

Woodland Stewardship Management Plan



RECEIVED

JUN 11 2018

Jill Thompson
Athens County Auditor

Owner's Information:

Owner: Cindy Poole

Signed: _____

Signed: _____

Date: _____

Case Number: 05-1528

Preparer's Information:

Prepared by: Cameron Bushong

Signature: _____

Cameron Bushong
ODNR Division of Forestry
29371 Wheelabout Road
McArthur, OH 45651

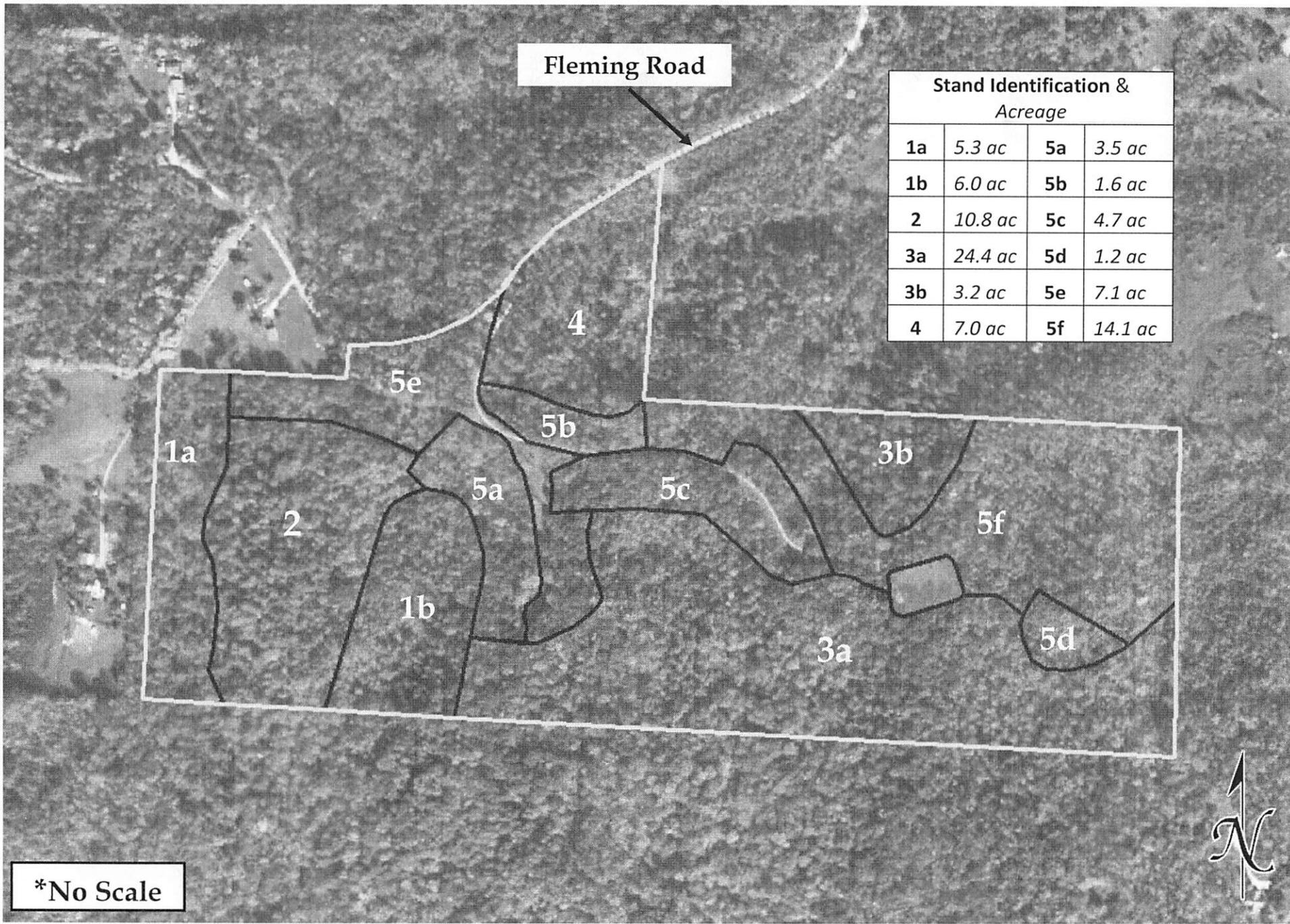
Date: _____

This plan is valid for the period beginning May 2018 and ending May 2028

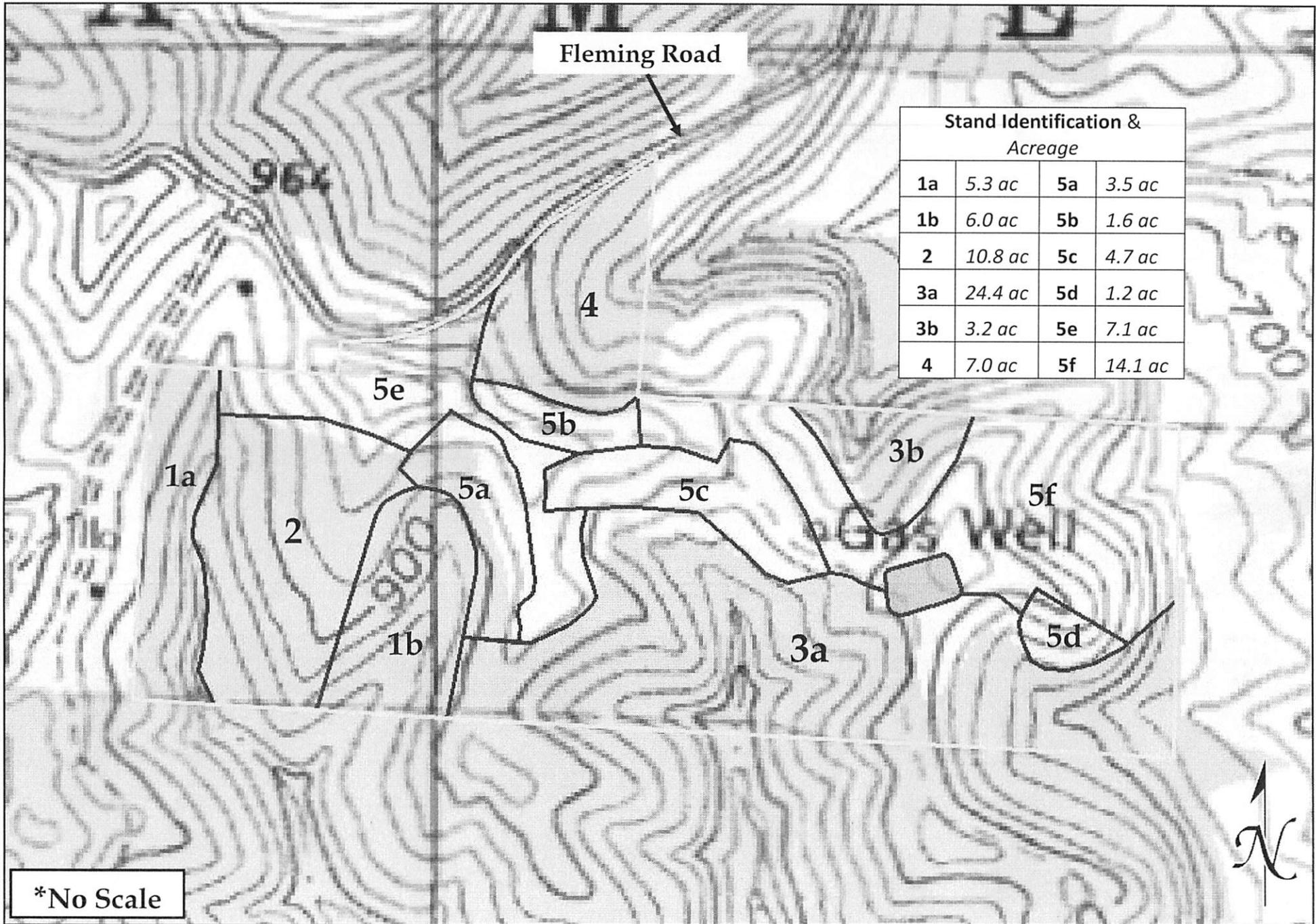
Plan Status: Updated

Inventory Method: On Site Property Review

Woodland Management Plan Map



Woodland Management Plan Map



Stand Identification & Acreage			
1a	5.3 ac	5a	3.5 ac
1b	6.0 ac	5b	1.6 ac
2	10.8 ac	5c	4.7 ac
3a	24.4 ac	5d	1.2 ac
3b	3.2 ac	5e	7.1 ac
4	7.0 ac	5f	14.1 ac

*No Scale

Practices Eligible for the Environmental Quality Incentives Program

Immediately Eligible

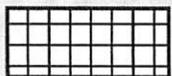
314 - Medium

Control of bush honeysuckle, autumn-olive, privet & Japanese barberry in Stands 3a & 3b



314 - Very Heavy

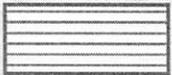
Control of bush honeysuckle, autumn-olive, privet & Japanese barberry in Stands 5e & 5f



