I promise it will be a lot of fun, and it might even keep you out of trouble!

March through April. The first herbaceous plant that flowers in the new year is **Skunk Cabbage** (*Symplocarpus foetidus*). You may be familiar with its large, broad leaves and colonies that sit on hillside seeps, but it does flower quite early. This unique plant, a member of the Arum family, produces an egg-shaped *spadix* that is covered by tiny yellow flowers, all enclosed in structure called a *spathe*. Even in late winter with snow covered ground, the spathe, through a process called the thermogenesis, warms the soil and punches through the

cold woodland floor, then opens to expose the spadix and its tiny flowers.

Trilliums are the favorite of many woodland owners and spring hikers. Indiana is blessed with many different Trillium species. The first to bloom is **Snow Trillium** (*Trillium nivale*), and although it is the smallest member of the Trillium family, often signals that “spring is finally here!”

Bloodroot (*Sanguinaria canadensis*) The bright white flowers with conspicuous yellow stamens are borne on a single stalk that appears to be growing up through the leaf. The underground rhizomes, stems and leaves all contain a reddish-orange sap – hence the name!

Virginia Bluebells (*Mertensia virginica*). The flowers start out as pink buds then turn into powder-blue, trumpet-shaped flowers which hang in clusters at the end of stems. Bonus points if you happen to spot a stray plant with an all white or all pink flower cluster.

Cutleaf Toothwort (*Dentaria laciniata*). A common plant found growing in large colonies in quality woods. Being a member of the mustard family, it has four petals that are white to light pink. Leaves are deeply lobed with jagged margins. Another member of the mustard family, the infamous Garlic Mustard, is not a friend of the woodland plant community and should be pulled up and disposed of when identified.

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Cutleaf Toothwort



Great Waterleaf



Fire Pink



Squawroot



Downy Wood Mint



Sweet Joe-pye Weed

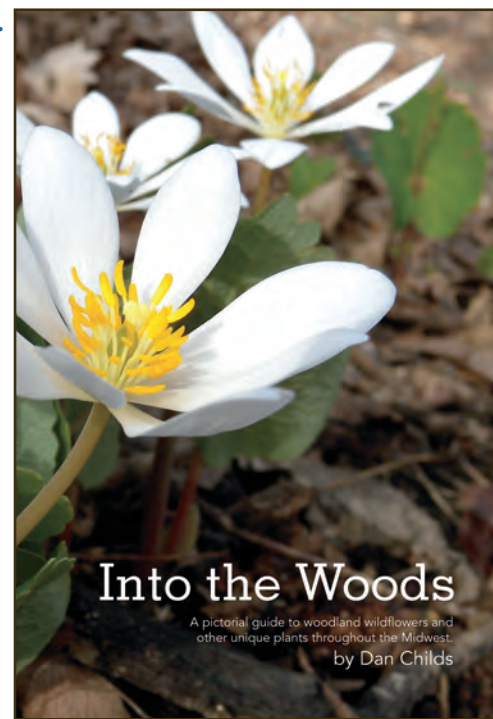
May through June. **Great Waterleaf** (*Hydrophyllum appendiculatum*) often grows in large colonies. The leaves are large, five-lobed and resemble maple leaves. The showy, blueish-lavender flowers are five-petaled with dark blue or brown stamens. Some of the other Waterleaf members can be distinguished from one another by the split in the tip-end of the slender style (female flower part) – a hand lens requirement!

Nothing brightens up a dark woodland understory more than **Fire Pink** (*Silene virginica*). Its flashy red petals draws attention of the passerby, as well as important pollinators such as butterflies and hummingbirds. The “sticky” red flowers have petals with a notched tip, while Royal Catchfly a close relative of similar appearance, does not have the notch and generally blooms much later than Fire Pink.

Squawroot (*Conopholis americana*), resembling a pinecone, is a non-photosynthesizing parasitic plant that grows from the roots of oak trees where it gets its nourishment. The 4 to 8-inch flower stalk is fleshy and covered from base to tip with cream-colored flowers (later turning brown) and scales. If you find small clusters of these – look up! You are most likely standing underneath a mighty oak!

June through July.

