Woodland Stewardship Management Plan

PEER FAMILY
FORESTRY CONSULTING
LLC

Owner's Information:

Owner: James Michael & Jana L Milligan

Farm Bill Program: 2018 Farm Bill

Signed:

Date: 4/1/2024

County: Athens

Case Number: 05-1462

Contract Number & Item Number: 745E342302Q

Preparer's Information:

Prepared by: Jake Peer, ACF

TSP Number & Expiration Date: TSP-21-23497 6/28/2024

I, as a TSP for NRCS Farm Bill Programs, certify that services provided: comply with all Federal, State, Tribal, and Local laws and requirements; meet applicable program requirements and recommended planned practices are based on NRCS conservation practice standards and specifications; are consistent with and meet the conservation program goals and objectives for which the program contract was entered into by the client; and incorporate alternatives that are both cost effective and appropriate to address the resource issues.

Signature:

Jake Peer, ACF
Peer Family Forestry Consulting, LLC
3829 Washington South Road
Mansfield, OH 44903
740-801-0458, jake@peerfamilyforestry.com

Date: March 15, 2024

NRCS Representative Signature:

Date:

This plan is valid for the period beginning 3/15/2024 and ending 3/15/2034

Plan Status: New

CPA 106 Forest Management Plan Template FFY23

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CPA 106 Forest Management Plan Template FFY23

Woodland Stewardship Management Plan

Owner	James Michael & Jana L Milligan		
Address	4040 Lyon Drive		
	Columbus, Ohio 43220		
Phone		Case Number	05-1462
Cell	614-582-3800	Email Address	mike@jmmarch.com
County	Athens	Township/Village/City:	Bern Township
Parcel(s):	D010010004501, D010010004708, D010010004709, D010010004807, D010010012104, D010010012106, D010010012404, D010010004507, D010010004711, D010010012405, D010010012100, D010010012102, & D010010012200		
Location:	14400 Tick Ridge Road		
	Amesville, Ohio 45711		

Woodland Stewardship Acreage: 633.4 Non-woodland Stewardship Acreage*: _____

Total Property Acres 639.575

* Non-woodland acres for which stewardship recommendations are made.

This plan was written to qualify the landowner's woodland for the programs checked below:

☐ Ohio Forest Tax Law ☒ American Tree Farm Program

☒ Environmental Quality Incentives Program (EQIP) ☒ Current Agricultural Use Valuation

Property coordinates (report in WGS 84, decimal degrees.)

Longitude: -81.893079 Latitude: 39.390127

Landowner Objectives

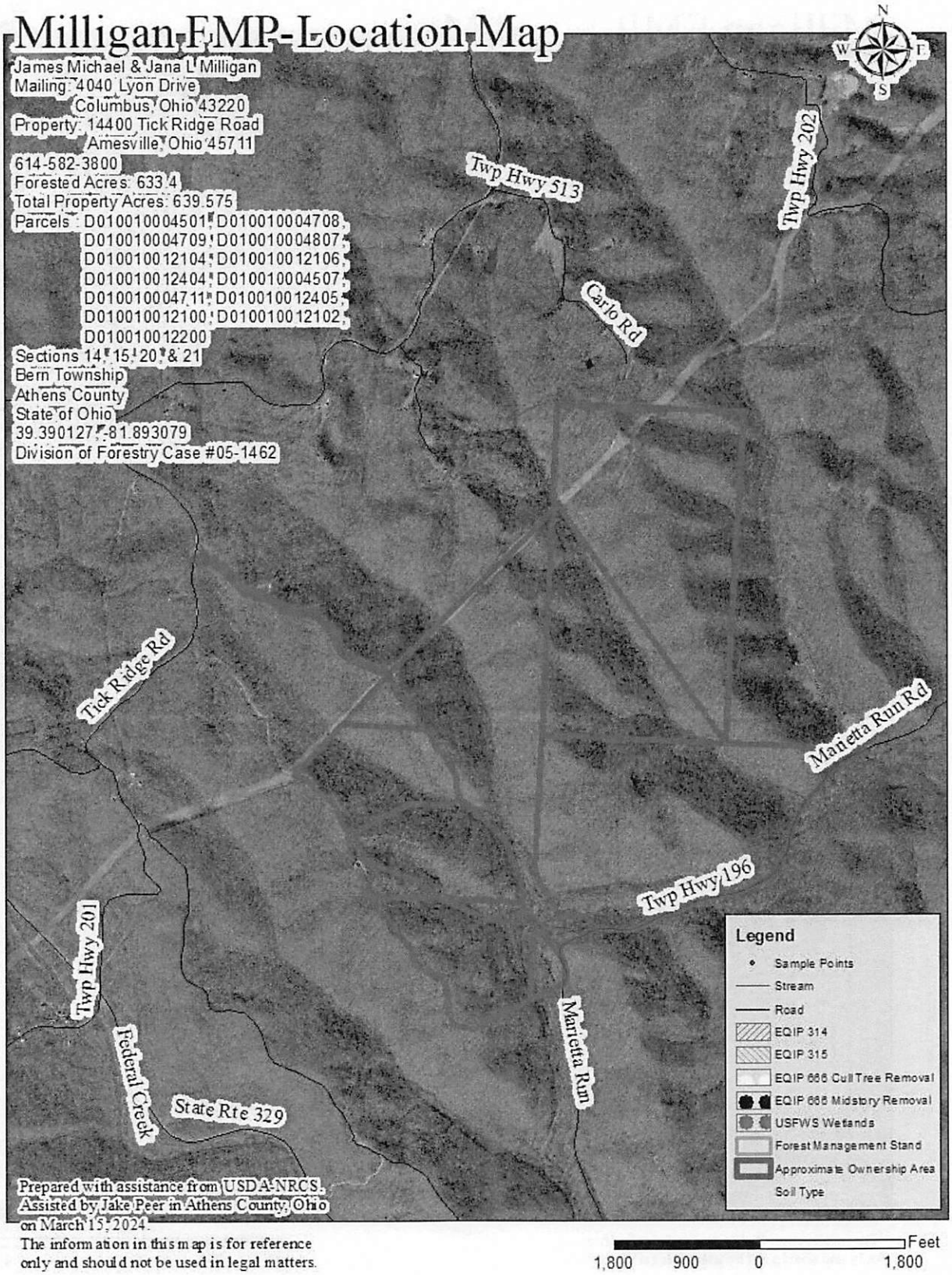
1. The production of maple sap to be used in the syrup making process.
2. Productively grow quality timber.
3. Provide habitat for a diversity of wildlife.
4. Improve the health and productivity of the forest.

General Woodland Description

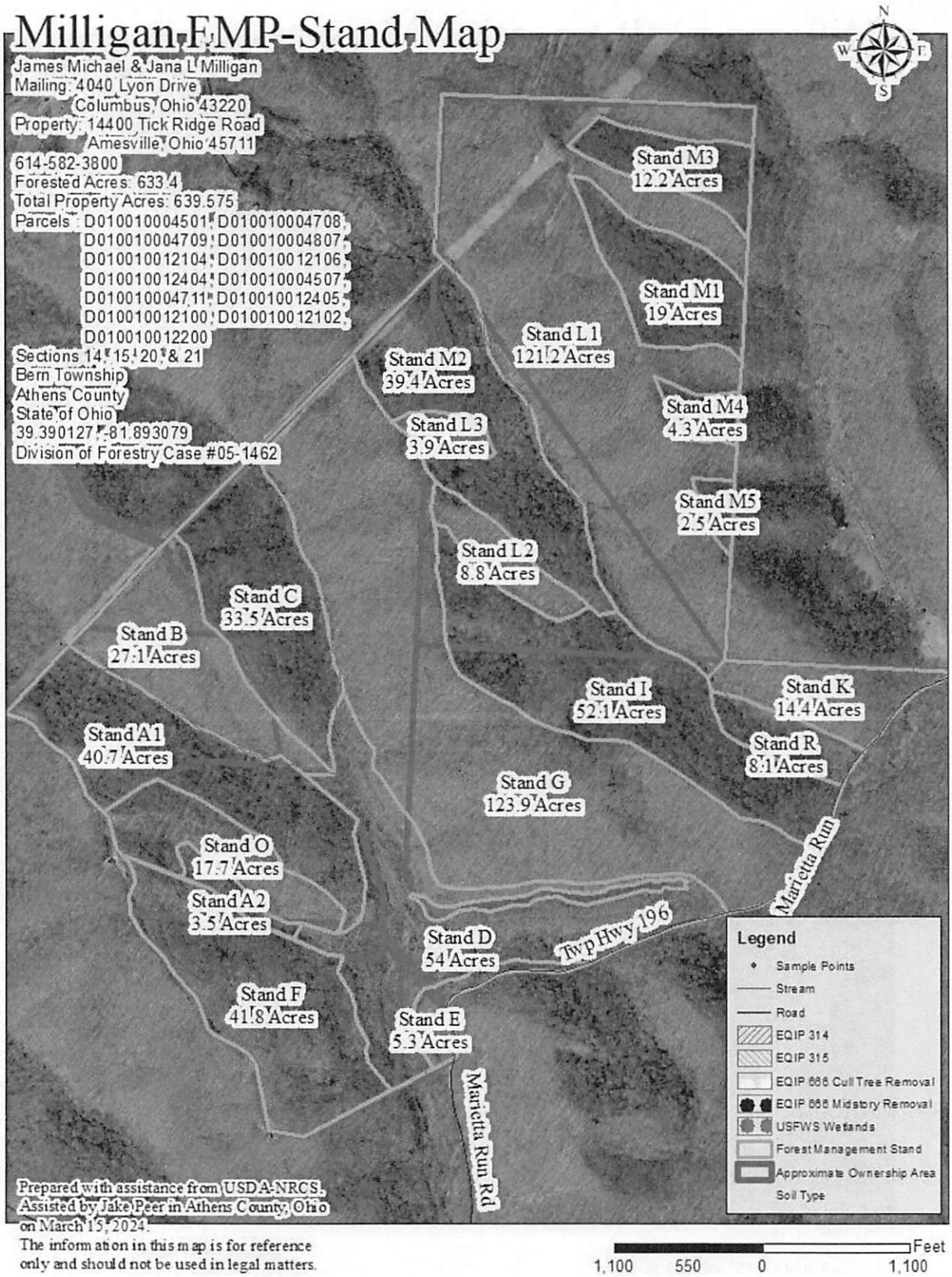
This is a large property that the landowners have acquired over the years. The primary use of the property is the collection of maple sap for syrup production. There has been control of wild grape and Ailanthus done on the property, but there are still issues with non-native invasive plants on the property. The property has a history of timber harvesting by the current and previous landowners. The forest type across much of the property is upland central hardwoods.

Inventory Method: Point Sampling *It should be noted that the timber inventory is rather light in some parts of the property. The recommendations in the stands were not greatly influenced by the inventory values. In small stands especially, the standard error can be rather wide. The tract summary is at the end of this plan and gives a more accurate representation of the timber volumes across the property. Note the stand names are not sequential because additions and deletions of stands were made during the process of writing the plan.

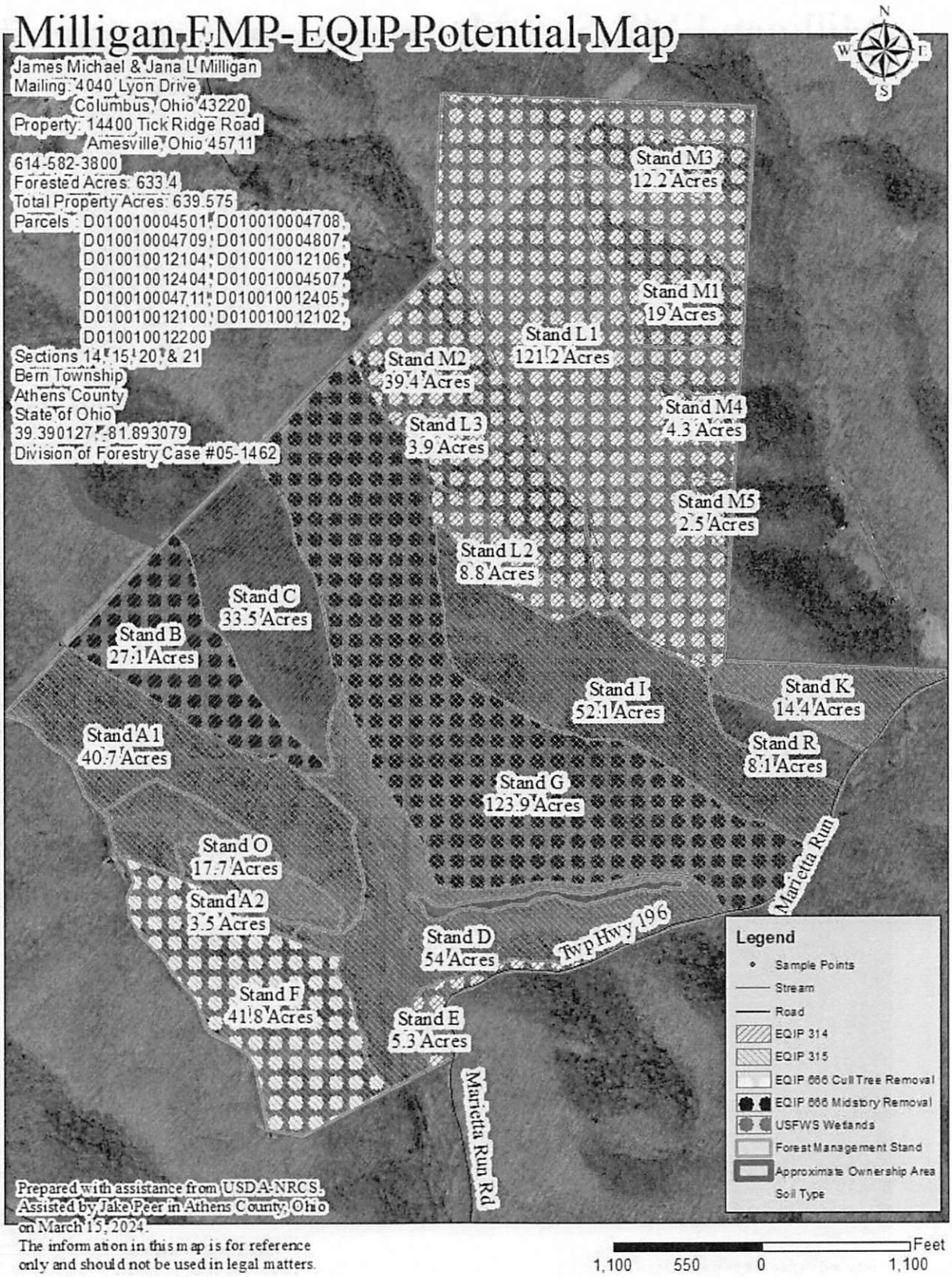
General Location Map



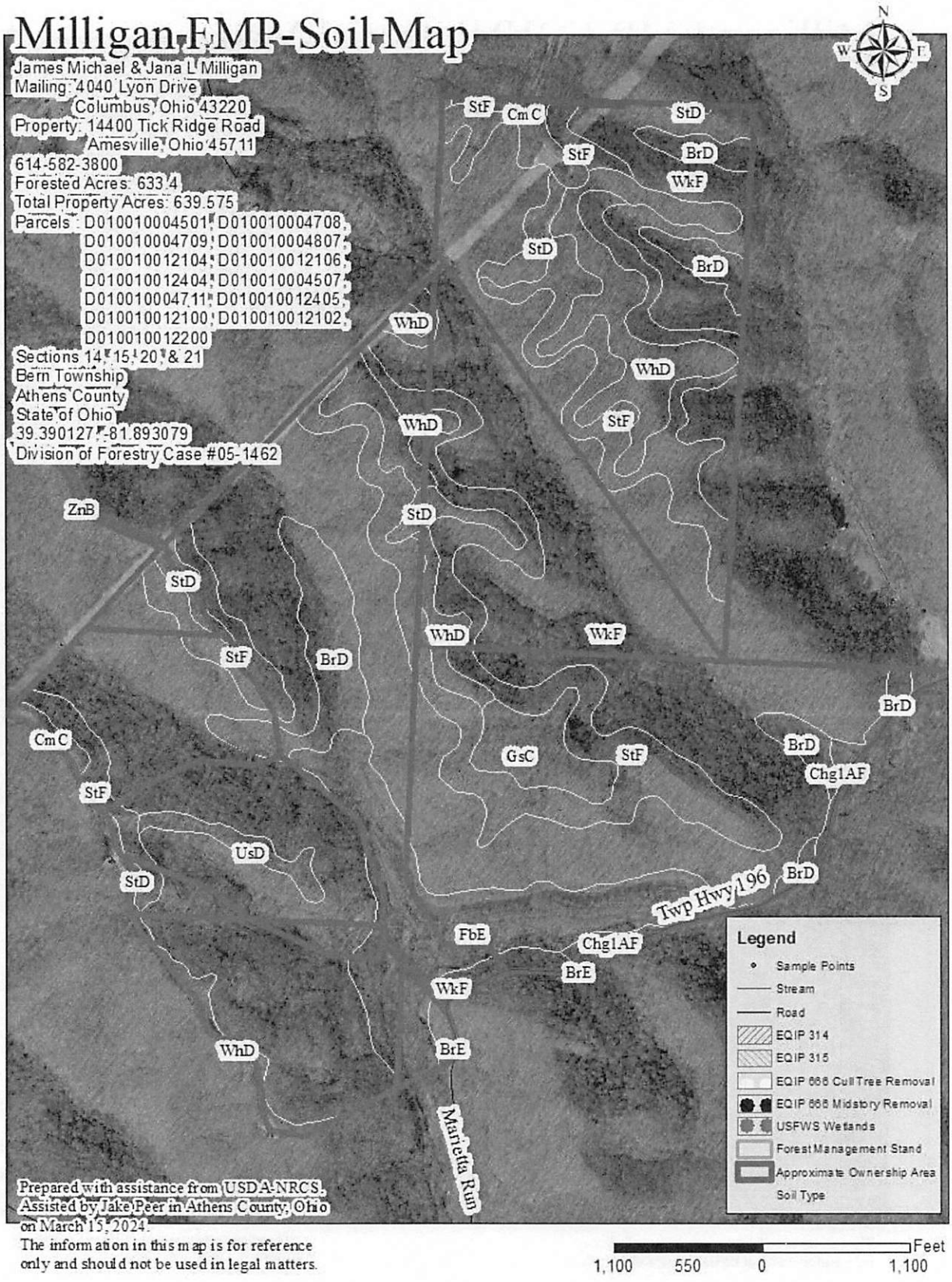
Woodland Stand Map



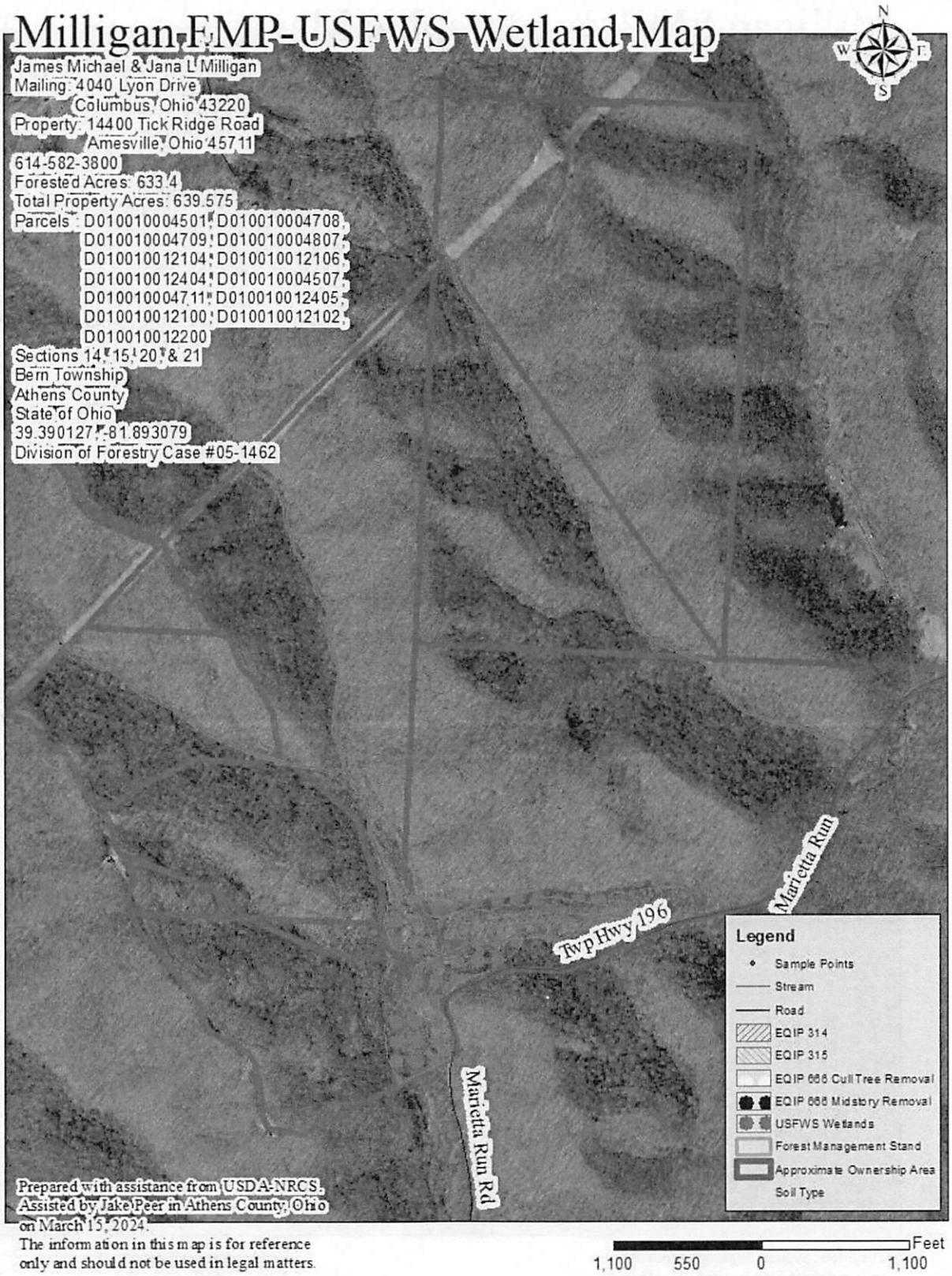
EQIP Potential Map



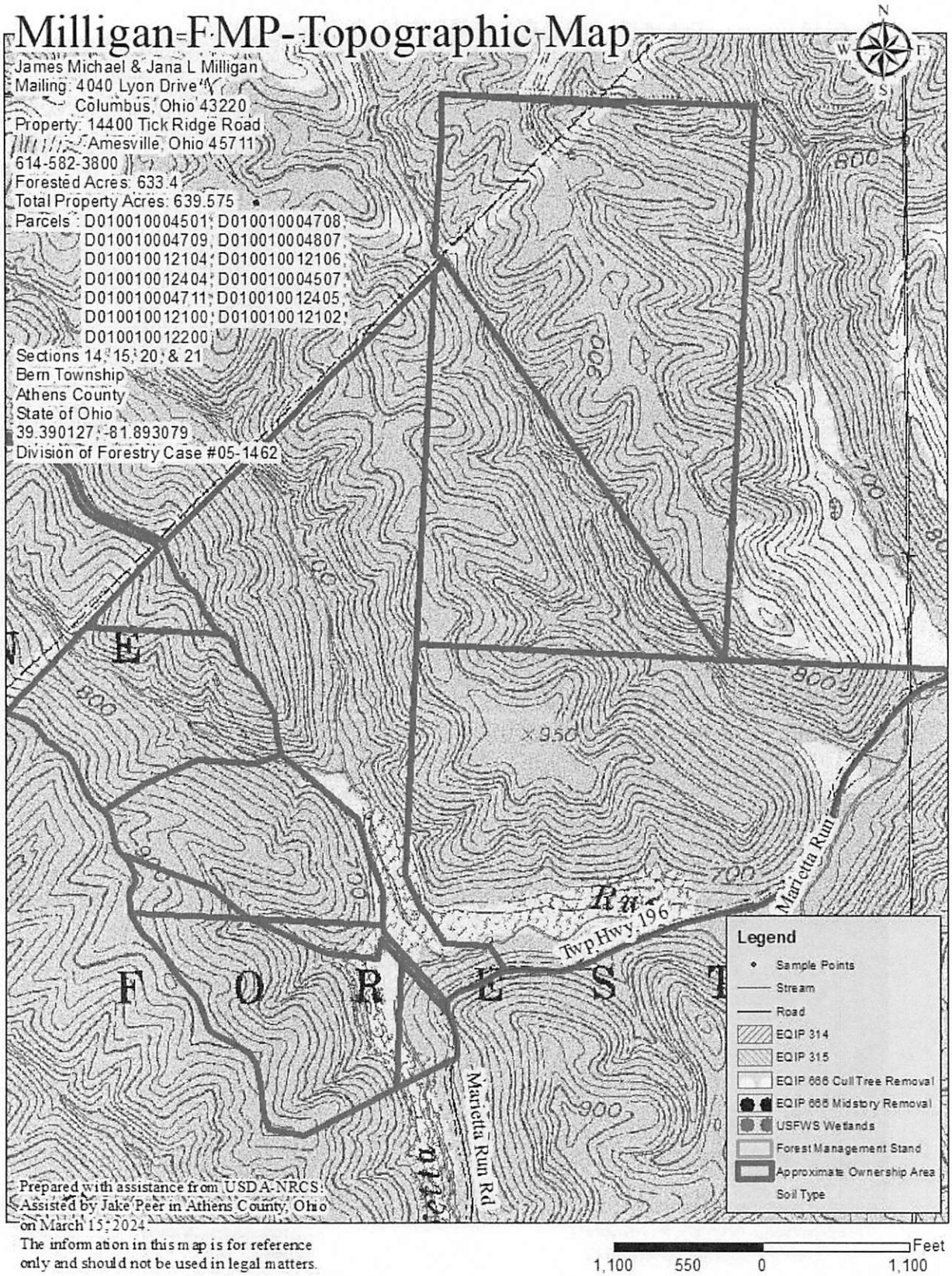
Woodland Soils Map



Wetland Delineation Map



Topographic Map



Woodland Stand Description and Management Recommendations

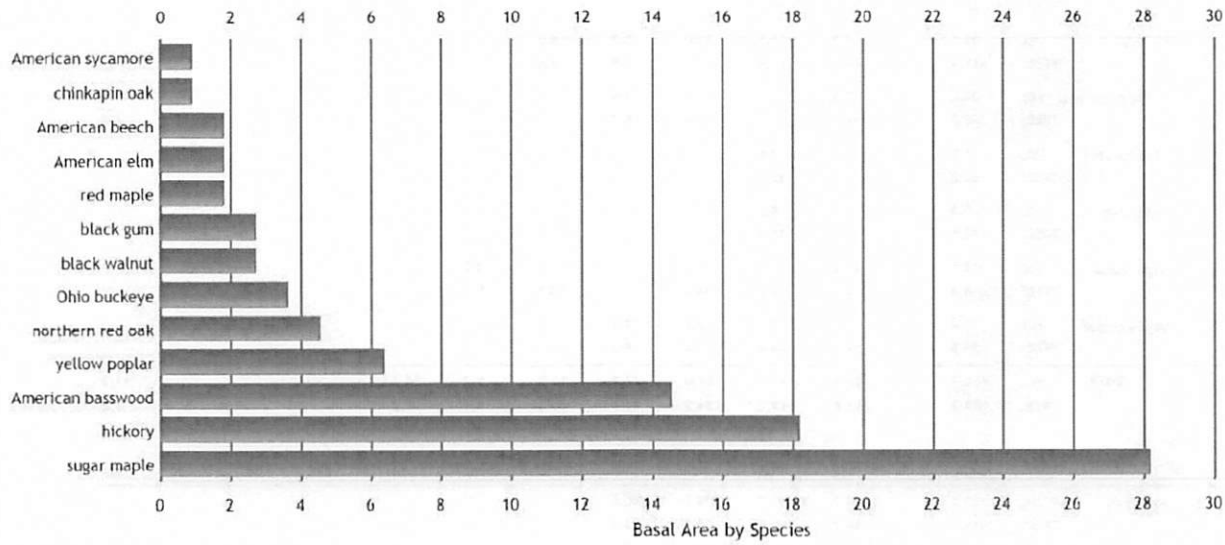
Stand # A - 44.2 acres

Dominant Species: Sugar Maple, Hickory, and American Basswood

Forest Type or Dominant Vegetation: As Listed in Dominant Species

Stand Diameter or Size Class: Poletimber/Small sawtimber

Stocking Level: Fully stocked **Basal Area:** 88 **(ft2/acre)**



Trees per acre: 303 Total

Diameter Distribution by Species:

STAND 1 Stand A — Sampling Method: Variable Radius Plots

ACRES 44.2 — Basal Area Factor: 10.00 — 11 PTS

Pulp

Tons

		TOTAL	12	14	16	18	20	22	24	26	28	30	32+
American	VOL	68.6	21.0	25.0	7.0	13.5							
	TREES	608.3	85.3	81.4	9.6	22.7							
American	VOL	24.7							24.7				
	TREES	8.5							8.5				
black gum	VOL	25.1											
	TREES	262.5											
black walnut	VOL	12.3		7.2	5.1								
	TREES	34.7		25.1	9.6								
chinkapin oak	VOL	12.8		12.8									
	TREES	25.1		25.1									
hickory	VOL	93.5	7.3	25.0	22.0	6.9	6.0						
	TREES	651.4	34.1	81.4	52.8	11.4	4.6						
northern red oak	VOL	30.2	7.3		5.1	4.6							11.9
	TREES	255.8	34.1		9.6	5.7							1.8
Ohio buckeye	VOL	11.0		3.6									
	TREES	86.2		12.5									
red maple	VOL	5.3		5.3									
	TREES	12.5		12.5									
sugar maple	VOL	152.1	17.2	26.5	15.3		11.0	9.2					
	TREES	1,646.4	76.7	75.2	36.0		10.7	5.1					
yellow poplar	VOL	31.2	5.2	21.2	2.5	2.3							
	TREES	94.8	25.6	56.4	7.2	5.7							
TOTAL	VOL	466.7	57.9	126.5	57.0	27.4	16.9	9.2	24.7				11.9
	TREES	3,686.3	255.8	369.6	124.7	45.5	15.3	5.1	8.5				1.8

Sawlog

BF

		TOTAL	12	14	16	18	20	22	24	26	28	30	32+
American	VOL	36,168.2	3,807.2	10,743.7	2,876.7	18,760.6							
	TREES	262.1	68.2	106.5	19.2	68.2							
American elm	VOL	1,168.7	1,168.7										
	TREES	51.2	51.2										
American	VOL	2,771.4							2,771.4				
	TREES	4.3							4.3				
black walnut	VOL	8,389.4		4,913.7	3,475.7								
	TREES	69.3		50.1	19.2								
chinkapin oak	VOL	1,374.7		1,374.7									
	TREES	12.5		12.5									
hickory	VOL	53,200.1	1,469.8	14,979.5	21,963.6	9,670.2	5,117.0						
	TREES	329.0	17.1	144.1	119.9	34.1	13.8						
northern red oak	VOL	16,393.0	1,469.8		3,475.7	4,671.3							6,776.2
	TREES	58.7	17.1		19.2	17.1							5.4
Ohio buckeye	VOL	2,456.9		2,456.9									
	TREES	25.1		25.1									
red maple	VOL	2,491.9		2,491.9									
	TREES	25.1		25.1									
sugar maple	VOL	48,641.8	4,108.4	15,741.4	14,419.7		9,807.1	4,565.2					
	TREES	342.5	76.7	150.4	79.1		26.1	10.1					
yellow poplar	VOL	20,229.2	1,469.8	9,748.9	4,011.6	4,998.8							
	TREES	158.2	25.6	94.0	21.6	17.1							
TOTAL	VOL	193,305.0	13,493.8	62,450.5	50,222.9	38,100.9	14,924.2	4,565.2	2,771.4				6,776.2
	TREES	1,337.8	255.8	607.7	278.2	136.4	39.9	10.1	4.3				5.4

Stand History: Harvesting - "Select cut"

Topography: Sloping

Site Index Value and Species: Wk-Northern red oak 81, yellow poplar 90.

Stand Age Estimation: >65 years according to aerial photography.

Average Canopy Height: 75' to 85'

Invasive plants or insects impacting this stand: Autumn olive, Japanese stiltgrass, Ailanthus, wineberry, Japanese barberry, multiflora rose, and wild grape.

Level of invasive plants in the stand: Moderate

Client Objectives: Produce quality timber, improve wildlife habitat, and produce maple syrup.

Stand Description: This stand is composed of sugar maple, hickory, American basswood, yellow poplar, northern red oak, buckeye, black gum, red maple, American elm, American beech, chinkapin oak, American sycamore, spicebush, dogwood, eastern redbud, ash, witch-hazel, and pawpaw. This stand was harvested in 2018 and subsequently there are not many trees greater than 20" DBH (diameter at breast height, 4.5' above ground). There is some regeneration of most of the species present in the stand, but there is more ash regeneration than anything else. Unfortunately, these trees will likely be infested by emerald ash borer as they mature, resulting in their demise. The harvest was done to promote the growth of maples. There is a moderate infestation of non-native invasive species that should be controlled. Non-native invasive plants cause several issues for the native ecosystem. First, they often take up a significant amount of space and sunlight. Sunlight is frequently our most limiting resource for growing plants and the invasive plants tend to outcompete the native plants. Another issue is that many of them are allelopathic, which means that they will secrete chemical compounds that impede the growth of other plants. Finally, they often provide a food source that is very low in nutrition and fat content, which negatively impacts the wildlife that may be using them. There is information included with this plan that describes how to control the invasive plants. There is also some wild grape that should be controlled in this stand. The Japanese stiltgrass infestation in this stand is significant and will take some work to control. The seeds from this particular invasive plant can stay viable up to 5 years, so it will take several treatments to gain adequate control. The Japanese stiltgrass is present on the trails mainly but can also be found in some of the sunny spots left by the last harvest. A portion of this stand is part of the sugarbush, and this could likely be expanded as sugar maple is the most widespread tree in this stand.

Past management activities completed in this stand: This stand was harvested in 2018 and likely sometime in the 1980s.

Management Recommendations:	***EQIP Practice Code:***	***EQIP Practice Name:***
Control the non-native invasive plants along with most of the wild grape according to the information provided.	314	Removal of Invasive Woody Understory
Control the Japanese stiltgrass according to the information provided.	315	Herbaceous Weed Treatment

Is a timber harvest recommended? No

Comments: A timber harvest is not recommended in this planning cycle.

Desired Future Conditions:

Desired Forest Type or Dominant Vegetation: As Listed in Dominant Species
Desired Stand Structure: Uneven Aged

Descriptions of Alternatives and Preferred Alternative to meet desired future conditions:
(Include potential impacts to resource concerns for preferred alternative)
No other recommendations are suggested, the invasive plants need to be controlled.

Natural & Cultural Features: None were noted, but an exhaustive search was not made. As a forester, I am not an expert when it comes to cultural resources, but from my very basic knowledge, I did not notice anything culturally significant or naturally unique. For more information see the "Special Sites" appendix of this plan.

Stand Health: The health of this stand is fair. There are no significant health issues with the trees, but there are non-native invasive plants present leading to a degraded condition.

Fish & Wildlife Species & Habitat: The oaks and hickories in this stand are a valuable source of hard mast for wildlife to eat. The 2018 harvest has provided cover for wildlife. It is worth noting that invasive plants degrade the conditions for wildlife. For more information see the "Wildlife" and "Pollinators" appendices of this plan.

Protected Plant & Animal Species: None were noted, but an exhaustive search was not conducted. For more information see the "Threatened & Endangered Species" appendix to this plan.

Air, Water, and Soil Protection: No issues were noted. For more information see the "Soils", "Best Management Practices", "Water", "Wetlands", "Fire", & "Carbon Cycle" appendices of this plan.

STAND 1 **Stand A** **Sampling Method: Variable Radius Plots**

ACRES 44.2 **Basal Area Factor: 10.00** **11 PTS**

STATISTICAL ANALYSIS

Confidence Interval: 90	BA	TPA	DBH	MHT	VOLUME PER ACRE BF	VOLUME PER ACRE TONS
Average	88.2	302.8	7.3	19.3	4,373.42	10.56
Sampling Error	18.8%	56.8%			18.8%	19.2%
Probable Lower Limit	71.6	130.8			3,553.32	8.53
Probable Upper Limit	104.7	474.8			5,193.52	12.59

SPECIES COMPOSITION

	BA		TPA		AVG MHT	VOLUME PER ACRE BF	VOLUME PER ACRE TONS	TOTAL STAND VOLUME BF	TOTAL STAND VOLUME TONS
	88.2		302.8		19.3	4,373.42	10.56	193,305.03	466.74
sugar maple	28.2	32.0%	76.3	25.2%	29.7	1,100.49	3.44	48,641.83	152.14
hickory	18.2	20.6%	22.2	7.3%	40.4	1,203.62	2.11	53,200.11	93.48
American basswood	14.5	16.5%	30.1	9.9%	32.5	818.74	1.55	36,188.17	68.56
yellow poplar	6.4	7.2%	5.7	1.9%	42.3	457.67	0.71	20,229.17	31.21
northern red oak	4.5	5.2%	7.1	2.3%	41.6	370.88	0.68	16,392.97	30.20
Ohio buckeye	3.6	4.1%	54.6	18.0%	12.0	55.58	0.25	2,456.85	11.03
black walnut	2.7	3.1%	2.4	0.8%	37.3	189.80	0.28	8,389.35	12.25
black gum	2.7	3.1%	5.9	2.0%	26.7		0.57		25.12
red maple	1.8	2.1%	11.3	3.7%	20.0	56.38	0.12	2,491.87	5.31
American elm	1.8	2.1%	2.8	0.9%	4.0	26.44		1,168.69	
American beech	1.8	2.1%	83.3	27.5%	0.0				
chinkapin oak	0.9	1.0%	0.9	0.3%	32.0	31.10	0.29	1,374.65	12.78
American sycamore	0.9	1.0%	0.3	0.1%	48.0	62.70	0.56	2,771.38	24.66

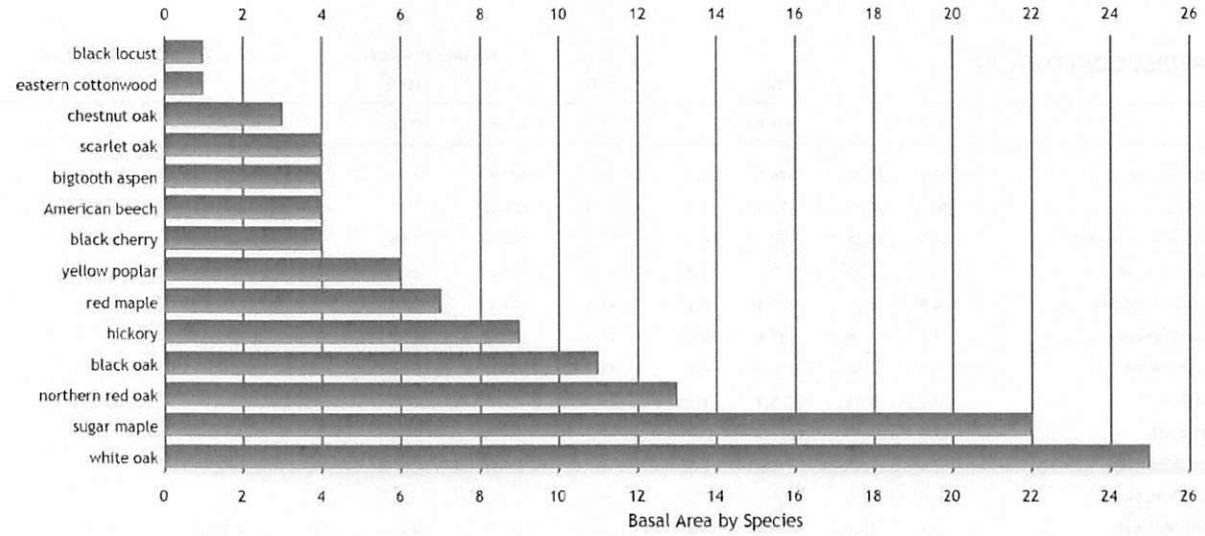
Stand # B - 27.1 acres

Dominant Species: White Oak, Sugar Maple, Northern Red Oak, and Black Oak

Forest Type or Dominant Vegetation: As Listed in Dominant Species

Stand Diameter or Size Class: Poletimber to Medium Sawtimber

Stocking Level: Fully stocked **Basal Area:** 114 **(ft2/acre)**



Trees per acre: 448 Total

Diameter Distribution by Species:

STAND 2 Stand B — Sampling Method: Variable Radius Plots

ACRES 27.1 — Basal Area Factor: 10.00 — 10 PTS

Pulp

Tons

		TOTAL	12	14	16	18	20	22	24	26	28	30	32+
American beech	VOL	17.7	10.4				4.0						
	TREES	115.2	34.5				3.1						
bigtooth aspen	VOL	11.5	4.9	2.3									
	TREES	247.1	23.0	8.5									
black cherry	VOL	27.4			11.9	5.8							
	TREES	147.0			14.6	5.1							
black locust	VOL	3.6		3.6									
	TREES	8.5		8.5									
black oak	VOL	60.3	4.9	5.0	11.9	20.3	14.9						
	TREES	165.6	23.0	12.7	19.4	20.4	12.4						
chestnut oak	VOL	26.8				7.1	11.5		8.2				
	TREES	17.3				7.7	6.2		3.5				
eastern	VOL	5.1			5.1								
	TREES	9.7			9.7								
hickory	VOL	60.3		15.5			11.3						
	TREES	312.2		29.6			6.2						
northern red oak	VOL	79.9	5.3	31.1			14.5	19.7	6.1				
	TREES	197.3	23.0	69.7			11.2	12.3	3.5				
red maple	VOL	25.6											
	TREES	608.3											
scarlet oak	VOL	17.7		2.3			8.4						
	TREES	66.2		8.5			8.1						
sugar maple	VOL	40.1	4.9	10.5									
	TREES	960.7	23.0	25.4									
white oak	VOL	167.5	25.1	21.9	18.3	23.6	19.7	22.1					
	TREES	577.6	97.8	48.6	29.1	23.0	12.4	12.7					
yellow poplar	VOL	33.0	7.5	18.9									
	TREES	224.8	23.0	46.5									
TOTAL	VOL	576.5	63.1	111.1	47.2	56.8	84.4	41.8	14.3				
	TREES	3,657.4	247.3	257.7	72.8	56.2	59.6	25.0	6.9				

Sawlog

BF

		TOTAL	12	14	16	18	20	22	24	26	28	30	32+
American beech	VOL	3,451.1					3,451.1						
	TREES	9.3					9.3						

bigtooth aspen	VOL	2,991.1	991.3	1,999.8					
	TREES	28.4	11.5	16.9					
black cherry	VOL	3,550.6			1,395.7	2,154.9			
	TREES	15.1			4.9	10.2			
black locust	VOL	1,680.6		1,680.6					
	TREES	16.9		16.9					
black oak	VOL	16,956.1	991.3	1,710.3	4,448.1	3,091.7	6,714.8		
	TREES	66.2	11.5	12.7	19.4	10.2	12.4		
chestnut oak	VOL	9,162.8				2,759.6	2,389.2		4,014.0
	TREES	19.1				7.7	6.2		5.2
eastern	VOL	2,479.9			2,479.9				
	TREES	9.7			9.7				
hickory	VOL	5,062.9		2,673.7			2,389.2		
	TREES	27.3		21.1			6.2		
northern red oak	VOL	31,708.6	991.3	7,601.6			6,540.8	12,005.4	4,569.5
	TREES	105.9	11.5	57.0			13.7	18.5	5.2
scarlet oak	VOL	9,406.3		1,999.8			7,406.4		
	TREES	33.7		16.9			16.8		
sugar maple	VOL	4,448.2	991.3	3,456.9					
	TREES	36.9	11.5	25.4					
white oak	VOL	37,868.7	3,762.1	4,138.2	6,145.8	7,732.1	6,082.2	10,008.2	
	TREES	150.4	40.3	27.5	29.1	23.0	12.4	18.1	
yellow poplar	VOL	5,358.4	788.2	4,570.2					
	TREES	41.1	11.5	29.6					
TOTAL	VOL	134,125.4	8,515.6	29,831.1	14,469.5	15,738.4	34,973.7	22,013.6	8,583.5
	TREES	559.9	97.8	223.9	63.1	51.1	77.0	36.6	10.4

Stand History: TSI - Grapevine control

Topography: Rolling

Site Index Value and Species: Wk-northern red oak 81, yellow poplar 90.

Stand Age Estimation: >65 years according to the aerial imagery.

Average Canopy Height: 75' to 85'

Invasive plants or insects impacting this stand: Autumn olive, Ailanthus, multiflora rose, and wild grape.

Level of invasive plants in the stand: Moderate

Client Objectives: Produce quality timber, improve wildlife habitat, and produce maple syrup.

Stand Description: This stand is composed of white oak, northern red oak, black oak, sugar maple, hickory, red maple, yellow poplar, black cherry, American beech, bigtooth aspen, scarlet oak, chestnut oak, eastern cottonwood, black locust, eastern hophornbeam, dogwood, black gum, American hornbeam, ash, American elm, and greenbrier. The dominant trees in this stand are mostly composed of oak species. Unfortunately, the midstory and understory is dominated by maple species that are slowly replacing the oaks. There is a moderate infestation of invasive plants that should be controlled prior to any other management. After controlling the invasive plants, this stand would benefit from a midstory thinning/removal. This would remove most of the less desirable trees in the midstory and understory and release the oaks that are struggling for

sunlight in the current conditions. If you want the stand to convert to maple, no management beyond the invasives control will be necessary until it is time to do a harvest.

Past management activities completed in this stand: The wild grape has mostly been controlled, and it appears this stand was harvested 40-50 years ago.

Management Recommendations:	***EQIP Practice Code:***	***EQIP Practice Name:***
Control the non-native invasive plants along with most of the wild grape according to the information provided.	314	Removal of Invasive Woody Understory
Consider thinning the midstory to create better growing conditions for the oak regeneration.	666	Forest Stand Improvement-Midstory Removal

Is a timber harvest recommended? No

Comments: A timber harvest could be done in 10-20 years, once the oak regeneration becomes established.

Desired Future Conditions:

Desired Forest Type or Dominant Vegetation: White Oak-Black Oak-Red Oak
Desired Stand Structure: Uneven Aged

Descriptions of Alternatives and Preferred Alternative to meet desired future conditions:
(Include potential impacts to resource concerns for preferred alternative)
The invasives could be controlled and the midstory removal not completed. This will allow the stand to continue to convert to maple and yellow poplar.

Natural & Cultural Features: None were noted, but an exhaustive search was not made. As a forester, I am not an expert when it comes to cultural resources, but from my very basic knowledge, I did not notice anything culturally significant or naturally unique. For more information see the "Special Sites" appendix of this plan.

Stand Health: The health of this stand is fair. There are no significant health issues with the trees, but there are non-native invasive plants present leading to a degraded condition.

Fish & Wildlife Species & Habitat: The oaks in this stand are providing valuable hard mast for wildlife. For more information see the "Wildlife" and "Pollinators" appendices of this plan.

Protected Plant & Animal Species: None were noted, but an exhaustive search was not conducted. For more information see the "Threatened & Endangered Species" appendix to this plan.

Air, Water, and Soil Protection: No issues were noted. For more information see the "Soils", "Best Management Practices", "Water", "Wetlands", "Fire", & "Carbon Cycle" appendices of this plan.

