WV ENVIROTHON 5TH TOPIC SCENARIO
FOSTERING STEWARDSHIP IN WV'S CHANGING FOREST

LANDOWNER OBJECTIVES

Landowners often have objectives and goals, but don't know how to meet those goals.

FOREST STEWARDSHIP PLAN

Foresters aid those landowners with forest stewardship plans. These plans inform landowners and set them up for practices to meet their objectives.

FOREST MANAGEMENT AND SILVICULTURE

These practices are often conducted through sustainable methods and silvicultural forest management systems.

PLANNING FOR THE FUTURE

Forests must be managed in a forward-thinking way that considers the changing environment and future generations.

West Virginia Envirothon's 2025 Fifth Topic Scenario: Fostering Stewardship in WV's Changing Forest

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Introduction/Subject Breakdown:

West Virginia is known for being "Wild and Wonderful." Some of the largest contributors to this saying include its unique wildlife, raging rivers, clean headwaters, steep terrain, and bountiful forests. More than 12 million acres of forest can be found within the state's boundaries. Those acres make up 78 percent of state land, making West Virginia the third most forested state in the United States of America.

Forests provide many products we use every day. They are a vital part of the state economy and create numerous jobs. Forests are critical to many West Virginia ecosystems. Forests improve water quality, soil properties, and air quality all the while providing habitat for wildlife. Forests are even proven to be important to our overall wellbeing.

It is the responsibility of West Virginia's landowners and foresters to work together to manage these vast resources in a responsible manner. Foresters are individuals qualified and trained in the management of the forest. Foresters can be found in the private, industrial, or government sectors. They use concepts such as forest management, silviculture, and forest stewardship to improve the quality of the forest.

Forest management, or forest resource management, refers to any planned human intervention in a forest ecosystem to achieve specific goals and objectives; these objectives typically are grouped as environmental, economic, and social. Forest management can include anything from low-intensity to high-intensity interventions using different practices, tools, and techniques.

Silviculture is the art and science of controlling the establishment, growth, composition, health, and quality of forests/woodlands to meet the diverse needs and values of landowners and society. Some of these diverse needs may include wildlife habitat, timber, water resources, restoration, and recreation on a sustainable basis. This is accomplished by applying different types of silvicultural treatments such as thinning, harvesting, planting, pruning, prescribed burning, and site preparation. Intermediate treatments (thinning) are designed to enhance growth, quality, vigor, and composition of the stand after establishment or regeneration, and

prior to final harvest. Regeneration treatments (harvesting) are applied to mature stands in order to establish a new-age class of trees. Regeneration methods are grouped into four categories: (1) coppice, (2) even-aged,(3) two-aged, and (4) uneven-aged.

Forest stewardship is the wise care and use of forest resources to ensure their health and productivity for years to come. The Forest Stewardship Program (FSP) is a federal program, which the West Virginia Division of Forestry (WVDOF) is pleased to participate in. In existence since 1978, the program provides technical assistance to help private forestland owners turn their short- and long-term objectives for owning the land into step-by-step Forest Stewardship Management Plans (FMP). These can be used as guides in managing their lands and ultimately recognizing their goals. The Forest Stewardship Operating Guideline document fully addresses the requirements, content, and purpose of forest stewardship plans for the FSP. See Stewardship Operating Guideline: Forest Stewardship Op Guide 4-16-24.docx

The original forests of West Virginia covered 15,400,000 acres, and they were dense and rich with old timber. Explorers to our region spread the word of the plentiful trees that graced the land. Settlers arrived and found they had too many trees for their needs. They cleared the land of what they could and used the hardwoods most beneficial to them. Lumber companies set up in the state, attracted to the large amounts of white pine forests that were in high demand at the time. The first large mill established was the St. Lawrence Boom and Lumber Co. in Ronceverte, WV, in Greenbrier County in the 1880s. By 1900, it's estimated there were hundreds of large mills in West Virginia harvesting red spruce, hemlock, and other valuable hardwoods. Timbering operations peaked around 1910 and had a relative decline in the mid 1920s. In the early 1990s, the WVDOF and the West Virginia Legislature passed the Logging and Sediment Control Act (LSCA), creating Chapter 19 of WV State Code regulating the licensing and enforcement of logging operations in the state. The WVDOF also regulates Best Management Practices (BMPs) for all logging operations to maintain environmental compliance.

Forests cover more than three-quarters of the state. According to the United States Environmental Protection Agency (EPA), rising temperatures and changes in rainfall are unlikely to substantially reduce forest cover in West Virginia, although the composition of those forests may change. Changes in weather patterns can instill stressors on trees, as well as change habitats and suitable ranges for specific tree species and the wildlife that inhabit them. More droughts would reduce forest productivity, and climate change also would likely increase issues from invasive plants/insects and disease. Drought conditions, combined with the increased fuel loads from dead trees and invasive species, can result in increased occurrence of wildfires and more severe fire behavior. Foresters must now consider offsetting carbon cycles, review climate-friendly practices, monitor Forest of Recognized Importance (FORI), and prevent habitat losses where necessary.