Downy Wood Mint (*Blephilia ciliate*) has a square stem and opposite leaves that are covered with small hairs. The flowers are clustered near the top of the central stem, are light purple to lavender and consist of two lips. The lower lip is speckled with dark purple spots that certainly help attract native pollinators to its flower.



Into the Woods

A pictorial guide to woodland wildflowers and other unique plants throughout the Midwest.
by Dan Childs

July through September. Last, but not least, and one of my personal favorites, is **Sweet Joe-pye Weed** (*Eutrochium purpureum*). This tall, erect plant has leaves in a whorled arrangement at each node. The showy inflorescence “dome” of light pink flowers is clustered at the top of the stems.

If you would like to learn more about woodland wildflowers, a guide is now available to help identify these beautiful plants. The book, called *Into the Woods*, is a color photo guide of woodland wildflowers and other unique plants. It contains a glossary of botanical terms, flowering dates, pollinator information, plant status (native, non-native or invasive) and detailed plant descriptions. You can purchase the book online through **Amazon.com** (search: Into the Woods Dan Childs).

Great Blue Herons

By Brian MacGowan

Great Blue Herons are large blue-gray birds with long, yellow legs and a long, yellow bill. They have a white head with a black plume stripe reaching from the eye to the back of head. They have shaggy feathers on their neck and back. Their head-to-tail length can push 55 inches and their wingspan can almost reach 75 inches. Great Blue Herons feed primarily on fish, but they will eat whatever is available including aquatic insects, crayfish, small birds, amphibians, reptiles, rodents, and other small mammals. Herons stalk and locate their food by sight. They quickly lunge and stab the prey with their bill. Then, they usually swallow it whole. Great Blue Herons are found across Indiana along any freshwater source. They can usually be seen by small streams, rivers, wetlands, lakes, and ponds. They will even use urban retention ponds and backyard goldfish ponds.

Great Blue Herons usually nest in trees near water with other herons in a colony. They build a stick nest and line it with grass, pine needles, moss, or other dried plant material. Nesting colonies are associated with wetland habitats or larger rivers or streams. Despite their statewide distribution, Great Blue Herons are generally considered a rare or uncommon nester with more colonies in the northern part of the state where more wetland habitat exists. Former Indiana DNR nongame bird biologist, John Castrale, counted over 6,300 nests in Indiana during a 1993 survey of Indiana colonies. The size of the colonies ranged from 2 to 562 nests.

Observations of Great Blue Herons during the Breeding Bird Survey have declined somewhat in recent years. Conservation efforts that benefit these birds focus on nesting habitat and reducing or eliminating impacts to nesting. Human disturbance can cause nest site abandonment, although the effects depend on a number of factors including type and frequency of disturbance, stage of nesting cycle, colony size and the surrounding land uses. Great Blue Herons nest relatively early in the nesting season with pair formation during mid-February to mid-March in Indiana. The complete nesting cycle will continue through June. Human activities



Photo: Gary Kramer, USFWS

should be minimized around rookeries during the entire nesting season, but abandonment is more likely before young are present during pair formation, nest construction, or egg laying.

While Indiana-specific guidelines are lacking, those developed by other states should benefit herons (see Box 1). Regardless, Indiana woodland owners and others working in the woods who encounter a Great Blue Heron rookery should follow some common-sense rules. First and foremost, avoid disturbance during the nesting season which already ongoing. Moving forward, most activities within the buffer zones won't cause issues outside of the nesting season. Habitat modification, construction, or similar activities should be avoided near nests at all times. If you have a

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rookery on your land, consider yourself lucky! Following a few simple steps will help provide habitat for these amazing birds in the future.

Brian MacGowan is an Extension Wildlife Specialist with Purdue University's Department of Forestry. He also has served as secretary and editor for the Woodland Steward since 2008.

The Vermont Fish and Wildlife Department published the following guidelines on protecting Great Blue Heron nesting habitat¹.

Primary buffer zone: within 300 feet of the rookery perimeter:

There should be no habitat modification, such as timber cutting, land clearing, and construction of roads, trails, or buildings. Only actions deemed necessary for improving the nesting habitat should be undertaken. All human use of this buffer area should be avoided during the nesting period. Recreational activities such as hiking, hunting, fishing, biking, and camping are compatible with protecting heron nest habitat outside the nesting period.