STAND 2 Stand B

Sampling Method: Variable Radius Plots

ACRES 27.1

Basal Area Factor: 10.00 10 PTS

STATISTICAL ANALYSIS

Confidence Interval: 90	BA	TPA	DBH	MHT	VOLUME PER ACRE BF	VOLUME PER ACRE TONS
Average	114.0	447.5	6.8	26.3	4,949.28	21.27
Sampling Error	20.9%	48.2%			39.7%	26.5%
Probable Lower Limit	90.1	231.8			2,983.88	15.65
Probable Upper Limit	137.9	663.2			6,914.67	26.90

SPECIES COMPOSITION

	BA		TPA		AVG MHT	VOLUME PER ACRE BF	VOLUME PER ACRE TONS	TOTAL STAND VOLUME BF	TOTAL STAND VOLUME TONS
	114.0		447.5		26.3	4,949.28	21.27	134,125.37	576.48
white oak	25.0	21.9%	72.7	16.2%	47.7	1,397.37	6.18	37,868.73	167.46
sugar maple	22.0	19.3%	254.5	56.9%	14.5	164.14	1.48	4,448.18	40.06
northern red oak	13.0	11.4%	11.2	2.5%	57.2	1,170.06	2.95	31,708.62	79.92
black oak	11.0	9.6%	25.1	5.6%	40.7	625.69	2.23	16,956.12	60.31
hickory	9.0	7.9%	24.0	5.4%	38.2	186.82	2.23	5,062.85	60.33
red maple	7.0	6.1%	22.4	5.0%	24.0		0.95		25.62
yellow poplar	6.0	5.3%	9.8	2.2%	45.3	197.73	1.22	5,358.43	32.98
black cherry	4.0	3.5%	6.0	1.3%	38.0	131.02	1.01	3,550.62	27.41
American beech	4.0	3.5%	4.9	1.1%	30.0	127.35	0.65	3,451.11	17.68
bigtooth aspen	4.0	3.5%	10.2	2.3%	30.0	110.37	0.42	2,991.13	11.49
scarlet oak	4.0	3.5%	3.7	0.8%	52.0	347.09	0.65	9,406.26	17.70
chestnut oak	3.0	2.6%	1.3	0.3%	61.3	338.11	0.99	9,162.78	26.81
eastern cottonwood	1.0	0.9%	0.7	0.2%	64.0	91.51	0.19	2,479.93	5.14
black locust	1.0	0.9%	0.9	0.2%	40.0	62.01	0.13	1,680.60	3.58

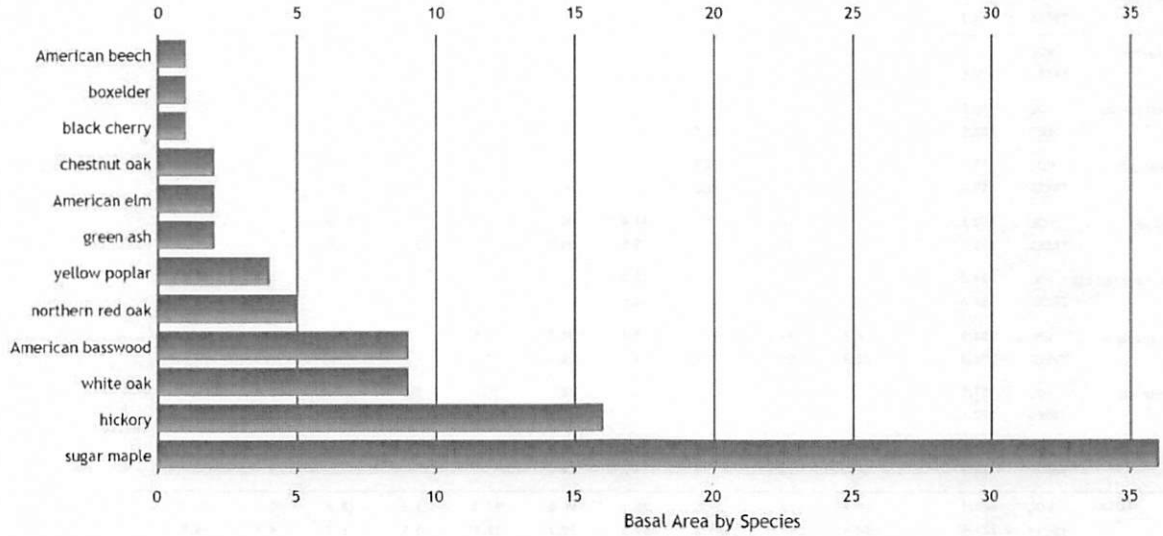
Stand # C - 33.5 acres

Dominant Species: Sugar Maple and Hickory

Forest Type or Dominant Vegetation: As Listed in Dominant Species

Stand Diameter or Size Class: Poletimber to Medium Sawtimber

Stocking Level: Fully stocked **Basal Area:** 88 **(ft2/acre)**



Trees per acre: 218

Diameter Distribution by Species:

STAND 3 Stand C — Sampling Method: Variable Radius Plots

ACRES 33.5 — Basal Area Factor: 10.00 — 10 PTS

Pulp
Tons

		TOTAL	12	14	16	18	20	22	24	26	28	30	32+
American	VOL	77.5	15.3	40.3	12.3								
	TREES	225.9	56.9	83.6	24.0								
American beech	VOL	9.7						9.7					
	TREES	5.1						5.1					
American elm	VOL	13.4	9.3										
	TREES	124.4	28.4										
black cherry	VOL	11.5							11.5				
	TREES	4.3							4.3				
boxelder	VOL	1.1											
	TREES	170.6											
chestnut oak	VOL	10.6			9.5								
	TREES	182.6			12.0								
green ash	VOL	13.0			5.9					7.1			
	TREES	15.0			12.0					3.0			
hickory	VOL	110.1		18.4	9.7	11.8	40.1		5.2	11.3			
	TREES	273.7		43.9	21.6	9.5	34.2		3.6	3.6			
northern red oak	VOL	34.3				11.8					5.4	17.1	
	TREES	16.6				9.5					2.6	4.5	
sugar maple	VOL	188.9	6.1	41.3	44.1	9.4	35.8	17.5					
	TREES	796.3	28.4	99.2	72.0	11.1	26.1	12.7					
white oak	VOL	57.9					12.0	15.2	7.0		5.4		
	TREES	320.1					12.3	10.2	2.7		1.6		
yellow poplar	VOL	37.0	14.7	16.5		3.2	2.7						
	TREES	86.7	42.7	31.3		7.6	5.1						
TOTAL	VOL	565.1	45.3	116.5	81.5	36.1	90.6	42.5	23.6	18.3	10.7	17.1	
	TREES	2,221.4	156.4	258.0	141.6	37.6	77.7	27.9	10.5	6.7	4.2	4.5	

Sawlog
BF

		TOTAL	12	14	16	18	20	22	24	26	28	30	32+
American	VOL	13,887.6	2,199.8	5,647.9	6,039.8								
	TREES	94.2	28.4	41.8	24.0								
American beech	VOL	4,824.5						4,824.5					
	TREES	7.6						7.6					
American elm	VOL	974.4	974.4										
	TREES	14.2	14.2										
chestnut oak	VOL	2,474.9			2,474.9								
	TREES	12.0			12.0								
green ash	VOL	9,955.4			2,974.2					6,981.1			
	TREES	18.1			12.0					6.1			
hickory	VOL	54,103.0		3,066.2	9,499.9	7,178.0	22,748.0		6,417.2	5,193.8			
	TREES	152.7		18.8	50.4	28.4	42.6		7.1	5.5			
northern red oak	VOL	30,666.6				7,178.0					7,701.9	15,786.7	
	TREES	42.8				28.4					5.2	9.1	
sugar maple	VOL	70,248.2	1,225.4	11,421.4	18,383.8	7,147.1	16,243.8	15,826.8					
	TREES	286.5	14.2	88.8	96.0	26.9	35.3	25.4					
white oak	VOL	31,435.0					9,524.1	10,203.0	4,856.3		6,851.7		
	TREES	47.9					18.4	15.2	8.0		6.3		
yellow poplar	VOL	10,363.5				4,500.0	5,863.4						
	TREES	21.6				11.4	10.2						
TOTAL	VOL	234,017.3	4,399.5	20,135.5	39,372.7	26,003.0	54,379.3	30,854.2	16,357.7	12,174.9	14,553.6	15,786.7	
	TREES	704.1	56.9	149.4	194.3	95.1	106.5	48.2	21.5	11.5	11.5	9.1	

Stand History: TSI - Grapevine control

Topography: Rolling

Site Index Value and Species: Wk-northern red oak 81, yellow poplar 90.

Stand Age Estimation: >65 years according to the aerial imagery.

Average Canopy Height: 100' to 110'

Invasive plants or insects impacting this stand: Ailanthus, autumn olive, Japanese stiltgrass, and wild grape.

Level of invasive plants in the stand: Moderate to Significant

Client Objectives: Produce quality timber, improve wildlife habitat, and produce maple syrup.

Stand Description: This stand is composed of sugar maple, hickory, white oak, American basswood, northern red oak, yellow poplar, green ash, American elm, chestnut oak, black cherry, boxelder, black walnut, spicebush, viburnum, American beech, pawpaw, and American hornbeam. This stand has some variability with some areas having a significant oak component. There is also a small area with large sawtimber. The invasive plants are at a moderate to significant infestation level. There is Japanese stiltgrass present on the trails, especially near the right-of-way that borders the property. A timber harvest is possible, but not recommended until the next planning cycle (after the invasive plants have been controlled).

Past management activities completed in this stand: Some areas have had the wild grape controlled.

Management Recommendations:	***EQIP Practice Code:***	***EQIP Practice Name:***
Control the non-native invasive plants along with most of the wild grape according to the information provided.	314	Removal of Invasive Woody Understory

Is a timber harvest recommended? No

Comments: A timber harvest is not recommended in this planning cycle, but is possible if necessary.

Desired Future Conditions:

Desired Forest Type or Dominant Vegetation: As Listed in Dominant Species
Desired Stand Structure: Uneven Aged

Descriptions of Alternatives and Preferred Alternative to meet desired future conditions:
(Include potential impacts to resource concerns for preferred alternative)
No other recommendations are made, the invasive plants should be controlled.

Natural & Cultural Features: None were noted, but an exhaustive search was not made. As a forester, I am not an expert when it comes to cultural resources, but from my very basic knowledge, I did not notice anything culturally significant or naturally unique. For more information see the "Special Sites" appendix of this plan.

Stand Health: The health of this stand is fair. There are no significant health issues with the trees, but there are non-native invasive plants present leading to a degraded condition.

Fish & Wildlife Species & Habitat: This stand is providing some soft and hard mast for wildlife. For more information see the "Wildlife" and "Pollinators" appendices of this plan.

Protected Plant & Animal Species: None were noted, but an exhaustive search was not conducted. For more information see the "Threatened & Endangered Species" appendix to this plan.

Air, Water, and Soil Protection: No issues were noted. For more information see the "Soils", "Best Management Practices", "Water", "Wetlands", "Fire", & "Carbon Cycle" appendices of this plan.

STAND 3 Stand C — Sampling Method: Variable Radius Plots

ACRES 33.5 — Basal Area Factor: 10.00 — 10 PTS

STATISTICAL ANALYSIS

Confidence Interval: 90	BA	TPA	DBH	MHT	VOLUME PER ACRE BF	VOLUME PER ACRE TONS
Average	88.0	217.5	8.6	40.7	6,985.59	16.87
Sampling Error	14.2%	68.9%			30.7%	15.7%
Probable Lower Limit	75.5	67.5			4,844.27	14.23
Probable Upper Limit	100.5	367.5			9,126.91	19.51

SPECIES COMPOSITION

	BA		TPA		AVG MHT	VOLUME PER ACRE BF	VOLUME PER ACRE TONS	TOTAL STAND VOLUME BF	TOTAL STAND VOLUME TONS
	88.0		217.5		40.7	6,985.59	16.87	234,017.33	565.10
sugar maple	36.0	40.9%	162.5	74.7%	38.4	2,096.96	5.64	70,248.24	188.95
hickory	16.0	18.2%	12.7	5.9%	60.0	1,615.02	3.29	54,103.04	110.07
white oak	9.0	10.2%	11.0	5.1%	54.2	938.36	1.73	31,435.05	57.93
American basswood	9.0	10.2%	9.6	4.4%	46.2	414.55	2.31	13,887.56	77.50
northern red oak	5.0	5.7%	1.8	0.8%	76.8	915.42	1.02	30,666.60	34.33
yellow poplar	4.0	4.5%	3.2	1.5%	58.0	309.36	1.10	10,363.46	36.97
green ash	2.0	2.3%	1.0	0.5%	72.0	297.17	0.39	9,955.36	13.01
American elm	2.0	2.3%	4.1	1.9%	32.0	29.09	0.40	974.35	13.40
chestnut oak	2.0	2.3%	5.8	2.7%	32.0	73.88	0.32	2,474.92	10.65
black cherry	1.0	1.1%	0.3	0.1%	72.0	151.77	0.34	5,084.25	11.49
boxelder	1.0	1.1%	5.1	2.3%	8.0		0.03		1.14
American beech	1.0	1.1%	0.4	0.2%	72.0	144.01	0.29	4,824.49	9.67

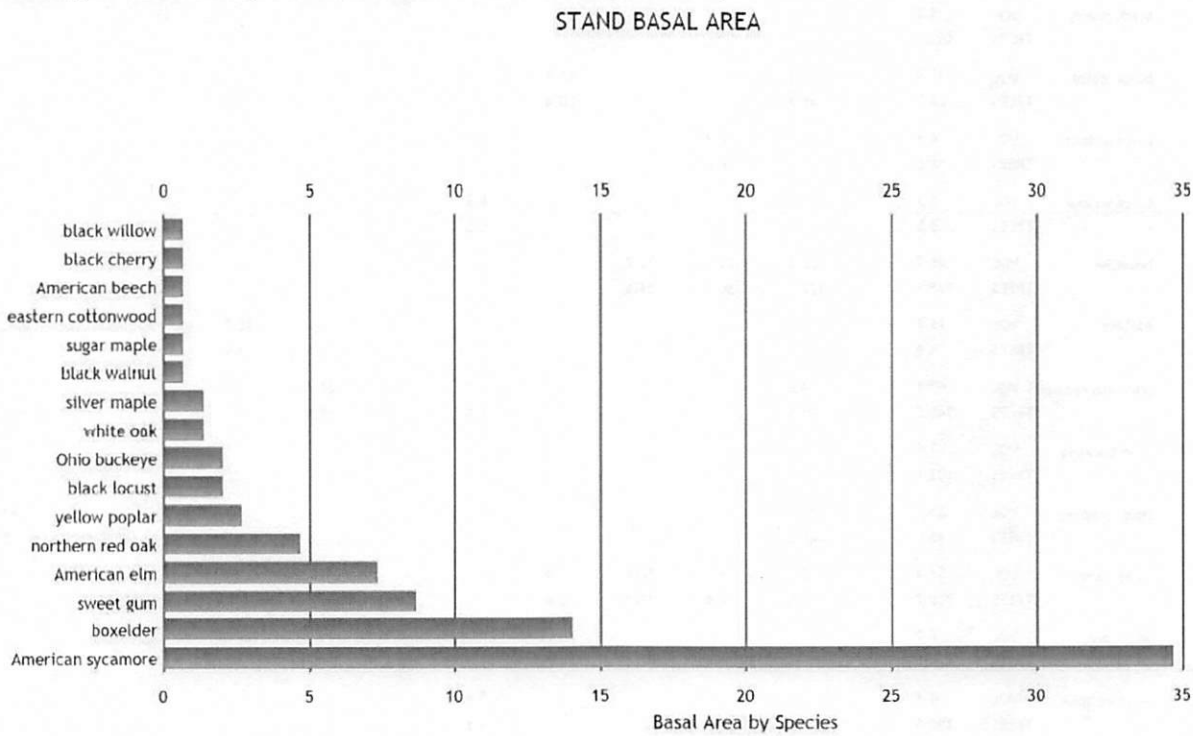
Stand # D - 54.0 acres

Dominant Species: American Sycamore

Forest Type or Dominant Vegetation: As Listed in Dominant Species

Stand Diameter or Size Class: Poletimber to Medium Sawtimber

Stocking Level: Fully stocked **Basal Area:** 83 **(ft2/acre)**



Trees per acre: 345 Total

Diameter Distribution by Species:

STAND 4 Stand D — Sampling Method: Variable Radius Plots

ACRES 54.0 — Basal Area Factor: 10.00 — 15 PTS

Pulp Tons		TOTAL	12	14	16	18	20	22	24	26	28	30	32+
American elm	VOL	28.2		7.9	8.0								
	TREES	748.9		16.8	12.9								
American	VOL	261.3	40.6	31.9	47.6	12.0	30.0	18.2	13.8				7.0
	TREES	1,583.4	171.9	116.2	75.6	18.3	32.7	11.4	9.0				1.9
black cherry	VOL	1.2											
	TREES	183.3											
black locust	VOL	35.9	12.3			23.7							
	TREES	66.2	45.8			20.4							
black walnut	VOL	6.4		6.4									
	TREES	16.8		16.8									
black willow	VOL	8.9					8.9						
	TREES	5.5					5.5						
boxelder	VOL	86.5	22.7	22.2	30.7								
	TREES	995.9	137.5	50.5	51.6								
eastern	VOL	16.7								16.7			
	TREES	4.9								4.9			
northern red oak	VOL	49.1	4.6				8.9		24.7				
	TREES	345.5	22.9				5.5		7.6				
Ohio buckeye	VOL	3.6											
	TREES	103.1											
silver maple	VOL	29.7	16.0										13.7
	TREES	48.0	45.8										2.1
sweet gum	VOL	53.4	15.4	4.0	12.6	3.8							
	TREES	720.7	84.0	16.8	17.2	6.8							
white oak	VOL	8.2						8.2					
	TREES	4.5						4.5					
yellow poplar	VOL	8.4					3.6						
	TREES	290.6					4.1						
TOTAL	VOL	597.7	111.6	72.4	98.8	39.5	51.3	26.4	38.5	16.7			20.7
	TREES	5,117.4	508.0	217.2	157.3	45.5	47.9	15.9	16.6	4.9			4.1

Sawlog BF		TOTAL	12	14	16	18	20	22	24	26	28	30	32+
American elm	VOL	3,085.7		1,231.6	1,854.1								
	TREES	29.7		16.8	12.9								

American	VOL	143,957.7	7,046.3	21,756.7	21,329.6	21,664.3	32,803.3	9,452.4	19,509.5	5,306.0	5,089.6
	TREES	582.4	103.1	153.2	104.9	83.5	82.8	15.9	25.4	9.8	3.8
black walnut	VOL	1,612.6		1,612.6							
	TREES	16.8		16.8							
black willow	VOL	3,101.7					3,101.7				
	TREES	11.0					11.0				
boxelder	VOL	6,709.5	2,633.7	4,075.8							
	TREES	96.4	45.8	50.5							
eastern	VOL	5,847.5								5,847.5	
	TREES	4.9								4.9	
northern red oak	VOL	11,013.9	1,316.9				7,938.7		1,758.4		
	TREES	54.2	22.9				27.5		3.8		
silver maple	VOL	3,979.3									3,979.3
	TREES	4.3									4.3
sweet gum	VOL	15,912.9	5,714.8	1,612.6	5,154.6	3,430.9					
	TREES	164.1	99.3	16.8	34.4	13.6					
white oak	VOL	8,927.1					4,837.0	4,090.1			
	TREES	25.6					16.5	9.1			
yellow poplar	VOL	4,477.2					4,477.2				
	TREES	12.4					12.4				
TOTAL	VOL	208,625.1	16,711.7	30,289.3	28,338.3	25,095.2	53,157.9	13,542.5	21,267.9	11,153.5	9,069.0
	TREES	1,001.8	271.2	254.3	152.1	97.1	150.2	25.0	29.2	14.6	8.1

Stand History: Reclaimed Mine Ground

Topography: Rolling

Site Index Value and Species: Fb-northern red oak 75, yellow poplar 85.

Stand Age Estimation: 40-50 years according to the aerial imagery.

Average Canopy Height: 75' to 85'
Invasive plants or insects impacting this stand: Ailanthus, autumn olive, Japanese honeysuckle, multiflora rose, and Japanese stiltgrass

Level of invasive plants in the stand: Very Significant

Client Objectives: To improve the health of the forest and improve conditions for the use of the pond in the stand.

Stand Description: This stand is composed of American sycamore, boxelder, sweet gum, American elm, northern red oak, yellow poplar, black locust, buckeye, white oak, silver maple, black walnut, sugar maple, eastern cottonwood, American beech, black cherry, willow, American hornbeam, witch-hazel, American basswood, eastern redbud, spicebush, pawpaw, and ash. This stand had some of the American sycamore harvested within the last three years. There is a very significant issue with non-native invasive plants that should be controlled. While the timber in this stand is generally undesirable species, the invasives are certainly moving out from this stand and infesting surrounding stands. There is Japanese stiltgrass present on the trails in this stand that should be controlled. Managing the (approximately 3.6 acre) pond is a priority for the landowner and so managing the habitat around the pond should also be a priority. Aside from

controlling the invasive plants, there is no other management recommended in this planning cycle.

Past management activities completed in this stand: Harvesting of some American sycamore.

Management Recommendations:	***EQIP Practice Code:***	***EQIP Practice Name:***
Control the non-native invasive plants according to the information provided.	314	Removal of Invasive Woody Understory
Control the Japnaese stiltgrass which is present on the trails in the stand.	315	Herbaceous Weed Treatment

Is a timber harvest recommended? No

Comments: Harvesting is not recommended in this planning cycle.

Desired Future Conditions:

Desired Forest Type or Dominant Vegetation: As Listed in Dominant Species
Desired Stand Structure: Uneven Aged

Descriptions of Alternatives and Preferred Alternative to meet desired future conditions: (Include potential impacts to resource concerns for preferred alternative)
Some cull tree removal could be done after controlling the invasive plants. The boxelder and sweet gum are not adding much to this ecosystem.

Natural & Cultural Features: None were noted, but an exhaustive search was not made. As a forester, I am not an expert when it comes to cultural resources, but from my very basic knowledge, I did not notice anything culturally significant or naturally unique. For more information see the "Special Sites" appendix of this plan.

Stand Health: The health of this stand is fair. There are no significant health issues with the trees, but there are non-native invasive plants present leading to a degraded condition.

Fish & Wildlife Species & Habitat: This stand is providing cover, but it is worth noting that the type of cover that invasive plants provides has been shown to make wildlife more likely to suffer from predation. For more information see the "Wildlife" and "Pollinators" appendices of this plan.

Protected Plant & Animal Species: None were noted, but an exhaustive search was not conducted. For more information see the "Threatened & Endangered Species" appendix to this plan.

Air, Water, and Soil Protection: No issues were noted. For more information see the "Soils", "Best Management Practices", "Water", "Wetlands", "Fire", & "Carbon Cycle" appendices of this plan.

STAND 4 **Stand D** **Sampling Method: Variable Radius Plots**

ACRES 54.0 **Basal Area Factor: 10.00** **15 PTS**

STATISTICAL ANALYSIS

Confidence Interval: 90	BA	TPA	DBH	MHT	VOLUME PER ACRE BF	VOLUME PER ACRE TONS
Average	82.7	345.3	6.6	15.8	3,863.43	11.07
Sampling Error	21.4%	49.0%			30.3%	26.1%
Probable Lower Limit	65.0	176.2			2,691.77	8.18
Probable Upper Limit	100.3	514.4			5,035.09	13.96

SPECIES COMPOSITION

	BA		TPA		AVG MHT	VOLUME PER ACRE BF	VOLUME PER ACRE TONS	TOTAL STAND VOLUME BF	TOTAL STAND VOLUME TONS
	82.7		345.3		15.8	3,863.43	11.07	208,625.09	597.67
American sycamore	34.7	41.9%	47.7	13.8%	46.9	2,665.88	4.84	143,957.72	261.32
boxelder	14.0	16.9%	126.6	36.7%	11.0	124.25	1.60	6,709.53	86.50
sweet gum	8.7	10.5%	16.4	4.7%	28.3	294.68	0.99	15,912.87	53.39
American elm	7.3	8.9%	40.7	11.8%	10.2	57.14	0.52	3,085.66	28.23
northern red oak	4.7	5.6%	7.4	2.1%	28.6	203.96	0.91	11,013.92	49.10
yellow poplar	2.7	3.2%	13.3	3.8%	24.0	82.91	0.16	4,477.17	8.45
black locust	2.0	2.4%	8.9	2.6%	18.7		0.67		35.93
Ohio buckeye	2.0	2.4%	40.1	11.6%	2.7		0.07		3.63
white oak	1.3	1.6%	0.6	0.2%	48.0	165.32	0.15	8,927.11	8.23
silver maple	1.3	1.6%	1.0	0.3%	40.0	73.69	0.55	3,979.32	29.66
black walnut	0.7	0.8%	0.6	0.2%	32.0	29.86	0.12	1,612.62	6.43
sugar maple	0.7	0.8%	7.6	2.2%	0.0				
eastern cottonwood	0.7	0.8%	0.2	0.1%	80.0	108.29	0.31	5,847.51	16.71
American beech	0.7	0.8%	30.6	8.8%	0.0				
black cherry	0.7	0.8%	3.4	1.0%	8.0		0.02		1.22
black willow	0.7	0.8%	0.3	0.1%	40.0	57.44	0.16	3,101.66	8.86

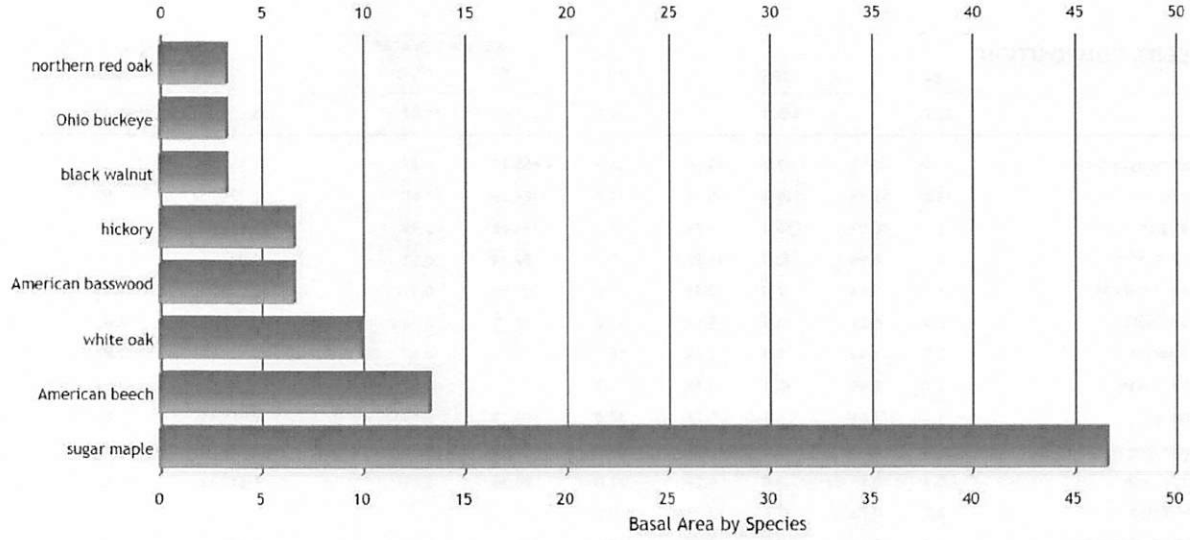
Stand # E - 5.3 acres

Dominant Species: Northern Red Oak, White Oak, and Sugar Maple

Forest Type or Dominant Vegetation: As Listed in Dominant Species

Stand Diameter or Size Class: All size classes

Stocking Level: Fully stocked **Basal Area:** 93 **(ft2/acre)**



Trees per acre: 293 Total

Diameter Distribution by Species:

STAND 5 Stand E — Sampling Method: Variable Radius Plots

ACRES 5.3 — Basal Area Factor: 10.00 — 3 PTS

Pulp
Tons

		TOTAL	12	14	16	18	20	22	24	26	28	30	32+
American	VOL	5.7		1.6		4.1							
	TREES	10.5		5.5		5.0							
American beech	VOL	28.6				2.3		2.8			19.0		
	TREES	42.1				3.3		2.2			4.1		
black walnut	VOL	4.6											
	TREES	32.4											
hickory	VOL	7.1				2.0							
	TREES	34.9				2.5							
Ohio buckeye	VOL	2.1											
	TREES	50.6											
sugar maple	VOL	33.0		1.2		2.9							
	TREES	453.6		5.5		5.0							
white oak	VOL	5.1				2.3		2.8					
	TREES	5.6				3.3		2.2					
TOTAL	VOL	86.1		2.7		13.6		5.6			19.0		
	TREES	629.7		11.0		19.2		4.5			4.1		

Sawlog
BF

		TOTAL	12	14	16	18	20	22	24	26	28	30	32+
American	VOL	2,833.8		1,080.2		1,753.6							
	TREES	16.0		11.0		5.0							
American beech	VOL	3,000.5				1,391.1		1,609.4					
	TREES	11.1				6.7		4.5					
hickory	VOL	2,053.8				2,053.8							
	TREES	7.5				7.5							
northern red oak	VOL	2,373.7					2,373.7						
	TREES	8.1					8.1						
sugar maple	VOL	5,912.3	646.2	1,269.3		3,996.8							
	TREES	48.5	22.5	11.0		15.0							
white oak	VOL	4,953.2				3,343.7		1,609.4					
	TREES	21.1				16.7		4.5					
TOTAL	VOL	21,127.3	646.2	2,349.5		12,539.0	2,373.7	3,218.9					
	TREES	112.4	22.5	22.0		50.8	8.1	8.9					

Stand History: Unknown

Topography: Steep

Site Index Value and Species: Wk-northern red oak 81, yellow poplar 90.

