

Woodland Stewardship Management Plan

Owner's Information:

Owner: _____

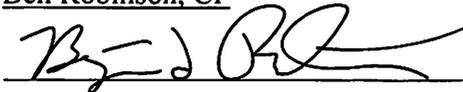
Signed: _____

Date: _____

ODNR Case Number (If applicable): _____

Preparer's Information:

Prepared by: Ben Robinson, CF

Signature: 

Ben Robinson
Switchback Forestry and Ecosystem Management
7165 Beechwood Dr., Apt. E
Athens, OH 45701

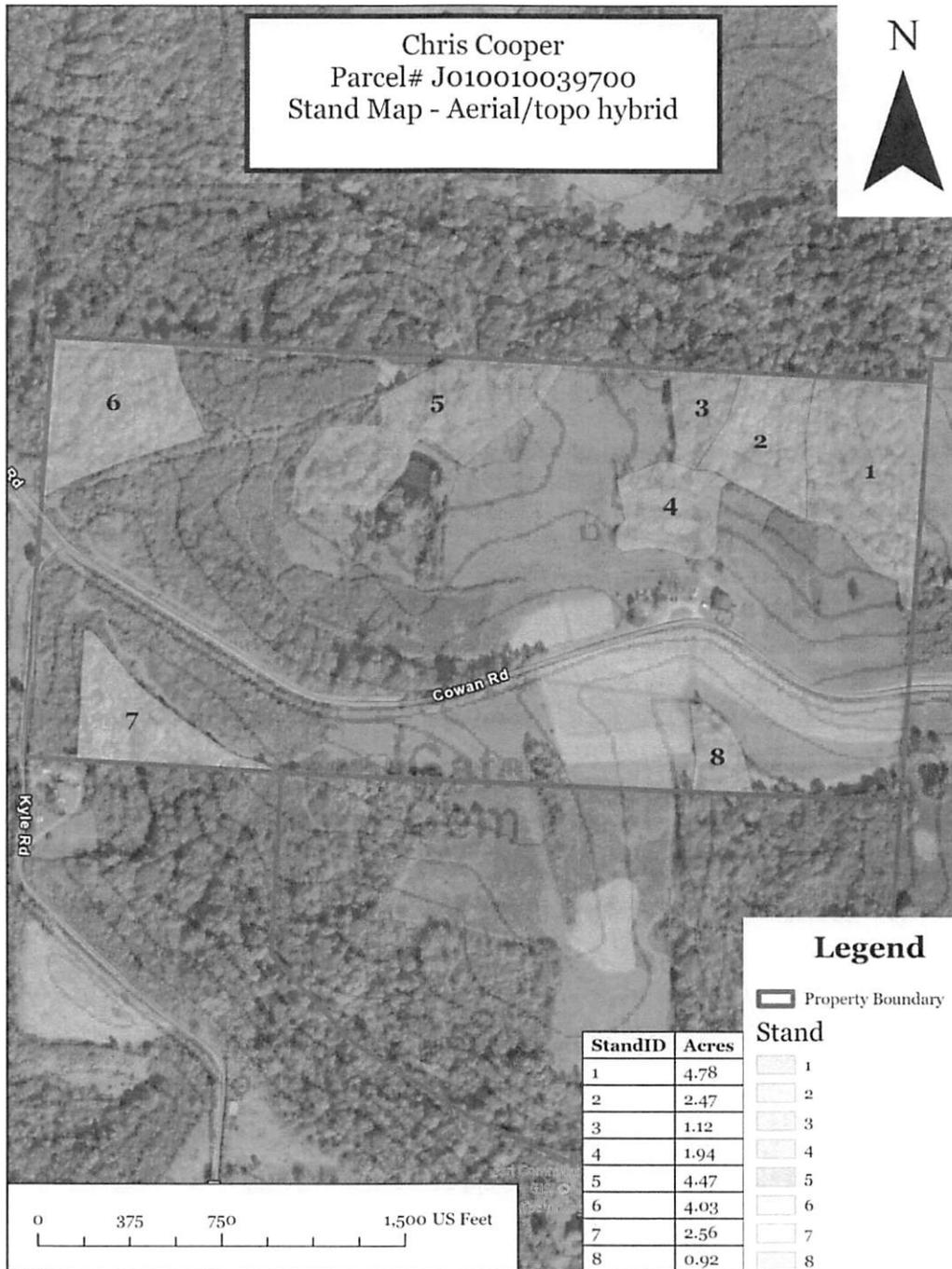
Date: 7/29/23

This plan is valid for the period beginning 7/31/2023 and ending 7/31/2033

Plan Status: New

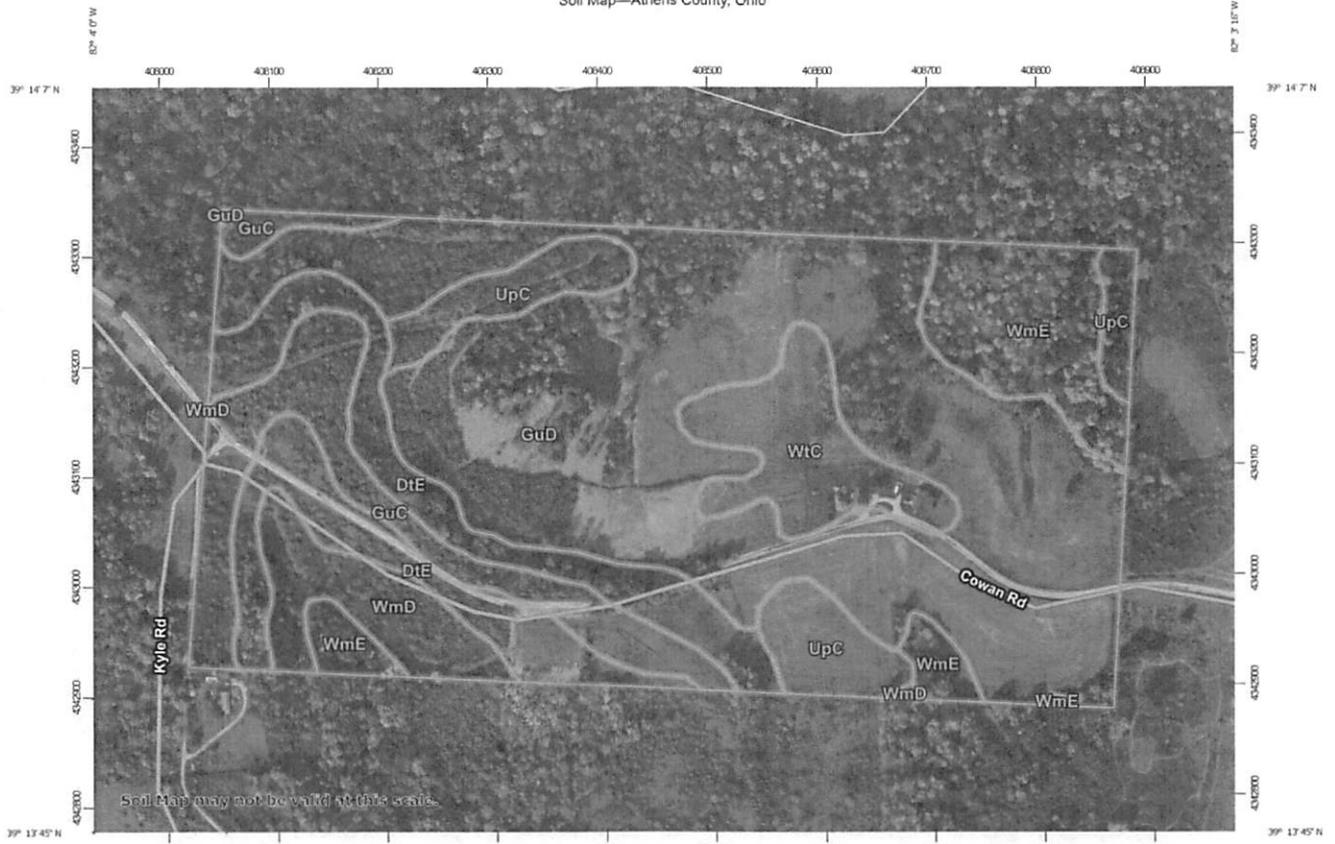
Woodland Management Plan Map

Landowner: Chris Cooper		County: Athens
Total Property Acres: 82.00ac	Total Forest Acres: 22.29ac	Township: Lodi