Eligible December 2021

314 - Medium/Heavy

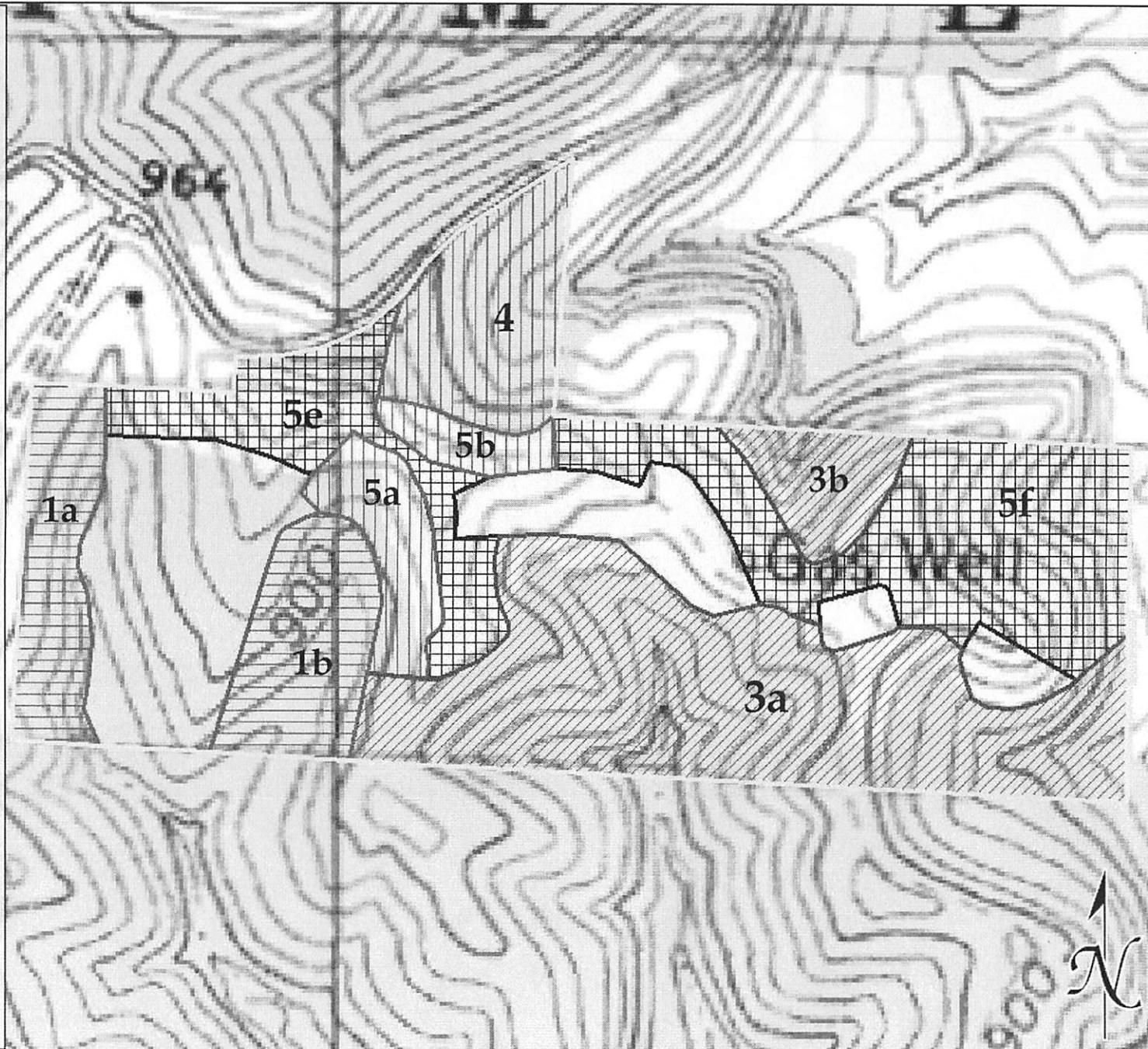
Control of bush honeysuckle, autumn-olive, privet, Japanese barberry & grapevines in Stands 1a & 1b



Eligible August 2023

314 - Heavy

Control of bush honeysuckle, autumn-olive, privet & Japanese barberry in Stands 4, 5a & 5b



Management Activity Schedule

Year(s) Suggested	Mgmt. Unit	Required Task?	Acres	Recommendations
2018	5c	<input type="checkbox"/>	2.0	Complete treatment included with 2015 EQIP contract to deaden autumn-olive, privet and bush honeysuckle with herbicide.
2019	5c, 5d	<input type="checkbox"/>	5.9	Complete retreatment included with 2015 EQIP contract to deaden any previously missed or recently sprouted stems of autumn-olive, privet and bush honeysuckle with herbicide.
2019-2020	5a, 5b	<input type="checkbox"/>	5.1	Follow up treatment to deaden stems of autumn-olive, privet and bush honeysuckle. Foliar applications will be the most cost & time effective treatment method.
2021-2022	3a, 3b	<input type="checkbox"/>	27.6	Cover entire stand to deaden all stems of autumn-olive, bush honeysuckle, privet and Japanese barberry with herbicide.
2023	Entire Property	<input type="checkbox"/>	90.1	Mark all property boundaries with an oil-based paint. Mark trees along lines so that someone can easily see from one mark to the next.
2023-2024	1a, 1b	<input type="checkbox"/>	11.3	Deaden all stems of autumn-olive, bush honeysuckle, privet and Japanese barberry with herbicide.
2025-2026	4, 5e	<input type="checkbox"/>	10.5	Deaden all stems of autumn-olive, bush honeysuckle, privet and Japanese barberry with herbicide.
2027-2028	5f	<input type="checkbox"/>	14.1	Deaden all stems of autumn-olive, bush honeysuckle, privet and Japanese barberry with herbicide.
2028	Entire Property	<input type="checkbox"/>	90.1	Mark all property boundaries with an oil-based paint. Mark trees along lines so that someone can easily see from one mark to the next.
Anytime	2	<input type="checkbox"/>	10.8	Crop tree release.
Anytime	1a	<input type="checkbox"/>	5.3	Grapevine control.
2028	Whole Property	<input 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

