

The WOODland Steward

Promoting the Wise Use of Indiana's Forest Resources

2014 Indiana Forest Products Price Report and Trend Analysis

Duane McCoy, Timber Buyer Licensing (LTB) Forester, Jeffrey Settle, Forest Resource Information (FRI), and Chris Gonso, Ecosystem Services Specialist for the Indiana Department of Natural Resources, Division of Forestry and Mike Seidl, Hardwoods Program Manager for the Indiana State Department of Agriculture

Survey Procedures and Response

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/>.

Data is collected once 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. Because of the small number of mills reporting logging costs, "stumpage prices" estimated by deducting the average logging and hauling costs from delivered log prices must be interpreted with extreme caution.

Data for this survey was obtained by a direct mail survey of all known sawmills, veneer mills, concentration yards, loggers and firms producing wood chips, sawdust, etc., as a byproduct. 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 219 firms, compared to 216 in 2013. Several were returned as undeliverable. There was an initial mailing and one reminder postcard sent to non-respondents. Follow-up phone calls and mailing got a few of those mills and operators back into the system.

An abbreviated survey form was used for 87 firms that do not buy logs, compared to 86 in 2013. The long form with the tables for prices paid for sawlogs and veneer logs went to 132 firms, compared to 130 in 2013.

Fifty-four mills reported some useful data, compared to 47 in 2013, 52 in 2012, 56 in 2011, 62 in 2010, 73 in 2009 and 88 in 2008.

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A winter scene at Bells Falls in Franklin County, Indiana circa 1910.

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visit us online at
www.inwoodlands.org

Calendar of Events

March 4

Southern Indiana Cooperative Invasives Management (SICIM) Annual Meeting

Bedford, Lawrence County
Learn more at www.sicim.info.

March 10

Southern Indiana Conservation Happenings

9 AM – 3 PM
Muscatatuck National Wildlife Refuge, Jackson County
Contact 812-522-4352 or susan_knowles@fws.gov.

March 10-12

Indiana Hardwood Lumbermen's Association Convention & Exposition

Indianapolis Marriott Downtown
Call 317-875-3660 or www.ihla.org.

March 19 & 21

Winter tree identification classes

Near Orleans, Orange County
\$5 fee for adults, children free.
Contact tligman@fs.fed.us or 812-276-4757.

March 27-28

Tree Farm Landowners Clinic

McCormick's Creek State Park Inn, Spencer
Contact lfarlee@purdue.edu or 765-494-2153.

March 28

Ohio River Valley Woodlands and Wildlife Workshop

8 AM- 5 PM
Sharonville Convention Center, Cincinnati, Ohio
See www.tristatewoods.org for more info.
Call 859-257-7597 or email forestry.extension@uky.edu.

April 11

IASWCD Southwest Indiana Forestry Committee's Family Nature Fest

Location TBD.
Contact Judi.Brown@in.nacdnet.net or 812-482-1171 x3.

April 11

Annual wildflower hike,

Blue Springs Cavern, outside of Bedford in Lawrence County
Contact tligman@fs.fed.us or 812-276-4757.

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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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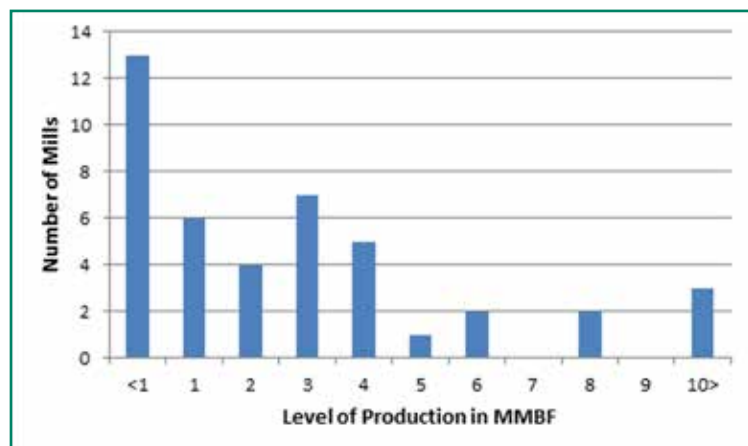


Price Report (cont'd from page 1)

Seven mills were dropped because their phones were disconnected, or they reported being out of business.

Forty-three mills reported their 2013 board foot production in 2014, compared to 43 reporting their 2012 production in 2013. Thirteen mills reported producing 1 million board feet (MMBF) or less (Figure 1). Eight mills reported production of 5 MMBF or greater. Total production reported for 2013 was 147 MMBF compared to 151 MMBF for 2012, and 134 MMBF for 2011. The largest single mill production reported was 23 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 buy logs, or they pay a set 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.



Distribution of the 43 mills reporting their 2013 board foot production level in 2014.

Hardwood Lumber Prices

Log prices are directly tied to lumber prices since logs are delivered to mills on a continuing basis. This allows mills to base the price they pay for sawlogs on current lumber market prices. The connection to prices paid for standing timber is less direct, depending on how far in advance of logging a stand of timber is purchased.

Premium Species

Red oak is an economic indicator species in the hardwood industry. Prices cycle with the general domestic economy and housing. Export markets continue to be a major factor as well. The price of the top grade of lumber, FAS, plus a \$200 premium peaked at \$1,310 per thousand board feet (MBF) in the summer of 2004 and has been through two cycles since

then. It's been increasing since July 2012, hitting \$1,145 per MBF in December 2014 – 27% increase. The premium applies when a buyer negotiates for the purchase of bundles of lumber consisting of No. 1 C and better grades.