Scenario:

Mr. and Mrs. Branch are retired teachers who farmed most of their lives. They live modestly on their limited retirement income. They no longer lease additional land for farming, but they still own 388 acres of property that has been in their possession for 50 years. For most of that time, they did not live on the property. Although they currently reside there, they have little knowledge of their own forest. They are avid outdoors people and hunters. They have begun attending workshops through their local offices with the West Virginia Conservation Agency, West Virginia University-Extension, and WV Division of Forestry to learn more about their property. Mr. and Mrs. Branch have two kids who attended college in the state and live nearby. The Branches had a harvest conducted on their property 10 years ago. This provided them with the economic return to aid in their children's college expenses. Both their children have successful careers and plan to stay in the state but enjoy living in nearby fast-paced cities. Mr. and Mrs. Branch have several grandchildren who enjoy the property and have shown great interest in outdoor education, as well as attending workshops with their grandparents.

Through the knowledge gained from the local workshops, Mr. and Mrs. Branch have noticed a few issues on the property. They have many dead ash trees but are not sure what caused their decline. They are concerned about potential invasive insects discussed in workshops, including the spongy moth, the Asian longhorn beetle, and the spotted lanternfly. They also noticed it is very hard to walk through the area where the previous harvest had taken place. Sections of the stand have become thickly patched with brushy invasives that have a silver appearance underneath the leaves. The landowners also noticed a small patch of grass that looks different than the native grasses they are used to seeing. Mrs. Branch has identified this patch as Japanese stiltgrass, and it is along the access road into that same stand from Route 33. Mr. Branch also observed that younger yellow poplar trees in the northwest side of the property are very tall, but appear to have not grown much in recent years. He had hoped that this stand would be a future harvest for his grandkids, but joked, "At this rate, it may never happen." The Branch family would like to see more understory regeneration in each stand, and they read online that prescribed fire would be beneficial. However, the Branches' don't feel comfortable with fire. They contacted their local WVDOF service forester, who advised them of the fire laws, required training, and advised against prescribed fire as an option on their property.

Mrs. Branch often takes walks through the area with the largest trees on the property, where a cemetery sits at the top of the hill. She likes to listen and watch for wildlife and enjoys looking for arrowheads in the rock outcrops from historic native peoples who once thrived in the region. However, she has noticed some trees have fallen in that part of the property, especially the larger trees. They have discussed that maybe the larger trees in this location need to be harvested, but worry about potential damage to the area so beloved by Mrs. Branch. They also worry about potential issues with water quality from active harvesting on streams within and adjacent to the property. If a harvest were to be conducted, it would border the local Future Farmers of American (FFA) grounds to the southeast side of their property.

Mr. and Mrs. Branch contacted your consulting forestry firm to have you conduct a cruise (forest inventory evaluation) on their property, thus providing them with advice on how they should deal with their concerns. Your firm started off by researching the property for field maps and deed information. Time also was spent requesting information from the WV Division of Natural Resources and WV Department of Art, Culture and History regarding any potential threatened/endangered species, or federally registered or culturally significant locations on the property. The search resulted in verification that there were no threatened/endangered species or significant sites on the property.

During your visit to the property, you divided it into three stands. Stand 2 was found to be on the northeastern side of the property. You observed that this stand had been harvested previously and has great access through the property. The dominant and co-dominant trees in the stand mostly consist of red oak, white oak, and black walnut. The intermittent and suppressed trees in the stand mostly consist of sugar and red maple. You notice the stand was covered in thick autumn olive shrubs, which have thrived in the open canopy after the previous harvest. You also discovered a small patch of Japanese stiltgrass, correctly identified by Mrs. Branch, along the access road into the stand. Upon your cruise, you found that the stand had 112 trees per acre and an average DBH (Diameter at Breast Height) of 14 inches. You continued your cruise into what would be identified as Stand 1. During this time, you observed signs of white-tailed deer, eastern box turtles, and gray squirrels on your way. Stand 1 was found to be harvested previously as well, but with many pole and small timber-sized yellow poplar trees. The average DBH in this stand was 12 inches. These trees were tall, but potentially crowded with 180 trees per acre. The understory consisted mostly of paw paw, but you also noted a few larger black walnut trees scattered in the area. Upon entering Stand 3, you found several large downed trees. The stand mostly consisted of large white oaks and northern red oaks. The understory in this area consisted of some intermittent and suppressed maples with very little oak saplings. The stand consisted of 130 trees per acre. You discovered a trail to the top of the hill, finding the old cemetery and rock outcrop described to you by Mrs. Branch. In this area, you saw overstory chestnut oak, as well as understory flowering dogwood and eastern red buds. After conducting your cruise, you processed the data, collected documents, and created maps to aid in making suggestions to Mr. and Mrs. Branch.