Woodland Stand Description and Management Recommendations

Stand # 1 - **11.3** acres in two parts: *Stand 1a: 5.3 ac; Stand 1b: 6.0 ac*

Dominant Species: Yellow buckeye, boxelder, hickories, sugar maple, elms, American beech

Forest Type or Dominant Vegetation: As Listed in Dominant Species

Stand Diameter or Size Class: All Size Classes

Stocking Level: Understocked

Stand History: Harvesting – 12” diameter-limit harvest in 2002

Topography: Steep **Aspect:** East

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

Present conditions or resource concerns to consider: As a result of the 2002 diameter-limit harvest, Stand 1 is an uneven-aged stand of poor quality trees. Typical of such a harvest, the stand is now patchy with uneven distributions of acceptable growing stock. Thickets of boxelder occupy most of the flatter areas, especially along the intermittent drain. Additional grapevine control is needed through much of the stand. Autumn-olive and Japanese barberry should be deadened with herbicide as well.

Past management activities completed in this stand: grapevine control in 1a & 1b – 2011; ailanthus control in 1b - 2011

<i>Management Recommendations:</i>
Cut grapevines where they are growing in selected crop trees. Leaving some grapevines in boxelder thickets, snags and defective trees is acceptable to supplement food and cover for wildlife.
Deaden all stems of autumn-olive, bush honeysuckle, privet and Japanese barberry with herbicide.

Desired forest type or dominant vegetation: Upland Central Hardwoods

Desired stand structure: Uneven Aged

Is a timber harvest recommended? No

Comments: Autumn-olive (*Elaeagnus umbellata*) is a non-native, invasive shrub that can easily take over large expanses of old field and reclaimed mine land. Like every other non-native, invasive plant, it easily out-competes native plants, in part because there are few if any natural controls on its population. Autumn olive and other invasive shrubs will crowd out a variety of native shrubs and other plants that would provide more food and better cover over a longer period of time. They will also prevent the growth of seedlings and saplings of desirable timber species. Autumn-olive and other invasive shrubs can be controlled with foliar herbicide sprays, basal bark treatment, or by cutting them off and immediately applying a concentrated herbicide to the cut surface.

Bush honeysuckle (*Lonicera spp.*) is a shade-tolerant non-native, invasive shrub. Once established, bush honeysuckle forms dense thickets that shade out and often eliminate native plants. It also secretes into the soil chemicals that are harmful to other plants. Birds nesting in bush honeysuckle have reduced nesting success, and the fruit has less food value for wildlife compared to native shrubs. Although it

never reaches any great height, bush honeysuckle can reduce the growth of forest trees and is a threat to forest health in general.

Bush honeysuckle is easily noticeable in late fall due to its bright red berries and late leaf drop. Its hollow twigs are another identifying characteristic. Foliar spraying in the autumn, when native trees have dropped their leaves and bush honeysuckle is still green, can be a very practical way to control bush honeysuckle without harming desirable, native species.

Privet (*Ligustrum spp.*) is a shade-tolerant shrub that grows in clumps and forms thickets in partially shaded woodlands. It is spread by birds and other animals that consume the seeds, and it can also spread by sprouting from the roots. Once established, privet can eliminate tree seedlings, native shrubs, wildflowers, and other desirable native plants. Privet leaves form in early spring and remain green well into fall. This allows privet to shade out spring wildflowers and outcompete native shrubs and tree seedlings. Privet in your woodland is very detrimental to wildlife habitat and to the regeneration of timber species.

Japanese barberry (*Berberis thunbergii*) is a small shrub whose twigs are armed with half-inch spines. It invades fields, forests, savannahs, and wetlands. Japanese barberry alters soil biological activity and can reduce the depth of the litter layer in a forest. It thrives in full sun, but it can also survive and reproduce in full shade. It spreads by seed and by taking root where the branch tips touch the ground. Barberry can be controlled with foliar sprays, basal bark treatment, cut stump treatment, or by hand pulling.