Secondary buffer zone: from 300 to 650 feet of the rookery perimeter:

There should be no sand or gravel extraction, land clearing, or construction of permanent structures or roads. Existing farming operations including maple sugaring, and use of existing footpaths by non-motorized traffic are allowed during the nesting period. Activities compatible with protecting heron nest habitat outside the nesting period include hunting, fishing, hiking, biking, camping, maintenance of existing roads or trails, and selective timber harvest.

Tertiary buffer zone: from 650 to 1300 feet from the rookery perimeter:

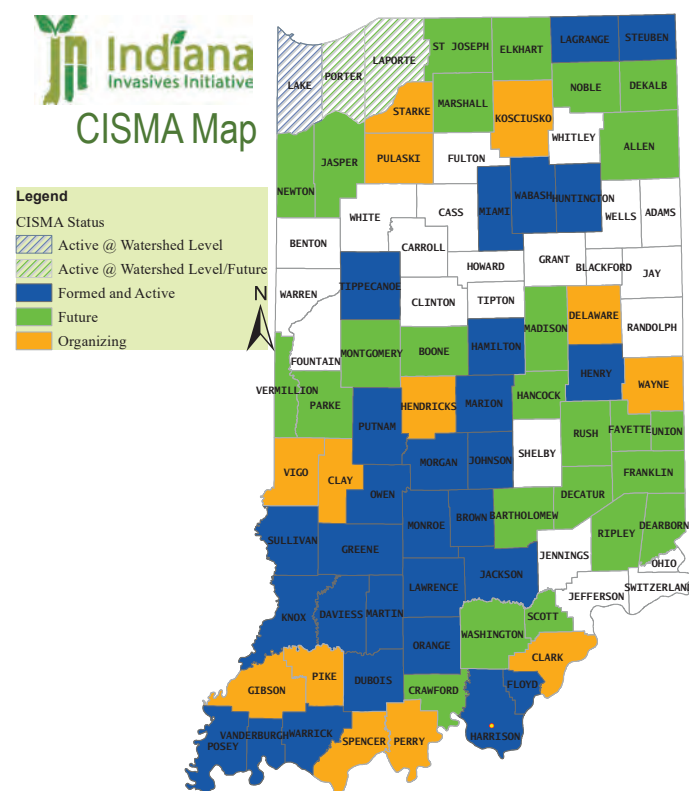
Construction of small buildings, temporary roads, or timber harvesting may be feasible outside of the nesting period with the consultation of a wildlife biologist or professional forester. Activities such as hunting, fishing, hiking, and camping may occur in this zone.

¹ Vermont Fish and Wildlife Department. 2002. Guidelines for protection & mitigation of impacts to great blue heron rookeries in Vermont, 13pp.

Cooperative Invasive Species Management Areas

Cooperative Invasive Species Management Areas, or CISMAs, have become widespread in the Midwest recently. CISMAs are formed to collectively combat the problem of invasive species spreading across the landscape. They can vary greatly in their geographic range, activity level, and focus, and are usually comprised of representatives from various governmental agencies, non-profits, and concerned citizens or citizen groups. They might cover a single county, or extend over multiple counties. By working together at the local level, CWMA/CISMA partners are able to pool resources and knowledge to address mutual invasive species problems.

You can get involved! Find out more about existing and organizing CISMAs across the state and how to connect with them by visiting online at sicim.info/cismas.



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Reversing Ruffed Grouse Declines in Indiana

By Ryan Lisson

Ruffed grouse used to be present across the Indiana landscape, but now they could be joining the ranks of endangered species listed under the Indiana Nongame and Endangered Species Conservation Act. In October 2018, the Indiana Department of Natural Resources (IDNR) Division of Fish & Wildlife sought input from Ruffed Grouse Society (RGS) to add ruffed grouse to the list of endangered species of birds in Indiana. After reviewing the evidence, biologists at RGS agreed with the proposal and submitted a petition to adopt the Administrative Rule Change. Here's how this issue all started, how we could reverse its course, and how you could play an important part in that process.

Background | How We Got Here

The ruffed grouse's future in Indiana is far from certain right now, and that's a terrifying thought for many Hoosiers and upland hunters across the country. This isn't necessarily a new problem though. There has been a steady decline in grouse numbers for years and biologists have warned about it. But it's reaching a dangerous fork in the road, past which there may be no return.