Date: 7/28/2023	Map Source: ESRI ArcPro	Drawn By: Ben Robinson
Map should be used as a reference for management only – not for legal or survey purposes		

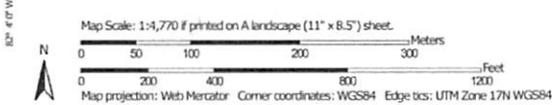


Soils Map

Soil Map—Athens County, Ohio



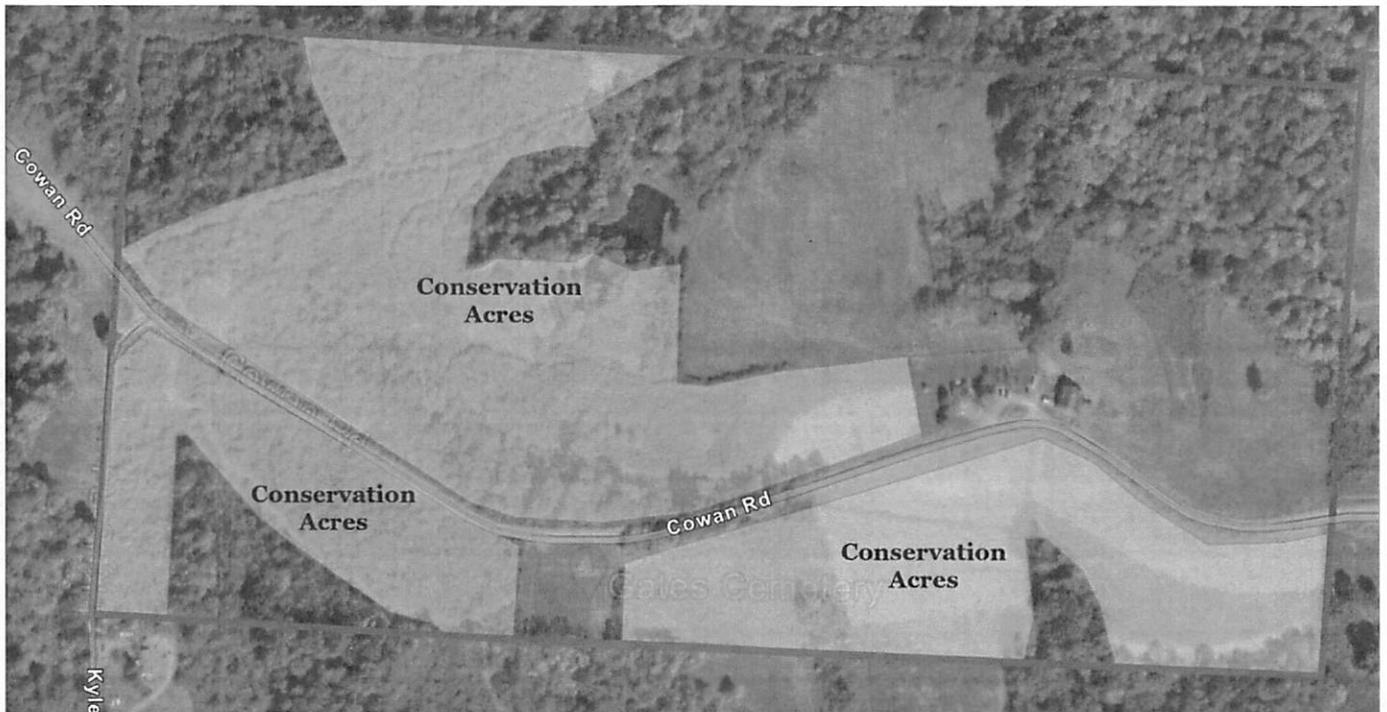
Soil Map may not be valid at this scale.



Managed Conservation Acres

	Landowner: Chris Cooper	County: Athens
Total Property Acres: 82.00ac	Total Managed Conservation Acres: 40.48ac	Township: Lodi
Date: 7/28/2023	Map Source: ESRI ArcPro	Drawn By: Ben Robinson

See additional wildlife mgmt. plan for more detailed map of areas devoted to conservation. Recommendations will not be made on these areas within this forest management plan.