White oak price is also cyclical, but the cycles are slightly more moderate than red oak's. An exception is the 42 percent drop in FAS plus the premium from \$1,390 per MBF in 2008 to \$800 per MBF in the summer of 2009. In mid-December of 2014, FAS lumber pricing was \$1,425 per MBF.

Black walnut is one of the hottest, if not the hottest, species right now. Demand for logs and lumber is very strong. FAS lumber is being reported at \$3,040 per MBF, a 37% increase from September 2013.

Black cherry FAS price dropped in January 2013 to \$1,335 per MBF. For the most part, however, Black Cherry prices have held pretty steady. Current pricing is \$1,540 per MBF.

FAS Hard Maple reached \$1,305 in July 2013. Pricing for Hard Maple has picked up slightly in early 2014 but the markets have softened. Current pricing is now around \$1,390 per MBF.

Other Species

Yellow poplar hit a low point of \$550 in the summer of 2011. Markets have become stronger and demand continues to be good despite increased production. FAS lumber pricing is reported at \$830 per MBF, a 34% increase

Soft Maple markets have improved in the past couple of years. In July of 2012, prices were reported at \$920 per MBF and current pricing is at \$1,115 per MBF.

Locally, Ash markets have become stronger with good volumes of lumber moving overseas as well as being used as a substitute for higher priced Red Oak. December pricing is at \$1,085 per MBF, a 22% increase from September 2013.

True to form beech prices were unchanged. FAS last changed in July 2005.

Basswood prices increased to \$660 per MBF in September 2013. Current Basswood pricing is at \$695 per MBF.

Hickory markets have continued to pick up steam due to the cabinet and rustic flooring markets. Current pricing is reported \$1,000 per MBF, a 33% increase since January 2012.

Delivered Sawlog Prices

The number of mills reporting delivered sawlog prices was slightly up this year. Almost without exception sawlog prices

cont'd on page 4

Price Report (cont'd from page 3)

of the premium species increased. Sawlog price changes varied for the other species.

Premium Species

All the oak species were up again this year. All four grades of logs increased. Many mills reported paying the same price for both red oak and black oak. It can be difficult to distinguish these two species for logs on a mill's log deck. The lumber from these two and all other species in the red oak family is sold as simply red oak.

Demand for black walnut has made it difficult for producers to keep up supply, increasing the price for both lumber and sawlogs. However, this year the prices for the lower grade sawlogs increased at a higher rate than that of the prime and grade 1 sawlogs. If the price cycles over the last 10 years are at all predictive, there is room for further price increases.

Black cherry sawlog prices generally increased, with the exception of grade 1 sawlogs, coinciding with increased lumber prices. Prices still remain well below their peak in 2004.

Hard and soft maple are not substitutes in finished goods markets, thus their prices can be expected to behave differently. Hard maple had increases in all grades, but the increases were higher in the lower grade sawlogs. However, soft maple prices increased more in the upper sawlog grades.

Table 1. Hardwood lumber prices, dollars per one thousand board feet (MBF), 1-inch-thick (4/4) Appalachian market area unless otherwise indicated. Source: Hardwood Market Report, P.O. Box 2633, Memphis, TN 38088-2633.

	Lumber Grade	Jan 2010	July 2010	Jan 2011	July 2011	Jan 2012	July 2012	Jan 2013	July 2013	Sep 2013	Dec 2014
Ash											
	FAS + Prem.	715	805	785	800	800	845	845	845	845	1085
	No. 1C	470	580	575	575	575	585	585	585	585	780
	No. 2A	320	380	360	360	360	360	360	360	350	450
Basswood											
	FAS + Prem.	635	660	645	630	630	630	630	630	660	695
	No. 1C	300	335	335	345	345	345	345	385	395	430
	No. 2A	180	190	190	190	190	190	190	210	210	230
Beech											
	FAS	500	500	500	500	500	500	500	500	500	500
	No. 1C	420	420	420	420	420	420	420	420	420	420
	No. 2A	345	345	345	345	345	345	345	345	345	345
Cottonwood (Southern)											
	FAS	605	605	625	635	635	635	635	635	655	705
	No. 1C	405	405	425	435	435	435	435	435	455	500
	No. 2A	220	220	220	220	220	220	240	220	240	260
Cherry (North Central)											
	FAS + Prem.	1610	1610	1610	1525	1355	1440	1335	1335	1335	1540
	No. 1C	660	720	720	720	655	720	705	765	795	1050
	No. 2A	350	375	375	375	330	375	375	430	460	675
Hickory											
	FAS + Prem.	615	640	640	655	670	720	720	765	800	1000
	No. 1C	500	530	530	540	560	595	595	650	685	835
	No. 2A	350	405	405	405	415	445	445	480	500	615
Hard Maple (unselected)											
	FAS + Prem.	1080	1095	995	970	1050	1050	1075	1305	1305	1390
	No. 1C	655	710	710	705	735	750	790	1000	1000	905
	No. 2A	480	545	535	535	565	555	550	685	685	665
Soft Maple (unselected)											
	FAS + Prem.	880	895	835	805	845	920	940	1000	1000	1115
	No. 1C	535	610	595	580	595	610	650	710	710	785
	No. 2A	275	320	320	320	330	330	340	360	360	490
White Oak (plain)											
	FAS + Prem.	915	1165	1060	1035	995	1015	1015	1070	1070	1425
	No. 1C	540	655	625	575	555	555	575	695	705	960

The complete 2014 Indiana Forest Products Price Report and Trend Analysis can be read in its entirety at: <http://www.in.gov/dnr/forestry/>.

