Forest Management Plan

Current Agricultural Use Value (CAUV)
Athens County, Ohio
Service Forestry Case Record No.: _____
Farm Service Agency (FSA) Farm No.: _____

Prepared for:

Landowner(s): **Capstone Village, Ltd. (United Lane Location)**
David Funk
Address: P.O. Box 1016
Athens, OH 45701
Telephone Number: (740) 591-4738

Note: The Landowner's signature appears on page 4.

Prepared by:

Forester: **Terence E. Hanley**, B.S.F.
Professional Forestry LLC
Address: P.O. Box 5622
Athens, OH 45701
Telephone Number: (740) 592-5152
Email Address: professionalforestry@yahoo.com

Terence E. Hanley January 23, 2025
Signature and date

Approved by (for use at the county courthouse or other government office):

Name: _____

Address: _____

_____

Telephone No.: _____

_____
Signature and date

Date prepared:	**January 23, 2025**
Term of plan:	This is a **new plan** and covers the period **beginning January 23, 2025**, and **ending December 31, 2035**.
Please note:	There is a previous forest management plan for this property prepared by Andy Weitlauf of New Growth Forestry LLC and dated January 1, 2014. That plan expired on January 1, 2024, thus the need for a new plan.

Contents

This forest management plan is in five sections, described as follows:

Section 1: Statement of Objective
In applying for classification under Current Agricultural Use Value (CAUV) or the Ohio Forest Tax Law (OFTL), you may be required to sign a statement of objective in which you agree to implement your forest management plan to the best of your knowledge and ability. In Section 1, look for references to the Ohio Revised Code (ORC) and the Ohio Administrative Code (OAC). These are the controlling laws and rules for CAUV and OFTL. Also, look for the statement that begins: "**For purposes of this plan . . . .**"

Section 2: Property Map, Location & Description
Section 2 includes a description of your land and forestland with reference made to one or more maps, which are attached to this plan.

Section 3: Description of the Forest
Section 3 includes a description of your forestland, keyed to the attached forest stand map. This description of the forest is actually a series of descriptions of several stands, areas, or management units, including a subsection on recommendations for management called "Recommended Silvicultural Treatment." Recommended treatments for all forest stands are described in detail in Section 4 and summarized in tabular format in Section 5.

Section 4: Prescription
Section 4 includes details on the management of your land and forestland. **Please pay special attention to the subsection on how to sell timber.** Whether and how to sell timber is probably the most important decision you will ever make in the management of your forestland. Make sure you do it right, and **by all means avoid high-grading your woods!**

Section 5: Schedule of Management Activities
Section 5 summarizes the recommended silvicultural treatment according to a timetable or schedule. If you are required to sign your forest management plan in Section 1, you are essentially agreeing to implement the schedule of management activities in Section 5 to the best of your knowledge and ability. **If you do nothing else, make sure you read, understand, and agree to implement the schedule shown in Section 5 before signing your plan.**

Maps & Attachments
Your forest management plan includes not only this document but also at least one map, the attached forest stand map. All other attachments are for your information only. You need not submit them with your forest management plan. If the attachments include a custom soil survey, be aware that there is no need to print this very long document. It is only for your information.

1. Statement of Objective

For Landowners Applying for Current Agricultural Use Value (CAUV):

The Ohio Revised Code (ORC 5713.30), regarding Current Agricultural Use Value (CAUV), defines "land devoted exclusively to agricultural use" to include land "devoted exclusively to . . . the production [,] for a commercial purpose [,] of timber." Landowners enrolling their forestland in CAUV accept commercial production as their goal. **For purposes of this plan**, "commercial production of timber" or "commercial timber production" is defined as good and proper management that promotes the growth, health, and reproduction of commercial timber species, and the value, quality, and productivity of the forest.

The text of laws and rules pertaining to CAUV can be found on the website "Ohio Laws & Administrative Rules," maintained by the Ohio Legislative Service Commission.

Statement of Objective

I/We, David L. Funk, hereby affirm my/our objective to manage my/our forestland for the production, for a commercial purpose, of timber. For purposes of this plan, commercial production of timber or commercial timber production is defined as good and proper management that promotes the growth, health, and reproduction of commercial timber species, and the value, quality, and productivity of the forest.