Instructions:

Your goal is to help Mr. and Mrs. Branch manage their property through forest stewardship, and aid them with choosing and meeting their objectives.

In this scenario, you are provided with landowners who have interests and/or concerns that need to be addressed. With the information provided, identify what you believe to be Mr. and Mrs. Branch's main concerns. Discuss what (in your opinion) should be their top three objectives and how you are going to aid them in meeting their objectives.

In your presentation, you should follow WV Envirothon 5th topic oral presentation guidelines and remember to address the Key Topics/ Learning Objectives. Also remember to utilize – but don't feel limited to – the resource links provided. These links included the WVDOF's Forest Stewardship Guidance Doc, helpful educational videos from other agencies, soil survey Information, and fact sheets.

Additional Important Links:

WV Envirothon Main Page: https://www.wvca.us/envirothon/

NCF Envirothon 2025 Alberta: https://envirothon.org/2025-alberta/study-resources/

NCF Envirothon 2025 Current Issue Study Resources Part A: https://envirothon.org/wp-content/uploads/2024/09/2025-Current-Issue-Part-A-Final.pdf

NCF Envirothon 2025 Current Issue Study Resources Part B will be available in March 2025.

Key Topic 1: Forest Stewardship		
Learning Objective		Description
1	Forest Stewardship	Define Forest Stewardship and its purpose
2	Community of Support	Identify partners and organizations involved in Forest Stewardship and how they are impactful
3	Culture, History, and Species Protections	Recognize the importance of protecting Cultural sites, Historic Sites, and Threatened/ Endangered species.
4	Environmental impacts	Understand the impacts Forest Stewardship has on the concepts of Forestry, Wildlife, Soils, and Water Quality
5	Forest Stewardship Plans	Identify the importance of landowner objectives, Forest Stewardship Plans, and recommended practices.

1. and 5. Forest Stewardship:

WV Division of Forestry Forest Stewardship Plan Operations Guide
https://docs.google.com/document/u/0/d/1IRIUlBiLPK63YggNP3pcWOPEzGkaurQJ/edit

2. Community of Support – Partner organizations and their impacts:

National Association of State Foresters
https://www.stateforesters.org/where-we-stand/forest-management/
Forest Stewardship Council
https://fsc.org/en
WV Division of Forestry: https://wvforestry.com/ and
https://wvforestry.com/management-assistance/stewardship-program/
USDA Natural Resource Conservation Service
https://www.nrcs.usda.gov/conservation-basics/conservation-by-state/west-virginia
WV Forest Association and WV Sustainable Forest Initiative SFI
https://www.wvfa.org/sfi/

3. Culture, History, and Species Protection:

WV Department of Arts, Culture and History:
https://www.wv.gov/pages/agency.aspx?newid=187
West Virginia Public Broadcasting information on native peoples:
https://wvpublic.org/wild-wondering-west-virginia-exploring-west-virginias-native-american-history/
WVDNR Rare, Threatened and Endangered Species:
https://wvdnr.gov/plants-animals/rare-threatened-endangered-species/
US Fish and Wildlife Service and WV Ecological Services:
https://www.fws.gov/office/west-virginia-ecological-services

4. Environmental Impacts:

https://www.wvca.us/envirothon/

Wildlife:
https://www.nrcs.usda.gov/sites/default/files/2024-08/Wildlife%20Habitat%202021.pdf
https://extension.psu.edu/forest-stewardship-wildlife
https://www.wvca.us/envirothon/pdf/History_of_Wildlife_Management_in_WV.pdf
https://www.youtube.com/watch?v=bt_AbnIT1D8

Soils Information:
https://www.jswcd.org/files/9b5330e51/Soils+in+Jackson+County.pdf
https://www.nrcs.usda.gov/sites/default/files/2023-05/Access%20Historical%20Soil%20Surveys%20from%20Internet%20Archive.pdf
https://ia801605.us.archive.org/26/items/JacksonMasonWV2008/JacksonMasonWV2008.pdf