Persimmon

By Dan L. Cassens, Don Carlson, Lenny Farlee and Joey Gallion

Persimmon (*Diospyros virginiana* L.) ranges from Connecticut to southern Florida west through central Pennsylvania to southern Ohio then west to south eastern Iowa, south to eastern Kansas and eastern Texas. The species is native to only about the southern third of Indiana. There are several species on a worldwide basis. The largest diameter native tree reported is 4.01 feet at 4 1/2 feet above the ground. More typical trees will be up to 24 inches in diameter and 60 feet in height.

Biology and Management of Persimmon^{1,2}

Persimmon is normally a minor species in a variety of hardwood and southern softwood forests, but it can be a common invader of abandoned pastures or other disturbed areas in some parts of its range. Persimmon grows on a wide variety of sites from dry to wet and can be a strong competitor on poor growing sites. Growth is normally slow, compared to many associated species, but it is rated as shade tolerant, so it can survive under the shade of competing trees for many years. Very little information is available regarding specific management recommendations for persimmon, as it is rarely a target species for active management.

Persimmon is a highly favored wildlife food source. The large fleshy fruits are actively sought by many game and non-game wildlife species. In addition, human consumption of the fruit in a variety of forms is an important local practice. Mitchell, Indiana and Colfax, NC each have a persimmon festival emphasizing the fine eating qualities of the ripened fruit. It should be noted that un-ripened fruit is highly astringent. To collect ripe fruit look for soft, bright orange fruits that have fallen to the ground. Some examples of cultivation and selection of superior fruit varieties for American persimmon exist, and persimmon pulp and fruit is sold as a local specialty product in some areas. If fruit production is desired for either wildlife or human consumption, release of the tree crown from competition by thinning nearby competitors will provide additional growing space and may encourage increased fruit production. Select areas with several persimmon in the locale or where fruit production is already evident, as persimmon trees may be male, female, or both. Persimmon is also noted to respond to fertilization, which may also enhance fruit production. The best fruit production is stated to begin at about age 20, but author Lenny Farlee has seen trees planted on good soils in Indiana produce fruit in five years. Trees produced from grafted cuttings of mature trees may produce fruit even faster.

Persimmon may be propagated in several ways. Seedlings available from tree nurseries will provide the most reliable artificial regeneration approach. Planting collected seed in the fall can also produce some seedlings. Wildlife can plant new

trees through dissemination of seed. Persimmon has a strong taproot, so transplanting is very difficult.

Fire may either promote or decrease persimmon, depending on fire intensity. Light intensity or fast moving fires that don't heat deeply into the soil can result in prolific stem and root sprouting of existing persimmon, or provide space for persimmon to become established from seed. High intensity fires that heat the soil may kill persimmon root systems, resulting in decreases or elimination of persimmon on the site.

Persimmon Inventory

The U.S. Forest Inventory Analysis for Indiana indicates that there are 15.7 million cubic feet of Persimmon ranging in diameter from 5.0 to 16.9 inches. Dogwood, a species that was also used for many of the same purpose has an inventory of 4.9 million cubic feet ranging from 5.0 to 10.9 inches in diameter. Kentucky Coffeetree, probably a better known minor species has only 2.6 million cubic feet ranging from 5.0 to 16.9 inches in diameter.³

Persimmon Wood

Persimmon wood is one of our more unique ones and at one time a very important species. Some of the more common uses include golf club heads (<http://www.louisvillegolf.com/>), textile shuttles, billiard cues, bobbins, spools, drum sticks, flutes, long bows, eating utensils, shoe lasts or any application that requires a dense heavy wood which resists denting and wear. Substitute material or other species have replaced Persimmon in many of these applications and the species is not listed in many of the basic reference manuals. However, it could be of interest for the custom wood working and home workshop enthusiast looking for something unique and with a story to tell.

The wood is semi-ring porous, and the grain appears similar to hickory or walnut, but with smaller pores. The rays or food storage tissue in Persimmon are storied. They appear as very minute ripple marks or storied on a split tangential surface. Storied structure is very unusual in our domestic tree species and because of this, Persimmon is normally included as an example in any wood identification course.

Wood Color and Texture

The sapwood is white to creamy white when first cut. If dried quickly, the surface of the sapwood may remain cream color or turn gray. In the senior author's experience oxidation stain develops easily. Oxidation stain is a chemical reaction in the wood as the living cells die a slow death. The wood can turn gray or dark brown from the surface in towards the center or the surface can dry looking like the green sapwood with the

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A Successful Timber Harvest in Morgan County

By Liz Jackson

Jim H, of Morgan County had discussed with his forester that it was time to have a timber sale on his property. Some of his trees were overmature and the ash was beginning to decline, so the timing was right. Jim told his forester that he wanted the process to go as smooth as possible, but he wasn't sure what he needed to do since he had never had a timber sale before. After some discussion about what to expect, he hired a professional forester to manage the timber sale on his behalf.

The timber sale was a success. He received 5 bids on the timber with a range of \$15,000 between the high and low bids. After accepting the highest bid, the logger completed the project over the next 18 months. Although he could definitely tell that the land had been harvested, the results were expected and soon the openings were filling up with new tulip poplar seedlings and a start for the next generation of trees.

Jim learned a lot of things on this sale to make it go smoothly, things he wasn't aware of when he started the process. Some of his neighbors had had very bad experiences and had vowed never to harvest again. Although they understood the potential benefits to the woodlands it wasn't worth the hassle. Jim offered to share his experiences with other landowners who have had a less positive harvesting experience or who haven't yet had a harvest.