Stand Age Estimation: >65 according to the aerial imagery.

Average Canopy Height: 85' to 95'

Invasive plants or insects impacting this stand: Autumn olive and Japanese stiltgrass

Level of invasive plants in the stand: Slight

Client Objectives: Produce quality timber and improve wildlife habitat.

Stand Description: This stan is composed of sugar maple, American beech, white oak, northern red oak, American basswood, hickory, black walnut, buckeye, mockernut hickory, eastern hophornbeam, and ash. This stand is situated on a steep slope between Marietta Run Road and Marietta Run. There is a slight infestation of autumn olive, which should be controlled. There is also Japanese stiltgrass that should be controlled. The access to this stand is not great, so it may be appropriate to control the invasive plants and not do any other management. However, if desired, it could be appropriate to thin the midstory of some of the shade tolerant trees like sugar maple, American beech, and eastern hophornbeam. This would improve conditions for oaks to regenerate and a timber harvest could be done after establishing the regeneration. If it was desired to continue the mesophication process, this stand could have cull tree removal to remove the American beech and eastern hophornbeam. Then a harvest could be done which would release sugar maple and this stand could be utilized for maple sap collection. Any of the three options present are viable for this stand.

Past management activities completed in this stand: Unknown

Management Recommendations:	***EQIP Practice Code:***	***EQIP Practice Name:***
Control the non-native invasive plants according to the information provided.	314	Removal of Invasive Woody Understory
Control the Japanese stiltgrass according to the information provided.	315	Herbaceous Weed Treatment
Conisder either doing a midstory thinning (managing for oak) or cull tree removal (managing for maple).	666	Forest Stand Improvement
Consider a selection style timber harvest.		

Is a timber harvest recommended? Maybe Single Tree Selection

Comments: This timber harvest should follow the control of invasives and forest stand improvement. It coudl be done either to benefit the oaks or maples.

Desired Future Conditions:

Desired Forest Type or Dominant Vegetation: Oak-Northern Hardwoods
Desired Stand Structure: Even Aged

Descriptions of Alternatives and Preferred Alternative to meet desired future conditions:
(Include potential impacts to resource concerns for preferred alternative)
Three options are outlined in the stand description.

Natural & Cultural Features: None were noted, but an exhaustive search was not made. As a forester, I am not an expert when it comes to cultural resources, but from my very basic knowledge, I did not notice anything culturally significant or naturally unique. For more information see the "Special Sites" appendix of this plan.

Stand Health: The health of this stand is fair. There are no significant health issues with the trees, but there are non-native invasive plants present leading to a degraded condition.

Fish & Wildlife Species & Habitat: There are hard mast producing trees for wildlife and a source of water at the base of the slope. For more information see the "Wildlife" and "Pollinators" appendices of this plan.

Protected Plant & Animal Species: None were noted, but an exhaustive search was not conducted. For more information see the "Threatened & Endangered Species" appendix to this plan.

Air, Water, and Soil Protection: No issues were noted. For more information see the "Soils", "Best Management Practices", "Water", "Wetlands", "Fire", & "Carbon Cycle" appendices of this plan.

STAND 5 Stand E — Sampling Method: Variable Radius Plots

ACRES 5.3 — Basal Area Factor: 10.00 — 3 PTS

STATISTICAL ANALYSIS

Confidence Interval: 90	BA	TPA	DBH	MHT	VOLUME PER ACRE BF	VOLUME PER ACRE TONS
Average	93.3	292.8	7.6	30.9	3,986.29	16.25
Sampling Error	27.6%	142.5%			87.1%	92.5%
Probable Lower Limit	67.6				512.27	1.22
Probable Upper Limit	119.1	710.1			7,460.30	31.28

SPECIES COMPOSITION

	BA		TPA		AVG MHT	VOLUME PER ACRE BF	VOLUME PER ACRE TONS	TOTAL STAND VOLUME BF	TOTAL STAND VOLUME TONS
	93.3		292.8		30.9	3,986.29	16.25	21,127.32	86.13
sugar maple	46.7	50.0%	247.5	84.5%	29.7	1,115.53	6.22	5,912.33	32.99
American beech	13.3	14.3%	10.0	3.4%	34.0	566.13	5.40	3,000.51	28.65
white oak	10.0	10.7%	5.0	1.7%	34.7	934.56	0.96	4,953.16	5.07
American basswood	6.7	7.1%	5.0	1.7%	44.0	534.67	1.08	2,833.78	5.70
hickory	6.7	7.1%	8.0	2.7%	48.0	387.52	1.33	2,053.83	7.07
black walnut	3.3	3.6%	6.1	2.1%	32.0		0.86		4.56
Ohio buckeye	3.3	3.6%	9.5	3.3%	32.0		0.40		2.10
northern red oak	3.3	3.6%	1.5	0.5%	48.0	447.87		2,373.72	

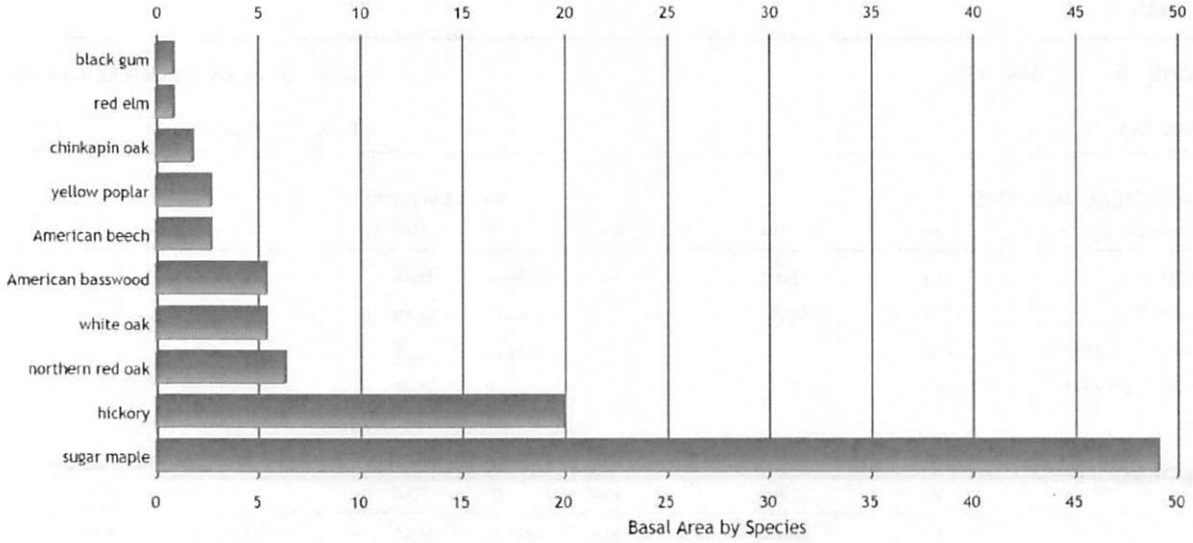
Stand # F - 41.8 acres

Dominant Species: Sugar Maple and Hickory

Forest Type or Dominant Vegetation: As Listed in Dominant Species

Stand Diameter or Size Class: All size classes

Stocking Level: Fully stocked **Basal Area:** 96 **(ft2/acre)**



Trees per acre: 191 Total

Diameter Distribution by Species:

STAND 6 Stand F — Sampling Method: Variable Radius Plots

ACRES 41.8 — Basal Area Factor: 10.00 — 11 PTS

Pulp

Tons

		TOTAL	12	14	16	18	20	22	24	26	28	30	32+
American	VOL	25.8	4.9		14.7	4.9							
	TREES	247.6	24.2		22.7	7.2							
American beech	VOL	56.2				8.1						48.1	
	TREES	14.9				7.2						7.7	
black gum	VOL	4.9			4.9								
	TREES	9.1			9.1								
chinkapin oak	VOL	4.9				4.9							
	TREES	7.2				7.2							
hickory	VOL	131.7		20.1	18.1	41.1	21.7	21.5					
	TREES	268.9		65.2	40.4	61.3	19.5	13.0					
northern red oak	VOL	50.6	7.3					3.4			20.9		9.1
	TREES	123.9	44.4					3.6			5.2		1.1
red elm	VOL	5.5					5.5						
	TREES	5.8					5.8						
sugar maple	VOL	239.5	26.0	45.7	42.3	15.9	23.9		6.4				
	TREES	2,719.4	153.2	130.3	77.1	25.1	18.9		4.0				
white oak	VOL	24.4			2.4	4.9		4.3				12.2	
	TREES	213.7			6.8	7.2		3.6				2.6	
yellow poplar	VOL	37.5						5.0	14.1	18.5			
	TREES	14.8						3.6	6.0	5.2			
TOTAL	VOL	581.0	38.2	65.8	82.5	79.8	51.1	34.3	20.5	18.5	20.9	60.3	9.1
	TREES	3,625.2	221.8	195.5	156.0	115.0	44.1	23.8	10.1	5.2	5.2	10.3	1.1

Sawlog

BF

		TOTAL	12	14	16	18	20	22	24	26	28	30	32+
American	VOL	9,125.5	1,390.0		4,743.4	2,992.1							
	TREES	70.3	24.2		31.8	14.3							
American beech	VOL	3,021.6				3,021.6							
	TREES	14.3				14.3							
black gum	VOL	3,286.9			3,286.9								
	TREES	18.1			18.1								
chinkapin oak	VOL	4,382.1	1,390.0			2,992.1							
	TREES	62.7	48.4			14.3							
hickory	VOL	73,726.0		3,656.6	13,676.4	32,962.8	12,916.8	10,513.5					
	TREES	269.3		41.5	68.5	110.7	32.8	15.8					
northern red oak	VOL	29,333.0	3,997.5					5,693.0			10,826.3		8,816.1
	TREES	80.1	52.4					10.8			12.6		4.3
red elm	VOL	3,246.2					3,246.2						
	TREES	11.6					11.6						
sugar maple	VOL	76,357.5	11,318.5	15,552.2	20,688.1	13,045.6	12,106.3		3,646.8				
	TREES	555.3	185.5	154.0	113.4	60.9	33.4		8.1				
white oak	VOL	17,014.2			3,793.8	2,992.1		5,091.4				5,136.9	
	TREES	50.7			20.4	14.3		10.8				5.2	
yellow poplar	VOL	15,411.2						5,851.6	4,635.2	4,924.4			
	TREES	22.0						10.8	6.0	5.2			
TOTAL	VOL	234,904.4	18,096.1	19,208.7	46,188.6	58,006.3	28,269.3	27,149.6	8,282.0	4,924.4	10,826.3	5,136.9	8,816.1
	TREES	1,154.5	310.5	195.5	252.2	229.0	77.8	48.2	14.1	5.2	12.6	5.2	4.3

Stand History: Sugarbush

Topography: Rolling

Site Index Value and Species: Wk-northern red oak 81, yellow poplar 90.

Stand Age Estimation: >65 years according to the aerial imagery.

Average Canopy Height: 75' to 85'

Invasive plants or insects impacting this stand: Ailanthus, autumn olive, Japanese barberry, Japanese stiltgrass, and wild grape.

Level of invasive plants in the stand: Slight

Client Objectives: Produce maple sap and quality timber.

Stand Description: This stand is composed of sugar maple, hickory, northern red oak, white oak, American basswood, yellow poplar, chinkapin oak, red elm, black gum, American beech, spicebush, pawpaw, eastern hophornbeam, eastern redbud, and American hornbeam. This stand has a slight infestation of non-native invasive plants that should be controlled. There is Japanese stiltgrass on the trails that should be controlled, as well. In the fall of 2024, work was completed to control the autumn olive and American beech on approximately 25 acres. The stand is primarily used as a sugarbush and the goal for this stand is to keep the sugar maple healthy and productive. There is a dense understory dominated by spicebush and pawpaw. While these are native plants, I would consider them problematic in this stand. They are suppressing the tree seedlings (including sugar maple), and I would recommend thinning out these species. The stocking in this stand is in the sweet spot of not being understocked or overstocked. This means that the productivity of the trees for producing maple sap is good right now without any thinning of the overstory. There are trees present that could be harvested, but it is not necessary in this planning cycle (unless it is desired by the landowner).

Past management activities completed in this stand: Some control of autumn olive, wild grape, and american beech.

Management Recommendations:	***EQIP Practice Code:***	***EQIP Practice Name:***
Control the Japanese stiltgrass according to the information provided.	315	Herbaceous Weed Treatment
Consider thinning out the dense understory of spicebush and pawpaw to improve conditions for sugar maple regneration.		

Is a timber harvest recommended? Maybe Single Tree Selection

Comments: A harvest is possible, but not necessary to maximize sap production.

Desired Future Conditions:

Desired Forest Type or Dominant Vegetation: As Listed in Dominant Species
Desired Stand Structure: Uneven Aged

Descriptions of Alternatives and Preferred Alternative to meet desired future conditions: (Include potential impacts to resource concerns for preferred alternative)

This stand could have the invasive plants controlled and the spicebush and pawpaw left alone. The forestland would not be as productive after a harvest if the regeneration isn't well established.

Natural & Cultural Features: None were noted, but an exhaustive search was not made. As a forester, I am not an expert when it comes to cultural resources, but from my very basic knowledge, I did not notice anything culturally significant or naturally unique. For more information see the "Special Sites" appendix of this plan.

Stand Health: The health of this stand is fair. There are no significant health issues with the trees, but there are non-native invasive plants present leading to a degraded condition.

Fish & Wildlife Species & Habitat: This stand has good numbers of hard and soft mast for wildlife, as well as having plenty of cover. For more information see the "Wildlife" and "Pollinators" appendices of this plan.

Protected Plant & Animal Species: None were noted, but an exhaustive search was not conducted. For more information see the "Threatened & Endangered Species" appendix to this plan.

Air, Water, and Soil Protection: No issues were noted. For more information see the "Soils", "Best Management Practices", "Water", "Wetlands", "Fire", & "Carbon Cycle" appendices of this plan.

STAND 6 Stand F — Sampling Method: Variable Radius Plots

ACRES 41.8 — Basal Area Factor: 10.00 — 11 PTS

STATISTICAL ANALYSIS

Confidence Interval: 90	BA	TPA	DBH	MHT	VOLUME PER ACRE BF	VOLUME PER ACRE TONS
Average	95.5	190.8	9.6	30.6	5,619.72	13.90
Sampling Error	12.4%	48.4%			18.5%	15.6%
Probable Lower Limit	83.6	98.5			4,582.80	11.74
Probable Upper Limit	107.3	283.1			6,656.64	16.06

SPECIES COMPOSITION

	BA		TPA		AVG MHT	VOLUME PER ACRE BF	VOLUME PER ACRE TONS	TOTAL STAND VOLUME BF	TOTAL STAND VOLUME TONS
	95.5		190.8		30.6	5,619.72	13.90	234,904.37	580.96
sugar maple	49.1	51.4%	110.8	58.0%	28.3	1,826.73	5.73	76,357.52	239.49
hickory	20.0	20.9%	14.0	7.4%	46.2	1,763.78	3.15	73,726.03	131.72
northern red oak	6.4	6.7%	4.9	2.6%	51.4	701.75	1.21	29,332.96	50.57
white oak	5.5	5.7%	6.8	3.6%	32.0	407.04	0.58	17,014.22	24.42
American basswood	5.5	5.7%	8.3	4.3%	24.0	218.31	0.62	9,125.52	25.79
American beech	2.7	2.9%	42.4	22.2%	29.3	72.29	1.34	3,021.65	56.21
yellow poplar	2.7	2.9%	0.9	0.5%	61.3	368.69	0.90	15,411.23	37.51
chinkapin oak	1.8	1.9%	1.7	0.9%	24.0	104.84	0.12	4,382.13	4.90
red elm	0.9	1.0%	0.4	0.2%	32.0	77.66	0.13	3,246.19	5.49
black gum	0.9	1.0%	0.7	0.3%	48.0	78.63	0.12	3,286.93	4.87

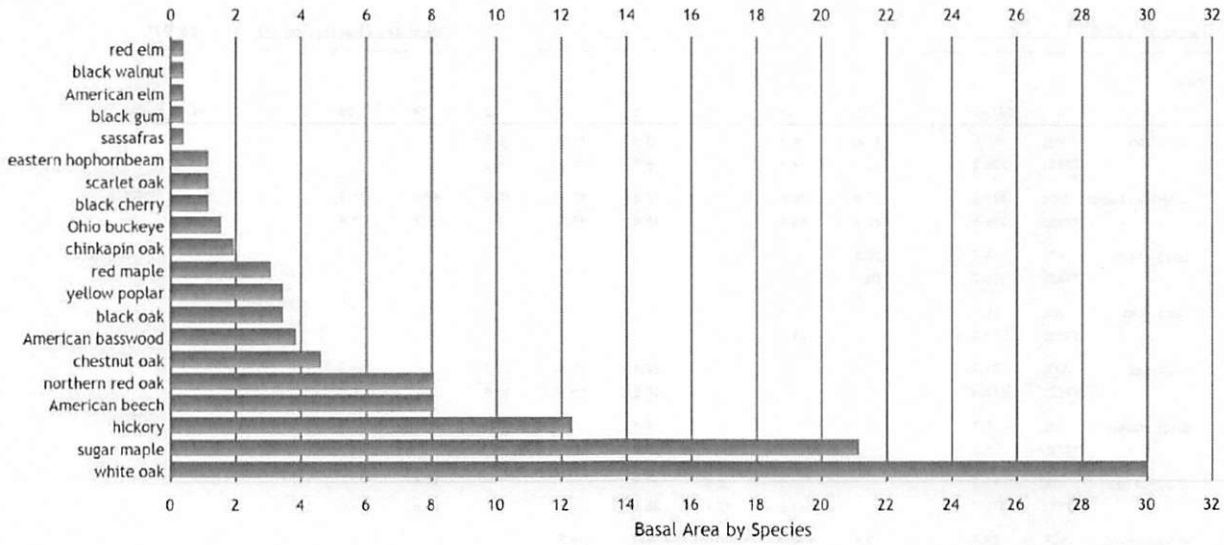
Stand # G - 123.9 acres

Dominant Species: White Oak and Hickory

Forest Type or Dominant Vegetation: Oak-Hickory

Stand Diameter or Size Class: Poletimber to Medium Sawtimber

Stocking Level: Fully stocked **Basal Area:** 107 **(ft2/acre)**



Trees per acre: 299

Diameter Distribution by Species:

STAND 7 Stand G

Sampling Method: Variable Radius Plots

ACRES 123.9

Basal Area Factor: 10.00 26 PTS

Pulp Tons

		TOTAL	12	14	16	18	20	22	24	26	28	30	32+
American	VOL	61.0	11.6	6.3		3.3	13.8	6.5					
	TREES	788.3	40.4	14.9		6.7	10.9	6.0					
American beech	VOL	323.6	33.0	36.0	16.6	17.8	62.7	15.0	47.4	55.3			39.8
	TREES	319.5	121.3	66.9	28.4	18.0	43.7	9.0	15.2	12.9			4.0
black cherry	VOL	32.2	20.8										
	TREES	333.7	60.7										
black gum	VOL	15.4		15.4									
	TREES	29.7		29.7									
black oak	VOL	81.3				20.1	15.4	11.7		14.3			
	TREES	513.4				20.2	10.9	10.5		5.2			
black walnut	VOL	5.1				5.1							
	TREES	9.0				9.0							
chestnut oak	VOL	93.7		20.3	8.6	27.7			17.9				
	TREES	571.8		44.6	17.1	36.0			7.6				
chinkapin oak	VOL	24.7	8.6	6.3		5.1	4.7						
	TREES	69.8	40.4	14.9		9.0	5.5						
eastern	VOL	1.6											
	TREES	242.7											
hickory	VOL	309.0	41.9	46.4	70.9	36.2	13.5	20.0	14.2	27.6			
	TREES	1,174.4	166.9	126.3	116.0	38.2	10.9	11.7	6.1	7.8			
northern red oak	VOL	196.8		8.9	15.5	28.4	20.7	36.3	7.1	6.5	17.1	11.0	15.6
	TREES	443.8		22.3	20.5	31.5	20.8	20.8	5.1	2.6	5.0	2.4	1.7
Ohio buckeye	VOL	35.5				29.0		6.5					
	TREES	37.5				31.5		6.0					
post oak	VOL	10.2				10.2							
	TREES	9.0				9.0							
red maple	VOL	42.3		8.9									
	TREES	1,004.6		22.3									
sassafras	VOL	10.5			10.5								
	TREES	17.1			17.1								
scarlet oak	VOL	15.5				5.5							8.4
	TREES	251.3				6.7							1.9
sugar maple	VOL	257.0	45.2	66.6	6.2	20.1							
	TREES	5,925.8	171.9	141.2	17.1	20.2							

white oak	VOL	598.8	75.2	105.4	123.9	84.8	80.4	36.3	21.5	20.8			
	TREES	2,418.7	273.0	245.2	227.5	104.7	70.6	25.3	15.7	7.8			
yellow poplar	VOL	65.2	4.0	28.7		10.9							
	TREES	791.6	20.2	44.6		17.5							
TOTAL	VOL	2,179.5	240.4	349.0	252.3	304.1	211.2	132.5	108.1	124.5	17.1	11.0	63.8
	TREES	14,951.5	895.0	772.7	443.7	358.2	173.3	89.4	49.6	36.2	5.0	2.4	7.6

Sawlog BF		TOTAL	12	14	16	18	20	22	24	26	28	30	32+
American	VOL	18,763.9	1,386.0	2,955.2		6,146.0	2,939.2	5,337.5					
	TREES	93.1	20.2	29.7		20.2	10.9	12.0					
American beech	VOL	39,187.8		3,007.5	6,576.2	2,718.3	4,044.1	3,126.3	15,737.6				3,977.8
	TREES	134.3		22.3	39.8	9.0	21.8	9.0	30.3				2.0
black gum	VOL	1,630.3		1,630.3									
	TREES	14.9		14.9									
black oak	VOL	39,243.0				9,375.4	5,265.0	15,922.8		8,679.7			
	TREES	78.0				33.7	10.9	25.6		7.8			
black walnut	VOL	4,541.5				4,541.5							
	TREES	18.0				18.0							
chestnut oak	VOL	32,859.1		5,089.9	4,230.9	17,725.5			5,812.8				
	TREES	141.1		44.6	17.1	71.9			7.6				
chinkapin oak	VOL	17,301.1	1,743.2	5,089.9		4,541.5	5,926.5						
	TREES	128.9	20.2	74.3		18.0	16.4						
hickory	VOL	100,318.1	5,229.5	18,159.0	31,394.5	12,838.8	5,149.7	14,201.1	7,058.4	6,287.3			
	TREES	466.3	75.8	141.2	157.0	42.7	10.9	24.4	9.1	5.2			
northern red oak	VOL	110,132.6		5,142.1	3,591.7	14,254.7	19,269.4	18,503.8	5,653.0	9,314.8	17,047.7	8,923.7	8,431.7
	TREES	258.2		66.9	13.7	49.4	44.8	33.4	10.1	10.3	17.3	7.3	5.1
Ohio buckeye	VOL	12,785.9				7,448.3		5,337.5					
	TREES	34.5				22.5		12.0					
post oak	VOL	3,789.3				3,789.3							
	TREES	18.0				18.0							
red elm	VOL	2,134.7		2,134.7									
	TREES	44.6		44.6									
red maple	VOL	3,007.5		3,007.5									
	TREES	22.3		22.3									
sassafras	VOL	2,454.3			2,454.3								
	TREES	17.1			17.1								
scarlet oak	VOL	13,684.5				5,540.0							8,144.5
	TREES	25.9				20.2							5.7
sugar maple	VOL	30,657.9	4,872.3	10,232.0	2,454.3	13,099.3							
	TREES	230.3	70.8	81.7	17.1	60.7							
white oak	VOL	298,584.8	10,773.6	28,924.2	67,704.4	49,603.2	58,986.7	35,077.9	21,240.3	17,994.6	8,280.1		
	TREES	1,235.2	151.7	245.2	352.7	191.9	169.6	65.0	29.8	18.1	11.1		
yellow poplar	VOL	14,261.4	2,397.8			11,863.6							
	TREES	76.9	40.4			36.4							
TOTAL	VOL	745,337.6	26,402.3	85,372.1	118,406.2	163,485.4	101,580.6	97,506.9	55,502.0	42,276.4	25,327.9	8,923.7	20,554.0
	TREES	3,037.3	379.2	787.5	614.3	612.6	285.4	181.4	87.0	41.4	28.4	7.3	12.7

Stand History: TSI - Grapevine control

Topography: Sloping

Site Index Value and Species: Wk-northern red oak 81, yellow poplar 90; Gs-northern red oak 78, yellow poplar 95; St-Virginia pine 70; Br-northern red oak 86, yellow poplar 96.