Woodland Stand Description and Management Recommendations

Stand # 1 – 4.78ac

Dominant Species: Black oak, chestnut oak, white oak, pignut hickory, shagbark hickory, sugar maple

Dominant Midstory/Understory species: Sugar maple, beech, pawpaw, sassafras, spicebush

Stand Diameter or Size Class: Medium sawtimber

Stocking Level: Over stocked

Stand History: Harvesting - "Select cut" ~40 years ago

Topography: Rolling West aspect

Invasive plants or insects impacting this stand: Multiflora rose, autumn-olive, tree of heaven, privet

Stand Condition and Resource Concerns: This upland stand is dominated by oak-hickory species. The overstory is mature medium sawtimber, and there is a dense midstory of shade-tolerant species such as sugar maple. This layer of the forest likely established when cattle were excluded from the stand 40+ years ago. Stumps indicate a timber harvest occurred at about the same timeframe. Along the eastern end of the stand there is a narrow transition of sapling/poletimber between the mature timber of stand 1 and the fencerow/parcel edge. Autumn-olive and multiflora rose are prevalent along the eastern edge of the stand and dwindle as you move west. The stand is overstocked, and oak/hickory reproduction levels are very low. The shade-tolerant midstory is limiting sunlight levels to the understory and reducing understory vegetation. Shade-tolerant midstory makes up 20-30 sqft. Basal area. Grapevine pressure is moderate, and more are found along the eastern poletimber transition. Overall, the stand is dominated by AGS (acceptable growing stock), and contains some of the higher quality timber on the property.

Past management activities completed in this stand: None

Management Recommendations:

Deaden invasive shrubs and tree of heaven with herbicide

Grapevine control in AGS quality trees

Midstory removal (20-30 sqft basal area to remove)

Is a timber harvest recommended? No

Comments: Controlling invasive shrubs and the few tree of heaven in this stand is necessary before manipulating the canopy. There is mature timber in this stand, however the regeneration levels in the understory are minimal. The basal bark treatment method would be ideal for tree of heaven in the late growing season, and most of the year for the invasive shrubs (including dormant season). Cut grapevines growing in AGS. After invasive plants are at manageable levels, midstory removal is recommended. In this stand, removing 20-30 square feet of basal area of trees in the "suppressed" and "intermediate" size classes would help stimulate the understory and allow regeneration to establish. Consider felling the midstory in this practice, to improve structure in the understory by adding coarse woody debris.

Midstory removal is recommended to stimulate the growth and establishment of desirable seedlings, saplings and shrubs in the forest understory. Without active management or fire within a stand, shade-tolerant stems establish in the understory and begin to out-compete the seedlings, saplings, and shrubs that are shade-intolerant or moderately-shade intolerant. Over time, these shade-tolerant stems begin to form a midstory, thus shading out the understory plants that usually represent the overstory's species composition, provide cover for wildlife, and provide browse and soft mast for many different wildlife species. Undesirable midstory and understory species can be controlled by a combination of mechanical and chemical methods including cutting, girdling, frilling, foliar herbicide application, and basal-bark treatment. Methods will vary based on the size of undesirable stems in the understory or midstory. If herbicides are not used in the stand, expect cut stems to sprout aggressively and begin to shade the desirable understory again in a few years. Understory management is most often recommended in oak-dominated stands in order to prepare the regeneration for a future timber harvest. Regenerating oak is only possible when oak seedlings are competitive and dominating the

seedling/sapling layer. Without competitive regeneration of desirable species, future timber harvests are highly unlikely to result in a new stand dominated by oaks, hickories, and other sun-loving species.



Midstory removal 2 years following treatment. Sunlight levels are probably 20-30%. Note the increase in browse for deer, turkey nesting opportunities, and plant diversity in the understory.

Desired Future Conditions:

Desired Forest Type or Dominant Vegetation: Oak-Hickory

Desired Stand Structure: Even Aged Medium sawtimber

Woodland Stand Description and Management Recommendations

Stand # 2 – 2.47ac

Dominant Species: Sugar maple, yellow poplar, sycamore, beech, black cherry

Dominant Midstory/Understory species: Elm, buckeye, musclewood, ash, spicebush, pawpaw

Stand Diameter or Size Class: Small sawtimber

Stocking Level: Fully stocked

Stand History: Harvesting - "Select cut" ~40 years ago

Topography: Steep Multiple aspects, ravines

Invasive plants or insects impacting this stand: Privet, autumn-olive, tree of heaven

Stand Condition and Resource Concerns: This stand appears to have been "select cut" at the same time as stands 1 and 3. The stand is dominated by yellow poplar, sugar maple, cherry, and sycamore. The stand is fully stocked with AGS in the small sawtimber size class. Sugar maple regeneration is found throughout the understory, and a dense shrub layer of spicebush and pawpaw exists.

Past management activities completed in this stand: None

Management Recommendations:

Cut grapevines growing in AGS

Control invasive shrubs with herbicide

Cull tree removal

Is a timber harvest recommended? No

Comments: Most of the timber in this stand is just growing into the sawtimber size classes. Timber is not mature, and there is not enough volume to warrant a timber harvest in the next decade. Prepare the stand for a timber harvest 10-20 years out, ideally timed with stands 1 and 3. Cut grapevines growing in AGS, and deaden the invasive shrubs in the understory. Remove cull trees (10-20 square feet of basal area) by double-girdling, herbicide, or felling. Work with a forester to identify cull trees.

Non-native invasive species (NNIS) compete with native grasses, forbs, shrubs and tree seedlings, and tend to create monocultures of themselves. Bush honeysuckle, tree of heaven, autumn-olive, multiflora rose, Japanese barberry, burning bush, and privet are just a few examples of those found in Ohio's woodlands. Most of these species were planted in landscaping or reclamation projects and have spread into Ohio's native forests. Ohio woodlands today often have a higher diversity of non-native shrubs than native shrubs. Controlling invasive shrubs is crucial to maintaining a diverse understory and allowing native trees to regenerate. NNIS can be controlled with a variety of herbicides and methods of application. Cut-stump, basal bark, hack&quirt (aka stem-injection), and foliar methods are used to apply these herbicides to the plants. Fact sheets for most NNIS can be found online. Match the herbicide to the method and timeframe that you're trying to control the plant within. Foliar applications for many invasive shrubs can be done during the early spring or late fall windows – when only non-native plants are green and susceptible to herbicide. Cut-stump, basal bark and hack&quirt treatments can be done most of the year. Read the label of the herbicide you choose and follow the mixing and application instructions to produce the best results. Generally, the less non-target damage you have when treating invasive species, the better that native plants in the seedbank are able to respond and fill the new space.

