Crowe Forest Management, LLC

Tom Crowe - Forester
14707 Bobcat Court
Leo, IN 46765-9350
(260) 627-0352 cell: (260) 704 1655

January 18, 2014

Halderman Real Estate Services
c/o Jon Rosen
230 South State Road 15
Wabash, IN
1-800-424-2324 or 260-740-1846 (Jon Rosen)
jonr@halderman.com

ART LAMLE TIMBER APPRAISAL
and
MANAGEMENT RECOMMENDATIONS
Tract 3: 26 +/- Acres

The following report will describe the timber on the approximately 26 ± acres of woodland located on Tract # 3 and appraise the 2014 merchantable timber value as of January 15, 2014. Three wetland areas in the woodland measuring approximately 2.2 acres are too wet to support timber leaving approximately 23.8 acres producing timber with the total tract being approximately 26 ± acres. The estimated acreage, 26 acres, in the woods was provided by Halderman Real Estate Services and was confirmed to be similar based on the county assessor's records, FSA records, and aerial photographs.

Classified Forest Program: This woodland is not enrolled in Indiana's Classified Forest Program. This is an excellent program that provides technical assistance and property tax abatement (taxes reduced to pennies an acre) to forest landowners. I recommend enrolling this woodland into this program.

SITE DESCRIPTION

Location: This woodland is located in section 3, Lake Township, Allen County, Indiana. Township-31-North, Range-11-East. The woodland is located on the east side of Felger Road, approximately ¼ mile south of U.S. 33.

Watershed: This woodland is located Eel River watershed of the Wabash River watershed. The Wabash flows into the Ohio River then the Mississippi River before entering the Gulf of Mexico.

Soils: According to the Allen County Soil Survey, the main soil types in this woodland are Blount silt loam (approximately 8 acres), Rawson loam (approximately 7 acres), Pewamo silty clay loam (approximately 5 acres), and Houghton muck (approximately 6 acres).

Soil Description: The Rawson soil is a deep moderately well drained soil located in the higher areas of the woods. The Blount soil is a deep, somewhat poorly drained upland soil. These are productive forest soils that are capable of growing most hardwood species. The Pewamo soil is a deep, poorly drained mineral soil located in the lower areas of the woods. This soil, although productive is limited to water tolerant species due to excessive wetness. The Houghton soil is a deep, very poorly drained organic soil located in the low area in the southwest corner. This soil is very productive although it is severely limited to water tolerant species due to excessive wetness. In addition trees in this area are prone to blowing over due to the wetness and a lack of soil structure. Soft maple and dead ash are the main species present on the Houghton and Pewamo soils with some swamp white and burr oak and cottonwood.

Soil Productivity: The site index for Rawson soil is 75 for white and 80 for red oak. The site index for the Blount soil is 65 for white and red oak. The site index for the Pewamo soil is 71 for green ash and red maple. The site index for the Houghton soil is 51 for red maple and green ash. Site index is a measure of the height of the dominant stand of trees at 50 years. In general, the greater the site index, the taller the trees, and the more volume produced therefore the side is more productive.

WOODLAND DESCRIPTION

Woodland History: A timber harvest appears to have been conducted a few years ago, likely within the last 5 years, although it was difficult to evaluate the exact timing due to the heavy snow cover at the time of the inventory. The harvest concentrated on the larger, better quality white oak and burr oak with most of the harvesting occurring on approximately 5 to 7 acres located in the north central portion of the woods. There were several white oak trees that apparently were marked for harvest that were then excluded from harvest for some reason. Most were located south of the central wet area. Most of the trees that were unmarked measured 27 inches, DBH (diameter at breast height) or larger.

Current Condition: This oak – hickory woodland is generally well stocked with good quality timber. The current stand includes approximately 44 merchantable trees per acre with an estimated volume of approximately 8900 board feet, Doyle per acre. The merchantable trees generally range up to 36 inches, DBH (diameter at breast height). The overstory is dominated by white oak and shagbark and pignut hickory in the upland areas. Other trees present in the overstory in the upland areas include burr and chinquapin oak, red and black oak, red and American elm, bitternut hickory, beech, dead white ash, basswood, black cherry, black walnut, and sugar maple. The understory in the upland areas are dominated by elm and Asian bush honeysuckle (especially to the north in the previously harvested areas) with some ironwood, black cherry, hickory species, red and sugar maple, and beech and a few basswood, red and black oak, hackberry, and black walnut. Asian bush honeysuckle was present in every upland plot with

multi flora rose and spicebush present in many plots. The current coverage of bush honeysuckle falls in the 40 to 60 percent range with areas to the north having the heaviest infestation.