Woodland Stand Description and Management Recommendations

Stand # 2 - 10.8 acres

Dominant Species: American beech, red maple, sugar maple, yellow poplar, blackgum, chestnut oak, scarlet oak, black oak

Forest Type or Dominant Vegetation: Upland Central Hardwoods

Stand Diameter or Size Class: All Size Classes

Stocking Level: Fully Stocked with much of the stocking being unacceptable growing stock (UGS)

Stand History: Harvesting – 12” diameter-limit harvest in 2002

Topography: Steep **Aspect:** Southwest

Invasive plants or insects impacting this stand: None noted, though the stand is surround by autumn-olive, bush honeysuckle, privet, Japanese barberry, multiflora rose and Japanese honeysuckle

Present conditions or resource concerns to consider: Stand 2 is primarily stocked with large, hollowed-out beech and multi-stemmed red maple. These trees didn't have any market value at the time of the last harvest, and they still don't. Live den trees are great for wildlife, but there are so many in the stand that they are impacting growth and productivity. In areas where most of the canopy was removed, some oaks established and are now competing with surrounding maple and beech.

It would be advantageous to release oak poletimber from competing trees for a wide variety of reasons: diversity, mast, timber production, etc. Deadening some of the cull beech and red maple in concentrated patches would also enhance the health and diversity of the stand. However, cull tree removal should wait until invasive species populations are more manageable. Monitoring for – and control of – non-native invasive species will be necessary anywhere trees are deadened.

Past management activities completed in this stand: grapevine control - 2011

<i>Management Recommendations:</i>
Release selected crop trees.

Desired forest type or dominant vegetation: Upland Central Hardwoods

Desired stand structure: Uneven Aged

Is a timber harvest recommended? No

Comments: Crop tree release promotes the growth and productivity of the most valuable trees in the stand to you as a landowner, and helps them grow to maturity more rapidly. Crop trees can be selected for a wide range of values that include timber, aesthetics, water quality improvement, and benefits for wildlife. Different trees provide different values but in general, selected crop trees should have a dominant and vigorous canopy, and a straight and defect free lower bole. Avoid selecting crop trees that are diseased or that have excessive wounds. The canopy of the crop tree should be completely released on all four sides by cutting or double girdling trees in direct competition with the canopy of the crop tree. Five to ten feet of open growing space around the canopy of each crop tree will promote the growth of larger, healthier and higher quality trees.

Woodland Stand Description and Management Recommendations

Stand # 3 - 27.6 acres in two parts: *Stand 3a: 24.4 ac; Stand 3b: 3.2 ac*

Dominant Species: Chestnut oak, white oak, black oak, hickories, American beech, red maple, yellow poplar, bigtooth aspen, yellow buckeye,

Forest Type or Dominant Vegetation: Upland Central Hardwoods

Stand Diameter or Size Class: All Size Classes

Stocking Level: Fully Stocked

Stand History: Harvesting – 12” diameter-limit harvest in 2002

Topography: Rolling

Invasive plants or insects impacting this stand: Privet, autumn-olive, bush honeysuckle, Japanese barberry, multiflora rose

Present conditions or resource concerns to consider: Stand 3 contains the largest, best quality timber found anywhere on the property. For whatever reason, this area wasn't cut as hard in 2002, or has had a better rebound. Species composition and size classes are diverse.

Invasive species noted elsewhere throughout the property also occur in Stand 3, but are more widely scattered, and present at much lower densities. This stand should be a priority for management as it is the highest quality stand on the property.

Past management activities completed in this stand: grapevine control in 3a & 3b - 2009

<i>Management Recommendations:</i>
Deaden all stems of autumn-olive, bush honeysuckle, privet and Japanese barberry with herbicide.

Desired forest type or dominant vegetation: Upland Central Hardwoods

Desired stand structure: Uneven Aged

Is a timber harvest recommended? No

Comments:

Woodland Stand Description and Management Recommendations

Stand # 4 - 7.0

Dominant Species: Yellow buckeye, black walnut, American hackberry, yellow poplar, elms, sugar maple

Forest Type or Dominant Vegetation: Upland Central Hardwoods

Stand Diameter or Size Class: All Size Classes

Stocking Level: Fully Stocked

Stand History: Harvesting – 12” diameter-limit harvest in 2002

Topography: Steep **Aspect:** Northeast

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

Present conditions or resource concerns to consider: Stand 4 is located in the northernmost portion of the property at the head of a hollow. This northeast-facing draw is primarily stocked with buckeye, walnut and poplar. The understory throughout is dense with spicebush.

Grapevines were cut in 2013 allowing the canopy to develop. The next step here is to control the non-native, invasive shrubs.

Past management activities completed in this stand: grapevine control - 2013

<i>Management Recommendations:</i>
Deaden all stems of autumn-olive, bush honeysuckle, privet and Japanese barberry with herbicide.