I/We understand that this management plan is to guide me/us in meeting that objective and agree to implement the plan to the best of my/our knowledge and ability. I/We understand also that this plan can be altered or amended to conform to changing conditions in the forest or to changes in my/our non-timber related objectives.

David Funk January 25, 2025

Signature and date

Signature and date

2. Property Map, Location, & Description

Please note: One or more maps of the property are attached.

Section 2a—Overview

The Capstone Village, Ltd., Property (United Lane Location), hereinafter referred to as the Funk property, is located not far to the southwest of Athens city and just on the north side of U.S. Highway 50/State Route 32. The local area is built up, but the Funk woods have the look of rural woods and are not greatly affected by development, subdivision, roadbuilding, construction, etc. The exceptions are a sewer line clearance in the middle part of the property and power line clearances on the eastern part. I should also point out that the main stream flowing through the middle part of the property has been rerouted and forced underground, this just off the Funk property. Also, there is a small clearing or opening on the west side of the stream. Otherwise, the property is all wooded. Mr. Funk and his men have been at work in their woods, posting signs, killing non-native, invasive plants, and cutting grapevines.

Section 2b—Location & Area

Athens County, Ohio
Athens Township
Sections 13 & 19 (Fractions 73 & 83), Township 6 North, Range 13 West

Parcel Identification Number(s) & Area

(North to south:)	
A010010032900	2.163 Acres (Section 19, originally Fraction 83)
A010010032700	3.788 Acres (Section 19, originally Fraction 73)
A010010032705	4.724 Acres (Section 19, originally Fraction 73)
Subtotal	**10.675 Acres in Section 19**
(East:)	
A010010033000	**4.987 Acres in Section 13** (originally Fraction 73)
Total	**15.662 Acres**

Area of Forestland: 13.9 Acres (Stands 1 through 4)

Property Address & Access

The Funk property is located on the east and west sides of a commercial area that includes a Sunoco gas station (8942 United Lane) in the front and a Dollar General Store (8990 United Lane) in the rear. These are Athens addresses with a ZIP code of 45701. United Lane (Township Road 38) is a frontage road along U.S. Highway 50/State Route 32. Access to the Funk property is by way of these roads and parking lots within the commercial area. Access to the triangular

piece on the east side appears to be by way of land owned by the Athens County Board of Commissioners, but that possible access route appears to be partly blocked by a high sign. In any case, there doesn't appear to be any substantial obstacle to managing the Funk property for commercial timber production due to access.

Does the Landowner Reside on the Property?
No.

Nearest City, Town, or Village
The nearest named place is the Wonder Hills Subdivision, which adjoins the Funk property on the east/northeast. The nearest city, town, or village is Athens, the center of which is about 4 road miles to the north-northeast.

Location (Specific)
The Plains, OH, Quadrangle (USGS topographic map)

Location of (feature):	Southern end of 4.724-Acre parcel (approximate)
Latitude:	North 39.290 degrees
Longitude:	West -82.128 degrees
Projection (Datum):	_____

Watershed
Unnamed streams→Margaret Creek→Hocking River→Ohio River

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Section 2c—Land-Use Types & Area

Area
Total: **15.662 Acres**

Agricultural Land (Crop fields, hayfields, pastureland, other agricultural land):

0 Acres

Forestland or Commercial Timberland (Land on which timber-producing trees dominate, i.e., oak, hickory, maple, beech, walnut, cherry, yellow-poplar, pine, basswood, sycamore, etc.):

13.9 Acres (Stands 1 through 4)

Noncommercial Woodland (Land on which non-timber-producing trees or species of trees dominate, i.e., dogwood, hawthorn, redbud, etc., or on which stocking levels of commercial timber species may not be adequate for designation as forestland or commercial timberland):

0 Acres

Homesite(s): **0 Acres**

Other Land:	**1.762 Acres**
Power line clearance (Stand 5)	0.387 Acres
Sewer line clearance (Stand 5)	0.85 Acres
Small opening or clearing (Stand 6)	0.525 Acres

Open Water: **0 Acres**

Section 2d—Terrain, Soils, & Other Resources

Terrain

The Funk property is situated in a stream bottom and on slopes and ridges on both sides of that bottom. The unnamed stream running through the middle part of the property flows to the south into an another unnamed stream that flows to the west into Margaret Creek. Slopes on the east side of the stream are not especially steep. Slopes on the west side are steeper, rougher, and rockier and include some large outcrops. The highest points are at about 760 to 780 feet above sea level. The lowest points are in the stream bottom. The elevations there are at about 680 feet above sea level. There isn't any substantial obstacle to managing the Funk property for commercial timber production due to terrain.