The overstory in the depressional areas is dominated by soft maple, cottonwood, and burr and swamp white oak. Additional species present include willow, American elm, hackberry, pin oak, sycamore, and dead green ash. Understory species include elm, red maple, blue beech, spicebush, cottonwood, willow, and a few burr and swamp white oak. There are a few Asian bush honeysuckles in the depressional areas with current coverage of approximately 10 percent.

The trees are generally in good condition with the exception of the ash (mostly dead or infested with emerald ash borers), some defective (hollow trunks) soft maple, a few dead elm (Dutch elm disease), some dead black oak (two-lined chestnut borer and hypoxylon canker), and a few white oaks with weak crowns (two-lined chestnut borer). Two-lined chestnut borer is a native insect that most healthy trees are able to withstand. Suppressed or stressed trees show top dieback and eventually may be killed. If infested trees are removed and the residual trees are healthy the problems are generally minor.

MANAGEMENT RECOMMENDATIONS

Timber Harvest: A recommended timber harvest has been marked at this time. The potential harvest trees are marked with one spot of orange paint on two sides of the trees plus with a spot at the base. "X" trees are marked with an "X" on two sides with a spot at the base.

Tree Selection: The harvest was marked with the objective to improve the long-term health and productivity of the woods. As a general rule trees are selected for harvest based on their problems or risks or because they are adversely affecting better, future crop trees. Trees that have reached their peak are selected and trees that have good potential or are providing a good return on their investment are left to be harvested in the future. High quality, high valued species or trees are the most valuable but they also provide the best return on investment (often over 10 % annually). In general, when selecting trees to be harvested it should be based on their potential or lack of potential (percent return on investment) instead of current value.

Specifically the harvest concentrated on salvaging the dead ash, other dead or damaged trees, and trees affected by pathogens (two-line chestnut borer and hypoxylon canker) and reducing the number of slow growing, relatively low value hickory and lower quality trees or lower value trees (cottonwood). In addition there are some oak and maple species and the black walnut that are mature and have reached their biological or economic potential.

Single trees and groups of trees are marked for harvest to meet different management objectives. Single trees are selected for harvest if they have problems (dead, damaged, defective, high risk or show signs of a significant pathogen such as two-lined chestnut borer), if they are competing with more desirable future crop trees, or occasionally if they have reached their potential. Essentially single trees are selected to improve the health and vigor of the woods. Group of trees included in a harvest are selected to promote desirable natural regeneration. Most of the desirable species (including the oak species, walnut, cherry, and soft maple) require openings

with enough sun light to allow them to regenerate. If openings are not created in the canopy the woods will gradually convert to a shade tolerant sugar maple and beech stand of trees. The recent timber harvest removed most if not all the oak from a 5 acre area north of the central wetland leaving most of the slow growing, lower value hickory to occupy the site. We marked many of this hickory at this time to create the condition that promotes desirable oak regeneration. There are also several smaller groups of 8 to 15 trees that were marked to create openings in other areas of the woods. These openings also create structure in the stand that creates cover to improve habitat for many species of wildlife including deer and turkey.

Marked Timber: The recommended harvest includes 304 tallied (spotted) trees with an estimated volume of 89,379 board feet, Doyle. In addition there are 97 "X" trees marked to be included with the sale. "X" trees are dead, damaged, defective, poorly formed, or small trees that contain little to no merchantable timber that are competing with desirable trees or facilitate the removal of the harvest trees by providing a place to fell the harvest trees with little to no damage to the higher value residual trees.

The main species included in the sale are shagbark hickory (62 trees + 32 "X" trees, 8392 board feet), pignut hickory (50 trees + 20 "X" trees, 7076 board feet), white oak (54 trees + 5 "X" trees, 21078 board feet plus 852 board feet of potential veneer), soft (red and silver) maple (37 trees + 6 "X" trees, 14566 board feet), black oak (33 trees + 5 "X" trees, 9216 board feet), white (green) ash (14 trees + 21 "X" trees, 2553 board feet), swamp white oak (15 trees, 6284 board feet), burr oak (14 trees, 9644 board feet), cottonwood (11 trees + 1"X" tree, 5575 board feet), red oak (2 trees, 1088 board feet) and black walnut (1 tree, 479 board feet). In addition there were a few pin oak, bitternut hickory, hackberry, basswood, beech, American elm, black cherry, and sycamore included in the harvest.

A complete listing of all the trees included in the harvest is provided at the end of this report. Future harvests should be held at intervals of approximately 10 years, depending on the landowner's objectives and timber markets.