Ask for advice

- Contact Call B4 U Cut at 1-317-232-4111 or at www.callb4ucut.com for "A Landowner's Guide for a Successful Harvest."
- Talk to a trusted friend, family member, or neighbor to give you the low-down on what to expect. Ask them to describe the process and anything they would have done differently. Ask them what the woods looked like when it was done.
- Ask your IDNR district forester for their input on what to expect and the steps to proceed.

Consult a professional forester to assist you in the timber sale. A forester can provide general advice, mark the sale, or handle the sale from start to finish. Make sure you have a clear understanding in advance of what the forester will be doing and any fees for services. Ask for references and a price quotation. (See How To Choose a Forester from the Spring 2014 issue)

Know your boundaries

Timber trespass is a common complaint, resulting in lawsuits and possible fines, and is usually due to not knowing the locations of the property lines. Are your property boundaries known and marked clearly? If not, locate the boundaries and mark them before the timber is marked for harvest so there is no confusion which trees are yours and which are your neighbors.

Do your neighbors agree with the boundaries? It would prevent disagreements if you walk the boundaries with your neighbors and make sure you are in agreement on their locations before the trees are marked. Discrepancies are best identified and solved before the trees are cut. If there are any trees on the property line it would be smart to clarify who owns them. After the lines are confirmed, mark them clearly with posts and/ or paint so that the timber buyer and logger can be certain where the line is and you can find it in the future. These steps will prevent the logger from accidentally harvesting your neighbor's trees. It is best to mark property lines permanently once they are established.

What trees are you selling?

It is helpful in a sale to not only mark the trees on the trunk at about eye level, but to also mark them just above ground level, so that you can see the marks even after the harvest. You should also have a complete tally of marked trees by species, so that you know how many of each species is to be harvested. This way you as the timber grower know exactly what is to be harvested before and after the harvest.

Consider the type of sale: lump sum versus shares

In a lump sum sale the volume of harvest and price is agreed upon in advance and often some or all of the purchase price is paid in advance of harvest. This provides certainty to you as the seller that you get what you expected to be paid before the harvest. The lump sum sale secures payment for the landowner, but it increases the risk to the buyer as to their profit since they cannot see what is really inside the trees until they are cut, so they may take that into consideration when they are making their bid.

When selling on shares, you receive an agreed upon percentage of what the logger receives when he delivers the logs to the mill. With this method, your income will not be clear in advance and could vary if market prices rise or fall.

You are not paid until after the logs are already at the mills, so there is higher risk for you and less for the buyer when compared to lump sum sales, as you both are splitting what the mills have paid for the logs. Reduction in log value due to felling damage is another risk that you accept in a shares sale. One important question to consider is how the value of the logs purchased by the mill will be documented for the landowner.

Advertising the sale

Advertising a timber sale can help bring more buyers for your timber which, depending on the quality of timber involved in the sale, can increase bid prices. If you are utilizing a professional forester, that person will likely have several ways to let the timber buyers in Indiana know that your timber is up for sale. They usually will have direct mailings to buyers in that area. They also have the *Timber Buyer's Bulletin* that goes out to timber buyers monthly in which they can advertise your timber sale for free.

Use a contract

No matter the type of timber sale, a written contract is strongly recommended. This provides you legal protection and clarifies expectations in case of confusion or disagreement. The contract terms should include the sales price, or shares for seller and buyer, and terms of payment with a description of what exactly is being sold. It should also include a description of the best management practices (BMP's) that you expect the logger to use. Proper use of BMP's should minimize the impacts to your soil and water quality. More information about what to include in a contract may be found in Purdue Extension publications: *Marketing Timber* and *How to Get the Most From Your Timber Harvest*. Both publications can be downloaded for free from <https://ag.purdue.edu/fnr/Extension/>.

Other contract terms might include responsibility for excessive damage to trees or roads during logging, and how the logging job will be closed out. This might include seeding the log landing and log roads, piling cutoffs near the road, or other requests you might have. The use of a contract will ensure that neither you nor the logger have

surprises due to a misunderstanding later on. Reviewing each point of the contract with the logger prior to signing will also reduce misunderstandings.

What Else?

There are many other things to consider and do once the harvest has begun. Do you watch and keep records of what you see, the types of trucks that haul out the logs and how many logs they are carrying? Do you get to know the crew a bit and interact with them some? Do you make sure that your forester is representing you throughout the harvesting process to include closing out the site? (Note: always consider safety when on an active logging site.)

There are many instances in which a landowner, whether ready or not, sold their timber without utilizing the precautions mentioned to protect their interests and regretted their actions once it was too late to change them. Landowners should consider these points now, even if you are not ready to sell your timber yet.

Questions?

If this article has you thinking and you have questions, ask the Woodland Steward at <http://www.inwoodlands.org/> or the Indiana Forestry and Woodland Owners Association (IFWOA) at www.ifwoa.org or the Indiana DNR Division of Forestry at <http://www.in.gov/dnr/forestry/>.

Liz Jackson is the Engagement Specialist for the Hardwood Tree Improvement & Regeneration Center, Executive Director of the Indiana Forestry & Woodland Owners Association, and the Executive Director of the National Walnut Council.