Desired Future Conditions:

Desired Forest Type or Dominant Vegetation: As Listed in Dominant Species

Desired Stand Structure: Uneven Aged

Woodland Stand Description and Management Recommendations

Stand # 3 – 1.12ac

Dominant Species: white oak, black oak, shingle oak, pignut hickory, shagbark hickory, sugar maple, black cherry, sassafras, black locust

Dominant Midstory/Understory species: Redbud, muscledwood, spicebush, coralberry

Stand Diameter or Size Class: Poletimber/Small sawtimber

Stocking Level: Over stocked

Stand History: Harvesting - "Select cut"

Topography: Steep

Invasive plants or insects impacting this stand: Privet, autumn-olive, Japanese honeysuckle

Stand Condition and Resource Concerns: This is a small stand similar to stand 1. This upland site supports oak in the overstory, and a limited amount of oak reproduction. There are some pole/sapling-size oak and hickory trees that have filled in the gaps from old openings from a harvest or grazing. Invasive shrubs are present in the understory and threaten regeneration levels. Japanese honeysuckle is also aggressive in the understory, and is limiting the growth of herbaceous plants and hardwood reproduction.

Past management activities completed in this stand: None

Management Recommendations:

Cut grapevines growing in AGS quality sapling/pole/small sawtimber trees

Use dormant season fire to combat the Japanese honeysuckle and other small invasive shrubs.

Is a timber harvest recommended? No

Comments: Grapevines and invasive plants are threatening the regeneration and health of the stand. The stocking level of the stand is adequate. Cutting grapevines out of younger trees, especially, is recommended to improve their growth rate and vigor. As you manage your field areas with prescribed fire, consider adding fire into this stand. Oak regeneration should respond positively to it, and species like Japanese honeysuckle will respond negatively to a late winter/early spring fire. Fire will only top-kill woody plants, however it may greatly limit the growth of the small invasive shrubs. Oak and hickory species will respond quickly and positively to top-kill.

Desired Future Conditions:

Desired Forest Type or Dominant Vegetation: Oak-Hickory

Desired Stand Structure: Even Aged Small sawtimber & poletimber

Woodland Stand Description and Management Recommendations

Stand # 4 – 1.94ac

Dominant Species: Black walnut

Dominant Midstory/Understory species: Redbud, dogwood

Stand Diameter or Size Class: Poletimber/Small sawtimber

Stocking Level: Fully stocked

Stand History: Grazing

Topography: Rolling

Invasive plants or insects impacting this stand: Autumn-olive

Stand Condition and Resource Concerns: This is a primarily black walnut stand that is located in a draw between pastures. The walnuts have been managed over the decades to grow straight and remain fully-stocked. The stand is small sawtimber-size and has potential to produce valuable trees in the future.

Past management activities completed in this stand: Vines cut, mowing

Management Recommendations:

Dormant mowing to encourage herbaceous understory and limit woody species

Control autumn-olive and mulitflora rose with herbicide

Is a timber harvest recommended? No

Comments: Allow walnut stand to remain fully-stocked and keep vines out of the trees. Continue dormant mowing (Nov.-Mar.) to encourage herbaceous growth in the understory, to reduce competition for the trees and to provide an early-successional transition in the stand for wildlife to use. Expect trees to continue to grow at 2" dbh per 10 years.

Desired Future Conditions:

Desired Forest Type or Dominant Vegetation: As Listed in Dominant Species

Desired Stand Structure: Even Aged Small sawtimber

Woodland Stand Description and Management Recommendations

Stand # 5 – 4.47ac

Dominant Species: Sycamore, black walnut, black cherry, elm, hackberry, sugar maple, northern red oak, black oak, ash (dead)

Dominant Midstory/Understory species: Redbud, dogwood, pawpaw, spicebush

Stand Diameter or Size Class: Small sawtimber

Stocking Level: Fully stocked

Stand History: Grazing

Topography: Steep

Invasive plants or insects impacting this stand: Autumn-olive, tree of heaven, multiflora rose, privet

Stand Condition and Resource Concerns: Stand 5, like the rest of the property, has a history of grazing. Cattle were excluded from the stand 10-15 years ago. Autumn-olive and tree of heaven were present in the pasture before it reverted. The two species have rapidly taken over the understory of the stand and adjacent fields. Autumn-olive is threatening the regeneration of hardwood species. The timber is small-sawtimber size and fair quality – stocking is variable throughout the stand and soil compaction is likely to be limiting the growth rate and quality of the stand.

Past management activities completed in this stand: Some tree of heaven deadened

Management Recommendations:

Deaden tree of heaven with herbicide

Cut grapevines out of AGS – treat stumps with herbicide

Is a timber harvest recommended? No

Comments: Timber volume is too low to warrant a harvest, and invasive plants dominate the stand. EAB caused a disturbance in the canopy that has allowed grapevines and invasive species to flourish. Controlling the invasive shrub layer in a stand like this will be an ongoing process over the next several decades. The highest priority is to rid the stand of tree of heaven, and then to keep grapevines from growing in high quality trees. Consider using the basal-bark treatment in the dormant season to tackle the autumn-olive.