Selling Timber: Although the trees have been marked for sale and their stumpage value appraised the marketing of the trees can significantly impact the price obtained for these trees. The timber should be sold using a sealed competitive bid sale open to reputable timber companies from this region. It is important to understand that each species of tree has a different value, (often significantly different) and the quality of the tree also significantly impacts the trees value. Often the top ten percent of the trees bring half the total value associated with a timber sale. If these higher value trees are the only trees harvested the long term productivity of the woods suffers significantly. It also often makes it more difficult to market the lower quality / value trees. Our cost to conduct the sale of the marked timber and provide the timber sale contract would be between $400 and $700, depending if we oversee the logging operation.

The value of the dead ash will continue to decline, however the current value is relatively low (approximately $500 at this time). Because the value is relatively low, it would be advantageous to control the invasive bush honeysuckle prior to the harvest. Bush honeysuckle thrives on disturbances with the spread and cost of control increasing significantly after harvesting.

Additional information regarding the how to sell timber can be found in Purdue FNR –138 publication – "Tips On How To Get The Most From Your Timber Harvest" by William Hoover and Jack Siefert.

Income Tax: Because timber is considered real estate**, it may be possible to avoid much of the income tax on a timber sale by depleting the value of the property.** A forester or tax accountant familiar with timber taxation can advise you on how this is accomplished. Further information may be obtained at: www.timbertax.org

Invasive Species Control: Prior to any harvesting it would be extremely beneficial to control the invasive Asian bush honeysuckle in the woods. Bush honeysuckle is a severe threat to the long term health and productivity of this woodland and should be controlled immediately.

Asian bush honeysuckle is a significant threat, because the plant is allelopathic. Allelopathic plants produce chemicals that stunt the growth of other plants. Research indicated that **the growth of the over story trees can be reduced by up to 40 percent by bush honeysuckle.** To combat the spread of invasive species, the first step is to control any that are going to seed. These plants should be killed by cutting them and treating the stumps with herbicide before any additional seed can be produced. This work should be done as soon as possible to prevent further spread of the invasive species. Follow up treatments will be necessary to control sprouts and new seedlings for the next few years until the seed bank is destroyed. The seed viability is relatively short (less than 1 year) therefore foliar herbicide application on the smaller plants is recommended for 2 additional years. Future inspections and treatments should be done every few years to prevent seed production. Cost share assistance should be available thru the USDA – Natural Resource Conservation Service office in Allen County. The cost share should cover most of the cost of this work.

Timber Stand Improvement: After or even before a timber harvest is complete the woods would strongly benefit from timber stand improvement (TSI). TSI essentially is the weeding of less desirable trees from the woods to improve the growth and quality of the residual stand and to improve the regeneration of desirable species. Cost share assistance is also available to complete this work. Cost share assistance, if funded should cover most of the cost of this work.

APPRAISAL PROCESS

Timber Inventory: A 100 percent inventory of the trees marked for harvest was conducted in this woodland. The residual timber was inventoried using the Horizontal Point or Variable Plot Radius Sampling Method. Sample plots were systematically selected in order to obtain a random yet evenly distributed sampling of the woods. Trees were measured in two-inch DBH increments, considering all merchantable trees within the sample with a diameter at breast height of 11 inches or greater. Efforts were made to adjust the volume of the timber to allow for defects in the trees. These adjustments are based on observable defects and holes, sounding the trunk of the trees, and evaluating the trees for excessive taper often due to hidden defects.

A total of 28 plots were measured to determine the residual timber in the approximately 23.8 acres containing merchantable timber in the 26 $\pm$ acre woods. The total acreage was provided by

Halderman Real Estate Services based on county assessor's reports and FSA reports. The acreage containing merchantable timber was determined by on-site notes and aerial photo measurements.

This inventory yields per acre board foot volumes and number of trees per acre by species and DBH class. To expand these per acre totals into tract totals we used acreage figures that we obtained from aerial photo measurements and on-site inspection. The results of the inventory can be found in the tables found at the end of the report. The first table shows the estimated volume and number of merchantable trees marked for harvest by species. The second table shows the estimated volume and number of merchantable trees that would make up the residual stand if the harvest is completed.

Valuation Process: To determine the January 2014 fair market stumpage value for the merchantable timber in these woods I used a combination of two different methods. A board foot value for individual species was used to convert the volume to value. These values were based on numerous discussions with buyers in the timber industry located in northeast Indiana. In addition the results from 14 comparable timber sales that I have conducted for private landowners in this marketing area were used to evaluate the values obtained using the direct pricing. Tree species, quality, and size, woodland size, location, and accessibility where factors considered when selecting comparable sales and determining a value per thousand board feet.