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A New Old Tool for Battling Invasive Vegetation?

by Ron Rathfon

When Purdue acquired property in northeast Dubois County in 1953 to make the Southern Indiana Purdue Agricultural Center (SIPAC), they immediately set out to restore the farmed-out, cut over, burned over, and heavily grazed land (Figure 1). Conservation practices in vogue at the time were employed. Charles Deam (Indiana State Forester, 1909-1928) was a lone voice in the wilderness at this time, decrying the practice of planting exotic shrubs for conservation purposes, especially multiflora rose. In 1952, Deam wrote to a botanist colleague:

"Last week another damn thing irritated me. Our state forester has a million multiflora roses to give away for 'living fences.' I wrote the head of the Department of Conservation that he need not worry about a tombstone; he will be remembered O.K. by disseminating this pest all over Indiana." (Kriebel 1987)

Deam's opposition notwithstanding, 1,000 multiflora rose were planted by SIPAC farm laborers and Purdue foresters along the edge of a tract of steep woods, presumably for erosion control, wildlife habitat, and maybe even as a "living fence" demonstration. By 1960, we know that multiflora rose had become a nuisance in the understory of the young hardwood forest. By this time it was also falling out of favor as the conservation shrub of choice, being replaced by Asian bush honeysuckles and autumn olive. I found records in SIPAC archives detailing a multiflora rose control study using 2,4,5-T and amitrol herbicides in this tract. Although the now-banned 2,4,5-T was effective, no follow-up treatment to completely eradicate multiflora rose was pursued. By the time I arrived at SIPAC as a young extension forester in 1992, the timber was approaching maturity, but the multiflora rose had achieved complete dominance in the understory. Before me was the task of preparing the site for a future timber harvest that involved controlling the rose. The steep terrain and overwhelming density and height of the rose made conventional mechanical and herbicide treatments daunting and impractical. Several attempts at controlled burning only top-killed the rose but did not consume the viciously-armed canes. Fire only seemed to stimulate the rose and it regrew with a vengeance. I gave up on trying to control the rose . . . that is, until the day the goats arrived. . .

As a young forestry student in the 1980s I was tutored in the history of our nation's forests. It was important for us



Figure 1. "Farmed out" land acquired by Purdue University in northeast Dubois County in 1953 became the Southern Indiana Purdue Agricultural Center (SIPAC).

to understand the past so as not to ever allow the mistakes of history to repeat themselves. Ingrained into our forester psyche were black-and-white images of forest destruction resulting from rapacious logging, wildfire on a holocaust scale, and unmitigated livestock damage at a time when livestock free-ranged in eastern forests.

In the October 1945 issue of the *Journal of Forestry*, Daniel DenUyl (1945), Professor of Forestry at Purdue University, issued a rebuttal to proposed U.S. Forest Service forest grazing regulations for Region 9 (northeast and north central states). The regulations represented an uneasy compromise between forestry and livestock interests in the region's "range wars." He summarized his research documenting the "stages of decadence" of pastured woods and the restoration of pastured forests through livestock exclusion. He touted the fact that Indiana had been regulating grazing in forests for over 25 years through a voluntary program and that over 2,000 Indiana forest landowners were effectively regulating livestock grazing in the forest by exclusion as "classified" forest owners. He definitively concluded his rebuttal, expressing a widely held view of forest grazing among foresters:

"The evidence and cumulative experience clearly show that livestock grazing will ultimately destroy the farmwoods. Continuous protection by complete exclusion of livestock is essential for continued woods production."

The forestry profession's uncompromising attitude was set and efforts to educate landowners and lawmakers on the destructive influence of livestock in eastern forests began to make headway. J.H. Patric and J.D. Helvey (1986), U.S. Forest Service researchers documented a reduction in grazing in eastern U.S. forests from 180 million acres in 1938 to less than 25 million acres by 1982. I began my forestry education at Penn State's Mont Alto campus in 1982 and so began my indoctrination of the twin evils of forest grazing and wildfire.

It may be debatable how much of the reduction in forest grazing was attributable to the landowner education efforts of foresters, to laws eliminating open range in the east, or how much was just pure economics. A study published in 1968 by Bjugstad and others (1968) illustrates the point. They found that it took 180 acres of oak woodland in the Missouri Ozarks to maintain one cow and calf for six months. The same cow and calf could feed well on 2 acres of well-managed pasture. S. Clark Martin (1954) may have summed it up best at the Society of American Forester's annual meeting held in Milwaukee in 1954 when he said:

"Even the farmer knows that starving cattle will not pay the grocery bill."

Time for a change in thinking toward livestock in the forest?

It may be too early, but the time may soon come for foresters to rethink their historical opposition to livestock in the woods. For many counties in Indiana, recent U.S. Forest Service Forest Inventory and Analysis (FIA) data show that from 35 to roughly 90% of forest sample plots are invaded to some degree with invasive plants (Oswalt and others, in review). New alternative strategies and management tools need to be considered to soften the blow and stem the tide of non-native invasive plants.

Foresters' attitudes toward fire have evolved even over the course of my career. Prescribed fire is now widely used on public lands in Indiana and even on some private land, demonstrating its usefulness as a management tool. Likewise, domestic animals may be able to provide valuable vegetation management services. As with fire, uncontrolled, unmanaged grazing has already proved its destructiveness. Carefully managed, prescribed grazing (PG) could prove a boon to forest managers.