There's a lot of data to support this negative trend. For example, we know that grouse need a diverse habitat with dense seedling to sapling-sized trees (Bucks and Castrale 2010). Without it, grouse start to fade away on the landscape. According to the IDNR Wildlife Science Report (2017), the 2017 statewide drumming survey in Indiana reported zero drumming grouse on 14 different roadside routes for the fifth year in a row. Further, only one grouse has been heard over the past seven years during these surveys. The probability of observing a breeding ruffed grouse in a priority



Photo: Jim Rathert

survey block has declined by 89% in the past 20 years (Shaw, personal communication). The U.S. Breeding Bird Survey (the most comprehensive nation-wide survey of breeding birds) reported no grouse in Indiana through 2013 (Sauer et al. 2014).

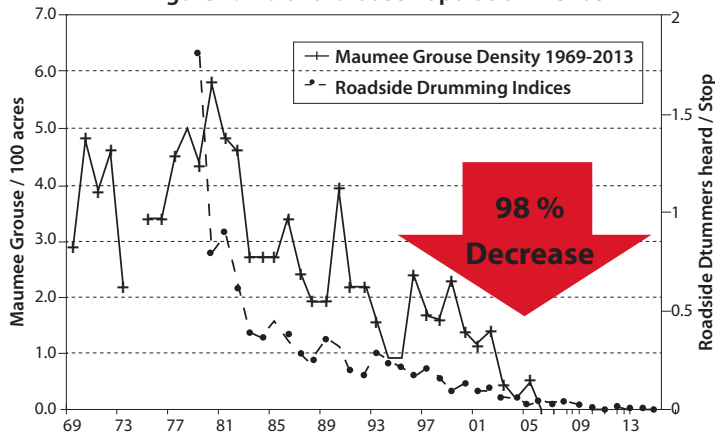
As a result, the Indiana grouse hunting season was suspended in 2015 and ruffed grouse were added to the Indiana list of Species of Special Concern. This is generally the first step in recognizing a potential conservation issue for a species. As mentioned, RGS petitioned to adopt the rule to upgrade that status to state endangered. This rule change may not be heard until January of 2020, and there will be an opportunity for public comment.

Consequences of Habitat Loss

So what is the primary reason behind this rapid decline? As usual, it's related to habitat. Healthy and diverse forests allow grouse to survive beyond the challenges of predation, disease, or weather anomalies. Early seral habitats (e.g., young forests, age classes 0-20 years) are critical for ruffed grouse for breeding, brood rearing, and winter cover and they're important for many other declining wildlife species in Indiana as well. Combined with a diverse patchwork of other forest stands and ages, these harvested areas help provide an essential component for grouse.

From 1986 to 2015, the amount of Indiana forests in the 0-20 year age class declined by 68% while mature forests increased significantly (Shaw, personal communication). Unless significant timber harvests of sufficient intensity are

Figure 1. Indiana Grouse Population Trends



Data Courtesy of Steve Backs, IN Division of Fish and Wildlife



conducted on the landscape soon, extirpation (localized extinction) of this species is almost inevitable. What would it take to reverse these trends? At a minimum, Indiana would need 15% young forests (0-20 years old) on the landscape to expect any kind of recovery of the ruffed grouse. Even then, there is a significant lack of a breeding population, so it would likely be a complicated recovery.

Challenges with Forest Management

Unfortunately, there's a lot of misinformation out there about forest management practices. Many people hear the term "timber harvest" and think "devastation" instead. In reality, ethically sound and science-based timber harvests result in quickly regenerating tree cover. A clearcut area can look messy for a few years, but within a single growing season, they usually re-sprout with dense tree cover. These young forest stands are used by multiple wildlife species (e.g., grouse, deer, turkeys, migratory birds, small mammals, amphibians, etc.) immediately.

Another concern people have is from the recreational or aesthetic side. Mature forests are beautiful – there's no doubt about it. But as mentioned above, the amount of it in Indiana has increased dramatically since 1986, resulting in an unbalanced and less diverse landscape. There's no foreseeable shortage of it. Therefore, there is a huge opportunity to restore younger forest stands. Here are just a few benefits from healthy forest management: clean water and air, improvements in recreational opportunities (hunting and non-hunting), additional wildlife watching opportunities, carbon sequestration (important for climate change), and economic development (e.g., forest products).