There are several reasons why the sawtimber value varies for the recommended harvest and the residual timber. The recommended timber harvest is an improvement / salvage (ash) harvest with many of the higher quality trees remaining in the woods. The main factor is that the white oak component in the harvest (24 %) is much less than the amount in the residual stand of timber (63 %). The sizes of the trees in the residual stand are smaller but they are generally better quality trees, as these residual trees continue to grow they will increase in grade resulting in an increase in the value per board foot.

Appraisal Summary: Based on my knowledge of the recent timber sales and the timber inventory, I estimate that the January 2014 stumpage value of the timber in the estimated 26 ± acre woodland located on Tract # 3 to be as follows:

RECOMMENDED HARVEST

2014 Estimated Sawtimber Board Foot Volume, DOYLE	**89,379 board feet**
2014 Estimated Sawtimber Value per Thousand Board Feet	**$ 350/MBF**
2014 Estimated Value of the Recommended Harvest	**$ 31,283**

RESIDUAL TIMBER

2014 Estimated Sawtimber Board Foot Volume, DOYLE	**123,180 board feet**
2014 Estimated Sawtimber Value per Thousand Board Feet	**$ 375/MBF**
2014 Estimated Value of the Residual Timber	**$ 46,193**

TOTAL ESTIMATED CURRENT STUMPAGE VALUE $ 77,476

Additional information regarding timber prices and trends in Indiana can be found in Purdue FNR – 177 W – publication which is available on the internet through the Purdue extension website or the Woodland Steward Website: www.inwoodland.org

If you have any questions regarding the information or recommendations in this report don't hesitate to contact us at any time. The best way to reach me is on my cell phone at 260-704-1655 or via email at toms.trees@hotmail.com

Respectfully submitted,

Tom Crowe

Tom Crowe
Crowe Forest Management, LLC

Tables: Recommended Timber Harvest and Residual Timber
Additional "Statement of Assumptions and Limited Conditions"

Recommended Timber Harvest:

"X" TREES	SPECIES	# TREES	EST. BOARD FEET DOYLE	BF/Tree
5	White oak	54	21078 + 852 veneer	390
6	Soft maple	37	14566	394
0	Burr oak	14	9644	689
5	Black oak	33	9216	279
32	Shagbark hickory	62	8392	135
22	Pignut hickory	50	7076	142
0	Swamp white oak	15	6284	419
1	Cottonwood	11	5575	507
21	White ash	14	2553	182
0	Pin oak	4	1288	322
0	Red oak	2	1088	544
0	Bitternut hickory	3	614	205
0	Black walnut	1	479	479
0	Hackberry	1	359	359
1	Basswood	1	137	137
0	Beech	1	137	137
2	American elm	1	41	41
1	Black cherry	0	0	0
1	Sycamore	0	0	0
97	Totals	304	89379	294

Four white oaks contain an estimated 852 board feet of potential veneer

Residual Timber after Recommended Harvest:

SPECIES	# TREES	EST. BOARD FEET DOYLE	BF/Tree	% TREES	% VOLUME
White oak	264	75691 + 1613 veneer	293	42%	63%
Soft maple	120	14583	122	19%	12%
Shagbark hickory	99	10647	108	16%	9%
Burr & Swamp wh. oak	23	7358	320	4%	6%
Pignut hickory	60	6060	101	9%	5%
Black oak	20	3269	163	3%	3%
Basswood	18	1887	105	3%	2%
Red oak	12	1453	121	2%	1%
American elm	17	619	36	3%	1%
Totals	633	123180	195	100%	100%

- Thirteen white oaks have an estimated 1613 board feet of potential veneer.

Additional species were present in the woods in small numbers that did not fall in an inventory plot. These species include pin oak, beech, black cherry, black willow, cottonwood, red elm, sycamore, black walnut, chinquapin oak, and hackberry.

Statement of Assumptions and Limited Conditions:

No responsibility has been assumed for legal matters, nor title opinion rendered on this property or its timber in the appraisal. Liens and encumbrances have been disregarded in the appraisal. The sawtimber has been appraised as though free of indebtedness.

Location of property lines and acreage were established from the best available information. No land surveying was contemplated or conducted during the appraisal project. Therefore, no responsibility is assumed for correct location of parcels or land area.

It is assumed that legal rights-of-way are in existence or can be obtained to all parcels included in this appraisal.

Although all information contained in this report is believed to be correct, no guarantee or assumption of liability regarding the information is intended.

Delivery of this report concludes this specific work assignment from the client requesting the appraisal.

Possession of this report does not include the right of publication. Its use is not intended for any other purpose than those of the client requesting the appraisal without written consent of the appraiser, and in any event, only in its entirety. If values in this report are used in making appraisals by a combination of values produced by other persons, then this appraisal becomes invalid.