Soils

Soils on the Funk property are: a) Nolin silt loam in the stream bottom; and b) Gilpin, Steinsburg, Upshur, Wellston, and Westmoreland series on uplands. These upland soils are typical for forested areas in southeastern Ohio. All are generally suited to a variety of upland hardwoods and conifers. Steinsburg sandy loam, which forms a north-south band in the western part of the property, is a considerably poorer soil. You will recognize its location when you see rock and somewhat sandy, rocky, or gravelly soil at the surface.

Nolin silt loam, found in the stream bottom in the middle part of the property, is a very fertile and productive soil type. It is well suited for the production of high-quality and high-value timber, especially black walnut, the most highly valued timber species grown in Ohio. I would recommend managing this area, which I have called Stand 3, for just that purpose.

Growing sites vary in their quality and productivity; some are better than others. One measure of the productivity of a given site is called site index. Site index is defined as the height, in feet, of a dominant or co-dominant tree at age 50. The higher the number, the better the site. Site index figures for soils found on the Funk property are as follows:

- For eastern white pine: 75 to 90
- For Virginia pine: 70
- For black oak: Not available
- For northern red oak: 71 to 81
- For white oak: Not available
- For sugar maple: Not available
- For tuliptree (yellow-poplar): 90 to 96

For more information on soils, see a website called Web Soil Survey, or see the soil survey for your county, available at your local soil and water conservation district (SWCD) office. See also the previous forest management plan.

Water & Wetlands

There aren't any permanent standing bodies of water located on the Funk property. The stream bottom in the middle part may occasionally flood, but I suspect that any floodwaters recede pretty rapidly. There is black willow in that stream bottom. I would consider black willow to be a species characteristic of wetlands, and so this area may be considered a wetland by an ecologist, botanist, or hydrologist. Be aware that there is now a sewer line running through the stream bottom. Be aware also that the original stream has been rerouted and forced underground. It appears as though the stream flows naturally through most of the Funk property. The rerouting appears to have been done for the development of the commercial area to the south, as well as for the construction of the highway.

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Rare, Threatened, & Endangered Species
There aren't any known rare, threatened, or endangered species located on the Funk property.

Cultural, Historical, & Archaeological Resources
There aren't any known cultural, historical, or archaeological resources located on the Funk property. Before being developed, this area was probably a mix of farmland and woodland.

Section 2e—Timber

Year of Last Timber Cutting
The year of the last timber cutting is unknown. The previous forester wrote that timber had been cut 15 years prior to his plan. That would have made the last cutting about 25 years ago, or around the year 2000. There are a few scattered cut stumps in the woods.

Projected Year(s) of Next Timber Harvest(s)
Some small amount of timber may be available for commercial sale, now or soon. This timber includes: a) trees badly damaged by recent human activity; b) certain mature or overmature trees; and c) certain other damaged, very poorly formed, or extremely defective trees. If you decide to sell timber, be sure to talk to a professional forester first. See Section 4e of this plan for more on selling timber.

How to Sell Timber
See Section 4e for details on the recommended practice for selling timber. Please keep in mind that if you high-grade your forestland or sell timber by way of a diameter-limit cut, also usually called "a select cut," I—as a professional forester—will consider this forest management plan to be thereby invalidated.

Your Forest Stand Map goes here.

3. Description of the Forest

Notes

1. The previous sections and the following stand descriptions include words that may be unfamiliar to you. Refer to the attached **glossary of forestry terms** for definitions.

2. Refer also to the attached **forest stand map** and other maps for locations and configurations of the features described in this plan.