Stand Age Estimation: >65 years according to the information provided.

Average Canopy Height: 75' to 85'

Invasive plants or insects impacting this stand: Ailanthus, autumn olive, Japanese stiltgrass, and wild grape.

Level of invasive plants in the stand: Slight

Client Objectives: Produce quality timber and improve wildlife habitat.

Stand Description: This stand is composed of white oak, hickory, sugar maple, American beech, northern red oak, chestnut oak, American basswood, black oak, yellow poplar, red maple, chinkapin oak, buckeye, black cherry, scarlet oak, eastern hophornbeam, sassafras, post oak, black gum, American elm, black walnut, red elm, ash, leatherwood, spicebush, and pawpaw. This stand is dominated by oaks and hickory with the midstory and understory having a significant amount of sugar maple and American beech. There is a slight infestation of invasive plants that should be controlled, including Japanese stiltgrass on the trails. The quality of this stand is good quality and would benefit from oak management. There is a dense midstory/understory of shade tolerant trees that are suppressing the regeneration of oaks and hickories. Doing a midstory removal would be wise prior to considering a harvest in this stand. This stand could be a good candidate for prescribed burning to help promote the growth of oaks in the stand. A timber harvest is possible, but not necessary in the stand.

*There is a spot in the stand where there was a cluster of oak mortality. When the field work was completed, it was not clear what was causing the issue. However, oak wilt has become a serious issue in some parts of Ohio. Having a forest health specialist from the Ohio Division of Forestry look at them in June/July would be a good idea. The cluster is located at coordinates 39.393867, -81.883477. If it is found to be oak wilt, there are recommendations for killing some of the trees near the site to prevent the spread of the disease through the roots and root grafts.

Past management activities completed in this stand: Some wild grape control.

Management Recommendations:	***EQIP Practice Code:***	***EQIP Practice Name:***
Control the non-native invasive plants and most of the wild grape according to the information provided.	314	Removal of Invasive Woody Understory
Control the Japanese stiltgrass according to the information provided.	315	Herbaceous Weed Treatment
Consider doing a midstory removal of the shade tolerant species to improve growing conditions for oaks.	666	Forest Stand Improvement-Midstory Removal
Consider a harvest to promote oak growth after establishing oak regeneration.		
Have an Ohio Division of Forestry Forest Health Specialist come out to look at the oak mortality in early summer.		

Is a timber harvest recommended? Maybe Single Tree and Small Group Selection

Comments: The harvest technique used in this stand should be one that is silvicultural in nature and promotes oak growth.

Desired Future Conditions:

Desired Forest Type or Dominant Vegetation: Oak-Hickory
Desired Stand Structure: Even Aged

Descriptions of Alternatives and Preferred Alternative to meet desired future conditions: (Include potential impacts to resource concerns for preferred alternative)
This stand could have the invasive plants controlled and be left alone. The trees are not necessarily maximizing growth, but they are also not declining. White oaks are extermely long-lived compared to other species.

Natural & Cultural Features: None were noted, but an exhaustive search was not made. As a forester, I am not an expert when it comes to cultural resources, but from my very basic knowledge, I did not notice anything culturally significant or naturally unique. For more information see the "Special Sites" appendix of this plan.

Stand Health: The health of this stand is fair. There are no significant health issues with the trees, but there are non-native invasive plants present leading to a degraded condition.

Fish & Wildlife Species & Habitat: This stand has significant wildlife value as a variety of species utilize white oaks. Everything from native insects up to deer utilize these trees. For more information see the "Wildlife" and "Pollinators" appendices of this plan.

Protected Plant & Animal Species: None were noted, but an exhaustive search was not conducted. For more information see the "Threatened & Endangered Species" appendix to this plan.

Air, Water, and Soil Protection: No issues were noted. For more information see the "Soils", "Best Management Practices", "Water", "Wetlands", "Fire", & "Carbon Cycle" appendices of this plan.

STAND 7 **Stand G** **Sampling Method: Variable Radius Plots**

ACRES 123.9 **Basal Area Factor: 10.00** **26 PTS**

STATISTICAL ANALYSIS

Confidence Interval: 90	BA	TPA	DBH	MHT	VOLUME PER ACRE BF	VOLUME PER ACRE TONS
Average	107.3	299.2	8.1	25.7	6,015.64	17.59
Sampling Error	8.0%	23.9%			12.8%	13.0%
Probable Lower Limit	98.8	227.6			5,245.39	15.31
Probable Upper Limit	115.9	370.8			6,785.89	19.87

SPECIES COMPOSITION

	BA		TPA		AVG MHT	VOLUME PER ACRE BF	VOLUME PER ACRE TONS	TOTAL STAND VOLUME BF	TOTAL STAND VOLUME TONS
	107.3		299.2		25.7	6,015.64	17.59	745,337.57	2,179.49
white oak	30.0	28.0%	29.7	9.9%	45.6	2,409.89	4.83	298,584.83	598.82
sugar maple	21.2	19.7%	115.3	38.5%	17.6	247.44	2.07	30,657.93	257.03
hickory	12.3	11.5%	17.6	5.9%	45.3	809.67	2.49	100,318.14	308.97
American beech	8.1	7.5%	38.9	13.0%	29.3	316.29	2.61	39,187.81	323.59
northern red oak	8.1	7.5%	5.7	1.9%	51.4	888.88	1.59	110,132.58	196.85
chestnut oak	4.6	4.3%	10.2	3.4%	37.3	265.21	0.76	32,859.09	93.71
American basswood	3.8	3.6%	11.5	3.9%	28.0	151.44	0.49	18,763.93	61.00
black oak	3.5	3.2%	4.8	1.6%	50.7	316.73	0.66	39,242.99	81.34
yellow poplar	3.5	3.2%	11.4	3.8%	32.0	115.10	0.53	14,261.36	65.19
red maple	3.1	2.9%	12.7	4.2%	20.0	24.27	0.34	3,007.46	42.29
chinkapin oak	1.9	1.8%	1.6	0.5%	36.8	139.64	0.20	17,301.09	24.74
Ohio buckeye	1.5	1.4%	5.0	1.7%	34.0	103.20	0.29	12,785.88	35.51
black cherry	1.2	1.1%	2.7	0.9%	34.7		0.26		32.18
scarlet oak	1.2	1.1%	2.2	0.7%	37.3	110.45	0.13	13,684.48	15.49
eastern hophornbeam	1.2	1.1%	24.0	8.0%	2.7		0.01		1.62
sassafras	0.4	0.4%	0.3	0.1%	32.0	19.81	0.09	2,454.27	10.55
black gum	0.4	0.4%	0.4	0.1%	32.0	13.16	0.12	1,630.27	15.38
American elm	0.4	0.4%	4.4	1.5%	0.0				
black walnut	0.4	0.4%	0.2	0.1%	40.0	36.65	0.04	4,541.52	5.08
red elm	0.4	0.4%	0.4	0.1%	16.0	17.23		2,134.65	
post oak	0.4	0.4%	0.2	0.1%	40.0	30.58	0.08	3,789.29	10.16

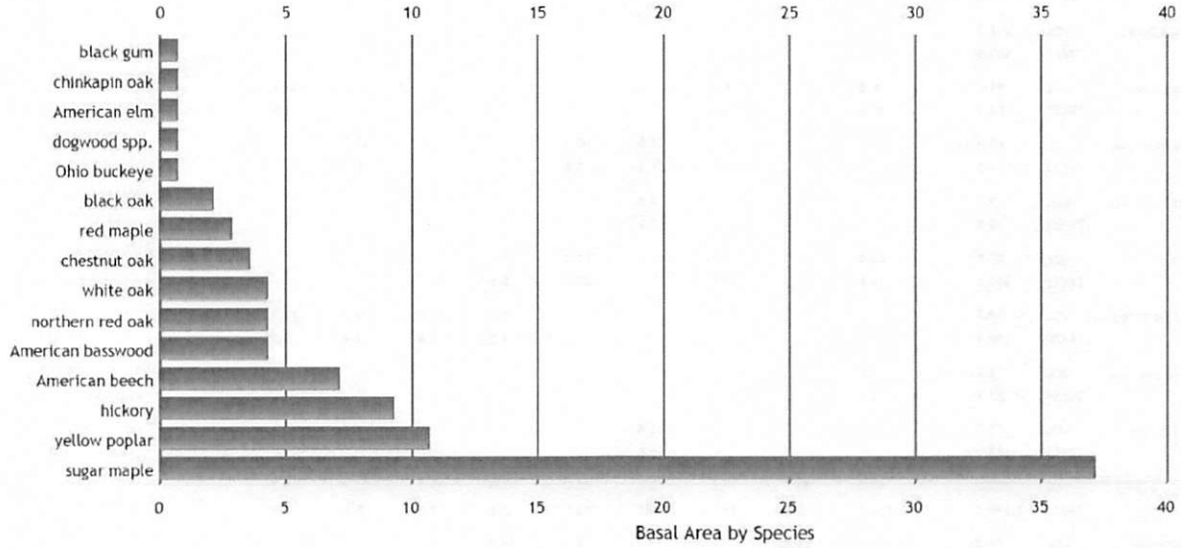
Stand # I - 52.1 acres

Dominant Species: Sugar Maple, Yellow Poplar, and Hickory

Forest Type or Dominant Vegetation: As Listed in Dominant Species

Stand Diameter or Size Class: Poletimber to Medium Sawtimber

Stocking Level: Fully stocked **Basal Area:** 89 **(ft2/acre)**



Trees per acre: 256

Diameter Distribution by Species:

STAND 8 Stand I — Sampling Method: Variable Radius Plots

ACRES 52.1 — Basal Area Factor: 10.00 — 14 PTS

Pulp

Tons

		TOTAL	12	14	16	18	20	22	24	26	28	30	32+
American	VOL	41.6		14.0		11.9	15.7						
	TREES	60.2		34.8		14.0	11.4						
American beech	VOL	163.5	12.7		9.3	13.1							124.6
	TREES	195.7	47.4		13.3	10.5							17.8
American elm	VOL	1.3											
	TREES	189.5											
black gum	VOL	1.3											
	TREES	189.5											
black oak	VOL	48.0	6.8		6.6						34.7		
	TREES	51.4	31.6		13.3						6.5		
chestnut oak	VOL	60.4				26.6	10.7			21.7			
	TREES	224.2				21.1	8.5			5.0			
chinkapin oak	VOL	9.6				9.6							
	TREES	10.5				10.5							
hickory	VOL	87.5	23.8		18.1		21.8	9.5					
	TREES	335.8	94.8		39.5		21.0	5.6					
northern red oak	VOL	54.2						8.5	11.2	10.4	19.7		
	TREES	124.4						4.7	3.9	3.4	5.8		
Ohio buckeye	VOL	4.8	4.8										
	TREES	23.7	23.7										
red maple	VOL	27.0				11.4							
	TREES	374.9				10.5							
sugar maple	VOL	303.0	47.7	33.7	51.5	12.2	38.0	3.3	15.3	21.4	16.3		
	TREES	1,699.8	221.1	92.8	93.3	14.0	28.1	3.5	7.9	5.0	4.4		
white oak	VOL	44.2		21.4			8.6	14.2					
	TREES	64.5		46.4			6.8	11.3					
yellow poplar	VOL	120.1	23.5	11.8	9.9	2.6		41.1		9.8	16.3		
	TREES	460.3	79.0	29.0	22.2	5.3		21.1		4.0	3.5		
TOTAL	VOL	966.4	119.3	81.0	95.3	87.5	94.9	76.7	26.4	63.4	87.0		124.6
	TREES	4,004.5	497.5	203.4	181.7	86.0	75.9	46.3	11.8	17.5	20.2		17.8

Sawlog

BF

		TOTAL	12	14	16	18	20	22	24	26	28	30	32+
American	VOL	12,743.5		3,942.4		6,505.8	2,295.3						
	TREES	68.6		34.8		28.1	5.7						

American beech	VOL	5,741.5			2,702.7	3,038.8					
	TREES	23.9			13.3	10.5					
black oak	VOL	6,603.5	1,361.3		3,304.0						1,938.2
	TREES	31.3	15.8		13.3						2.2
chestnut oak	VOL	13,912.4				6,077.6	4,021.5			3,813.2	
	TREES	34.6				21.1	8.5			5.0	
chinkapin oak	VOL	3,789.6				3,789.6					
	TREES	10.5				10.5					
hickory	VOL	36,828.0	3,805.0		14,323.5		13,484.1	5,215.4			
	TREES	153.1	47.4		67.1		30.1	8.5			
northern red oak	VOL	25,199.6						4,228.1	3,595.6	4,682.5	12,693.5
	TREES	35.6						9.4	7.9	6.7	11.6
Ohio buckeye	VOL	1,361.3	1,361.3								
	TREES	23.7	23.7								
red maple	VOL	2,995.2				2,995.2					
	TREES	10.5				10.5					
sugar maple	VOL	97,842.3	10,006.6	14,069.4	21,421.3	10,719.7	15,708.3	5,575.3	11,600.0	3,813.2	4,928.6
	TREES	545.6	157.9	116.0	146.6	49.1	40.1	10.6	15.8	5.0	4.4
white oak	VOL	20,387.3		3,334.0			5,023.3	12,030.0			
	TREES	50.4		23.2			10.2	16.9			
yellow poplar	VOL	40,447.2	1,361.3	4,656.4	6,453.1	4,799.6		4,300.1		12,759.8	6,116.9
	TREES	131.7	15.8	40.6	31.1	15.8		7.0		16.1	5.2
TOTAL	VOL	267,851.3	17,895.4	26,002.3	48,204.6	37,926.2	40,532.4	31,348.9	15,195.5	25,068.7	25,677.2
	TREES	1,119.4	260.6	214.7	271.4	145.7	94.7	52.4	23.7	33.0	23.4

Stand History: TSI - Cull tree removal

Topography: Sloping

Site Index Value and Species: Wk-northern red oak 81, yellow poplar 90; Gs-northern red oak 78, yellow poplar 95; St-Virginia pine 70.

Stand Age Estimation: >65 according to the aerial imagery.

Average Canopy Height: 95' to 105'

Invasive plants or insects impacting this stand: Ailanthus, autumn olive, Japanese stiltgrass, and wild grape.

Level of invasive plants in the stand: Slight

Client Objectives: Produce quality timber and improve wildlife habitat.

Stand Description: This stand is composed of sugar maple, yellow poplar, hickory, American beech, American basswood, northern red oak, white oak, chestnut oak, red maple, black oak, buckeye, dogwood, American elm, chinkapin oak, black gum, pawpaw, eastern hophornbeam, spicebush, black walnut, and American sycamore. This stand is considered a mesic site, which is one that has moisture in the soil but is still well drained. This is an ideal site for sugar maple, yellow poplar, and some northern red oak. So, managing for these species makes the most sense. There was some cull tree removal completed through EQIP with moderate success. There is a slight infestation of non-native invasive plants that should be controlled. There is also Japanese stiltgrass on the trails that should be controlled. More cull tree removal could be done of the poorly formed trees, and American beech that are showing signs of decay. A very light harvest

could be done in this stand, but it would likely only be feasible if done in conjunction with a harvest elsewhere on the property.

Past management activities completed in this stand: Some cull tree removal.

Management Recommendations:	***EQIP Practice Code:***	***EQIP Practice Name:***
Control the non-native invasive plants and most of the wild grape according to the information provided.	314	Removal of Invasive Woody Understory
Control the Japanese stiltgrass according to the information provided.	315	Herbaceous Weed Treatment
Consider doing more cull tree removal to remove the poorly formed trees and large American beech showing signs of decay.		

Is a timber harvest recommended? No

Comments: A harvest could be done, but isn't necessary. If done, it would be a light harvest that would need to be in conjunction with harvest activites elsewhere on the proeprty.

Desired Future Conditions:

Desired Forest Type or Dominant Vegetation: As Listed in Dominant Species
Desired Stand Structure: Uneven Aged

Descriptions of Alternatives and Preferred Alternative to meet desired future conditions:
(Include potential impacts to resource concerns for preferred alternative)
The different options are presented in the stand description and recommendations.

Natural & Cultural Features: None were noted, but an exhaustive search was not made. As a forester, I am not an expert when it comes to cultural resources, but from my very basic knowledge, I did not notice anything culturally significant or naturally unique. For more information see the "Special Sites" appendix of this plan.

Stand Health: The health of this stand is fair. There are no significant health issues with the trees, but there are non-native invasive plants present leading to a degraded condition.

Fish & Wildlife Species & Habitat: This stand has wildlife value, but other parts of the property have better sources of mast. For more information see the "Wildlife" and "Pollinators" appendices of this plan.

Protected Plant & Animal Species: None were noted, but an exhaustive search was not conducted. For more information see the "Threatened & Endangered Species" appendix to this plan.

Air, Water, and Soil Protection: No issues were noted. For more information see the "Soils", "Best Management Practices", "Water", "Wetlands", "Fire", & "Carbon Cycle" appendices of this plan.

STAND 8 Stand I

Sampling Method: Variable Radius Plots

ACRES 52.1

Basal Area Factor: 10.00 14 PTS

STATISTICAL ANALYSIS

Confidence Interval: 90	BA	TPA	DBH	MHT	VOLUME PER ACRE BF	VOLUME PER ACRE TONS
Average	89.3	256.3	8.0	32.3	5,141.10	18.55
Sampling Error	7.9%	38.0%			17.0%	24.6%
Probable Lower Limit	82.2	159.0			4,264.97	13.98
Probable Upper Limit	96.3	353.6			6,017.22	23.12

SPECIES COMPOSITION

	BA		TPA		AVG MHT	VOLUME PER ACRE BF	VOLUME PER ACRE TONS	TOTAL STAND VOLUME BF	TOTAL STAND VOLUME TONS
	89.3		256.3		32.3	5,141.10	18.55	267,851.30	966.38
sugar maple	37.1	41.6%	135.2	52.7%	33.1	1,877.97	5.82	97,842.27	303.01
yellow poplar	10.7	12.0%	11.6	4.5%	42.7	776.34	2.30	40,447.19	120.06
hickory	9.3	10.4%	9.4	3.7%	49.2	706.87	1.68	36,827.96	87.47
American beech	7.1	8.0%	45.2	17.6%	25.6	110.20	3.14	5,741.49	163.46
American basswood	4.3	4.8%	10.7	4.2%	33.3	244.60	0.80	12,743.49	41.62
northern red oak	4.3	4.8%	3.1	1.2%	49.3	483.68	1.04	25,199.62	54.18
white oak	4.3	4.8%	10.4	4.1%	53.3	391.31	0.85	20,387.33	44.22
chestnut oak	3.6	4.0%	5.0	1.9%	46.4	267.03	1.16	13,912.38	60.38
red maple	2.9	3.2%	7.4	2.9%	28.0	57.49	0.52	2,995.23	27.02
black oak	2.1	2.4%	1.6	0.6%	48.0	126.75	0.92	6,603.50	48.01
Ohio buckeye	0.7	0.8%	0.9	0.4%	32.0	26.13	0.09	1,361.29	4.79
dogwood spp.	0.7	0.8%	8.2	3.2%	0.0				
American elm	0.7	0.8%	3.6	1.4%	8.0		0.02		1.26
chinkapin oak	0.7	0.8%	0.4	0.2%	64.0	72.74	0.18	3,789.56	9.63
black gum	0.7	0.8%	3.6	1.4%	8.0		0.02		1.28

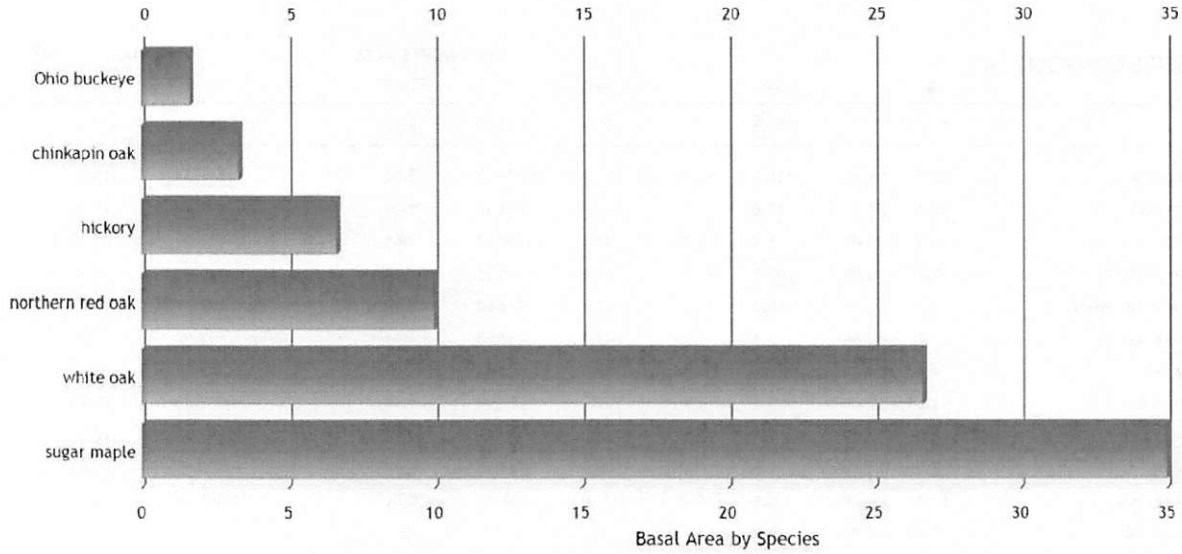
Stand # K - 14.4 acres

Dominant Species: White Oak, Sugar Maple, and Northern Red Oak

Forest Type or Dominant Vegetation: Upland Central Hardwoods

Stand Diameter or Size Class: Poletimber to Medium Sawtimber

Stocking Level: Fully stocked **Basal Area:** 83 **(ft2/acre)**



Trees per acre: 132

Diameter Distribution by Species:

STAND 9 Stand K — Sampling Method: Variable Radius Plots

ACRES 14.4 — Basal Area Factor: 10.00 — 6 PTS

Pulp Tons

		TOTAL	12	14	16	18	20	22	24	26	28	30	32+
chinkapin oak	VOL	5.1				5.1							
	TREES	4.5				4.5							
hickory	VOL	12.1				6.2	5.9						
	TREES	12.7				9.1	3.7						
northern red oak	VOL	45.7					7.1		31.9	6.7			
	TREES	20.0					6.4		11.5	2.2			
Ohio buckeye	VOL	2.4											
	TREES	68.8											
sugar maple	VOL	83.6	3.1	13.4	2.1	3.5	8.5						
	TREES	866.0	15.3	29.9	5.7	6.8	5.5						
white oak	VOL	37.0			2.1	5.1	6.9	8.8	5.0	3.4			
	TREES	73.1			5.7	9.1	5.5	5.3	1.9	1.6			
TOTAL	VOL	185.9	3.1	13.4	4.2	20.0	28.5	8.8	36.9	10.1			
	TREES	1,045.2	15.3	29.9	11.5	29.4	21.1	5.3	13.4	3.8			

Sawlog BF

		TOTAL	12	14	16	18	20	22	24	26	28	30	32+
chinkapin oak	VOL	3,945.2				1,908.4	2,036.8						
	TREES	20.1				9.1	11.0						
hickory	VOL	9,072.0				3,779.5	5,292.5						
	TREES	36.4				18.1	18.3						
northern red oak	VOL	15,804.5					5,529.2		7,255.5	3,019.8			
	TREES	31.4					15.6		11.5	4.3			
sugar maple	VOL	8,091.8	877.9	1,724.4	2,030.9	1,369.0	2,089.6						
	TREES	54.0	15.3	15.0	11.5	6.8	5.5						
white oak	VOL	37,491.6	877.9		2,030.9	14,385.5	7,331.3	5,798.5	3,479.2	3,588.2			
	TREES	165.4	30.6		11.5	72.4	27.5	12.9	5.7	4.9			
TOTAL	VOL	74,404.9	1,755.8	1,724.4	4,061.8	21,442.5	22,279.3	5,798.5	10,734.7	6,608.0			
	TREES	307.3	45.8	15.0	22.9	106.4	77.9	12.9	17.2	9.2			

Stand History: Unknown Delete 2nd box text if not "Other"; Explain if "Other" is listed

Topography: Sloping

Site Index Value and Species: Wk-northern red oak 81, yellow poplar 90.

Stand Age Estimation: >65 years according to the aerial imagery.

Average Canopy Height: 85' to 95'

Invasive plants or insects impacting this stand: Japanese barberry, autumn olive, and Japanese stiltgrass

Level of invasive plants in the stand: Very Slight

Client Objectives: Produce quality timber and improve wildlife habitat.