Tree of Heaven (Ailanthus) is a non-native invasive tree species that rapidly out-competes our native species. Tree of Heaven, also known as ailanthus, produces an alarming number of seeds and spreads them long distances. Ailanthus also produces an allelopathic chemical which resides in the soil, where it can inhibit the growth and germination of native species. Ailanthus wood is useless, and the tree has no known wildlife benefits. The wood of ailanthus is even known to cause skin irritation and allergic reaction in some cases. Ailanthus sprouts less than 6 feet tall can be treated with a foliar application of glyphosate or triclopyr-based herbicides. This is most effective in the growing season (May-September). Larger ailanthus can be treated using the hack & squirt method and an herbicide with the active ingredients triclopyr or imazapyr. A frill is created for every 2” of diameter of the tree, and concentrated herbicide is applied directly to the frill. Monitor hack & squirt treatments for re-sprouting. This is most effective in the growing season (May-September). Small and medium-size ailanthus should be treated using the basal bark herbicide method. The active ingredient triclopyr is mixed with an oil carrier and then applied to the entire circumference of the lower stem of the tree (0-12”). This is most effective in the growing season (May-October). DO NOT use a cut stump or girdling method to attempt to control ailanthus. It will make the infestation much worse. Always read the manufacturer’s label when using herbicides

Desired Future Conditions:

Desired Forest Type or Dominant Vegetation: As Listed in Dominant Species

Desired Stand Structure: Even Aged Small sawtimber

Woodland Stand Description and Management Recommendations

Stand # 6 – 4.03ac

Dominant Species: Black cherry, black locust, black walnut, shingle oak, hackberry, osage-orange, persimmon, ash (dead)

Dominant Midstory/Understory species: Autumn-olive

Stand Diameter or Size Class: Poletimber

Stocking Level: Under stocked

Stand History: Grazing

Topography: Steep

Invasive plants or insects impacting this stand: Autumn-olive, tree of heaven, multiflora rose,

Stand Condition and Resource Concerns: This is a small stand in a reverting pasture. Cattle were excluded 10-15 years ago. The stand is young and has a high proportion of UGS. The stand is located on relatively unproductive soils, with soil compaction and erosion.

Past management activities completed in this stand: None

<i>Management Recommendations:</i>
Control autumn-olive and tree of heaven with herbicide – low priority

Is a timber harvest recommended? No

Comments: The stand is dominated by UGS, on a site that was grazed for decades. EAB caused a disturbance in the canopy that has allowed grapevines and invasive species to flourish. Priority for timber stand improvement is low. Controlling autumn-olive within and around the stand will allow for tree regeneration to take place. Use dormant basal-bark and cut-stump treatment methods for autumn-olive control.

Desired Future Conditions:

Desired Forest Type or Dominant Vegetation: As Listed in Dominant Species

Desired Stand Structure: Even Aged Poletimber

Woodland Stand Description and Management Recommendations

Stand # 7 – 2.56ac

Dominant Species: Black locust, black cherry, black walnut, blackgum, pignut hickory, ash (dead), elm

Dominant Midstory/Understory species: Pawpaw, spicebush, non-native shrubs

Stand Diameter or Size Class: Poletimber

Stocking Level: Under stocked

Stand History: Old-Field Reversion

Topography: Gently sloping

Invasive plants or insects impacting this stand: Autumn-olive, multiflora rose, bush honeysuckle, tree of heaven, Japanese honeysuckle

Stand Condition and Resource Concerns: This young stand has a grazing history. Ash was one of the primary components of the young stand, and most have succumbed to EAB. Tree of heaven is found throughout the stand, both in the overstory and understory. Grapevines are growing in canopy trees, and causing poor timber form. In general, most trees in the stand are UGS quality. Invasive shrubs are dominating the understory.

Past management activities completed in this stand: None

Management Recommendations:

Deaden tree of heaven with herbicide

Targeted grapevine control in AGS quality trees

Is a timber harvest recommended? No

Comments: The potential for high-quality timber in this stand is low. EAB caused a disturbance in the canopy that has allowed grapevines and invasive species to flourish. Spend timber stand improvement efforts in other stands before this. Targeted grapevine control would be the most cost effective practice to improve the future timber quality in this stand.

Desired Future Conditions:

Desired Forest Type or Dominant Vegetation: Oak-Hickory

Desired Stand Structure: Two aged Small sawtimber & poletimber

Woodland Stand Description and Management Recommendations

Stand # 8 – 0.92ac

Dominant Species: Black walnut, red oak, white oak, hackberry, black cherry, black locust, elm,

Dominant Midstory/Understory species: Spicebush, sugar maple

Stand Diameter or Size Class: Small sawtimber

Stocking Level: Fully stocked

Stand History: Harvesting - "Select cut"

Topography: Steep

Invasive plants or insects impacting this stand: Autumn-olive, multiflora rose, bush honeysuckle, Japanese honeysuckle, privet

Stand Condition and Resource Concerns: This is a very small stand at the head of a long draw. The stand borders the "Cooper Ventures LTD" property to the south – with the same ownership. Because of this, such a small stand is included in the mapping of forest for this property. Stand 8 is an intermediate stand that has a fully-stocked canopy.

Past management activities completed in this stand: None

Management Recommendations:

Targeted grapevine control in AGS

Deaden invasive shrubs within the stand

Is a timber harvest recommended? No

Comments: Since this stand is bordering Stand 2 (Cooper Ventures LTD) – a stand that was clearcut 20 years ago – stand 8 should be managed on the same timeline as the adjacent stand 2. Targeted vine control and controlling invasive species from the edge of the stand would benefit native tree regeneration and future timber value.

Desired Future Conditions:

Desired Forest Type or Dominant Vegetation: As Listed in Dominant Species

Desired Stand Structure: Even Aged

Management Activity Schedule

Mgmt. Unit	Priority	Required Task?	Acres	Recommendations
All	1	<input type="checkbox"/>	-	Mark property boundary (North, West and part of South perimeter) with oil-based paint. Make 3 spots on the corners, and one spot along the line-of-sight on the property edge. Mark every 100 feet along the property perimeter minimum – so that you can see from one mark to the next in the summer foliage. See attached fact sheet on boundary marking for more info.
1,2,3	2	<input type="checkbox"/>	8.37	Deaden invasive shrubs and tree of heaven with herbicide
1,2,3	3	<input type="checkbox"/>	8.37	Grapevine control in AGS quality trees
1	4	<input type="checkbox"/>	4.78	Midstory removal (20-30 sqft basal area to remove). Consult forester if needed to help mark trees to remove.
1	5	<input type="checkbox"/>	4.78	Monitor for Japanese stiltgrass and other NNIS invasion following the disturbance
2	6	<input type="checkbox"/>	2.47	Cull tree removal (10-20 sqft basal area to remove). Consult forester if needed to help mark trees to remove.
5	7	<input type="checkbox"/>	<1	Deaden tree of heaven with herbicide
7	8	<input type="checkbox"/>	2.56	Deaden tree of heaven with herbicide
3	9	<input type="checkbox"/>	1.12	Use dormant season fire to combat the Japanese honeysuckle and other small invasive shrubs.
5-8	10	<input type="checkbox"/>	11.98	Targeted vine control in AGS quality trees
4-8	11	<input type="checkbox"/>	13.92	Deaden NNIS to bring to manageable levels. Utilize field edges and trails to manage with foliar applications after the large shrubs are deadened.
All	every 5 years	<input checked="" type="checkbox"/>		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