Prescribed Grazing Defined

At this point I should define PG and will start by emphasizing what it is NOT! PG is not fencing a woods

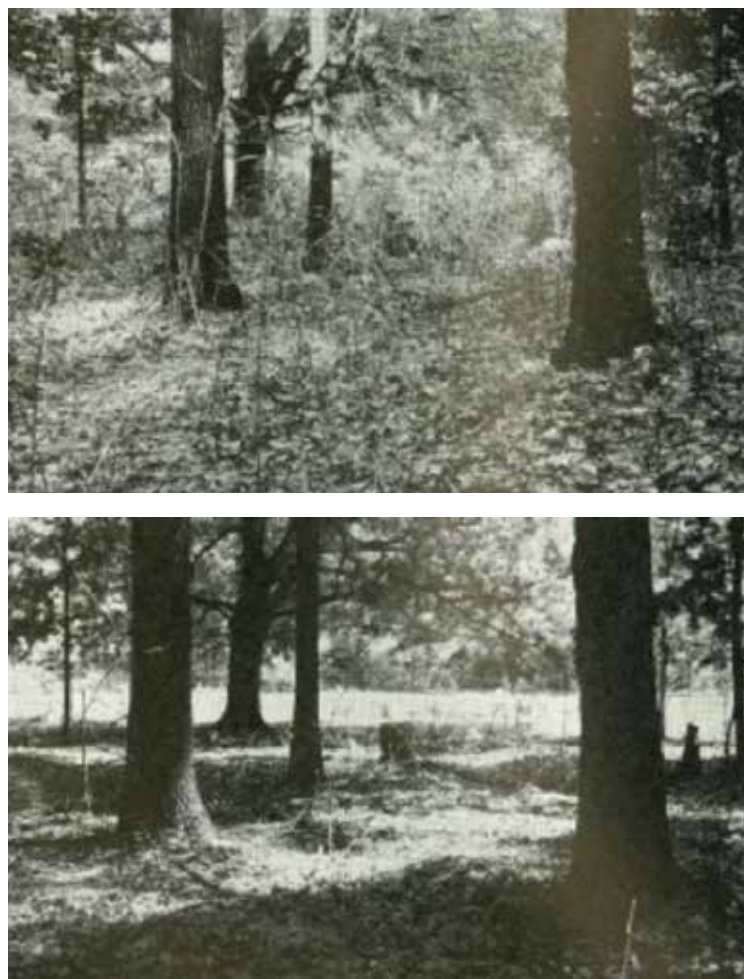


Figure 2. Photos documenting effects of forest grazing from Purdue Forestry Professor Daniel DenUyl's Purdue Agricultural Experiment Station Bulletin No. 431, published in 1938. The caption for the photos read: (top) "Young growth and vegetation in an oak-hickory woods in June, 1931." and (bottom) "The same woods in June, 1933. After two years of grazing, tree reproduction has been eliminated and litter and soil conditions are unfavorable for the establishment and growth of tree reproduction."

and dumping a bunch of grazers and browsers in it simply because it has thick underbrush. Nor is it livestock looking for a new source of forage in the forest. We've already done that on a massive and unsustainable scale, as we have already discussed.

PG has been around for a few decades in the U.S. Much of the research and experience using PG for non-native invasive plant management comes from western U.S. rangelands. Karen Launchbaugh (2006), Rangeland Scientist with the University of Idaho defined PG as the

cont'd on page 10

A New Old Tool (cont'd from page 9)

“...the application of a specific kind of livestock at a determined season, duration, and intensity to accomplish defined vegetation or landscape goals.” More recently, eastern U.S. researchers and land managers have looked to PG to help manage undesirable vegetation in a wide variety of management contexts, from power line rights-of-way maintenance to managing habitat vegetation for the endangered bog turtle in New Jersey. Goats and sheep have been employed to help manage unruly, invasive vegetation in public parks, cemeteries, and historical sites. Livestock are being called upon to help control kudzu in southern states. The development of intensive rotational grazing techniques and mobile fencing systems allows entrepreneurs to provide prescribed grazing services to landowners (i.e., herd for hire). However, such PG services are few in number in the eastern U.S. and research on effectiveness of PG to suppress NNIP species and impacts to non-target native vegetation in eastern hardwood ecosystems is almost non-existent.

... And so we return to my original story of trying to control multiflora rose in a woods at SIPAC and the day the goats arrived.

Part 2 of this article will appear in the next edition of the Woodland Steward Newsletter. Ron Rathfon is an Extension Forester with the Department of Forestry and Natural Resources at Purdue University. Areas of focus include forest management, timber marketing, tree planting, oak regeneration and ecology, and invasive vegetation management.

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Plan Now, Benefit Later: Invasive Species Best Management Practices – Part 2

Alexandra Wardwell

Human activities can exacerbate the spread of non-native invasive species around the world as well as in Indiana. In some cases, our involvement with these non-native invasive species introductions was purposeful and with the best intentions in mind. In other cases, invasive species were unknowingly and unintentionally distributed and spread. Invasive species are a serious threat to species biodiversity, our environment, our economy, and even to our health.

The Indiana Invasive Species Council has a working group called the Invasive Plant Advisory Committee (www.entm.purdue.edu/iisc/plantcommittee.php) that has put together a Top Ten List of Invasive Species Best Management Practices. This list can help woodland owners and land managers make good decisions limiting the introduction and spread of problem species. It is unlikely all ten will be able to be implemented at once but it is a goal to work towards. Choose the easiest of these to implement first and work from there. The first five tips were printed in Part 1, published in the previous issue of the Woodland Steward. The next five are listed below.

1. Keep tools, vehicles, and equipment clean.

Require contractors to bring clean equipment to your site. A good idea is to designate a cleaning and disposal area where you can clean vehicles and equipment off. Educate and encourage others to inspect and clean clothing, vehicles, and equipment before and after entry to site (Figure 1). One easy way to clean boots and boot treads is to carry a small hand held boot brush with you in your pack to use when you leave an area and before you enter a new area.