Water Quality:
WV Water Links:
https://wvu.maps.arcgis.com/apps/MapJournal/index.html?appid=b4db3e18944b4378a2c4f87111fd207b
West Virginia Department of Environmental Protection: https://dep.wv.gov/Pages/default.aspx
WVDEP Watersheds: https://dep.wv.gov/WWE/getinvolved/sos/Pages/Watersheds.aspx
United State Forest Service Riparian Buffers:
https://www.fs.usda.gov/nac/practices/riparian-forest-buffers.php
Virginia Tech understanding forest buffers and water quality:
https://vtechworks.lib.vt.edu/server/api/core/bitstreams/44592d8d-a50c-4aa5-9313-0609fabeb8ea/content
Conservation Districts Riparian Buffer: https://www.wvca.us/envirothon/a11.cfm
Riparian Magic with Tim Craddock:
https://dep.wv.gov/WWE/getinvolved/sos/Pages/RiparianMagic.aspx

5. Forest Stewardship Plans

https://www.fs.usda.gov/managing-land/forest-stewardship/program

Key Topic 2: Forest Management		
Learning Objective		Description
1	Forest Management/ Silviculture	Define Forest Management and Silviculture and their importance to Forest Stewardship.
2	Timber Cruising and Reconnaissance	Identify the importance of timber cruising and reconnaissance for making recommendations in regards to Forest Management.
3	Silvicultural Techniques	Identify different Silvicultural Techniques and when they should be utilized.
4	Laws and Regulations	Define the WV LSCA Laws and the WVDOF BMPs used for Harvesting Operations.
5	Forest Management's Benefits to Forest Stewardship	Explain the benefits of Forest Management on Forest Stewardship. Why would it be detrimental to not utilize proper forest management?

1. Forest Management/ Silviculture:

Forest Stewardship Council (Main Page): https://fsc.org/en/forest-management
National Association of State Foresters:
https://www.stateforesters.org/where-we-stand/forest-management/

1., 2., and 5. Forest Management and Timber Cruising:

University of Kentucky Forestry and Natural Resources:
https://www.youtube.com/playlist?list=PLvOmkebY7k2UP4N_BicWVKWZZOf9ahavp

3. Forest Silvicultural Techniques:

WVDOF Even and Uneven age harvests: https://www.youtube.com/watch?v=lnNlwHby7ql
WVDOF: https://wvforestry.com/pdf/SILVICULTURAL%20TREATMENTS.pdf
United States Forest Service:
https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd530429.pdf

NRCS Forest Practices:

NRCS EQIP Program:
https://www.nrcs.usda.gov/programs-initiatives/eqip-environmental-quality-incentives/west-virginia/west-virginia#:~:text=The%20Environmental%20Quality%20Incentives%20Program,to%20address%20natural%20resource%20concerns
NRCS Section 4 Practice Standards and Supporting Documentation:
https://efotg.sc.egov.usda.gov/#/state/WV/documents/section=4&folder=-3
NRCS Timber Stand Improvement job sheet (666):
https://efotg.sc.egov.usda.gov/api/CPSFile/12514/666_WV_GD_Forest_Stand_Improvement-Timber_Harvest_Fact_Sheet_2006
NRCS Timber Stand Improvement Intermediate Treatment job sheet (666):
https://efotg.sc.egov.usda.gov/api/CPSFile/12513/666_WV_GD_Forest_Stand_Improvement-Intermediate_Treatment_Fact_Sheet_2006
NRCS Timber Stand Improvement Precommercial Treatment job sheet (666):
https://efotg.sc.egov.usda.gov/api/CPSFile/12517/666_WV_IR_Forest_Stand_Improvement-Pre-Commercial_Treatment_2016
NRCS Timber Stand Improvement Cerulean Warbler job sheet (666):
https://efotg.sc.egov.usda.gov/api/CPSFile/12515/666_WV_IR_Forest_Stand_Improvement-Cerulean_Warbler_2017
NRCS Tree and Shrub Establishment Seedling Plantings job sheet (612):
https://efotg.sc.egov.usda.gov/api/CPSFile/12439/612_WV_IR_Tree-Shrub_Establishment-Seedlings-Cuttings_2016
NRCS Tree and Shrub Establishment Maintenance (612):
https://efotg.sc.egov.usda.gov/api/CPSFile/12446/612_WV_GD_Tree-Shrub_Establishment-Planting_Maintenance_2016
NRCS Brush Management Forest Woodland job sheet (314):
https://efotg.sc.egov.usda.gov/api/CPSFile/12177/314_WV_IR_Brush_Management-Forest-Woodlands_2017
NRCS Brush Management Grapevine Control job sheet (314):
https://efotg.sc.egov.usda.gov/api/CPSFile/12176/314_WV_IR_Brush_Management-Grapevine_Control_2017

4. Harvesting Laws and Regulations:

Logging Sediment Control Act: https://code.wvlegislature.gov/19-1B/
WVDOF Logging BMPs: https://wvforestry.com/best-management-practices/
WVDOF Logger BMP Manual: https://wvforestry.com/wp-content/uploads/2024/07/Pub_SiviculturalBMP_DOC_DOF_20240719.pdf

Key Topic 3: WV's Changing Forest		
Learning Objective		Description
1	Basics on Climate Change	Understand the basics of climate change on the environment
2	Climate Effects on Tree Growth	Be able to explain the potential effects on tree growth from climate change
3	Climate Change Effects on Biodiversity	Be able to explain the effects climate change can have on species habitat range
4	Invasive Species	Identify potential invasive species of concern, their effects on the forest, and how to deal with those species
5	Wildfire Behavior	Show an understanding of how climate change and invasive species can have an effect on wildfire behavior.