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

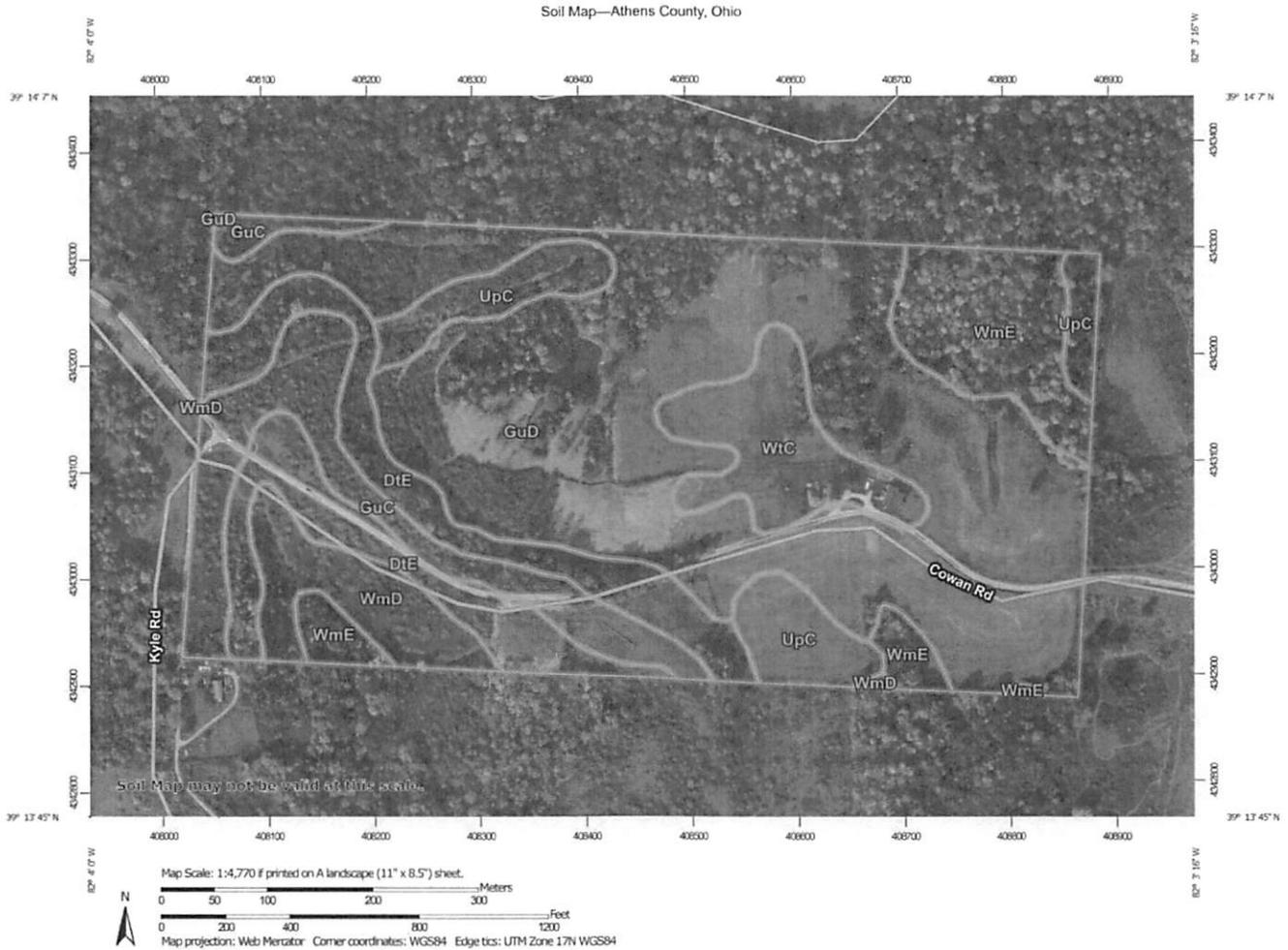
Addendums

Woodland Resource Descriptions

General Soils Information – includes a woodland soils map, soil drainage class, the general productive capacity of the soil, and a general overview of the main soil type(s):

Soil Map

Acres and boundaries approximate



Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
DIE	Dekalb-Westmoreland complex, 25 to 40 percent slopes	11.9	13.7%
GuC	Guernsey-Upshur complex, 8 to 15 percent slopes	8.5	9.8%
GuD	Guernsey-Upshur complex, 15 to 25 percent slopes	42.9	49.4%
UpC	Upshur silty clay loam, 8 to 15 percent slopes	5.9	6.8%
WmD	Westmoreland-Upshur complex, 15 to 25 percent slopes	4.4	5.0%
WmE	Westmoreland-Upshur complex, 25 to 40 percent slopes	7.8	8.9%
WIC	Woodsfield silt loam, 8 to 15 percent slopes	5.6	6.4%
Totals for Area of Interest		86.9	100.0%

Summary by Map Unit — Athens County, Ohio (OH009)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
DtE	Dekalb-Westmoreland complex, 25 to 40 percent slopes	Excessively drained	11.9	13.7%
GuC	Guernsey-Upshur complex, 8 to 15 percent slopes	Moderately well drained	8.5	9.8%
GuD	Guernsey-Upshur complex, 15 to 25 percent slopes	Moderately well drained	42.9	49.4%
UpC	Upshur silty clay loam, 8 to 15 percent slopes	Well drained	5.9	6.8%
WmD	Westmoreland-Upshur complex, 15 to 25 percent slopes	Well drained	4.4	5.0%
WmE	Westmoreland-Upshur complex, 25 to 40 percent slopes	Well drained	7.8	8.9%
WtC	Woodsfield silt loam, 8 to 15 percent slopes	Well drained	5.6	6.4%
Totals for Area of Interest			86.9	100.0%