2. Come up with a long term plan for managing invasives on the site.

As Benjamin Franklin said “An ounce of prevention is worth a pound of cure”.

Prioritize locations and species while taking into account:

- Severity of infestation
- Degree of the species invasiveness
- Feasibility of control
- Value of habitat at risk

“Optimize” treatment timing and technique (this is often species specific based on the life cycle of the plant. Evaluate, measure, and document your success!



Figure 1. A free vehicle and recreation equipment washing station (invasive.org)

3. Monitor disturbed locations and high risk areas regularly.

This is especially important following natural disasters like floods or tornados as well as major development or maintenance projects. Monitor areas that are free of invasive species but are near infested sites.

4. Require contractors to follow BMPs.

Incorporate BMP requirements into RFPs and contracts. Inspecting and documenting infestations before and after contractor activity is smart. Ask for guarantees or make-good provisions.

5. Educate your neighbors and recreational users on Invasive Species BMPs:

Provide basic education when possible:

- What are invasive species?
- Why are they bad?
- How to identify key species and how they spread

Provide cleaning stations at key entry and exit points. This can be as simple as a boot brush for foot traffic but needs to be more substantial for equipment and vehicle cleaning (Figure 2). Regulate entry of infested material when possible (campfire wood, hay, bait, etc.).

cont'd on page 12

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Plan Now, Benefit Later (cont'd from page 8)



Figure 2. A boot brush station and invasive species prevention sign at a state forest in Pennsylvania. (dcnr.state.pa.us)

In addition to the BMPs, look for funding opportunities, partnerships, and volunteers to assist in preventing and reducing invasive species. Work goes faster and is more fun when working in a group! Working to control invasive plants can be frustrating at times, but by understanding the invasive species you are dealing with and by implementing invasive species BMPs you can work smarter and more strategically to reduce their spread.

To view and print the BMPs visit the Invasive Plant Advisory Committee's website www.entm.purdue.edu/iisc/index.php and click on the blue BMP tab.

For trusted sources of native seeds visit the INPAWS webpage www.inpaws.org/landscaping/sources-of-indiana-native-plants/.

Alexandra Wardwell is the Project Director of Southern Indiana Cooperative Invasives Management or SICIM. SICIM is a non-profit cooperative weed management area that covers 35 counties in southern Indiana. For more information about SICIM please visit our website www.sicim.info.

*Persimmon (cont'd from page 5)**Table 1. Common physical and mechanical properties for selected woods.^{4,5/}*

Species	Total Shrinkage		Density ^{1/}	Mechanical Properties ^{2/}		
	Radial	Tangential		MOR ^{2/}	MOE ^{3/}	Shear ^{4/}
	-----percent-----		Lbs./ft.	psi	million psi	psi
Persimmon	7.5	10.8	52	17,700	2.010	2,160
Walnut	5.5	7.8	39	14,600	1.68	1,370
Northern Red Oak	4.0	8.6	44	14,300	1.82	1,780

interior of the piece turning dark brown. Mottling of the white and brown is probably more likely to happen. The usually small heartwood, or areas around knots or other wounds, are black. This species is a member of the ebony family, and some woodworkers use the black wood (when large enough) as a substitute.

Workability

The machining characteristics of Persimmon have not been carefully documented. As a hard dense wood, it should turn well and take a fine polish. It is reported as a hard to glue species.

Steam Bending

The steam bending characteristics of persimmon have not been carefully documented.

Drying

Dry kiln schedules are reported for 4/4 through 8/4 stock as well as for golf club heads and shuttles. The wood is intermediate in its ability to dry without serious defects. Checking may be an issue.

Strength

At 12 percent moisture content, the wood weighs 52 pounds per cubic foot making it one of our heavier woods. The mechanical properties based on five trees from Missouri are relatively high. (Table 1).

Shrinkage

The total volumetric shrinkage from green to oven-dry conditions is 18.3 percent or one of the highest for our domestic woods. The radial and tangential shrinkage are likewise high. The senior author has experienced excessive warping during drying, probably due to the high shrinkage.

Decay and Insect Resistance

Being mostly sapwood, the species will have no decay or insect resistance. Wood borers in stored products can be an issue.



Figure 1. Wood samples. The boards referenced in the text are 1 through 5 from left to right. A colored photo is on page 30 at https://www.extension.purdue.edu/extmedia/FNR/FNR_270.pdf

Grading and Value

The species is not mentioned in the National Hardwood Lumber Association Rules for the Measurement and Inspection of Hardwood and Cypress. Therefore, if it were to be graded the “standard” rule as described in the rules book would apply.

Wood Samples

Figure 1, made up of several pieces of Persimmon lumber, demonstrates the variation in color and streaking that can occur. Board five (far right) is only partially surfaced. The unsurfaced white to light yellow center bottom portion is the color of unstained sapwood. The surface of the board dried rapidly and did not stain. Just beneath the surface, drying was not as rapid and the wood oxidized or stained to the brown color seen. The brown color was exposed as the board was planed. The nearly black wood at the bottom center of board 5 is heartwood. Heartwood is also evident at the bottom of board 3 and the small knots in board 4 are also black heartwood. Board 2 is stripped or variegated as is the large knot at the top of board 5 due to

Persimmon (cont'd from page 13)

different degrees of stain as affected by how the piece dried. The horizontal somewhat white marks near the middle of board 3 and 4 are sticker marks. This is where a narrow strip of wood was placed to allow the boards to dry. In this case moisture moved from the wet board to the dry sticker allowing the board to retain its white color deeper into the piece.