1. Basic Climate Change:

WVU Climate Link: https://wvclimatelink.wvu.edu/
What Climate Means for WV Article: https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-wv.pdf
USDA Climate Hub WV Farmers: https://www.climatehubs.usda.gov/hubs/northeast/topic/what-west-virginias-changing-climate-means-its-farmers
Temperature Weather and Climate: https://www.epa.gov/climate-indicators/weather-climate

2 and 3: Climate Effects on Tree Growth and Biodiversity:

US Environmental Protection Agency – Climate Change Ecosystem Characteristics: https://www.epa.gov/climate-indicators/ecosystems
USFS Tree Atlas Habitat: https://www.fs.usda.gov/nrs/atlas/
Length of Growing Seasons: https://www.epa.gov/climate-indicators/ecosystems

4. Invasive Species:
WVDNR: https://wvdnr.gov/plants-animals/exotic-and-invasive-species/
USDA APHIS: https://www.aphis.usda.gov/plant-pests-diseases

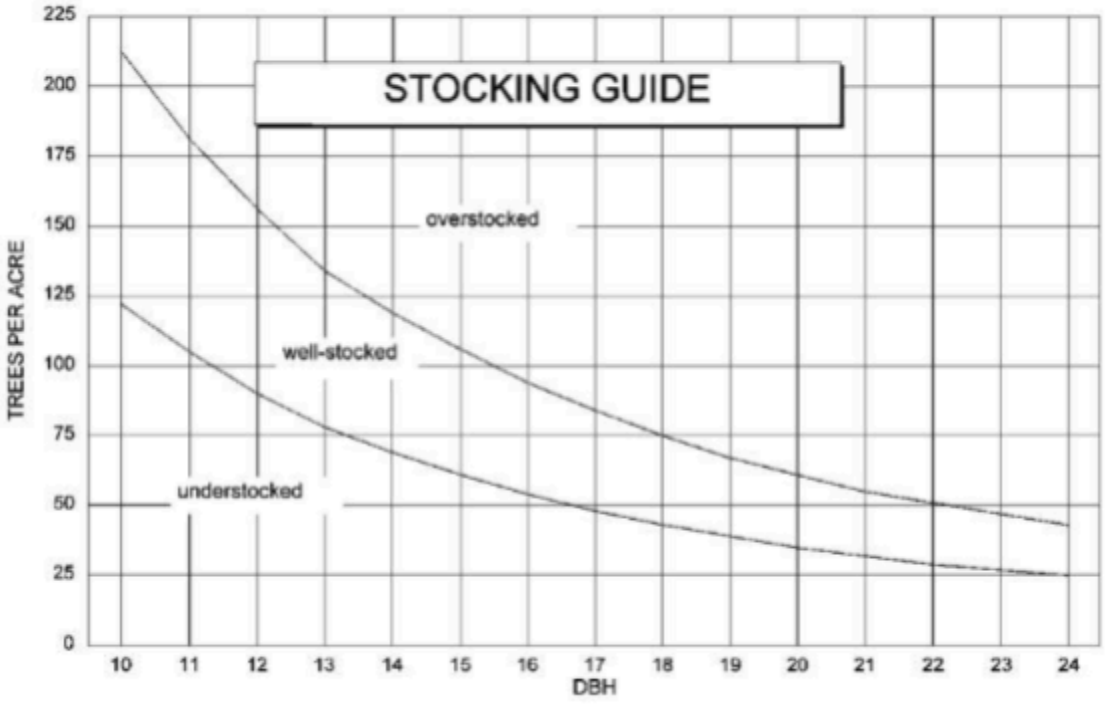
5. Wildfires and Climate Change:
NOAA Wildfire Climate Change: https://www.noaa.gov/noaa-wildfire
WVDOF Wildfire: https://wvforestry.com/wildfire-control/

Appendices:

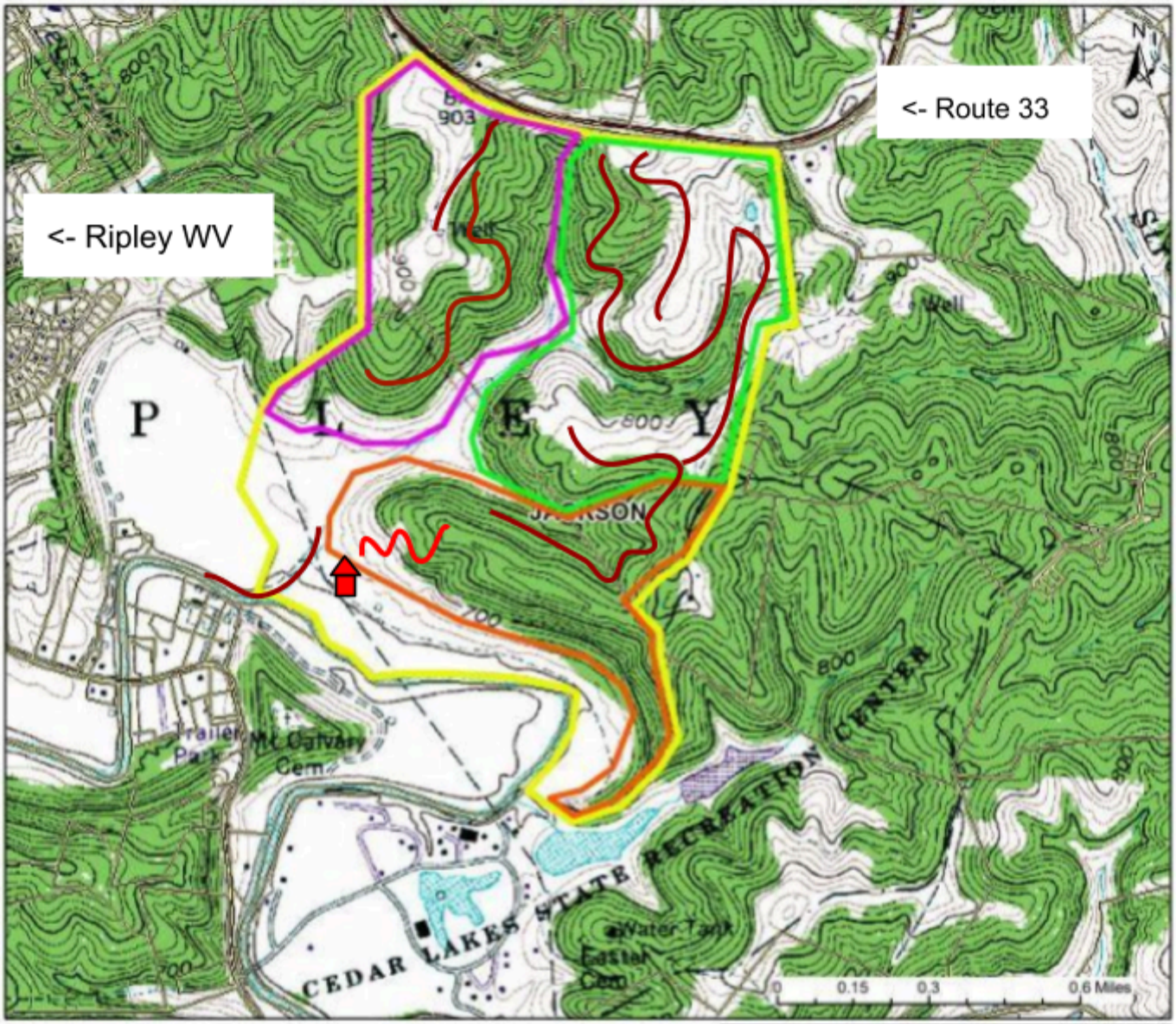
Cruise Information from Scenerio: Table 1

Mr. and Mrs. Branch Property: Timber Cruise Information					
Stand #	Acreage	Total BdFt Volume	Average Stand DBH	Trees Per Acre	Stocking Level (use table provided on next page)
1	95	237,500	12	180	?
2	120	360,000	14	112	?
3	80	480,000	18	130	?
		1,077,500 BdFt			