Summary by Map Unit — Athens County, Ohio (OH009)				
Map unit symbol	Map unit name	Rating (feet)	Acres in AOI	Percent of AOI
DtE	Dekalb-Westmoreland complex, 25 to 40 percent slopes	75	11.9	13.7%
GuC	Guernsey-Upshur complex, 8 to 15 percent slopes	95	8.5	9.8%
GuD	Guernsey-Upshur complex, 15 to 25 percent slopes	95	42.9	49.4%
UpC	Upshur silty clay loam, 8 to 15 percent slopes	80	5.9	6.8%
WmD	Westmoreland-Upshur complex, 15 to 25 percent slopes	90	4.4	5.0%
WmE	Westmoreland-Upshur complex, 25 to 40 percent slopes	90	7.8	8.9%
WtC	Woodsfield silt loam, 8 to 15 percent slopes	5.6	5.6	6.4%
Totals for Area of Interest			86.9	100.0%

Summary by Map Unit — Athens County, Ohio (OH009)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
DtE	Dekalb-Westmoreland complex, 25 to 40 percent slopes	Loam	11.9	13.7%
GuC	Guernsey-Upshur complex, 8 to 15 percent slopes	Silt loam	8.5	9.8%
GuD	Guernsey-Upshur complex, 15 to 25 percent slopes	Silt loam	42.9	49.4%
UpC	Upshur silty clay loam, 8 to 15 percent slopes	Silty clay loam	5.9	6.8%
WmD	Westmoreland-Upshur complex, 15 to 25 percent slopes	Silt loam	4.4	5.0%
WmE	Westmoreland-Upshur complex, 25 to 40 percent slopes	Silt loam	7.8	8.9%
WtC	Woodsfield silt loam, 8 to 15 percent slopes	Silt loam	5.6	6.4%
Totals for Area of Interest			86.9	100.0%

- **Major Soil Type(s):** GuD Guernsey-Upshur complex, 15-25 percent slopes
- **Soil Texture:** Silt loam
- **Soil Drainage Class:** Moderately well drained
- **Site Class: (using Woodland Productivity):** Fair to Good
- **Site index (tuliptree):** 95feet

- **Major Soil Type(s):** DtE Dekalb-Westmoreland complex, 25-40 percent slopes
- **Soil Texture:** Loam
- **Soil Drainage Class:** Excessively Well drained
- **Site Class: (using Woodland Productivity):** Poor to Fair
- **Site index (tuliptree):** 75feet

- **Major Soil Type(s):** WmE Westmoreland-Upshur complex, 25-40 percent slopes
- **Soil Texture:** Silt Loam
- **Soil Drainage Class:** Well drained
- **Site Class: (using Woodland Productivity):** Fair
- **Site index (tuliptree):** 90feet

Timber Information - a general description of the timber characteristics of quality and potential:

The woodlands are stocked with a variety of marketable timber species that can produce valuable wood products now and into the future. Timber stand improvement (TSI) management practices such as grapevine control, cull tree & undesirable hardwood species control, and crop tree release will certainly enhance the quality and value of your timber resources over time, and are important tasks to implement in order to maximize the timber potential in your woodland.

Wildlife – a general description of the wildlife habitat quality and potential:

Your forestland provides valuable habitat for wildlife, including mammals, birds, and amphibians. Many of the tree species are used by this wildlife for food, cover and nesting sites. Some of the more valuable wildlife food trees species include oaks, beech, cherry, dogwood and hickory. Many other tree species are critically important to certain species of wildlife. Grapevines also are an important food and cover for birds.

Cover, food and water are all necessary to attract wildlife. Different species use different cover types, and maintaining a diversity of cover is key to attracting a wide variety of wildlife. A mixture of sapling areas, pole areas and sawtimber areas will help meet the need for habitat diversity. Small openings in the forest and/or open areas along woodland roads help provide areas for birds and their young to come and catch insects. Openings can also be seeded to grass and clover mixes to provide an additional variety of food.

Please note all habitats don't necessarily have to be present on your property...your neighbor's land may offer a habitat type different than what is available at your forest. You can extend habitat benefits using complimentary cover types beyond your boundaries...the wildlife don't mind.

Water - a general description of the water resources on the property:

Soil and water conservation practices can be applied to this property. Perennial streams should always be buffered with trees. Livestock should be kept out of streams. Water control structures should be used in areas where access trails and roadways are present.

The water and soil resources on your property should be protected and enhanced. Using the information in this plan and information available through your local Soil and Water Conservation District you can implement sound soil and water conservation practices on your property.

Best Management Practices – maintaining the integrity and productivity of woodland sites:

Basic protection measures used to guard your forest soils against problems related to soil/site limitations and equipment usage - rutting, excessive disturbance and compaction, erosion, and sedimentation - are commonly referred to as Best Management Practices (BMP'S). One very easy BMP landowners may use is simply to limit heavy equipment access to dry weather periods.

Hilly to steeply sloped terrain is more subject to site disturbance and subsequent soil erosion and sedimentation. Forest management often may still be accomplished on these steep areas with the use of BMP's. Even when the forest terrain is nearly level to gently rolling, and where slope does not present a hindrance to access for management activities, it is important to keep the trails up away from the small drainages where possible. This helps protect water quality by providing a buffer strip of undisturbed soil and leaf litter where any sediment can be trapped before reaching the drainage, if some should get washed off the path.

During timber harvest activities, follow the Best Management Practices outlined in the Ohio State University Bulletin #916 – BMPs for Erosion Control for Logging Practices in Ohio. This booklet is available online at www.ohiodnr.gov/forestry/ or at your local Division of Forestry office.

Practically speaking, the use of BMP's to prevent soil loss is a sound agricultural practice that helps maintain site & timber productivity. Also, implementing BMP's helps you comply with Ohio's Agricultural Pollution Abatement Law (HB 88) standards for Silvicultural Operations.

Forest Health – a general description of the health of the woodland:

Control of grapevines on selected crop trees will guard those crop trees from the damage risks posed by this woody native vine. However, native grapevines are part of the forest ecosystem; keeping selected vines may be considered a part of maintaining overall forest health.