Desired forest type or dominant vegetation: Upland Central Hardwoods

Desired stand structure: Uneven Aged

Is a timber harvest recommended? No

Comments:

Woodland Stand Description and Management Recommendations

Stand # 5 - **32.8** acres in six parts:

Stand 5a: 3.5 ac; Stand 5b: 1.6 ac; Stand 5c: 4.7 ac; Stand 5d 1.2 ac; Stand 5e: 7.1 ac; Stand 5f: 14.7 ac

Dominant Species: Yellow poplar, elms, black cherry, boxelder, black locust, black walnut, hickories, red maple, sugar maple, hickories

Forest Type or Dominant Vegetation: Upland Central Hardwoods

Stand Diameter or Size Class: Seedling/Sapling/Poletimber

Stocking Level: Variable

Stand History: Old-field Reversion

Topography: Rolling

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

Present conditions or resource concerns to consider: Stand 5 is the primary area where Cindy has been working on controlling non-native, invasive species. The stand is broken up into different subparts based on previous treatment areas through EQIP.

Stands 5a and 5b were initially completed in 2013. Since then, autumn-olive has taken hold in the understory... again. Follow-up applications of a foliar herbicide are necessary and a high-priority.

Stands 5c and 5d are currently under contract for invasive control. Stand 5d was completed in 2016. Part of Stand 5c is done, with the remainder scheduled for completion this growing season. These areas will need follow-up control in future years much like Stands 5a and 5b.

Stand 5e has had grapevine and ailanthus control completed. Additional treatments to get after the invasive shrubs are necessary.

Grapevines were cut in part of Stand 5f in 2011. This area is difficult to access. Terrain is very steep and operability is fairly poor. Although there is quite a bit of walnut on the lower slopes of the stand, this area just might be the lowest priority area on the property. Venture here once you've got the rest of the property whipped into shape!

Past management activities completed in this stand: grapevine control in part of 5f – 2009; invasive species & grapevine control in 5e – 2011; invasive species & grapevine control in 5a & 5b – 2013; invasive species & grapevine control in 5c & 5d – 2015-2019;

<i>Management Recommendations:</i>
Deaden all stems of autumn-olive, bush honeysuckle, privet and Japanese barberry with herbicide.

Desired forest type or dominant vegetation: Upland Central Hardwoods

Desired stand structure: Even Aged

Is a timber harvest recommended? No

Comments:

Harvesting and Selling Timber

Selling timber can be one of the biggest financial decisions you make in your life. It's not something to enter into lightly. If you want a successful timber sale, you should:

- 1) Work with a professional forester who is committed first and foremost to serving **YOU**.
- 2) Have your forester—with your input—select, mark, tally, and estimate volume of trees for sale.
- 3) Sell **ONLY** the trees marked for sale by your forester. Don't make any side deals with the logger or timber buyer.
- 4) Advertise your timber sale to as many timber buyers as possible.
- 5) Sell your timber by way of a sealed-bid process. A sealed-bid sale sets timber buyers up in competition with each other, thereby maximizing the amount you receive for your timber.
- 6) Sell timber **ONLY** by way of a written contract presented by **YOU** to the timber buyer.
- 7) Require payment in full before the logging crew arrives on your property.
- 8) Require proof of workers' compensation and liability insurance coverage from the timber buyer and/or logger.
- 9) Visit the area where logging is going on at the outset of the operation and at least twice a week afterwards.
- 10) Require the logger to implement best management practices (BMPs) for water quality and soil conservation during and at the close of the logging operation.
- 11) Follow up timber harvesting with timber stand improvement (TSI) under the direction of a forester. TSI is designed to improve growing conditions for the best, most promising trees in your woods. Cutting to improve your woods is an investment in the future and helps guarantee better returns at the next harvest.
- 12) **BY NO MEANS HIGH-GRADE YOUR WOODS!** High-grading is an all too common practice whereby the best, most valuable timber is cut while leaving trees with little value in the woods. A high-grade cutting goes by many disguises:
 - **Select cut**—The term “select cut” has absolutely no specific meaning in forestry. It is commonly used to refer to any harvest that is not a clearcut. Often, it refers to a cut in which the trees were chosen based on their current economic value, not for the sake of improving the stand or establishing acceptable regeneration. If someone uses the term “select cut” or “select harvest,” **BEWARE!** What he wants to “select” for cutting are your best, most valuable trees. **DON'T cut timber by a so-called “select cut.”**
 - **A diameter-limit cut**—In a diameter-limit cut, every tree of any value over a certain diameter—usually 12 to 20 inches—is cut. Diameter-limit cutting is a form of high-grading. **DON'T diameter-limit cut your woods.**
 - **Logger's choice**—Allowing a logger or timber buyer his choice of trees to cut usually results in high-grading. **DON'T allow the logger his choice when deciding what trees to cut.**
 - **High-grading by species**—Some species of trees—white oak, red oak, walnut, cherry—are in general more valuable than others. If a forester or logger wants to cut trees of these species while leaving beech, gum, locust, elm, sycamore, and other low value species in your woods, he is looking to high-grade your woods. **DON'T high-grade by species.**
 - **High-grading by timber quality or value**—As the landowner, one of your objectives should be to improve growing conditions for your best, most promising trees, that is, for your future forest. That means cutting trees that are either: a) mature, or b) in decline, diseased, damaged, stunted, or otherwise defective. **DON'T leave these trees in the woods while cutting your best, most valuable timber.**

Common Problems with Unsustainable Timber Harvests

Proper forest management requires that the choices about which trees to cut must be based on many factors other than the current market value of each tree. If young, productive trees are cut simply because they are marketable, and all the non-marketable trees are left in the stand, the ability of the stand to grow valuable products or to provide wildlife habitat is severely degraded. The trees to be cut should be those that are not likely to increase in value and those that are hindering the growth of trees with more potential value.