Role of Private Landowners

Did you know that 87% of Indiana's forested land is privately owned? That means private woodland owners like you have a lot of power to change this situation. Fortunately, there are also many ways you can get involved.

Various agencies (e.g., USDA NRCS, IDNR, etc.) offer numerous programs to help private landowners manage their



Fresh clearcut

forestland. After developing a management plan for your property, there are cost share programs and tax incentives to make the decision easier for you.

Consulting foresters can assist landowners with implementing these conservation practices that will help you meet your forest management goals and objectives.

Joining RGS and the Indiana Chapter can keep you involved in the process too. Membership helps you stay connected with other like-minded woodland owners and conservationists, and the various events can keep you updated on this issue and other important public policy decisions.

If each private woodland owner created young forests on 10-15% of their wooded acreage with each timber harvest, we would be well on our way to bringing back important habitat that's been missing in Indiana for decades. Will you help?

Ryan is a wildlife biologist, hunting mentor, and outdoors writer from Saint Paul, Minnesota. This story was submitted for publication by the Ruffed Grouse Society, www.ruffedgrousesociety.org. RGS is dedicated to preserving our sporting traditions by creating healthy forest habitat for ruffed grouse, American woodcock and other wildlife.

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2019 Outdoor Laboratory of the Year

By Ken Day

The James Cole Outdoor Education Center (JCOEC) at James Cole Elementary School, Lafayette, Indiana was selected as the 2019 Outdoor Laboratory of the Year. The award was announced at the Tree Farm Breakfast at the Indiana Hardwood Lumberman's Association (IHLA) convention in Indianapolis on February 4, 2020. Kris Ziller, Laboratory Contact and Chairman of the Board of Keep Stockwell Beautiful, Inc. (KSB) accepted the award at the Hoosier Association of Science Teachers, Inc. (HASTI) convention in Indianapolis on February 10th.

The education center was established over 20 years ago by a group of teachers and parents. After sitting idle for several years, Keep Stockwell Beautiful, Inc. began a transformation of the center in 2009. A grant from Lowe's helped reestablish wetlands. Other grants helping in the revitalization effort were from Greater Lafayette Community Foundation, John and Ruby Parks Foundation, and Wal-Mart.

The education center uses curriculum from different resources. Nature Explore, which was developed by the Arbor Day Foundation, is used and meets National Education Standards. Waste in Place, developed by Keep America Beautiful, is also used. Supplemental materials are used from Project Wild and Project Wet. Local natural resource professionals involved in center programs include Purdue Extension Services, Purdue Forestry, Take Flight Education, Tippecanoe County Parks and Recreation, Tippecanoe County Partnership for Water Quality, Tippecanoe Soil and Water Conservation District, and Tippecanoe Solid Waste.

A variety of programs are offered covering such topics as birds of prey, macro invertebrates, native plants, soil health, and wetlands habitat. High school students and students with disabilities also use the center and participate in the programs. Fishing is a crowd favorite and is included at the end of each program. Each year "Pond Day" is held to



demonstrate the variety of habitats available at JCOEC. An annual "Regatta Race" is conducted for fourth graders. The teams build boats from cardboard and duct tape and race the boats across the wetlands.

The education center is used by all 16 teachers (100%) serving over 280 students (100%) throughout the year and all grade levels. KSB uses the center during the spring, summer, and fall for special guests. The center is maintained by volunteers throughout the year. Youth groups such as the Boy Scouts, church youth groups, and Cole Cubs participate in the maintenance and development.

This is the 43th year of Indiana Tree Farm sponsoring the Outdoor Laboratory of the Year. Education is one of the key objectives, recognition is the other. The laboratory of the year is selected by the Indiana Tree Farm Committee which is composed of a cross section of 31 resource professionals from throughout the state.

Ken Day is retired Forest Supervisor of the Hoosier National Forest.

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Ask the Steward

By Dan Ernst

Question: Can all maple trees be tapped for sap and syrup making?