Stocking Table to be utilized: Table 2



Mr. & Mrs. Branch Property Topo



Legend

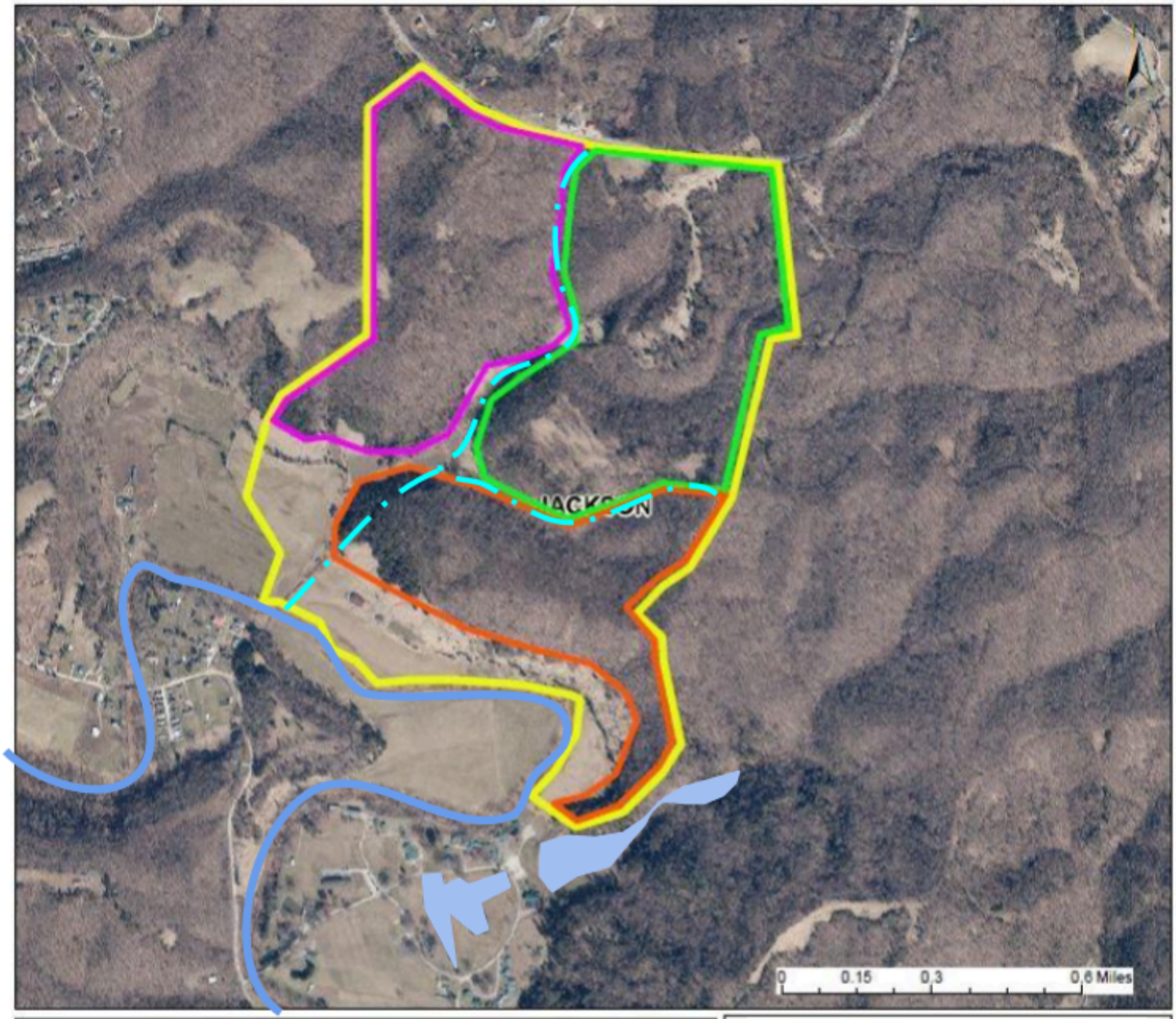
- Property Boundary
- Stand 1
- Stand 2
- Stand 3
- Access Roads/ Trails
- Mrs. Branches Trail
- Homestead Area