Non-sustainable harvesting practices are all too common on private land in Ohio. Short-term thinking often leads to high-grading the woods. High-grading means cutting only high-value trees while leaving less desirable trees in the woods. The most common method of high-grading is a diameter-limit cut. A diameter-limit contract specifies the minimum diameter of trees that may be cut. That gives the logger the right to take any trees larger than that diameter. This is not a sustainable method of managing your timber resource.

A diameter-limit harvest is almost always a destructive practice in terms of future economic value, forest health, and the genetics of the forest. Trees with genetic traits for fast growth and good timber form are more likely to be removed, while trees that lack those traits are more likely to be left as a seed source in the woods. Many of the trees remaining after a diameter-limit cut have already been suppressed by the shade from the larger trees. Suppressed trees will not grow faster in response to additional sunlight. Some suppressed trees are bent or crooked from having to grow toward some small patch of sunlight, and they will not straighten up and become valuable timber trees.

The poor quality, low-vigor trees left after high-grading still take up growing space and cast shade on the ground. This prevents the growth of new trees that would have grown into valuable timber. All too often, the trees left after high-grading are low-value species. These unsustainable harvest practices degrade forest productivity while doing nothing to address wildlife habitat, forest health, or the recreational or aesthetic value of your woodland.

All trees to be removed should be selected according to **your land management goals**, and then marked, tallied, and measured by a professional forester.

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):

Soils are an important consideration whether you're growing forests, crops, or pasture. The most productive soils are deep, light in texture (i.e. loamy or silty), moist but well drained, and rich in nutrients and organic matter. Generally speaking, slopes that face north or east have more fertile soils. Greater exposure to sun, wind, and temperature variations on west and south facing slopes leads to drier conditions, slower soil development, and lower soil fertility. Soil quality also tends to improve from the top of a hill to the lower part of the slope. Lower slopes tend to have more moisture, deeper soil, and higher fertility. If other factors are equal, trees tend to grow more quickly on lower slopes, concave slopes, and on north or east facing slopes.

A wider variety of species will be capable of growing on the more fertile sites. However, each type of tree will achieve its best growth on a site where it has a competitive advantage. For example, red oak will make its best growth on lower slopes and concave slopes. Sycamore grows best in stream valleys. Scarlet oak and chestnut oak actually have a competitive advantage on the drier soil near the top of the ridge.

Soil scientists classify soils based on texture, content, color, and origin. Each soil type has a unique name and unique characteristics. Descriptions and maps of these soil types have been compiled in a published soil survey. The soils map and soil survey may be used to obtain a better understanding of the soils and how they affect the attainment of landowner management objectives. Specific information about the soils on your forestland may be obtained from the Web Soil Survey at <http://websoilsurvey.nrcs.usda.gov/app/>.

Within each soil map unit are some significant variations in soil conditions. For accurate information about the soils in a specific location, it might be necessary to conduct a soil test.

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

Due to past management including grazing and high-grade timber harvesting, timber harvesting is not practical for 20-30 more years. With careful management and time, the woodland will once again reach a point when a timber harvest is feasible.

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.

Allowing a few responsible individuals to hunt deer on your property is beneficial to your forest by reducing browsing damage on seedlings and leaving more acorns that could contribute to oak regeneration. A reduction in deer browsing would also allow the survival of a greater diversity of wildflowers and other native plants. Encouraging hunters to take does is recommended to achieve better health of the deer herd. Tree stands should be removed when not in use. Leaving a tree stand up during the growing season is detrimental to the growth and health of the tree.

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:

The main threat to forest health in this area is infestation by non-native, invasive species. The most common invasive plants in woodlands in this area are *Ailanthus altissima*, (also known as stinktree or tree-of-heaven), multi-flora rose, Japanese honeysuckle, Chinese privet, and Japanese stiltgrass.

Non-native Invasive Insects:

Emerald ash borer (*Agrilus planipennis*) is a beetle native to Asia that feeds on all species of ash. It is believed to have come to North America by way of the port of Detroit, Michigan in the 1990's. This insect can spread naturally from tree to tree, as well as artificially through the movement of ash material such as firewood.