3. The stand boundaries shown on the aforementioned forest stand map and the descriptions of stands that follow are merely guides for your management activities. Conditions on the ground may vary. In every case, when you are making your management decisions, you should go with conditions on the ground or as you find them in your woods. *That's where management takes place.* It does not take place on paper, and neither your emphasis nor your forester's emphasis should be on what is printed on a piece of paper versus what is actually on the ground or in your woods.

4. **The stand descriptions below include recommendations for managing your forestland. For details on these and other recommendations, see Section 4 of this plan,** as well as several publications listed in Section 4 and in the attached document called "Forest Management Publications."

5. Please be aware that, although this forest management plan is intended for your use as the landowner, it is also for the use of foresters or other natural resources professionals with whom you might consult. Some parts are addressed directly to you, while others are less direct.

6. There may be funds available through the U.S. Department of Agriculture (USDA) for the work prescribed in this plan. If you are interested, contact the Natural Resources Conservation Service (NRCS) and inquire about the **Environmental Quality Incentives Program (EQIP)**. You may also contact your service forester, who works for the Ohio Department of Natural Resources (ODNR), Division of Forestry. Contact information follows.

   U.S. Department of Agriculture (USDA)
   Natural Resources Conservation Service (NRCS)
   Athens County USDA Service Center
   69 South Plains Road
   The Plains, OH 45780-1339
   (740) 797-9686

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Ohio Department of Natural Resources (ODNR), Division of Forestry
Project 22—Athens, Morgan, and Washington counties
John Siskaninetz, Service Forester
360 East State Street
Athens, OH 45701
(614) 698-6262
John.Siskaninetz@dnr.ohio.gov

6. The Ohio Division of Wildlife now has **wildlife management consultants** available to serve private landowners. For Athens, Hocking, Meigs, Morgan, Perry, and Washington counties, contact Robert Santiago at (740) 326-8568.

7. **Non-native, invasive plant species** found on the Funk property include but may not be limited to: Autumn-olive (shrub), bush honeysuckle (shrub), European privet (shrub), Japanese barberry (shrub), Japanese honeysuckle (vine), multiflora rose (shrub or cane), teasel (annual herbaceous plant with a tough, semi-woody stem).

Stand 1

Area: 4.6 Acres

Forest Type: Old-field/early-successional hardwoods and pine

Species: American sycamore, black walnut, boxelder, American elm, black cherry, black locust, persimmon, red maple, sassafras, bigtooth aspen, eastern white pine, white ash (seedlings), flowering dogwood, hawthorn, sugar maple, chinkapin oak, black oak, shagbark hickory, bitternut hickory, American holly, wild grape, poison-ivy, blackberry, black raspberry, and associated species

Location & Site Conditions: Stand 1 is a triangular parcel located on the eastern part of the property, above the highway and below the Wonder Hills Subdivision. This is an old-field site located high on a ridge, probably the former location of a pasture field or hayfield. Site conditions would have been degraded by past agricultural use. The white pine you will find here was almost certainly planted, probably in an effort to reclaim the site and to prevent erosion and runoff. Site conditions have no doubt improved after many decades under forest cover. In fact, Stand 1 is a good, though unmanaged, stand.

Description: Stand 1 is a well-stocked, more or less even-aged stand of native hardwoods and planted (probably) pine. The pine is eastern white pine. These trees are as large as 16 or 18 inches in diameter-at-breast-height (dbh). Most of the hardwoods are smaller. This is probably a brushy stand in the summertime. I'm glad we looked at it in winter. Stand 1 is made up of brush, briars, vines, saplings, poletimber, and some small sawtimber. Although it is an old-field stand and not very well advanced in age, Stand 1 is a good and

attractive stand with plenty of potential. There is a good mix of species, and the trees here are generally high in quality. There are, however, several species of non-native plants present in Stand 1, including bush honeysuckle. These should be killed at your earliest opportunity. I would follow that up pretty quickly with timber stand improvement (TSI). (The previous forester recommended holding off on management in this stand for 10 years. He predicted that TSI would be indicated after 10 years, and his prediction has proved accurate.)