Mr. & Mrs. Branch Property

April 2025

Located in Jackson County
Near Ripley

Mr. and Mrs. Branch Property



Legend

Branch Property Boundary

Stand 1 Boundary

Stand 2 Boundary

Stand 3 Boundary

Mill Creek

Intermittent Streams

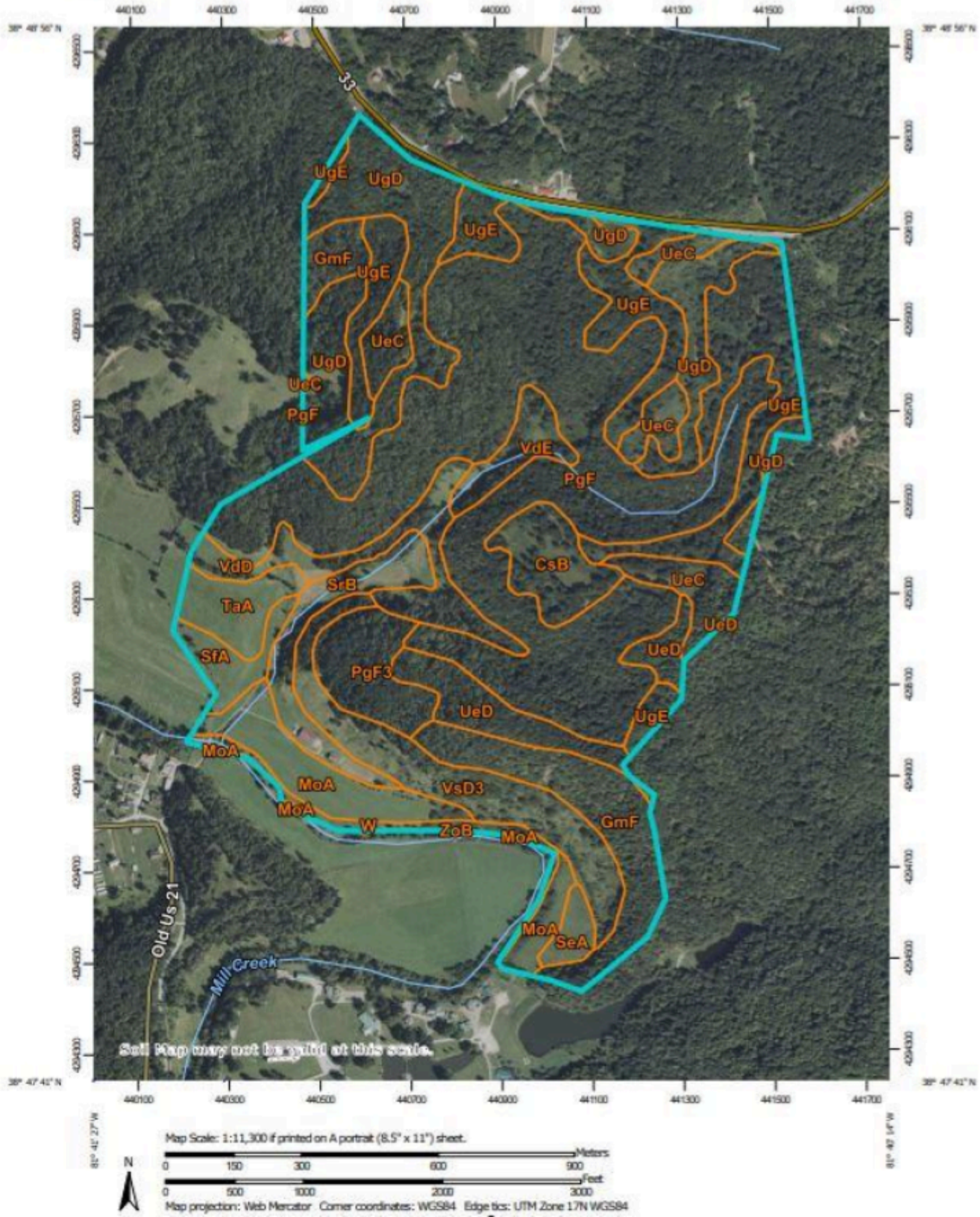
Cedar Lakes Ponds

Mr. & Mrs. Branch Property

April 2025

Located in Jackson County
Near Ripley

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Survey Areas
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Jackson and Mason Counties, West Virginia
Survey Area Data: Version 19, Aug 28, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 5, 2023—Oct 13, 2023

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CsB	Coolville and Tilsit soils, 3 to 8 percent slopes	10.6	2.7%
GmF	Gilpin-Peabody silt loams, 35 to 70 percent slopes, very stony	25.3	6.5%
MoA	Moshannon silt loam, 0 to 3 percent slopes, occasionally flooded	17.6	4.5%
PgF	Peabody-Gilpin silt loams, 35 to 70 percent slopes	119.6	30.8%
PgF3	Peabody-Gilpin silt loams, 35 to 70 percent slopes, severely eroded	11.9	3.1%
SeA	Senecaville silt loam, 0 to 3 percent slopes, occasionally flooded	3.1	0.8%
StA	Senecaville silt loam, 0 to 3 percent slopes, rarely flooded	5.9	1.5%
SrB	Sensabaugh loam, 3 to 8 percent slopes, rarely flooded	12.1	3.1%
TaA	Taggart silt loam, 0 to 3 percent slopes	8.2	2.1%
UeC	Upshur silt loam, 8 to 15 percent slopes	17.4	4.5%
UeD	Upshur silt loam, 15 to 25 percent slopes	13.5	3.5%
UgD	Upshur-Gilpin silt loams, 15 to 25 percent slopes	47.1	12.1%
UgE	Upshur-Gilpin silt loams, 25 to 35 percent slopes	47.4	12.2%
VdD	Vandalia silt loam, 15 to 25 percent slopes	15.0	3.9%
VdE	Vandalia silt loam, 25 to 35 percent slopes	6.5	1.7%
VsD3	Vandalia silty clay loam, 15 to 25 percent slopes, severely eroded	22.4	5.8%
W	Water	4.9	1.3%
ZoB	Zoar silt loam, 3 to 8 percent slopes	0.0	0.0%
Totals for Area of Interest		**388.5**	**100.0%**