No practical treatments have been found to prevent infestation or to save a tree once it is infested. Research indicates that emerald ash borer is incapable of completing its lifecycle on any North American timber species other than ash trees. Trees infested with emerald ash borer usually die within two to five years. Once emerald ash borer has been identified in a particular location, it typically kills 99% of the ash in the vicinity over the next five years.

In well-stocked stands of oak, hickory, maple, and yellow-poplar, ash mortality typically results in small gaps in the forest that are quickly filled in with other desirable tree species. Stands of young, productive trees should not be harvested just to salvage a few ash trees.

The following websites should be checked periodically for the most up to date information on the emerald ash borer:

<http://www.ohioagriculture.gov/eab/>

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

Gypsy moth is a non-native insect introduced in Massachusetts in 1869. It has spread as far as Minnesota, North Carolina, and Ohio. Gypsy moth caterpillars feed on several hundred species of trees and shrubs. Trees are damaged by gypsy moth caterpillars feeding on the leaves, causing partial defoliation. Complete defoliation is possible in severe outbreaks. April through early-July are the months gypsy moth caterpillars feed on the foliage. Repeated defoliations over a two to three year period can weaken trees and cause their death. Preferred hosts of gypsy moth include oaks, apple, aspen, hazelnut, and birch. They seldom feed on maple, locust, ash, walnut, sycamore, dogwood, or yellow-poplar.

Young stands of trees, stands of trees maintained at proper stocking, and trees growing on good growing sites are generally under less stress and are less susceptible to gypsy moth damage. Forest stand improvement can help maintain stands of trees in a vigorous condition and reduce the potential for gypsy moth damage.

Hemlock woolly adelgid is a tiny insect that feeds by sucking sap from the base of hemlock needles. It becomes evident in late fall through early spring as white, fuzzy clusters that resemble wool or cotton balls near the point where the needle is attached to the stem. Prolonged infestation by hemlock woolly adelgid causes tree mortality. If hemlock trees are known to be infested, then treatment with an appropriate insecticide can be successful in maintaining tree health and survival. Preventative treatments are impractical and unnecessary. If hemlock woolly adelgid is found on your hemlock trees, contact your service forester for information about your treatment options.

Integrated Pest Management – A pest control, suppression or prevention approach that utilizes a suite of complementary strategies that considers a range of approaches including mechanical, cultural, physical and chemical:

Preventative measures, efforts to improve forest health or, in some other way, protect the property from injurious organisms are the most effective approach. The recommendations provided in this WSMP are preventative measure to make the woodland more resilient to pests. Pesticide applications are a necessary component of integrated pest management.

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:

Unless noted in your stand descriptions, no specific threatened or endangered species were noted in your woodland. Federally listed threatened or endangered species that may live in this area include Indiana bat, northern long-eared bat, timber rattlesnake, and American burying beetle. State listed threatened or endangered species that may live in this area include timber rattlesnake and black bear.

The Division of Wildlife (DOW) participates in an interdisciplinary Environmental Review Program within the Ohio Department of Natural Resources (ODNR). For its role as the state wildlife agency, the DOW provides guidance and recommendations on how to minimize and/or avoid impacts to threatened and endangered species, and other vulnerable wildlife. An environmental review considers documented species, the habitats that are present, and the potential impacts on species and habitats.

Specific information on threatened and endangered species may be obtained by contacting the Ohio Department of Natural Resources, Division of Wildlife at 614-265-6452 or 2045 Morse Rd., Columbus, OH 43229-6693, to access the “Ohio Biodiversity Database.”

Before any physical construction project is proposed for this tract, Landowner should submit a request for Environmental Review. To request an Environmental Review, please submit the project information to the following dedicated email: environmentalreviewrequest@dnr.state.oh.us. Please allow at least 30 days for review and for the coordination letter to be returned.

What to Submit for Environmental Review

For an environmental review of a proposed project, landowner must submit the following:

1. Project Description:
 - a. Site location (e.g., county, latitude and longitude), onsite habitats, proposed work
 - b. Proposed impacts
 - c. Proposed BMP's
2. Maps that delineate the area of impact or work area: topographic, aerial site plans
3. Photographs representative of the site
4. Shapefiles, KMZ files

Forests of Recognized Importance (FORI) – Forests that are recognized regionally or nationally for their importance to ecosystem function, impacts on society, or their uniqueness.

No FORI's were identified on the property. Very few FORI's exist in Ohio, with one primary example being the Muskingum Watershed Conservancy District.

Archeological/Historical Resources – No historical sites were noted during the site visit.

Historical and cultural resources are nonrenewable and can never be replaced if they are destroyed. These resources provide a unique glimpse into the past and a look at the people and how they used the land. Good stewardship involves recognizing these resources and protecting them. These resources should be conserved if they are present on the property. Some of the overhanging rock faces in southern Ohio are cultural heritage resource sites because of the flint tools and other relics of Native American activities that may be found there. Other types of cultural heritage resources sometimes found in southern Ohio include homestead sites, old wells and springhouses, and pioneer cemeteries.

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.

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/>.

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.

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).