Stand Description: This stand is composed of white oak, sugar maple, northern red oak, hickory, chinkapin oak, buckeye, American basswood, ash, black gum, eastern hophornbeam,

and black cherry. There was cull tree removal done in this stand, with good success. The stocking is such that these trees are growing productively. There are trees that could be harvested, but it is recommended to let them keep growing through this planning cycle with the possibility of a light harvest in the next planning cycle. There is a very slight infestation of invasive plants that should be very easy to control. The Japanese stiltgrass is present in the sunny spots.

Past management activities completed in this stand: Cull tree removal and wild grape control.

Management Recommendations:	***EQIP Practice Code:***	***EQIP Practice Name:***
Control the non-native invasive plants and most of the wild grape according to the information provided.	314	Removal of Invasive Woody Understory
Control the Japanese stiltgrass according to the information provided.	315	Herbaceous Weed Treatment

Is a timber harvest recommended? No

Comments: This stand is in good shape and is growing productively.

Desired Future Conditions:

Desired Forest Type or Dominant Vegetation: Upland Central Hardwoods
Desired Stand Structure: Even Aged

Descriptions of Alternatives and Preferred Alternative to meet desired future conditions:
(Include potential impacts to resource concerns for preferred alternative)
No other management is recommended.

Natural & Cultural Features: None were noted, but an exhaustive search was not made. As a forester, I am not an expert when it comes to cultural resources, but from my very basic knowledge, I did not notice anything culturally significant or naturally unique. For more information see the "Special Sites" appendix of this plan.

Stand Health: The health of this stand is fair. There are no significant health issues with the trees, but there are non-native invasive plants present leading to a degraded condition.

Fish & Wildlife Species & Habitat: This stand is providing quality habitat for wildlife by providing a good source of hard mast. For more information see the "Wildlife" and "Pollinators" appendices of this plan.

Protected Plant & Animal Species: None were noted, but an exhaustive search was not conducted. For more information see the "Threatened & Endangered Species" appendix to this plan.

Air, Water, and Soil Protection: No issues were noted. For more information see the "Soils", "Best Management Practices", "Water", "Wetlands", "Fire", & "Carbon Cycle" appendices of this plan.

STAND 9 Stand K

Sampling Method: Variable Radius Plots

ACRES 14.4

Basal Area Factor: 10.00 6 PTS

STATISTICAL ANALYSIS

Confidence Interval: 90	BA	TPA	DBH	MHT	VOLUME PER ACRE BF	VOLUME PER ACRE TONS
Average	83.3	132.1	10.8	25.5	5,167.01	12.91
Sampling Error	35.1%	42.1%			49.3%	54.3%
Probable Lower Limit	54.1	76.5			2,621.01	5.91
Probable Upper Limit	112.6	187.7			7,713.01	19.92

SPECIES COMPOSITION

	BA		TPA		AVG MHT	VOLUME PER ACRE BF	VOLUME PER ACRE TONS	TOTAL STAND VOLUME BF	TOTAL STAND VOLUME TONS
	83.3		132.1		25.5	5,167.01	12.91	74,404.93	185.93
sugar maple	35.0	42.0%	102.1	77.3%	22.5	561.93	5.80	8,091.75	83.55
white oak	26.7	32.0%	16.6	12.5%	38.5	2,603.58	2.57	37,491.57	37.02
northern red oak	10.0	12.0%	3.6	2.7%	49.3	1,097.53	3.18	15,804.49	45.72
hickory	6.7	8.0%	3.4	2.6%	38.0	630.00	0.84	9,071.95	12.09
chinkapin oak	3.3	4.0%	1.7	1.3%	32.0	273.97	0.36	3,945.17	5.12
Ohio buckeye	1.7	2.0%	4.8	3.6%	16.0		0.17		2.41

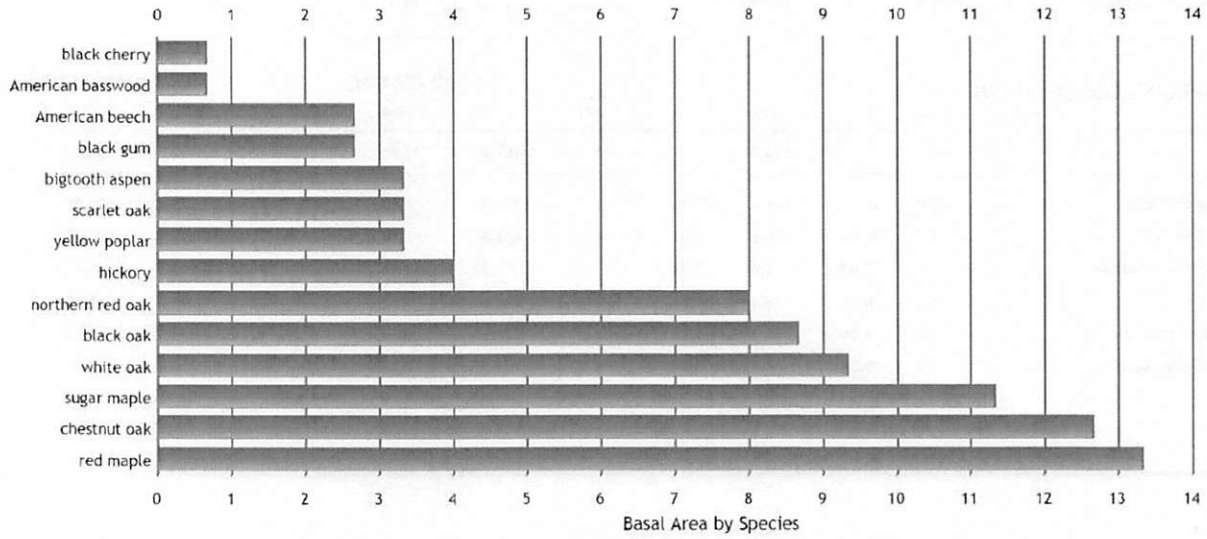
Stand # L - 133.9 acres

Dominant Species: White Oak, Sugar Maple, Yellow Poplar, Red Maple, and Chestnut Oak.

Forest Type or Dominant Vegetation: Upland Central Hardwoods

Stand Diameter or Size Class: Poletimber/Small sawtimber

Stocking Level: Fully stocked **Basal Area:** 84 **(ft2/acre)**



Trees per acre: 244

Diameter Distribution by Species:

STAND 10 Stand L

Sampling Method: Variable Radius Plots

ACRES 133.9

Basal Area Factor: 10.00 15 PTS

Pulp

Tons

		TOTAL	12	14	16	18	20	22	24	26	28	30	32+
American	VOL	16.2	16.2										
	TREES	75.8	75.8										
American beech	VOL	48.9	11.5	15.9									
	TREES	262.2	56.8	41.8									
bigtooth aspen	VOL	26.6			14.8	10.3							
	TREES	104.5			37.3	12.6							
black cherry	VOL	23.0											
	TREES	163.7											
black gum	VOL	50.5		38.3									
	TREES	793.9		83.5									
black oak	VOL	135.8	7.6	51.3		21.8	42.6						
	TREES	963.1	56.8	139.2		29.5	27.3						
chestnut oak	VOL	147.1	23.2	16.8	33.8	33.0	40.2						
	TREES	288.7	113.7	41.8	63.9	42.1	27.3						
hickory	VOL	54.3			19.1								
	TREES	916.7			42.6								
northern red oak	VOL	138.5	25.0	5.9	48.6	13.2			22.8				
	TREES	470.7	132.6	27.8	111.9	25.3			9.5				
red maple	VOL	295.8	50.5	85.0			11.0						
	TREES	3,143.4	170.5	208.8			13.6						
scarlet oak	VOL	36.7		15.9	7.8		12.9						
	TREES	90.6		55.7	21.3		13.6						
sugar maple	VOL	177.9	32.4		7.8	14.3	31.8						
	TREES	2,560.9	132.6		21.3	20.2	20.5						
white oak	VOL	129.2	7.6	67.1	19.8	14.7			20.1				
	TREES	325.8	56.8	208.8	32.0	16.8			11.4				
yellow poplar	VOL	43.1		7.6	19.8	15.7							
	TREES	92.6		27.8	32.0	32.8							
TOTAL	VOL	1,323.6	174.0	303.8	171.5	122.9	138.5		42.9				
	TREES	10,252.6	795.6	835.0	362.3	179.3	102.3		20.8				

Sawlog

BF

		TOTAL	12	14	16	18	20	22	24	26	28	30	32+
American	VOL	3,265.3	3,265.3										
	TREES	37.9	37.9										

American beech	VOL	7,264.0	3,265.3	3,998.7				
	TREES	98.6	56.8	41.8				
bigtooth aspen	VOL	40,527.6			26,736.6	10,377.7		
	TREES	301.5			154.5	37.9		
black oak	VOL	67,431.9	3,265.3	32,922.6		27,272.9	3,971.0	
	TREES	554.4	56.8	361.8		122.1	13.6	
chestnut oak	VOL	99,818.2		19,030.0	50,034.3	13,599.3	17,154.6	
	TREES	789.3		292.3	383.6	58.9	54.6	
hickory	VOL	24,607.1			24,607.1			
	TREES	149.2			149.2			
northern red oak	VOL	69,168.5	6,530.7	11,812.6	35,007.9	5,092.0		10,725.4
	TREES	485.9	94.7	139.2	207.8	25.3		18.9
red maple	VOL	30,207.2	3,265.3	17,629.7			9,312.1	
	TREES	209.4	56.8	125.3			27.3	
scarlet oak	VOL	35,962.1		10,916.1	7,553.8	9,866.4	7,625.7	
	TREES	231.8		111.3	42.6	50.5	27.3	
sugar maple	VOL	33,353.0	7,316.7		7,553.8	10,710.4	7,772.1	
	TREES	188.1	94.7		42.6	30.3	20.5	
white oak	VOL	87,133.8	6,530.7	41,523.8	4,597.4	19,430.1		15,051.8
	TREES	679.5	170.5	375.8	32.0	84.2		17.0
yellow poplar	VOL	40,693.5		6,587.4	12,017.5	22,088.6		
	TREES	219.8		55.7	95.9	68.2		
TOTAL	VOL	539,432.3	33,439.4	144,421.0	168,108.5	118,437.3	45,835.5	25,777.2
	TREES	3,945.2	568.3	1,503.1	1,108.2	477.4	143.2	36.0

Stand History: Harvesting - "Select cut"

Topography: Sloping

Site Index Value and Species: Wk/Wh-northern red oak 81, yellow poplar 90.

Stand Age Estimation: >65 years according to the aerial imagery.

Average Canopy Height: 75' to 85'

Invasive plants or insects impacting this stand: Ailanthus, autumn olive, Japanese barberry, multiflora rose, and Japanese stiltgrass.

Level of invasive plants in the stand: Significant

Client Objectives: Produce quality timber.

Stand Description: This stand is composed of red maple, chestnut oak, sugar maple, white oak, black oak, northern red oak, hickory, yellow poplar, scarlet oak, bigtooth aspen, black gum, American beech, American basswood, black cherry, dogwood, and maple-leaf viburnum. The stand was harvested in the last five years with most of the trees larger than 18" DBH being removed. There are some trees that have grown into the 20" DBH size class and there are some larger trees that were left, but most of them are showing signs of decay or have quality issues. There is a significant issue with invasive plants in this stand, especially with Ailanthus and Japanese stiltgrass. There is stiltgrass on most of the trails in the stand. The control of the invasive plants should be a priority as they are thriving in the sunlight. The trees that are considered cull trees due to undesirable species (American beech) or due to poor form should be

cut or girdled (using herbicide) to allow growing space for oaks. This will also prevent the undesirable species from continuing to seed the site.

Past management activities completed in this stand: There was wild grape and Ailanthus control prior to the harvest.

Management Recommendations:	***EQIP Practice Code:***	***EQIP Practice Name:***
Control the non-native invasive plants and most of the wild grape according to the information provided.	314	Removal of Invasive Woody Understory
Control the Japanese stiltgrass according to the information provided.	315	Herbaceous Weed Treatment
Consider removing the poorly formed, decaying, and undesirable species to improve the growing conditions for oaks and to prevent the undesirable trees from providing a seed source.	666	Forest Stand Improvement

Is a timber harvest recommended? No

Comments: This stand should not be harvested in this planning cycle.

Desired Future Conditions:

Desired Forest Type or Dominant Vegetation: As Listed in Dominant Species
Desired Stand Structure: Uneven Aged

Descriptions of Alternatives and Preferred Alternative to meet desired future conditions:
(Include potential impacts to resource concerns for preferred alternative)
This stand could just have the invasives controlled and the cull trees left. This will continue to push the stand towards American beech and red maple.

Natural & Cultural Features: None were noted, but an exhaustive search was not made. As a forester, I am not an expert when it comes to cultural resources, but from my very basic knowledge, I did not notice anything culturally significant or naturally unique. For more information see the "Special Sites" appendix of this plan.

Stand Health: The health of this stand is fair. There are no significant health issues with the trees, but there are non-native invasive plants present leading to a degraded condition.

Fish & Wildlife Species & Habitat: This stand provides some cover and mast for wildlife. For more information see the "Wildlife" and "Pollinators" appendices of this plan.

Protected Plant & Animal Species: None were noted, but an exhaustive search was not conducted. For more information see the "Threatened & Endangered Species" appendix to this plan.

Air, Water, and Soil Protection: No issues were noted. The BMPs were installed well. For more information see the "Soils", "Best Management Practices", "Water", "Wetlands", "Fire", & "Carbon Cycle" appendices of this plan.

STAND 10 Stand L — Sampling Method: Variable Radius Plots

ACRES 133.9 — Basal Area Factor: 10.00 15 PTS

STATISTICAL ANALYSIS

Confidence Interval: 90	BA	TPA	DBH	MHT	VOLUME PER ACRE BF	VOLUME PER ACRE TONS
Average	84.0	243.5	8.0	27.2	4,028.62	9.88
Sampling Error	14.6%	28.6%			19.9%	21.3%
Probable Lower Limit	71.7	173.8			3,228.79	7.78
Probable Upper Limit	96.3	313.2			4,828.45	11.99

SPECIES COMPOSITION

	BA		TPA		AVG MHT	VOLUME PER ACRE BF	VOLUME PER ACRE TONS	TOTAL STAND VOLUME BF	TOTAL STAND VOLUME TONS
	84.0		243.5		27.2	4,028.62	9.88	539,432.32	1,323.57
red maple	13.3	15.9%	40.3	16.6%	24.8	225.60	2.21	30,207.24	295.84
chestnut oak	12.7	15.1%	31.0	12.7%	27.4	745.47	1.10	99,818.17	147.07
sugar maple	11.3	13.5%	74.0	30.4%	22.1	249.09	1.33	33,352.98	177.94
white oak	9.3	11.1%	38.1	15.6%	37.7	650.74	0.96	87,133.82	129.18
black oak	8.7	10.3%	11.3	4.7%	33.8	503.60	1.01	67,431.88	135.78
northern red oak	8.0	9.5%	7.1	2.9%	36.0	516.57	1.03	69,168.52	138.51
hickory	4.0	4.8%	8.0	3.3%	33.3	183.77	0.41	24,607.13	54.26
yellow poplar	3.3	4.0%	2.3	1.0%	46.4	303.91	0.32	40,693.50	43.06
scarlet oak	3.3	4.0%	2.4	1.0%	35.2	268.57	0.27	35,962.07	36.66
bigtooth aspen	3.3	4.0%	3.0	1.2%	49.6	302.67	0.20	40,527.64	26.59
black gum	2.7	3.2%	13.6	5.6%	12.0		0.38		50.51
American beech	2.7	3.2%	10.3	4.2%	22.0	54.25	0.37	7,264.04	48.94
American basswood	0.7	0.8%	0.8	0.3%	40.0	24.39	0.12	3,265.34	16.19
black cherry	0.7	0.8%	1.2	0.5%	32.0		0.17		23.02

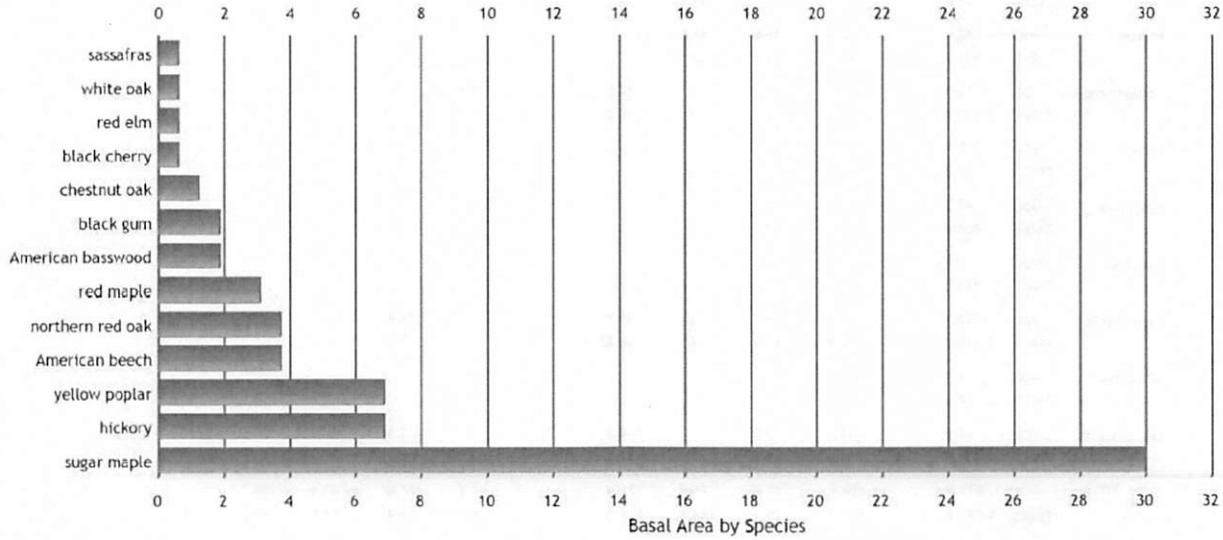
Stand # M - 77.4 acres

Dominant Species: Sugar Maple, Hickory, Yellow Poplar

Forest Type or Dominant Vegetation: As Listed in Dominant Species

Stand Diameter or Size Class: Poletimber Small Sawtimber with some Medium

Stocking Level: Fully stocked **Basal Area:** 62 **(ft2/acre)**



Trees per acre: 141

Diameter Distribution by Species:

STAND 11 Stand M

Sampling Method: Variable Radius Plots

ACRES 77.4

Basal Area Factor: 10.00 16 PTS

Pulp

Tons

		TOTAL	12	14	16	18	20	22	24	26	28	30	32+
American	VOL	12.5		6.4	6.1								
	TREES	26.6		15.1	11.5								
American beech	VOL	74.5				12.5				50.4			
	TREES	119.9				13.7				17.5			
black gum	VOL	66.0	6.3								59.7		
	TREES	42.1	30.8								11.3		
chestnut oak	VOL	17.3			17.3								
	TREES	34.6			34.6								
hickory	VOL	42.1	8.8	15.0	11.5								
	TREES	501.9	41.1	52.8	23.1								
northern red oak	VOL	20.9				12.5		7.6					
	TREES	270.7				18.2		6.1					
red elm	VOL	12.5											
	TREES	88.7											
red maple	VOL	40.0		8.2									
	TREES	503.8		30.2									
sassafras	VOL	4.9											
	TREES	138.6											
sugar maple	VOL	323.1	74.8	54.7	39.7	39.7			16.4				
	TREES	2,579.3	297.7	165.9	54.9	66.2			7.7				
white oak	VOL	4.9											
	TREES	138.6											
yellow poplar	VOL	60.2	18.7	3.2		6.8			12.4				
	TREES	599.9	92.4	15.1		13.7			5.1				
TOTAL	VOL	678.8	108.6	87.5	74.5	71.4		7.6	28.8	50.4	59.7		
	TREES	5,044.8	461.9	279.1	124.1	111.8		6.1	12.8	17.5	11.3		

Sawlog

BF

		TOTAL	12	14	16	18	20	22	24	26	28	30	32+
American	VOL	9,943.7		3,000.0	4,184.3	2,759.4							
	TREES	80.6		30.2	23.1	27.4							
American beech	VOL	12,961.7				2,759.4		5,355.7		4,846.6			
	TREES	40.8				13.7		18.3		8.7			
black cherry	VOL	5,832.7				5,832.7							
	TREES	27.4				27.4							
black gum	VOL	1,769.5	1,769.5										
	TREES	30.8	30.8										
chestnut oak	VOL	4,982.8		4,982.8									
	TREES	34.6		34.6									
hickory	VOL	29,863.0	3,539.1	9,118.2	12,664.8	4,540.9							
	TREES	273.3	82.1	83.0	80.8	27.4							
northern red oak	VOL	22,621.0			4,699.2	7,618.1	5,896.8	4,407.0					
	TREES	105.5			34.6	36.5	22.2	12.2					
red maple	VOL	7,139.6		7,139.6									
	TREES	60.3		60.3									
sugar maple	VOL	80,392.5	7,742.7	20,252.8	17,691.3	31,369.2		3,336.5					
	TREES	581.1	133.5	196.1	118.4	125.5		7.7					
yellow poplar	VOL	26,086.6	5,308.6	3,475.6		11,490.1		5,812.2					
	TREES	173.9	92.4	30.2		41.1		10.3					
TOTAL	VOL	201,593.1	18,359.9	42,986.2	44,222.5	66,369.8	5,896.8	9,762.6	9,148.7	4,846.6			
	TREES	1,408.4	338.8	399.7	291.6	298.8	22.2	30.5	18.0	8.7			

Stand History: Harvesting - "Select cut"

Topography: Sloping

Site Index Value and Species: Wk/Wh-northern red oak 81, yellow poplar 90; St-Virginia pine 70; Br-northern red oak 86, yellow poplar 96.

Stand Age Estimation: >65 years according to the aerial imagery.

Average Canopy Height: 90' to 100'

Invasive plants or insects impacting this stand: Ailanthus, Japanese stiltgrass, Japanese barberry, multiflora rose, and wild grape.

Level of invasive plants in the stand: Significant

Client Objectives: Produce quality timber and possibly maple sap.

Stand Description: This stand is composed of sugar maple, hickory, yellow poplar, American basswood, black gum, chestnut oak, black cherry, red elm, white oak, sassafras, red maple, spicebush, pawpaw, ash, American beech, American sycamore, American elder, and black walnut. This stand has a significant infestation of non-native invasive plants that should be controlled. The ailanthus is especially bad at lower elevations and the Japanese stiltgrass is mostly on trails. The harvest in this stand occurred at the same time as the one in Stand L. Most of the trees over 18" DBH were harvested. There are some that have grown into the 20" size class and there are some larger trees that were left that are low-quality. These low-quality trees that are showing signs of decline should be culled. There is a small area near the northeast part of the stand where the trees were marked for harvest but were not harvested. Maple sap collection could likely be done in some areas of this stand if access allows it. The harvest in here does promote maples, which provides some opportunities to expand the syrup operation.

Past management activities completed in this stand: Control of wild grape.

Management Recommendations:	***EQIP Practice Code:***	***EQIP Practice Name:***
Control the non-native invasive plants and most of the wild grape according to the information provided.	314	Removal of Invasive Woody Understory
Control the Japanese stiltgrass according to the information provided.	315	Herbaceous Weed Treatment
Consider removing or deadening the larger trees showing signs of decline.	666	Forest Stand Improvement

Is a timber harvest recommended? No

Comments: A timber harvest is not recommended in this planning cycle.

Desired Future Conditions:

Desired Forest Type or Dominant Vegetation: As Listed in Dominant Species
Desired Stand Structure: Uneven Aged

Descriptions of Alternatives and Preferred Alternative to meet desired future conditions:
(Include potential impacts to resource concerns for preferred alternative)
The cull trees could be left to decline on their own.

Natural & Cultural Features: None were noted, but an exhaustive search was not made. As a forester, I am not an expert when it comes to cultural resources, but from my very basic knowledge, I did not notice anything culturally significant or naturally unique. For more information see the "Special Sites" appendix of this plan.

Stand Health: The health of this stand is fair. There are no significant health issues with the trees, but there are non-native invasive plants present leading to a degraded condition.

Fish & Wildlife Species & Habitat: This stand is providing some cover for wildlife. For more information see the "Wildlife" and "Pollinators" appendices of this plan.

Protected Plant & Animal Species: None were noted, but an exhaustive search was not conducted. For more information see the "Threatened & Endangered Species" appendix to this plan.

Air, Water, and Soil Protection: No issues were noted. For more information see the "Soils", "Best Management Practices", "Water", "Wetlands", "Fire", & "Carbon Cycle" appendices of this plan.