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As costs continually increase the Indiana Woodland Steward committee looks for new less expensive ways to deliver our newsletter. The most cost effective way is through electronic media, internet and email. With this in mind we have a web site at www.inwoodlands.org that mirrors the newsletter. It contains the same articles but with color photos when available. Usually the website edition comes out ahead of the printed version. All the past articles are archived with some additional information that is not included in the printed edition.

An electronic copy of the newsletter is also sent to those that sign up for the email copy. This email is a link back to the website article by article. The email is an early notification that the newsletter is ready to read. There is also a pdf copy of the newsletter available for those that want to print or electronically save the newsletter. To signup for the email, navigate to www.inwoodlands.org, select "Contact Us", then click on the "join our free emailing list" button. Fill out the information as requested. Your information is held private and we will not send any spam. If you want to get the newsletter quicker, save some money in our printing and mailing costs, subscribe to our free email list.

The Southern Indiana Cooperative Invasives Management (SICIM) will hold its Annual Meeting on Wednesday, March 4, 2015 in Bedford. The day will include presentations about Kudzu identification and control efforts in Indiana, the new Wild hog eradication project in Indiana, and an update from the state's Invasive Plant Advisory Committee and the new internet reporting system for invasives in Indiana: ReportIN!. Anyone is welcome to attend the meeting to learn more about SICIM and invasive species management.

For more information check the SICIM website at www.sicim.info.

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Ask the Steward

By Dan Ernst



Question: I'm planting a few acres to trees in 2015 and would like to mix in some pine trees in the planting. What species of pine are native to Indiana?

Answer: When restoring forest and woodlands, even on a few acres, it is always preferable to plant native species. In Indiana you have plenty to choose from. In total there are over 100 native tree species. Most all these are deciduous (hardwood) trees, which lose their leaves every fall. As for pines, while there are many species planted in Indiana only three are actually native to the state. These are White pine, Virginia pine and Jack pine. White pine is the most widely planted of the two native species and while its native range is Northwest and West Central Indiana it does well throughout much of the state. They have long slender needles 3-5 inches in length that grow in bundles of five needles per bundle. Armed with this defining characteristic you can easily identify this species on close inspection. On good sites they will easily grow over 70 feet tall and diameters greater than 24 inches.

Jack pine is often described as small or scrubby tree and in Indiana is generally less than 40' tall. It is a common pine in the lake states, but here it is found naturally only in the sand dune areas of Northwest Indiana. It is most commonly found on infertile, sandy soils.

Virginia pine is more a Southern species and its native Indiana range includes Clark, Floyd, Scott and Washington counties. While White pine prefers, and does best on productive, well drained soils, Virginia pine is naturally more

common on, and grows well on drier and more harsh sites. This is part of the reason this species was planted by the millions to heal gullied, worn out and eroding hillsides and ridges in Southern Indiana in the 1930-1970's. They did a great job and few of these old scars are readily apparent today. None of these pines do well on wet and poorly drained sites. Virginia pine does not have the majestic appearance of mature White pine, but can grow to 60 foot heights. They are somewhat prone to wind throw, but certainly have their place.

And, that leads to the best advice of 'planting the right tree in the right place'. While White pine would certainly be the most common of Indiana's native pine trees to mix in your reforestation project-check with a forester in your area to see if it is the right choice for your site. The website www.findindianaforester.org is a great spot to find a forester in your area.

Question: I usually start seeing buzzards around Valentine's Day and it seems like there are more of them now than when I was younger. Where do they migrate to and are their numbers going up?

Answer: With a wing span of nearly 6 feet the buzzard is an impressive sight in the sky, but it's perhaps better known for its ugly bare-skinned red face. The bird we simply call a buzzard- is properly known as the Turkey Vulture, or commonly the Turkey Buzzard (scientific name *Cathartes aura*). Male and female birds look quite similar, with the female somewhat larger in size.

In Northern parts of its range it migrates as far as South America, but generally

not beyond the United States. They return in time for mating season (March-May), generally laying 2 eggs which hatch in 30-40 days. Hinkley, Ohio celebrates the first Sunday after March 15th as "Buzzard Sunday" as the buzzards return from their winter homes bringing a sure sign of spring to the Midwest. In some locations of Southern Indiana you may see buzzards as early as late January- perhaps even a few in the extreme South part of the State staying throughout mild winters.

It is one of the few birds of prey using the sense of smell to find its meal. Its' keen senses detects the gas of decaying carrion at significant distances. Turkey vulture populations are increasing as their range extends further north. Today the population is estimated at over 4.5 million birds.

I remember quite clearly my 1st close encounter with a nesting buzzard. It was in Jackson County, Indiana as I visited a woodlot with a landowner seeking advice on its management. As we walked near a large hollow beech log we heard an odd hissing sound. I bent over the log's end to get a better hear and what to my bugged eyed face should appear, but a momma buzzard heading out of that log in full feathered gear. I believe we were more startled than her! Off she went and in we looked at the nest holding the characteristic 2 eggs. It was a memorable day.

Dan Ernst is an Assistant State Forester with the Indiana Division of Forestry. He oversees the state forests in Indiana and has authored the "Ask the Steward" column for years. Have a question for the column? Email Dan at dernst@dnr.in.gov.



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Thank you to all the supporting SWCD's. Without your support many landowners in Indiana would not receive the Woodland Steward Newsletter.



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