Recommended Silvicultural Treatment:

In rapid order, completing the work described below within a 1- to 3-year period, carry out the following management activities:

1. **Do your best to eradicate the worst non-native, invasive species, specifically bush honeysuckle**. You must use herbicide if you are succeed in this work. See Section 4 of this plan for details. See also various publications that you will find online. Also, you can consult with your state service forester, contact information above. **Rationale**: Bush honeysuckle is a non-native shrub that also competes with native plants. It can pretty easily and quickly take over in the shrub layer to a point where it forms a monoculture. Bush honeysuckle alters the chemistry of the soil to promote its own growth and reproduction. It is also harmful to wildlife.

2. **Cut, treat, pull, and otherwise control all other non-native, invasive species with a goal of eradicating these plants within the aforementioned 1- to 3-year period**. You must use herbicide if you are to succeed in this work, with certain exceptions. Garlic mustard, for instance, can be controlled by simply pulling it. See Section 4 of this plan, as well as various publications, for details, or talk to your state service forester. **Rationale**: Non-native plants do not belong here, and they represent an ecological threat to our native species. They also represent an economic threat to you as a landowner. They are also are a nuisance and can prevent you from fully enjoying your land and forest.

3. **Cut grapevines that are growing in timber-producing and mast-bearing trees**. You can leave grapevines that are growing in weed trees, scrub trees, non-crop trees, and dead trees. You can also leave poison-ivy vines and Virginia creeper vines, as these do not harm trees. See Section 4 of this plan for more on grapevines. **Rationale**: Grapevines are native plants and are good for wildlife. However, they can be hard on trees, especially trees with thin crowns, such as black walnut and black cherry. You should not cut every grapevine in your woods, as you would not want to remove every specimen of any native species from your property. However, you should cut grapevines wherever they might interfere with your goals of ownership.

4. **Undertake other timber stand improvement (TSI) activities**, including weeding,

thinning, crop tree, release, and cull tree removal (if that last practice is needed), all with the advice and assistance of a professional forester or well-qualified forestry technician. If possible, do this work by a combination of commercial timber harvesting and non-commercial TSI. See Section 4 of this plan for more information on TSI and commercial timber harvesting. You can also read various publications and/ or consult with your state service forester. **Rationale**: As a landowner, you have only so much area in which to grow trees. In order to maximize your use of that area, you should promote the growth, health, vigor, and reproduction of those trees most likely to move you towards your goals of ownership, and you should discriminate against those trees that do not.

5. You may also prune pines and possibly some high-value hardwoods, but remember that pruning may not be an economically gainful activity. Think of it instead as a hobby or a way of improving access to and the appearance of your woods. The exceptions would be black walnut and possibly trees in the white oak group (white oak, chinkapin oak), which are high in timber value.

Stand 2

Area: 2.9 Acres

Forest Type: Oak-hickory and mixed hardwoods, plus pine

Species: White oak, northern red oak, black oak, shagbark hickory, pignut hickory and/or mockernut hickory, sugar maple, American beech, blackgum, yellow buckeye, American basswood, ironwood, eastern white pine, black cherry, red maple, white ash (seedlings), wild grape, and associated species

Location & Site Conditions: Stand 2 is located in the northeastern part of the property on a west-facing slope. Site conditions appear to be good despite the western exposure.

Description: Stand 2 is a well-stocked, uneven-aged stand of saplings, poletimber, and sawtimber to about 25 inches in diameter-at-breast-height (dbh). Timber quality is generally good. The species mix is also good, with no great abundance of red maple, buckeye, or other low-value or weedy species. This stand is much older than is Stand 1, but I would recommend the same approach to its management, namely, working in rapid order to: a) kill non-native, invasive plants, especially bush honeysuckle; b) cut grapevines growing in good trees (there are very few grapevines left in Stand 2); and c) undertake timber stand improvement (TSI) work, to include weeding, thinning, and crop tree release. There are a few old cut stumps (some are high stumps—I don't know why they were cut so high), but Stand 2 does not appear to have been cut heavily in recent years or decades. There are a few trees in this stand that could be sold either as standing timber or cut and delivered to the mill for sale as logs or to be sawn up into boards. If you

decide to sell timber, be sure to contact a professional forester before proceeding.

Recommended Silvicultural Treatment: Same as Stand 1 but with the awareness that Stand 2 is an older and much different kind of stand. If possible, do this work all in one season so as to whip it into shape as rapidly as possible.