STAND 11 Stand M — Sampling Method: Variable Radius Plots

ACRES 77.4 — Basal Area Factor: 10.00 — 16 PTS

STATISTICAL ANALYSIS

Confidence Interval: 90	BA	TPA	DBH	MHT	VOLUME PER ACRE BF	VOLUME PER ACRE TONS
Average	61.9	140.7	9.0	28.8	2,604.56	8.77
Sampling Error	17.6%	26.2%			33.2%	26.3%
Probable Lower Limit	51.0	103.9			1,739.03	6.46
Probable Upper Limit	72.8	177.5			3,470.10	11.08

SPECIES COMPOSITION

	BA		TPA		AVG MHT	VOLUME PER ACRE BF	VOLUME PER ACRE TONS	TOTAL STAND VOLUME BF	TOTAL STAND VOLUME TONS
	61.9		140.7		28.8	2,604.56	8.77	201,593.14	678.82
sugar maple	30.0	48.5%	76.6	54.5%	26.8	1,038.66	4.17	80,392.49	323.07
hickory	6.9	11.1%	10.0	7.1%	33.5	385.83	0.54	29,863.01	42.06
yellow poplar	6.9	11.1%	17.2	12.2%	32.7	337.04	0.78	26,086.62	60.25
American beech	3.8	6.1%	9.2	6.6%	25.3	167.46	0.96	12,961.65	74.54
northern red oak	3.8	6.1%	4.9	3.5%	32.0	292.26	0.27	22,621.05	20.90
red maple	3.1	5.0%	7.3	5.2%	41.6	92.24	0.52	7,139.59	40.04
American basswood	1.9	3.0%	1.4	1.0%	34.7	128.47	0.16	9,943.72	12.50
black gum	1.9	3.0%	8.1	5.8%	26.7	22.86	0.85	1,769.54	65.99
chestnut oak	1.3	2.0%	0.9	0.6%	28.0	64.38	0.22	4,982.82	17.26
black cherry	0.6	1.0%	0.4	0.3%	48.0	75.36		5,832.66	
red elm	0.6	1.0%	1.1	0.8%	32.0		0.16		12.47
white oak	0.6	1.0%	1.8	1.3%	16.0		0.06		4.87
sassafras	0.6	1.0%	1.8	1.3%	16.0		0.06		4.87

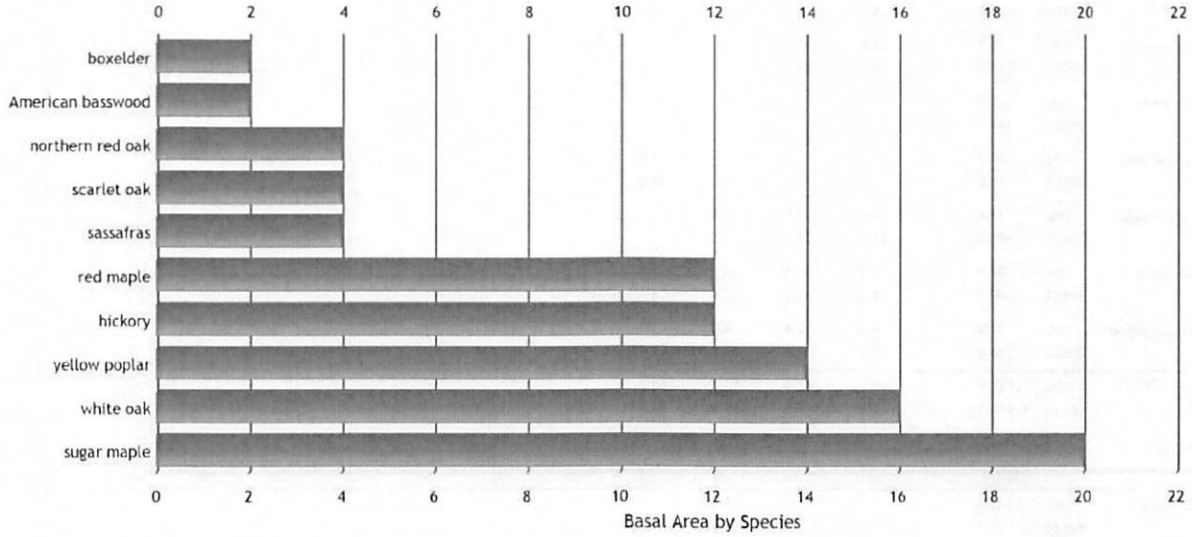
Stand # O - 17.7 acres

Dominant Species: Yellow Poplar, Sugar Maple, and Hickory

Forest Type or Dominant Vegetation: As Listed in Dominant Species

Stand Diameter or Size Class: Poletimber/Small sawtimber

Stocking Level: Fully stocked **Basal Area:** 90 **(ft2/acre)**



Trees per acre: 169

Diameter Distribution by Species:

STAND 12 Stand O — Sampling Method: Variable Radius Plots

ACRES 17.7 — Basal Area Factor: 10.00 — 5 PTS

Pulp Tons

		TOTAL	12	14	16	18	20	22	24	26	28	30	32+
American	VOL	6.3			6.3								
	TREES	12.7			12.7								
boxelder	VOL	4.4											
	TREES	101.4											
hickory	VOL	33.2	9.0	2.3		15.3							
	TREES	134.4	45.1	11.0		13.4							
northern red oak	VOL	11.8	6.0			5.8							
	TREES	29.2	22.5			6.7							
red maple	VOL	34.9	13.6	7.8									
	TREES	227.9	45.1	16.6									
sassafras	VOL	12.7											
	TREES	166.3											
scarlet oak	VOL	12.3				12.3							
	TREES	15.0				15.0							
sugar maple	VOL	44.8	6.0	9.5	4.5								
	TREES	481.4	22.5	27.6	8.5								
white oak	VOL	39.4	4.6	20.3	10.7	3.8							
	TREES	100.0	22.5	49.7	21.1	6.7							
yellow poplar	VOL	33.0	6.0	12.6	6.6	3.3							
	TREES	181.6	22.5	33.1	16.5	8.0							
TOTAL	VOL	232.9	45.3	52.6	28.1	40.6							
	TREES	1,449.9	180.3	138.0	58.7	49.7							

Sawlog BF

		TOTAL	12	14	16	18	20	22	24	26	28	30	32+
American	VOL	3,142.9			3,142.9								
	TREES	12.7			12.7								
hickory	VOL	6,343.8	2,324.5	2,543.4		1,475.9							
	TREES	73.8	45.1	22.1		6.7							
northern red oak	VOL	4,466.7	1,029.6			3,437.0							
	TREES	35.9	22.5			13.4							
red maple	VOL	1,211.1		1,211.1									
	TREES	16.6		16.6									
scarlet oak	VOL	7,629.2				7,629.2							
	TREES	25.0				25.0							
sugar maple	VOL	8,013.4	1,029.6	3,750.2	3,062.0								
	TREES	168.2	22.5	38.6	16.9								
white oak	VOL	19,045.3	1,294.9	8,171.7	6,205.0	3,373.7							
	TREES	148.3	22.5	82.8	29.6	13.4							
yellow poplar	VOL	16,396.4	1,029.6	3,171.5	7,440.0	4,755.2							
	TREES	101.9	22.5	33.1	34.2	12.0							
TOTAL	VOL	66,248.8	6,708.3	18,847.9	19,850.0	20,671.1							
	TREES	582.4	135.2	193.2	93.4	70.4							

Stand History: Harvesting - "Select cut"

Topography: Rolling

Site Index Value and Species: Wk-northern red oak 81, yellow poplar 90; Us-northern red oak 70, yellow poplar 90.

Stand Age Estimation: >65 years according to the aerial imagery.

Average Canopy Height: 65' to 75'

Invasive plants or insects impacting this stand: Autumn olive, multiflora rose, Japanese stiltgrass, wild grape, and Ailanthus

Level of invasive plants in the stand: Very Significant

Client Objectives: Produce quality timber and provide better wildlife habitat.

Stand Description: This stand is composed of yellow poplar, sugar maple, hickory, sassafras, ash, American beech, American elm, hackberry, spicebush, red maple, and black gum. This stand was harvested in 2018 with most of the trees over 18" DBH being removed. There is a very significant infestation of non-native invasive plants. There is a dense shrub layer that consists of invasive plants and spicebush. There is Japanese stiltgrass on the trails. The edge of this stand is in the sugarbush. This stand was harvested to promote the growth of maples.

Past management activities completed in this stand: Wild grape control.

Management Recommendations:	***EQIP Practice Code:***	***EQIP Practice Name:***
Control the non-native invasive plants and most of the wild grape according to the information provided.	314	Removal of Invasive Woody Understory
Control the Japanese stiltgrass according to the information provided.	315	Herbaceous Weed Treatment

Is a timber harvest recommended? No

Comments: A timber harvest is not recommended in this planning cycle.

Desired Future Conditions:

Desired Forest Type or Dominant Vegetation: As Listed in Dominant Species
Desired Stand Structure: Uneven Aged

Descriptions of Alternatives and Preferred Alternative to meet desired future conditions:
(Include potential impacts to resource concerns for preferred alternative)
No other recommendations are made at this time.

Natural & Cultural Features: None were noted, but an exhaustive search was not made. As a forester, I am not an expert when it comes to cultural resources, but from my very basic knowledge, I did not notice anything culturally significant or naturally unique. For more information see the "Special Sites" appendix of this plan.

Stand Health: The health of this stand is fair. There are no significant health issues with the trees, but there are non-native invasive plants present leading to a degraded condition.

Fish & Wildlife Species & Habitat: This stand provides some cover for wildlife and the hickories are a source of hard mast. Yellow poplar is a good pollinator tree, as well. For more information see the "Wildlife" and "Pollinators" appendices of this plan.

Protected Plant & Animal Species: None were noted, but an exhaustive search was not conducted. For more information see the "Threatened & Endangered Species" appendix to this plan.

Air, Water, and Soil Protection: No issues were noted. For more information see the "Soils", "Best Management Practices", "Water", "Wetlands", "Fire", & "Carbon Cycle" appendices of this plan.

STAND 12 Stand O — Sampling Method: Variable Radius Plots

ACRES 17.7 — Basal Area Factor: 10.00 — 5 PTS

STATISTICAL ANALYSIS

Confidence Interval: 90	BA	TPA	DBH	MHT	VOLUME PER ACRE BF	VOLUME PER ACRE TONS
Average	90.0	168.9	9.9	26.8	3,742.87	13.16
Sampling Error	29.0%	37.4%			66.0%	24.1%
Probable Lower Limit	63.9	105.6			1,272.05	9.98
Probable Upper Limit	116.1	232.2			6,213.69	16.33

SPECIES COMPOSITION

	BA		TPA		AVG MHT	VOLUME PER ACRE BF	VOLUME PER ACRE TONS	TOTAL STAND VOLUME BF	TOTAL STAND VOLUME TONS
	90.0		168.9		26.8	3,742.87	13.16	66,248.77	232.88
sugar maple	20.0	22.2%	59.6	35.3%	24.0	452.74	2.53	8,013.43	44.78
white oak	16.0	17.8%	14.0	8.3%	41.0	1,076.01	2.23	19,045.30	39.42
yellow poplar	14.0	15.6%	16.0	9.5%	43.4	926.35	1.86	16,396.37	33.00
hickory	12.0	13.3%	14.3	8.5%	22.7	358.41	1.88	6,343.84	33.25
red maple	12.0	13.3%	42.5	25.1%	18.7	68.42	1.97	1,211.06	34.91
sassafras	4.0	4.4%	9.4	5.6%	24.0		0.72		12.69
scarlet oak	4.0	4.4%	2.3	1.3%	56.0	431.03	0.70	7,629.18	12.33
northern red oak	4.0	4.4%	3.7	2.2%	36.0	252.35	0.67	4,466.66	11.84
American basswood	2.0	2.2%	1.4	0.8%	56.0	177.57	0.35	3,142.94	6.27
boxelder	2.0	2.2%	5.7	3.4%	24.0		0.25		4.39

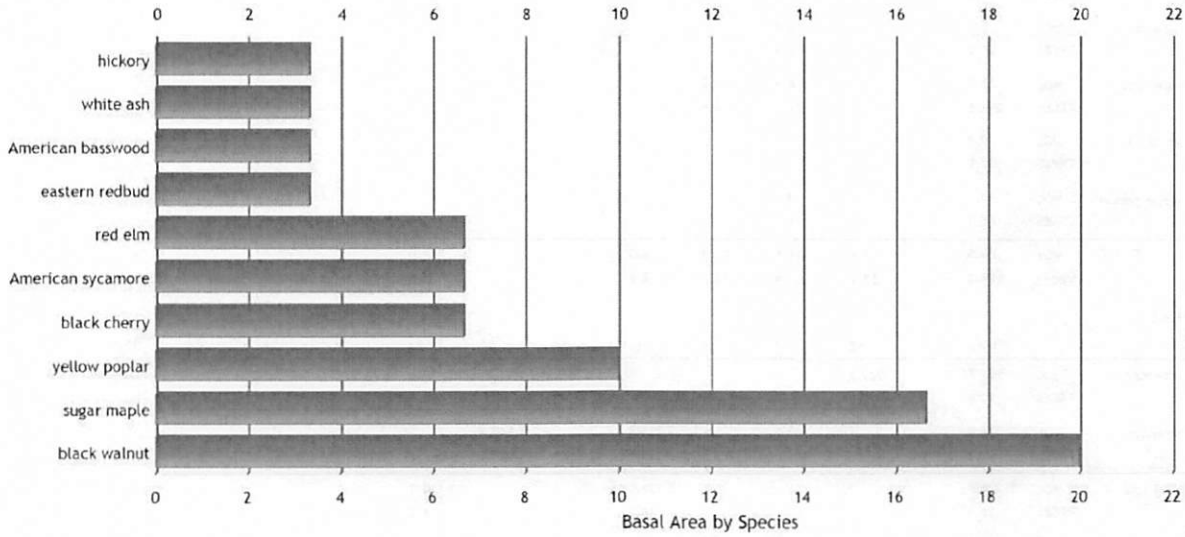
Stand # R - 8.1 acres

Dominant Species: Black Walnut and Yellow Poplar

Forest Type or Dominant Vegetation: As Listed in Dominant Species

Stand Diameter or Size Class: Poletimber/Small sawtimber

Stocking Level: Fully stocked **Basal Area:** 80 **(ft2/acre)**



Trees per acre: 158

Diameter Distribution by Species:

STAND 13 Stand R — Sampling Method: Variable Radius Plots

ACRES 8.1 — Basal Area Factor: 10.00 — 3 PTS

Pulp

Tons		TOTAL	12	14	16	18	20	22	24	26	28	30	32+
American	VOL	3.5	3.5										
	TREES	17.2	17.2										
American	VOL	1.6				1.6							
	TREES	3.8				3.8							
black cherry	VOL	7.5				3.5			4.0				
	TREES	8.0				5.1			2.9				
black walnut	VOL	23.2		8.9	14.3								
	TREES	51.0		25.3	25.8								
red elm	VOL	5.1		2.4									
	TREES	85.8		8.4									
sugar maple	VOL	18.2		8.6	6.0								
	TREES	244.6		16.8	12.9								
white ash	VOL	0.4											
	TREES	137.5											
yellow poplar	VOL	11.1		4.6									
	TREES	66.3		16.8									
TOTAL	VOL	70.6	3.5	24.5	20.3	5.0			4.0				
	TREES	614.2	17.2	67.4	38.7	8.9			2.9				

Sawlog

BF		TOTAL	12	14	16	18	20	22	24	26	28	30	32+
American	VOL	987.7	987.7										
	TREES	17.2	17.2										
American	VOL	7,308.6				3,358.9		3,949.6					
	TREES	21.7				11.5		10.2					
black cherry	VOL	5,328.9				2,126.0			3,202.9				
	TREES	15.9				10.2			5.7				
black walnut	VOL	9,092.7		2,133.2	6,959.5								
	TREES	76.8		25.3	51.6								
red elm	VOL	1,650.9		1,650.9									
	TREES	16.8		16.8									
sugar maple	VOL	4,745.1		923.7	3,821.4								
	TREES	34.2		8.4	25.8								
yellow poplar	VOL	3,984.9		3,984.9									
	TREES	33.7		33.7									
TOTAL	VOL	33,098.6	987.7	8,692.6	10,780.9	5,484.9		3,949.6	3,202.9				
	TREES	216.3	17.2	84.2	77.3	21.6		10.2	5.7				

Stand History: Unknown

Topography: Draws/Ravines

Site Index Value and Species: Wk-northern red oak 81, yellow poplar 90; Br-northern red oak 86, yellow poplar 96; Chg-northern red oak 86, sugar maple 86, yellow poplar 96.

Stand Age Estimation: >65 years according to the aerial imagery.

Average Canopy Height: 55' to 65'

Invasive plants or insects impacting this stand: Japanese barberry

Level of invasive plants in the stand: Slight

Client Objectives: Produce quality timber and provide wildlife habitat.

Stand Description: This stand is composed of black walnut, yellow poplar, sugar maple, black cherry, American sycamore, red elm, eastern redbud, American basswood, white ash, hickory, spicebush, butternut, hickory, buckeye, and boxelder. This is a quality site that is growing nice black walnut and yellow poplar. There is some Japanese barberry present that should be controlled, but it might not be enough to justify utilizing EQIP. A timber harvest is not recommended in this planning cycle.

Past management activities completed in this stand: Unknown

Management Recommendations:	***EQIP Practice Code:***	***EQIP Practice Name:***
Control the Japanese barberry and any other invasives according to the information provided.	314	Removal of Invasive Woody Understory

Is a timber harvest recommended? No

Comments: A timber harvest is not recommended in this planning cycle.

Desired Future Conditions:

Desired Forest Type or Dominant Vegetation: As Listed in Dominant Species
Desired Stand Structure: Uneven Aged

Descriptions of Alternatives and Preferred Alternative to meet desired future conditions:
(Include potential impacts to resource concerns for preferred alternative)
No other recommendations are made at this time.

Natural & Cultural Features: None were noted, but an exhaustive search was not made. As a forester, I am not an expert when it comes to cultural resources, but from my very basic knowledge, I did not notice anything culturally significant or naturally unique. For more information see the "Special Sites" appendix of this plan.

Stand Health: The health of this stand is fair. There are no significant health issues with the trees, but there are non-native invasive plants present leading to a degraded condition.

Fish & Wildlife Species & Habitat: This stand is providing hard and soft mast, as well as a source of nectar for pollinators. For more information see the "Wildlife" and "Pollinators" appendices of this plan.

Protected Plant & Animal Species: None were noted, but an exhaustive search was not conducted. For more information see the "Threatened & Endangered Species" appendix to this plan.

Air, Water, and Soil Protection: No issues were noted. For more information see the "Soils", "Best Management Practices", "Water", "Wetlands", "Fire", & "Carbon Cycle" appendices of this plan.

STAND 13 Stand R

Sampling Method: Variable Radius Plots

ACRES 8.1

Basal Area Factor: 10.00 3 PTS

STATISTICAL ANALYSIS

Confidence Interval: 90	BA	TPA	DBH	MHT	VOLUME PER ACRE BF	VOLUME PER ACRE TONS
Average	80.0	157.7	9.6	17.2	4,086.25	8.72
Sampling Error	36.5%	78.7%			41.6%	31.9%
Probable Lower Limit	50.8	33.7			2,384.87	5.94
Probable Upper Limit	109.2	281.7			5,787.63	11.50

SPECIES COMPOSITION

	BA		TPA		AVG MHT	VOLUME PER ACRE BF	VOLUME PER ACRE TONS	TOTAL STAND VOLUME BF	TOTAL STAND VOLUME TONS
	80.0		157.7		17.2	4,086.25	8.72	33,098.62	70.63
black walnut	20.0	25.0%	15.8	10.0%	29.3	1,122.56	2.87	9,092.70	23.21
sugar maple	16.7	20.8%	34.4	21.8%	22.4	585.81	2.25	4,745.07	18.21
yellow poplar	10.0	12.5%	12.3	7.8%	40.0	491.96	1.37	3,984.89	11.08
black cherry	6.7	8.3%	2.9	1.9%	36.0	657.89	0.93	5,328.89	7.53
American sycamore	6.7	8.3%	3.1	2.0%	52.0	902.29	0.19	7,308.55	1.55
red elm	6.7	8.3%	12.7	8.0%	24.0	203.81	0.63	1,650.87	5.13
eastern redbud	3.3	4.2%	17.0	10.8%	0.0				
American basswood	3.3	4.2%	4.2	2.7%	32.0	121.93	0.43	987.65	3.47
white ash	3.3	4.2%	17.0	10.8%	16.0		0.05		0.45
[illegible]									

Management Activity Schedule

Year(s) Suggested	Mgmt. Unit	Required Task?	Acres	Recommendations (include EQIP/CSP practice code and name if applicable)
2024-2026	D&G	☐	~22.0	The landonwer has applied for EQIP funding for ~22.0 acres of Removal of Invasive Woody Understory, 314, north of the pond in Stands D&G. If approved and completed, this can be deducted from the recommended work in those stands.
2024	G	☒	<1	Have a Division of Forestry Forest Health Specialist look at the oak mortality in early summer and respond appropriately.
Any 3-Year Period.	L,M	☐	211.3	Consider controlling the non-native invasvie plants along with most of the wild grape according to the information provided. Removal of Invasive Woody Understory, 314.
Any 5-Year Period.	L,M	☐	On Trails	Consider controlling the Japanese stiltgrass according to the information provided. Herbaceous Weed Treatment, 315.
After Invasives	L,M	☐	211.3	Consider removing or deadening the poorly formed and undesirable trees to prevent them from producing more undesirable trees. Forest Stand Improvement-Cull Tree Removal, 666.
Any 3-Year Period	D	☐	54.0	Consider controlling the non-native invasvie plants along with most of the wild grape according to the information provided. Removal of Invasive Woody Understory, 314.
Any 5-Year Period	D	☐	On Trails	Consider controlling the Japanese stiltgrass according to the information provided. Herbaceous Weed Treatment, 315.
Any 5-Year Period	F	☐	41.8	Consider controlling the Japanese stiltgrass according to the information provided. Herbaceous Weed Treatment, 315.
After Invasives	F	☐	41.8	Consider thinning out the spicebush and pawpaw in this stand as it is competing with sugar maple regneneration. Forest Stand Improvement, 666.
Ongoing	All	☒	All	Monitor for new infestations of non-native invasive plants.
Ongoing	All	☒	All	Maintain your ownership area with red or yellow boundary marking paint.
2034	Whole Property	☒	**Next Site Visit** – Woodland reviews are recommended at least once every five years, and plan updates once every ten years, based upon the date of the last woodland evaluation conducted by your forester	

*This property is very large, and it is unlikely that all the management recommendations from the stand level information will be able to be completed in ten years. I listed the items that should be given priority in the Management Activity Schedule. It is also worth noting that doing the recommended oak management is strongly encouraged several years prior to any harvest activities in Stands B or G.

Before entering a timber sale agreement, or conducting other forestry work that is not listed in your activity schedule, contact your forester first to ensure compliance with your approved woodland stewardship management plan.

Addendums

Woodland Resource Descriptions

General Soils Information:

- **Soil Type(s):** Brookside silt loam (Br)
- **Soil Drainage Class:** Moderately well drained
- **Site Class: (using Woodland Productivity):** Good
- **Trees to Manage:** White oak, yellow poplar, black walnut, and northern red oak.
- **Site Index:** Northern red oak 86, yellow poplar 96.

- **Soil Type(s):** Chagrin silt loam (Chg)
- **Soil Drainage Class:** Well drained
- **Site Class: (using Woodland Productivity):** Good
- **Trees to Manage:** Black walnut, northern red oak, yellow poplar, and white oak.
- **Site Index:** Northern red oak 86, sugar maple 86, and yellow poplar 96.

- **Soil Type(s):** Clymer loam (Cm)
- **Soil Drainage Class:** Well drained
- **Site Class: (using Woodland Productivity):** Good
- **Trees to Manage:** Black cherry, black walnut, northern red oak, yellow poplar, and white oak.
- **Site Index:** Northern red oak 77 and yellow poplar 90.

- **Soil Type(s):** Fairpoint shaly clay loam (Fb)
- **Soil Drainage Class:** Well drained
- **Site Class: (using Woodland Productivity):** Poor
- **Trees to Manage:** American sycamore, black cherry, black oak, sugar maple, and white oak.
- **Site Index:** American sycamore 50, black cherry 40, black oak 45, sugar maple 50, and white oak 45.

- **Soil Type(s):** Guernsey silt loam (Gs)
- **Soil Drainage Class:** Moderately well drained
- **Site Class: (using Woodland Productivity):** Good
- **Trees to Manage:** Yellow poplar, northern red oak, and white oak.
- **Site Index:** Northern red oak 77, yellow poplar 94, white oak 73.

- **Soil Type(s):** Steinsburg sandy loam (St)
- **Soil Drainage Class:** Well drained
- **Site Class: (using Woodland Productivity):** Poor to Fair
- **Trees to Manage:** Black cherry and yellow poplar.
- **Site Index:** Virginia pine 70.

- **Soil Type(s):** Upshur-Elba silty clay loams (Us)
- **Soil Drainage Class:** Well drained
- **Site Class: (using Woodland Productivity):** Good
- **Trees to Manage:** Red maple and yellow poplar.
- **Site Index:** Northern red oak 70, yellow poplar 90.

- **Soil Type(s):** Westmoreland-Guernsey silt loams (Wh, Wk)
- **Soil Drainage Class:** Well drained
- **Site Class: (using Woodland Productivity):** Good
- **Trees to Manage:** Black walnut, yellow poplar, northern red oak, and white oak.
- **Site Index:** Northern red oak 81, yellow poplar 90.

- **Soil Type(s):** Zanesville silt loam (Zn)
- **Soil Drainage Class:** Moderately well drained
- **Site Class: (using Woodland Productivity):** Good
- **Trees to Manage:** Black oak, northern red oak, white oak, and yellow poplar.
- **Site Index:** Black oak 75, northern red oak 68, yellow poplar 90, white oak 69.

Timber Information:

This property has the capability to grow very nice timber and it will continue to do so if you follow the management recommendations.