Answer: While any of the five species of Maples native to Indiana

could be tapped for syrup making it is the Sugar Maple that is most desired due to its' higher sugar content, flavor, best yield and the longest sugaring season. Typical sap sugar content is 2-4% in sugar maple, with the less common Black maple coming in near the same as Sugar maple. Red maple is slightly less, but has a shorter season and hence less preferred from a commercial aspect- but fine for the home hobbyist. Silver maple comes in even lower at 1.5 % and its sugar sand (mineral deposits) makes it lower in desirability. Even, Box Elder, which many may not realize is a maple species, is tappable, but its' low sugar content, small tree size and off flavor yields little interest. Maple is not the only tree species that is considered tappable. Black walnut and birch also finds favor in some regions, with birch having a long history of tapping in some regions of the world. A study at Cornell University found sugar content in Walnut sap to be roughly equivalent to that of sugar maple and the syrup flavor comparable to maple. However, sap yield from Walnut was much lower than from Sugar maple.

Believe it or not, tree sap is becoming a popular spring beverage in some areas of north America. I recall several times while working the woods in late winter and early spring finding, and tasting, icicles formed on the ends of broken maple branches where sap has dripped. You really can taste the slightly sweet flavor. If tapping for sap tasting use sterilized equipment, refrigerate the sap (it has no preservatives) and use within few days. Don't have a maple tree and would like to sample sap water? You're in luck. Bottled 'maple water' can be readily found in some groceries and on the internet.

Question: When logging why do trees skin up more easily in the spring than other periods of the year? And, how to avoid?

Answer: The answer to this question is related to the question above on tapping of maple trees. As winter fades and spring warmth comes to the forest, unseen changes begin within your trees. This includes sap flow and a surge of tree growth just under the bark in the cambium tissue. This flow of moisture and nutrients provide nourishment, which is first visually reflected in expansion of tree buds. To oversimplify, this moisture flow and growth activity just under the bark creates a soft, slippery layer which is more vulnerable to 'barking' or 'skinning' if hit by logging equipment, felled trees or skidded logs. Some species of trees are more vulnerable than others and timing of peak sap flow also varies by species.

While bark adhesion is best in late summer as sap flow slows, and through the cold of winter, if you hit a tree hard enough any time of year the bark will come off. So, what's the answer to the active woodland owner considering a harvest? Harvests, of course, do occur throughout the year; however, regardless the season, they should be well managed and undertake at a professional level. Planning should utilize guidance from professional foresters and harvests executed by well trained, professional loggers. Written contracts are a must, and may include provisions aimed to limit residual damage, such as seasonal restrictions or excessive damage penalties. Planning a harvest? One source of good information is <http://callb4ucut.com>

Dan Ernst is the former Assistant State Forester for the DNR Division of Forestry and has authored this column for years; After retiring in 2019 he continues to manage forests as a woodland owner and consulting forester. Have a question for the column? Contact Dan at foresterdan@yahoo.com

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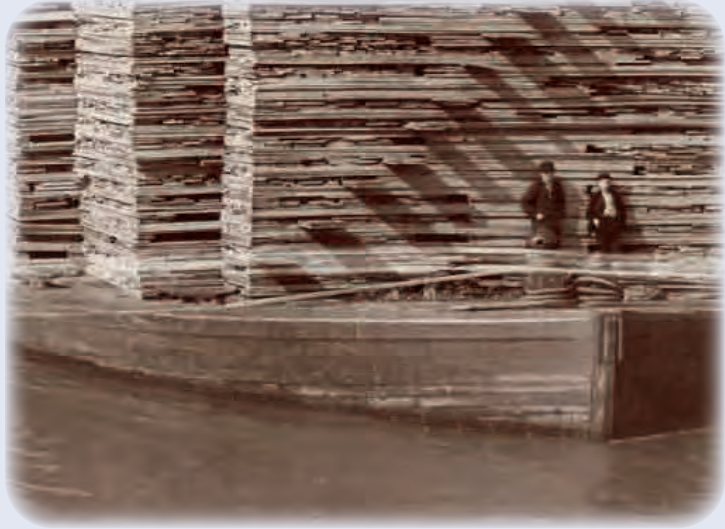
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Days Gone By

Loading lumber onto a barge (left) and moving it along the Ohio River on the Barrett Line Barge “Mable” (right), circa 1900. Photos courtesy of the Indiana Historical Society.



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