Stand 3

Area: 1.0 Acres

Forest Type: Bottomland or riparian hardwoods

Species: Black walnut, American sycamore, black willow, boxelder, American elm, sugar maple, and associated species

Location & Site Conditions: Stand 3 is a bottomland or riparian stand that lies along an unnamed, south-flowing stream in the middle part of the property. Soils are Nolin silt loam, a deep, moist, fertile, and productive soil. This is in fact the best and most productive growing site found on the property. It was probably once used to grow crops, but the effects of past agricultural use probably wore off a long time ago. In any case, this is a black walnut site, and I believe you would do well to grow and produce as much walnut here as possible.

Description: Stand 3 is a somewhat lightly stocked stand of brush, briars, vines, saplings, poletimber, and sawtimber to about 25 inches in diameter-at-breast-height (dbh). Sycamore is common in this stand. It would be better if walnut were more common. Even so, sycamore can make a very fine, straight, tall, and voluminous tree. Some of these trees have been damaged by recent human activity, for there has been a sewer line laid in parallel to the stream, this draining from the Wonder Hills Subdivision to the east. I believe the acreage of what I have called Stand 3 has been reduced since the previous forest management plan. These damaged trees might be cut and sold as logs, or sawn into boards or other products for home or commercial use.

Recommended Silvicultural Treatment: One possibility here is to convert Stand 3 from a mixed stand to a pure or almost pure walnut stand. This would entail heavy cutting, followed by site preparation and the planting of walnut trees on a fairly tight spacing. If you would like to stop short of that kind of management, you could instead follow the recommendations for Stands 1 and 2.

Continued next page.

Stand 4

Area: 5.4 Acres

Forest Type: Mixed hardwoods and oak-hickory woods, plus pine

Species: Sugar maple, white oak, northern red oak, shagbark hickory, American sycamore, black walnut, American elm, black cherry, eastern white pine, and associated species

Location & Site Conditions: Stand 4 is located along the western side of the property on a steep, rough, rocky, east-facing slope. Soils include Steinsburg sandy loam, a somewhat poor soil. Although Stand 4 is situated on an east-facing slope, it doesn't appear to benefit greatly from cool, moist conditions, again because site conditions are otherwise somewhat poor. I would consider Stands 1 through 3 to be better stands with greater potential.

Description: Stand 4 is a well-stocked or adequately stocked, uneven-aged stand of brush, briars, vines, saplings, poletimber, and sawtimber to 30 or more inches in diameter-at-breast-height (dbh). There are some quite large and spreading trees in this stand, especially in the southern part. These are probably old pasture trees. Stand 4 has the appearance of scrub woods, of a tangle and a jungle. I can imagine what it's like during the growing season and I'm sure I don't want to go there then. It can be made better, though, by following the same recommendations as in all other stands.

Recommended Silvicultural Treatment: Same as Stands 1 through 3, but I think I would place Stand 4 at a lower priority than those others, all of which appear to have more potential.

Stand 5

Area: 1.237 Acres

Forest Type: Non-forest (utility line clearances)

Location & Description: Stand 5 is in two parts: 1) Sewer line clearances in the middle and northern parts of the property; and 2) Power line clearances in the eastern part of the property. These areas are not available for commercial timber production, though they might be usable for growing food plots, grasses, pollinator plants, etc.

Recommended Silvicultural Treatment: Keep non-native, invasive plants under control.

Continued next page.

Stand 6

Area: 0.525 Acres

Forest Type: Non-forest (Small opening or clearing)

Location & Description: Stand 6 is a small opening or clearing located on the west side of the stream and accessible by crossing over a large culvert pipe.

Recommended Silvicultural Treatment: Keep non-native, invasive plants under control.