Wildlife:

Mature Woodlands- Mature woodlands in central Ohio generally have a component of oak, maple, and beech. Oak species and beech do the most good for a broad base of wildlife. Oak and beech are an important food source for white-tailed deer, wild turkey, and squirrels in the Fall and throughout the winter. Many food sources become less abundant the longer they are exposed to the elements, but the nuts produced by these trees will persist throughout the year. These acorns and beechnuts will provide an excellent source of protein to wildlife long into the winter when they need it the most. White oak is single-handedly the most valuable wildlife tree that we have in Ohio. It has very palatable acorns that are enjoyed by many wildlife species, including white-tailed deer, blue jays, and wild turkeys.

Young Woodlands-Young woodlands often have the most challenges for wildlife in Ohio. They are often impacted by non-native invasive plant species. Non-native invasive species will quickly out-compete native species and do not provide nearly as many benefits as native species. These non-native invasive species like bush honeysuckle, autumn olive, and Oriental bittersweet can have a huge negative impact on wildlife. They tend to replace native shrubs and trees while providing a berry with 1-3% fat content. The native species that are being replaced like spicebush can have a fat content of 48%. This fat content is what is giving migratory birds the energy needed to make the long flight back to central and South America. It is also what gives our resident birds the ability to survive here through our long, cold winters. Removing the invasive species and allowing or encouraging native species to grow back is essential to the success and diversity of the wildlife. If native berry-bearing species are allowed to come back you will see an increase it bird diversity with cedar waxwings, thrushes, and orioles all thriving. Privet and similar invasive species provide cover for wildlife, but they really don't provide the food necessary for success.

Early successional Habitat-These areas are characterized by small woody species and herbaceous species in old field or clearcut areas. Essentially, early successional habitat is a 5-15 year old forest and it is very valuable to a different suite of wildlife than you will see in woodlands. Common yellowthroats, white-eyed vireos, indigo buntings, and blue-winged warblers are all

likely to use early successional habitat as well as eastern cottontail rabbits and possibly bobcats. If early successional habitat is occurring in large tracts of land, it may be utilized by northern bobwhite or blue grosbeaks. It also provides valuable cover for young deer while their mother is away foraging. Another benefit of early-successional habitat is that it will eventually turn into a mature forest of shade intolerant trees.

Riparian Habitat-This is important habitat not only for terrestrial wildlife species, but also aquatic and semi-aquatic species. Some terrestrial species that can be found in woodlands along streams are Baltimore orioles, flycatchers, mink, and otters. The presence of cover along a stream is important for these species to feed and live, but it is also important for the life within the stream. It is necessary to have trees along a stream to provide good habitat for salamanders, frogs, and even fish species. Without the trees, the temperature of the water would be too high for these species to reproduce, and they would quickly be extirpated from the stream. Unfortunately, the shaded, wet conditions are also excellent growing conditions for most non-native invasive species.

Open Water-Open water, like a farm pond or diked wetland, creates some additional habitat opportunities for many of the same birds and mammals as the riparian habitat, but it does add some opportunities for other birds. Tree swallows, barn swallows, and green herons are all likely to utilize the pond during the breeding season. It can also provide a stopover spot for ducks during migration.

Pine Plantation-Young pine plantations can be a good source of browse for wildlife, while also providing some cover. As the trees mature, their benefit as a source of food and cover is reduced. Mature pine trees provide roosting opportunities for birds including wild turkey and various owl species.

Pollinators:

Pollinator species of wildlife have been under siege in our ecosystems for a long time. It is easy to overlook the value of insects like bees, butterflies, and flies, but they are exceedingly valuable to life on earth. The most obvious example is that many of the fruits and vegetables that humans eat are pollinated by insects. Another example is that pollinators are important food sources for a variety of other wildlife, especially birds. Wild turkey populations are dependent upon the presence of high protein larval insects for the adults and poults to eat. Likewise, warblers are much smaller birds that are still dependent on insects (especially larvae) that are generally high in tree canopies.

Many of our native trees and shrubs are an important source of nectar and pollen for pollinators. Amongst the most important native trees and shrubs are yellow poplar, black locust, black cherry, maples, American plum, eastern redbud, and dogwood. Additionally, many crops, forbs, and wildflowers are very important. Opportunities for pollinators can be improved by establishing "pollinator plots" or areas of native wildflowers and forbs. USDA may provide cost share assistance to establish these types of habitats through their Environmental Quality Incentive Program (EQIP).

Water:

There are several tributaries of Marietta Run (as well as Marietta Run) present on the property. These streams are a valuable source of water for terrestrial wildlife, but also provide resources for a variety of amphibians and invertebrates. Streams are an important piece to the ecosystem and should be treated with respect when carrying out management practices. Timber may be taken from the riparian areas, but it should be done as a single-tree selection harvest where only select trees are removed and shade is maintained on as much of the stream as possible.

Best Management Practices:

Anytime that soil is disturbed, Best Management Practices should be utilized. This may include installing water bars, seeding skid trails and log landings, or a number of different things. Anytime a harvest is conducted, the harvest should be closed out following the "BMPs for Erosion Control for Logging Practices in Ohio" Bulletin 916 from The Ohio State University Extension.

Forest Health:

Forest Health can be difficult to define because it means something different to everyone depending on their goals and their plans for the forest. However, it is much easier to identify what makes a forest unhealthy. In this area, it is generally non-native invasive species and Emerald Ash Borer that cause health issues for forests. Mistreatment is also a source of declining health for forests, in general. Sustainability and improvement should always be taken into consideration when managing forests. It is important to keep in mind that forest health isn't a destination, it is a journey. There are always new challenges to overcome when managing a woodland, but any good management is going to have lasting effects on the quality of the woodlands. This property has its own challenges to overcome, and it can take a lot of hard work and perseverance. The biggest issues are non-native invasive species that are growing on the property. Overall, I would say that the health of these forests is good, but could be improved by following the aforementioned management and harvest recommendations.

Wetlands:

There are wetland areas in Stands D&E. These areas are exceedingly important to a variety of amphibians that utilize them for mating. They are used by many frogs and salamanders for habitat and mating in the spring and summer. Species that may utilize these areas include green frogs, northern leopard frogs, spring peepers, red-spotted newts, spotted salamanders, and smallmouth salamanders. These areas should be treated similarly to riparian areas, maintaining shade over them to keep the waters cool and suitable for amphibians. These are also good areas for native insects that feed a variety of birds and mammals.

Wild Grape:

Wild grape provides some major challenges to the productivity of timber in a woodland. The vines grow up with the young trees and will remain in those trees until they are cut, wild grape does not climb trees. It is a shade intolerant plant, it must have sunlight to survive, so it will only be an issue if it is allowed to remain in the canopy of the forest. Having living grape vines in

your trees will allow the grape to steal a lot of sunlight from your trees, slowing the trees' growth. It also adds a lot of weight to the tree, causing it to have a poor growth form and lowering the quality of the timber. Additionally, the vines add a lot of surface area which can lead to major issues during ice storms, due to the weight that is clinging to the trees and the vines. Fortunately, wild grape is easy to manage. If you are in a mature woodland, you can simply cut the grapevines. Generally, people will cut them near the ground and then again at about eye-level so that it is easy to see that you have already cut them. The vines will resprout but will die because they are not receiving enough sunlight. If you are in a lightly stocked woodland or a woodland that was recently harvested, you will need to treat the cut stump with an herbicide that is approved for use on wild grape. It is best to cut your grape vines at least two years before a timber harvest. Wild grape is an important soft mast producer for wildlife, especially birds. Therefore, if there are arbors of grape in low quality trees it is not bad to leave some around the property. However, most of them should be controlled.

Invasive Species and Pests:

The property has Ailanthus, Japanese stiltgrass, Japanese barberry, autumn olive, Japanese honeysuckle, and multiflora rose present. These will need to be controlled to allow native vegetation to thrive. It is likely that without control, the invasive species will out-compete the native species. A combination of mechanical and chemical control will likely be necessary to control the issue. Publications with control options have been provided to the landowners. The landowners should monitor the property as needed to keep track of populations of known invasive species. If they suspect there is a new invasive species that they are not familiar with, they should contact a natural resource professional, to come look at it. Invasive insects are always worth paying attention to, and if the landowner thinks they might be an issue, have a professional come take a look.

Reforestation and Afforestation:

Reforestation will occur naturally, as long as the non-native invasive species are controlled throughout the property. In a reverting field or pasture, it is best to plant desirable tree species to ensure that the species growing on the site help you reach your goals for the property.

Threatened & Endangered Species:

No State or Federally endangered species are known to reside on the property, based on the best estimation by the forester. However, there is potential habitat for federally listed species, Indiana Bat and Northern Long-eared Bat. If the landowners become aware of the presence of federally threatened or endangered species, they should be taken into consideration.

Specific information on threatened or endangered species may be obtained by contacting the Ohio Department of Natural Resources Division of Natural Areas & Preserves directly to access the Natural Heritage Database:

ODNR - Division of Natural Areas & Preserves
2045 Morse Road, Bldg. H-3,
Columbus, OH 43229-6693

Phone: (614) 265-6818
Email: NHDrequest@dnr.ohio.gov

Archeological/Historical Resources:

No historical or archeological resources were noted by the forester during the site visit. Also, a quick search of the Ohio National Register of Historical Places showed no sites on or near the property.

Recreation:

Recreation means something different to everyone. Some common forms of recreation in Ohio forests are hunting, hiking, birding, mushroom hunting, and just spending time in the outdoors. Having good access and trails is essential to the quality of the recreation on a property.

Aesthetics:

During any timber harvest activities, consideration should be given to Forest Aesthetics. It is a good idea to place log truck loading zones out of public view.

Ownership Area:

It is important to maintain your ownership area so that you know where the management of your woodlands should be taking place. It is also exceedingly important to have your ownership area in the event of a timber harvest on your property or on a neighboring property. Without clear boundary lines, it is very easy for trees to be stolen either on purpose or accidentally during a timber harvest. It is customary to put blazes on trees along a property line using tree marking paint and frequently enough so that you may see the next marker from the one you are standing by, even in the summertime. Corners are normally marked with three blazes in each direction of the property line. If you do not know where your ownership area is located, it would be advisable to have a professional surveyor locate your property boundaries.

Monitoring:

The landowners should monitor their forest on a regular basis. This will help to identify any potential changes to the forest that could interfere with the implementation of the management plan. The management plan should be adapted to deal with any potential issues such as pest outbreaks, invasive species infestation, or storm damage.

Biodiversity:

Simply put, biodiversity is the variety of life in a woodland. It includes the diversity of trees and wildlife combined. Diversity of trees is especially important because having a diversity of trees provides resilience in woodlands. Many properties were heavily impacted by Emerald Ash Borer, but properties that had a greater diversity of tree species were impacted less by the removal of the ash trees from the woodlands. It is important to keep in mind that many of our native trees face potentially catastrophic diseases and insects, and that biodiversity will be the best way to mitigate that potential damage. Diversity of woody and herbaceous species will also

lead to a diversity of other life, as well. Having diversity in species of trees, shrubs, and herbaceous plants will create a food source for a variety of insects, birds, and mammals. Additionally, a diversity of habitats will create that diversity of species. Having areas of mature hardwood forest, young hardwood forest, and early successional habitat (combination of tree seedlings, saplings, and herbaceous plants) will create a wide variety of food sources for wildlife on the property. The aquatic components on the property also add an additional level of diversity. This property has a lot of potential for maximizing biodiversity.

Fire:

Properties and homes in Ohio are not immune to the risks of fire and fire-related damage. Spring and fall are Ohio's main "fire seasons". A step one may take to protect one's forest is to have a system of paths that may double as fire breaks. For the home site, maintain good access for fire vehicles, create a defensible space around your home and outbuildings by removing flammable materials such brush, leaves, sticks, and twigs; remove these from roofs and gutters too. Landscape around buildings with less flammable plants and materials, avoid evergreens by or near the home, keep an outdoor water source, and avoid outdoor burning. For more information on outdoor fire safety and fire safety around your home, Firewise brochures are available from the Ohio Division of Forestry (toll-free 877-247-8733). You may also contact your local fire department with questions about Firewise and home safety regarding wildfire.

Ohio Fire Laws: ORC 1503.18 regarding kindled fires prohibits outdoor open burning statewide in unincorporated areas during the months of March, April, May, October, and November between the hours of 6:00 am and 6:00 pm. ORC 1503.18 is administered by the Ohio Division of Forestry; call toll-free 877-247-8733 with questions. OAC 3745.19 regarding outdoor burning is administered by the Ohio Environmental Protection Agency (EPA); EPA notification is required for many types of open burns in Ohio. Call 614-644-2270 with questions, or visit www.epa.ohio.gov/dapc/general/openburning.aspx.

Prescribed Burning has not been utilized on this property, and it is likely not feasible to utilize it in the future. However, it should be noted that traditional fire regimes in Ohio would see that most forests had fires every 5-15 years. These fires would have been low intensity fires that mostly burned along the ground. The presence of fire in the ecosystem would help maintain oak trees in the ecosystem. When allowed to grow without fire, red maple will frequently grow in the same space as oak trees, and it will almost always out-compete those oak trees. However, if a ground fire is introduced to the ecosystem, it will kill the tops of all of the seedlings, and the oak trees will grow back quickly and vigorously because of their extensive root systems. This effect can be replicated by removing undesirable trees and shrubs through cutting, pesticides, or a combination of the two.

Carbon Cycle:

Forestry practices can have a dramatic impact on the carbon cycle. As we all know trees take in carbon dioxide and release oxygen. The carbon in the carbon dioxide is held by the tree for a time. Eventually the tree will begin to decay faster than it grows and at that point the carbon is being released from its sequestered state. If the tree is harvested prior to its decay, a few things could happen to the carbon. If the timber is made into furniture, some of the carbon will be sequestered for years to come. If it is made into wood chips being used for papermaking or boiler

fuel, the carbon is held for a much shorter amount of time. It is also worth mentioning that the process forest management does release carbon to the atmosphere through the use of internal combustion engines. Trees are always fixating carbon from the atmosphere but are doing this especially vigorously when they are young.

There are several carbon programs that have started to purchase credits in the voluntary and compliance markets. This field is still developing in Ohio, and it is advisable to wait a few years until it develops more. Not all programs allow forest management and could be detrimental to a property's qualification for CAUV or OFTL. Additionally, some of the programs come with the stipulation that if you sign with them you lose eligibility for future carbon programs that might be more valuable to the landowner. The American Forest Foundation and The Nature Conservancy have been working together to develop a program called the Family Forest Carbon Program that seems to be a landowner friendly program that may provide landowners with funding to carry out additional forest management projects that will help fixate and sequester more carbon. I am hopeful that this program will move to Ohio in the future.

The air quality on this property is not an issue, as is the case most of the time in rural Ohio. Most of the time when we have air quality issues, it is during periods of very hot weather or when smoke from western wildfires has blown into Ohio.

Forestry Terms – Forestry terminology for landowners, professional foresters, and others:

Consistent forestry terminology is essential to anyone interested and involved in the science, management, and conservation of forests. The Society of American Foresters (SAF) offers a great resource for such forestry terminology: "The Dictionary of Forestry". This dictionary is an excellent tool available for anyone to learn more about the language used in forestry. The dictionary provides precision, clarity, and consistency in communication of forestry terms.

Forests of Recognized Importance (FORI) –

The Ohio Tree Farm Committee has not designated any Forests of Recognized Importance (FORI) outside of those designated by the State on public lands.

Pesticide Usage Log for Tree Farm Certification				
Date	**Stand**	**Area**	**Pesticide Used**	**Reason for Using**
e.g. 3/15/2021	e.g. Stand A	e.g. ~10 Acres	e.g. Glyphosate	e.g. Control of bush honeysuckle
Please refer to your forest management plan to identify the Stand in which you are working.				
Please record the area in approximately how many acres you utilized pesticides on while working.				

Conservation Assistance Notes and Correspondence:

Date and names	Reason for interaction	Type of interaction (field visit, email, call)	Results/Notes	Initials of TSP
May 23, 2023 Jake Peer & Mike Milligan.	Preliminary Site Visit	Field Visit	I visited the site with Mike to familiarize myself with the property and learn the history.	JJP
August 21-23, 2023 Jake Peer & Ben Robinson	Data Collection	Field Visit	We collected the necessary data for the CPA 106 FMP.	JJP
March 16, 2024 Jake Peer & Mike Milligan	Approval	Email	I sent the CPA 106 FMP to Mike for his approval.	JJP
March 20, 2024 Jake Peer & Mike Milligan	Approval	Email/Phone	A few minor edits were made and Mike approved the CPA 106 FMP.	JJP
March 20, 2024 Jake Peer & Joe Weber	Approval	Email	I sent the CPA 106 FMP to Joe Weber with USDA for approval.	JJP
April 3, 2024 Jake Peer & Mike Milligan	Approval	Email	Mike let me know that he talked to Joe and Joe approved the CPA 106 FMP.	JJP
April 4, 2024 Jake Peer & Mike Milligan	Delivery	Mail	I mailed the CPA 106 FMP to Mike.	JJP

Forest Inventory Data to be added as part of the appendix

TRACT SUMMARY

TRACT INFO 13 STANDS

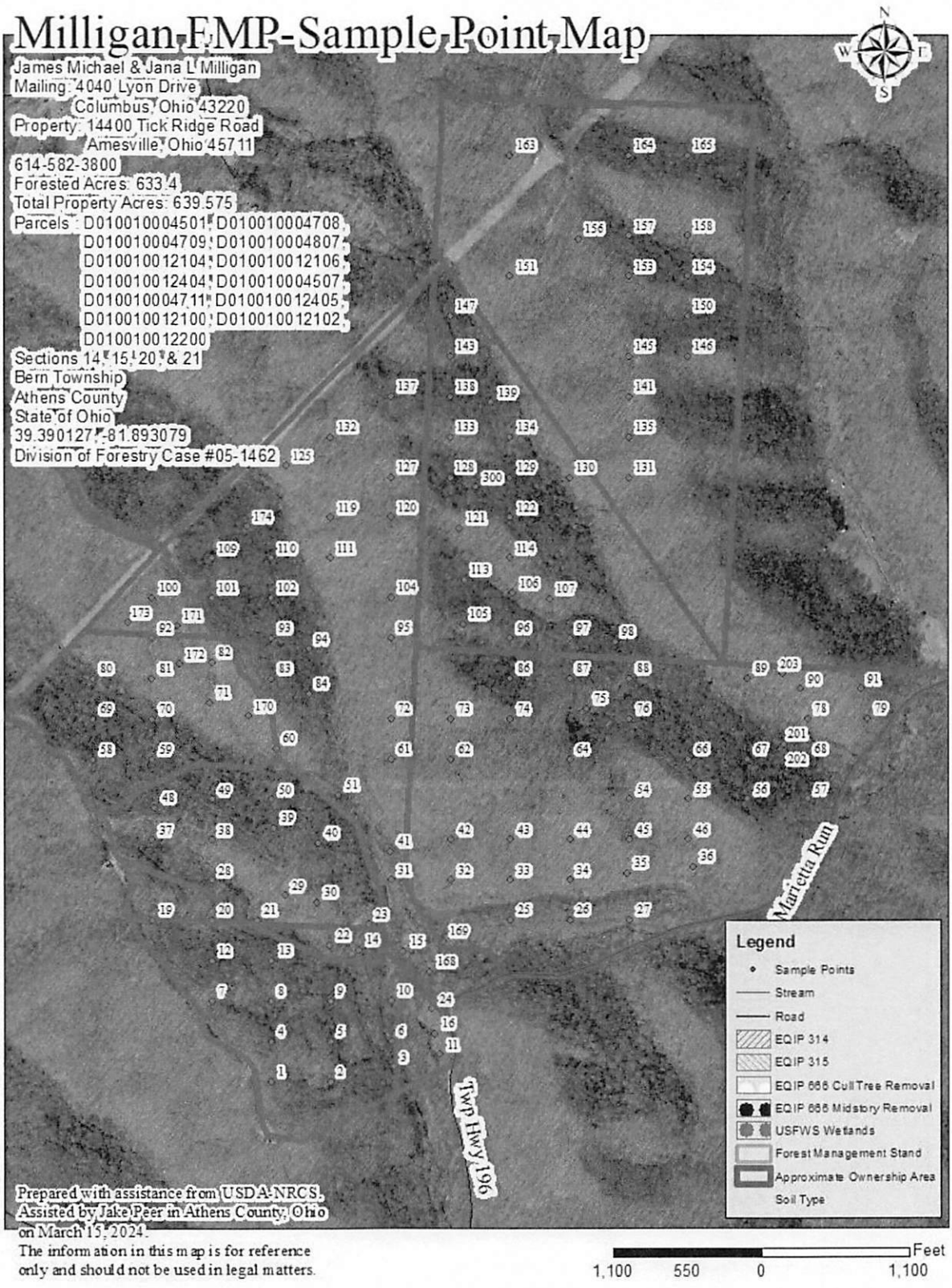
ACRES 633.4 145 PTS

STATISTICAL ANALYSIS

Confidence Interval 90%	BA	TPA	DBH	MHT	VOLUME PER ACRE BF	TONS
Average	89.9	258.7	8.0	28.9	4,664	13.44
Sampling Error	4.6%	12.8%			7.6%	7.6%
Probable Lower Limit	85.8	225.6			4,311	12.42
Probable Upper Limit	94.1	291.9			5,017	14.45

SPECIES COMPOSITION

	BA		TPA		AVG MHT	VOLUME PER ACRE BF	TONS	TOTAL TRACT VOLUME BF	TONS
	89.9		258.7		28.9	4,663.83	13.44	2,954,071.1	8,510.77
sugar maple	25.2	28.1%	105.7	40.8%	26.6	739.98	2.94	468,704.02	1,861.23
white oak	11.6	12.9%	18.1	7.0%	44.3	888.60	1.76	562,841.11	1,116.64
hickory	9.8	10.9%	12.9	5.0%	43.4	623.90	1.49	395,177.87	940.75
northern red oak	6.3	7.0%	5.5	2.1%	47.4	582.38	1.12	368,881.72	712.12
yellow poplar	5.1	5.7%	8.9	3.4%	40.9	312.14	0.76	197,709.38	479.75
American beech	3.9	4.3%	26.7	10.3%	27.3	125.44	1.14	79,452.76	722.74
American basswood	3.8	4.2%	7.1	2.8%	34.2	175.06	0.50	110,882.09	318.60
American sycamore	3.8	4.2%	5.0	1.9%	47.1	243.19	0.45	154,037.65	287.54
red maple	3.6	4.0%	11.8	4.6%	24.9	74.29	0.74	47,052.44	471.02
chestnut oak	3.0	3.3%	6.1	2.4%	35.0	257.67	0.56	163,210.16	355.89
black oak	2.5	2.8%	3.9	1.5%	41.3	205.61	0.51	130,234.50	325.45
boxelder	1.6	1.8%	13.6	5.3%	11.5	10.59	0.15	6,709.53	92.02
American elm	1.2	1.3%	5.9	2.3%	11.3	8.25	0.07	5,228.70	42.90
Ohio buckeye	1.0	1.1%	9.7	3.7%	19.4	26.21	0.09	16,604.01	59.49
scarlet oak	1.0	1.1%	1.0	0.4%	43.4	105.28	0.13	66,681.99	82.18
black gum	0.9	1.0%	3.2	1.2%	22.8	10.56	0.26	6,686.74	163.15
black cherry	0.9	1.0%	1.5	0.6%	37.5	31.25	0.16	19,796.43	102.84
sweet gum	0.9	1.0%	1.7	0.7%	28.3	25.12	0.08	15,912.87	53.39
black walnut	0.8	0.9%	0.7	0.3%	32.7	37.32	0.08	23,636.19	51.53
chinkapin oak	0.8	0.8%	0.6	0.2%	35.6	48.61	0.09	30,792.60	57.17
bigtooth aspen	0.6	0.7%	1.0	0.4%	40.9	68.71	0.06	43,518.77	38.08
red elm	0.3	0.4%	0.5	0.2%	25.6	11.10	0.04	7,031.71	23.09
black locust	0.3	0.3%	1.0	0.4%	24.0	11.10	0.06	1,680.60	39.51
sassafras	0.3	0.3%	0.6	0.2%	24.0	3.87	0.04	2,454.27	28.11
eastern hophornbeam	0.2	0.2%	4.3	1.7%	2.7		0.00		1.62


Milligan FMP-Sample Point Map
James Michael & Jana L Milligan
Mailing: 4040 Lyon Drive
Columbus, Ohio 43220
Property: 14400 Tick Ridge Road
Amesville, Ohio 45711
614-582-3800
Forested Acres: 633.4
Total Property Acres: 639.575
Parcels: D010010004501, D010010004708, D010010004709, D010010004807, D010010012104, D010010012106, D010010012404, D010010004507, D010010004711, D010010012405, D010010012100, D010010012102, D010010012200
Sections 14, 15, 20, & 21
Bern Township
Athens County
State of Ohio
39.390127, -81.893079
Division of Forestry Case #05-1462
Marietta Run
Twp Hwy 196
Legend
Sample Points
Stream
Road
EQIP 314
EQIP 315
EQIP 666 Cull Tree Removal
EQIP 666 Midstory Removal
USFWS Wetlands
Forest Management Stand
Approximate Ownership Area
Soil Type
Prepared with assistance from USDA-NRCS.
Assisted by Jake Peer in Athens County, Ohio
on March 15, 2024.
The information in this map is for reference
only and should not be used in legal matters.
Feet
1,100 550 0 1,100