Oak species are preferred food sources for the Gypsy moth. The good news is that after the initial wave of Gypsy moths showed up in Ohio, a fungus showed up that keeps these critters in pretty good check. The fungus is named *Entomophaga miamaiga*... "Em" for short. Still, it's a good idea to keep tabs on any oaks present in the forest to see if any egg masses start to show up in July-August - identified as a characteristic tan fuzzy oval mass that looks like Velcro. If you see egg masses, and can count more than 50 during a five minute walk around the oaks, then your trees are at risk of being partially or completely defoliated if the Spring is very dry and therefore not conducive to development of the Em fungus for natural control. There are options for control of Gypsy moth using aerial application of pesticides to the tree leaves, so that larvae ingesting such pesticides then die. One such pesticide is actually a "biocide" - the bacteria *Bacillus thuringiensis* (Bt).

At the time of the visit Emerald Ash Borer (EAB) is the only forest pest of concern that was noted. EAB is an invasive insect from Asia that only attacks ash trees. The larvae eat the living tissue of ash trees just underneath the bark. With a large enough infestation, this process essentially chokes off the flow of water and nutrients within the tree which leads to the tree's mortality. This insect can spread naturally from tree to tree, as well as artificially through the movement of ash material such as firewood.

You can reduce the risk of losses by gradually reducing the ash component of your woodlot. When doing a forest thinning or a crop tree release, if you have a choice between an ash and another desirable species, you may choose to cut the ash and let the other species grow. By gradually doing this ash reduction throughout your woods, you can avoid any serious impact on your woods if the emerald ash borer does eventually get there

The best thing you can do now is to stay informed. The following websites should be checked periodically for the most up to date information on the emerald ash borer:

<http://www.agri.ohio.gov/eab>

<http://www.emeraldashborer.info/>

<http://ashalert.osu.edu/>

<http://www.ohiodnr.com/forestry/health/eab.htm>

Wetlands – a general description of any wetland resources and/or vernal pools:

Wetlands are extremely important for water quality, and they provide unique habitats for fish and wildlife. These are an important forest resource component for overall health of the forest system. Ephemeral or seasonal wetlands – also called vernal pools - are typically small in size, and tucked within the forest cover. Vernal pools periodically dry up and do not contain fish. This drying may occur annually or just during drought years. However, these ephemeral pools provide unique habitat for amphibians like salamanders and frogs, as well as many other species of wildlife. Many landowners find that wetlands improve the aesthetics and overall enjoyment value to their land. It is very important to protect permanent and ephemeral wetland areas for the health of the forest and the environment.

Threatened & Endangered Species – considerations for threatened and endangered species, including the direct relationship with biological diversity:

No specific threatened or endangered species were noted within your forestland, but I did not conduct a complete biological survey. Some threatened or endangered species found in Ohio include the Timber rattlesnake, the Northern Harrier, the Indiana bat, and the American Burying Beetle. Habitat requirements for threatened and endangered species may or may not be found on this forestland; such species have certain habitat requirements. Specific information on threatened or endangered species may be obtained by contacting the Ohio Department of Natural Resources Division of Wildlife directly to access the "Ohio Biodiversity Database":

ODNR - Division of Wildlife
2045 Morse Road, Bldg. G-3,
Columbus, OH 43229-6693
Phone: (614) 265-6452

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Archeological/Historical Resources – a general consideration and description of such resources:

None were found during the inventory.

Historical and cultural resources are nonrenewable and can never be replaced once destroyed. These resources provide us a unique glimpse into the past and a look at the people and how they cared for the land. Good stewardship involves recognizing these resources and protecting them. These resources should be conserved whenever possible when they are present on the property.

Recreation – current and potential recreational activities at property:

Each forest has a unique history and character...and this continues to build under your stewardship. This forest could be used for hunting, picnicing, or wildlife watching. Many landowners find enjoyment in doing improvement work in their woods. Others find pleasure in watching the birds. Some folks gain gourmet foods from the woods, gathering fruits, nuts, or wild mushrooms. Flowering trees like dogwood, redbud and serviceberry, whenever present, add to the beauty of the forest. Maintaining some trails will improve access and your opportunities for use of the area. A walk in the forest provides a time of learning but also a time to relax. The woodlands can be a quiet place of solitude after a busy day at work, or anytime for that matter.

Aesthetics – current or future aesthetic considerations for the woodland:

Forest aesthetics is often associated with older, more mature forests. However, it also has been said that beauty is in the eye of the beholder. Many folks enjoy mature forests with big trees...yet other folks find beauty in a young forest vibrant with the songs of early successional forest songbirds, or where they can take their favorite bird dog for an autumn hunt for ruffed grouse. Forest stewardship management addresses these and other various aesthetic tastes, and may weigh in visual goals of the neighbors. When you are weighing aesthetic goals, consider as a "group" 1) visual aesthetics, 2) the aesthetics of a dynamic functioning forest ecosystem, and 3) the particular wildlife species you hope to encourage at your property.

Other Resources – a general description of any other notable woodland resources:

Associated forest resources vary somewhat from forest to forest, but typically include a variety of herbaceous plants present within the woodlands or old fields within a property. Spring, summer, and fall wild flowers provide non-timber benefits to anyone who takes the time to enjoy the blossoms. Along with the flowers, there is a vast array of insect life – pleasant and sometimes unpleasant – that is essential to good ecosystem function.

Native and non-native honey bees and butterflies are examples of beneficial insects. Medicinal shrubs and herbs and maple syrup are more examples of other beneficial forest resources.

Fire – identify hazards, fire breaks, safety zones, note dead trees from insects or disease, etc.:

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.

Carbon Cycle – Healthy, sustainably managed forests can help to reduce atmospheric carbon:

When you as a forest landowner choose to maintain your forest land rather than convert it a non-forest use, you are making a significant contribution to the carbon cycle equation; healthy forests generally take in (sequester) more carbon than they release. Forest landowners that hold an interest or focus upon the carbon cycle have opportunities to enhance carbon sequestration on the property by conducting various silvicultural practices that enhance the forest's ability to capture and hold carbon, and by re-establishing woodlands on non-forested land.

Efforts to reduce carbon dioxide emissions have resulted in carbon now being a priced environmental commodity in the global marketplace. Active forest managers may find opportunities for carbon trading under participation in "ecosystem services" markets. For further information about carbon sequestration and voluntary carbon markets, plus other potential forest ecosystem services, visit the US Forest Service web site at <http://www.fs.fed.us/ecosystems-services/>.

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. You may access "The Dictionary of Forestry" for free at SAF at www.dictionaryofforestry.org. If internet access is not available, one may purchase a printed version from SAF (toll free 866-897-8760).