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4. Prescription

Section 4a—General Recommendations for Managing Your Land

1. **Locate and mark your property boundaries** using brightly colored paint applied to trees and fenceposts along the perimeter at a distance of no more than 50 or 60 feet between marks. (There probably aren't any requirements as to the distance between marks under Current Agricultural Use Value. The requirement for the Ohio Forest Tax Law is 100 feet or less.) The rationale behind marking your property boundaries is so that: a) You know what is yours, where it's located, and how it's configured; b) Your heirs and anyone visiting your land knows where your boundaries are located; and c) Your neighbors, as well as hunters, loggers, mushroom hunters, ginseng hunters, people on foot or in motorized vehicles, trespassers, poachers, and so on may also see where your boundaries are located. Also, no one can steal, move, or take down a paint mark. **I recommend using brightly colored, brush-type, boundary-marking paint from a source such as Nelson Paint Company, based in Michigan**. Look online for contact information. You may also use tree-marking paint, which comes in spray cans but which does not last as long as boundary-marking paint. In your marking: a) Use a hatchet, machete, or draw knife to scrape away loose bark (be sure not to cut too deeply into the living tissue of the tree); b) Apply paint to the blaze you have made; c) Put a prominent paint mark on trees along the perimeter of your property at a distance of no more than 50 or 60 feet between marks; d) Use fenceposts or other markers wherever you are not able to make paint marks.

2. **Exclude livestock from the woods**. Grazing and the management of forestland are incompatible. Livestock are not good for the forest, and there is very little forage in the forest for livestock. You may sacrifice parts of your woods for shade or even for forage for livestock, but remember that any such parts cannot be considered proper forestland but only as pastureland. Remember also, that such areas must be fenced off so that livestock cannot access your forestland.

3. Do your best to **prevent forest fire** by not burning fields, fencerows, trash, etc., during fire season.

4. **Don't dump or dispose of junk, trash, or chemicals in your woods**. Forestland is not wasteland and should not be treated as such. If there is already junk and trash in your forest, begin work on getting it cleaned up. You can make an exception for old homesites or building sites, as these may be considered cultural, historical, or archaeological resources, and as such should be considered irreplaceable.

5. **Keep your roads and trails open by mowing or bush-hogging them**. Roads and trails offer access to your forest, including prospective work areas in your forest. You can't very well work there if you can't easily access your forest. Roads and trails may also act as

firebreaks. Mowing and bush-hogging may also keep down Japanese stilt-grass, a non-native, invasive species of grass that has become rampant in Ohio.

6. **Prevent erosion and runoff on your roads and trails by implementing best management practices (BMPs) as needed.** BMPs are described in a booklet called *BMPs for Erosion Control for Logging Practices in Ohio* (Bulletin 916), available on line or in print from Ohio State University Extension. A more recent edition of this booklet is entitled *BMPs for Erosion Control for Logging & Forestry Practices in Ohio* and is available on line or in print from the Ohio Department of Natural Resources (ODNR), Division of Forestry.

7. **Make a filing system for all of your important papers regarding the ownership and management of your land,** including your deed, surveyor's plat drawing, tax plat map, property tax bills, forest management plan, other maps, publications, etc. Keep your files in good order and make sure you're in good standing with your county auditor's office (for CAUV) or the Ohio Division of Forestry (for OFTL).

Section 4b—Controlling Non-Native, Invasive Species

Non-native species are plant species that have been introduced to North America, either intentionally or accidentally. All or most come from Asia or Europe. Although some may offer some benefits, all are ultimately harmful. They don't belong here, and all should be considered weeds. Although eradicating every non-native species from your land might not be a practicable goal, eradicating the worst of them is, and you would do well to go about it. You can also work on controlling the less problematic species with an eventual goal of eradication.

Non-native plant species come in different forms. They include trees, shrubs, vines, canes, semi-woody plants, and herbaceous plants, including broad-leaved plants or forbs, as well as grasses. The worst and most harmful are those that: a) inhibit the growth and reproduction of native plants; b) occupy space and use resources better used by native plants; c) damage, break down, or destroy native plants; or d) are harmful to wildlife, such as bush honeysuckle. Following is a table listing some common non-native plant species and the level of threat I believe they represent.

Common Non-Native, Invasive Plant Species in Ohio

Common name	*Scientific name*	*Form*	*Level of threat*
Ailanthus or tree-of-heaven; stink tree	*Ailanthus altissima*	Tree	Very high; overstory tree; allelopathic
Autumn-olive	*Elaeagnus umbellata*	Shrub	Medium; can be very invasive in old fields and strip-mined sites; less of a problem in forestland but can still be very invasive
Bush honeysuckle (Three species: Amur, Morrow, and Tartarian honeysuckle)	*Lonicera* species	Shrub	Very high; extreme ecological threat; very tolerant of shade; may form complete monocultures in the shrub layer; alters the chemistry of the soil; as a food source, is harmful to birds

English ivy	*Hedera helix*	Vine	High; low-growing vine; not especially common in forests but can become very invasive; tolerant of shade; evergreen
European privet Border privet	*Ligustrum vulgare* *L. obtusifolium*	Shrubs	Medium to high; may form thickets
Garlic mustard	*Allaria petiolata*	Biennial herbaceous plant	Very high; tolerant of shade; allelopathic; displaces native herbaceous plants
Japanese barberry	*Berberis thunbergii*	Shrub	Medium to high; usually a low-growing shrub; correlated with increased populations of deer ticks, which may carry tick-borne illnesses
Japanese honeysuckle	*Lonicera japonica*	Vine	Medium to high; can destroy small trees, but usually not a problem in forests due to its lack of shade-tolerance
Japanese knotweed	*Reynoutria japonica*, *Fallopia japonica*, or *Polygonum cuspidatum*	Perennial, semi-woody plant	Very high; forms very dense growths along streams, roadsides, and ditch banks; crowds out native species
Japanese stilt-grass	*Microstegium vimimuem*	Annual grass	High; forms monocultures along trails and in sunny spots in the forest; control could prove very difficult

Kudzu	*Pueraria montana*	Vine	Very high; grows over everything in its path; problematic only in the southernmost parts of Ohio
Multiflora rose	*Rosa multiflora*	Shrub or cane	Medium; mostly a nuisance; may be in decline
Oriental bittersweet	*Celastrus orbiculatus*	Vine	Very high; strangles and destroys trees at every level of the canopy, also shrubs, vines, and other plants
Royal paulownia or princess-tree	*Paulownia tomentosa*	Tree	High; overstory tree; problematic only in the southernmost parts of Ohio
Wineberry	*Rubus phoenicolasius*	Shrub or cane	High; may form very dense growths, even in shady woods
Winged euonymus or burning-bush	*Euonymus alatus*	Shrub or small tree	Medium to high; often a tall and dense shrub or small tree; may form thickets
Wintercreeper	*Euonymus fortunei*	Vine	High; low-growing vine; not especially common in forests but can become very invasive; tolerant of shade; evergreen

Continued next page.

Methods for Controlling Non-Native, Invasive Plant Species

There are two basic ways of controlling undesirable plants. These are mechanical control and chemical control.

Mechanical control involves merely mechanical means, such as pulling, digging, mowing, bush-hogging, girdling, and felling. Mechanical control is done either by hand or by the use of tools or equipment. For example, the best way to control garlic mustard, a herbaceous plant, is simply to pull it, specifically in the springtime before it goes to seed. Mechanical control may also work on certain larger plants, the control of which might otherwise require the use of herbicide. For example, small honeysuckle bushes are generally easy to pull up by hand, as they don't have very deep or extensive roots. For larger clumps, you might try using a weed wrench, a heavy-duty tool used for extracting shrubs and small trees from the soil. I have used a weed wrench on bush honeysuckle, and it seems to do the job pretty well without resort to herbicide.

Chemical control involves the use of herbicide. There are two basic types of herbicide for use in the forest. These are brush killers, such as triclopyr, and foliar herbicides, such as glyphosate. (Triclopyr and glyphosate are chemical names, not brand names.) Brush killers are generally applied to woody plants or woody surfaces. Foliar herbicides are only for use on leaves, buds, and other soft or green tissues.

There are four basic methods for chemical control of undesirable plants:

1. **Foliar application** involves the use of a foliar herbicide, such as glyphosate, applied to leaves, buds, and other soft or green tissues. One good thing about many non-native species is that they green up before most native plants in the spring, and they remain green after native plants have lost their leaves in the fall. This allows for two opportunities to hit non-native species without great risk to native species, as long as you are careful in your use of herbicide.

2. **The cut-stump treatment** is carried out by your severing the stem or trunk of the target plant and **immediately** applying herbicide to the resulting cut surface. This is typically a two-person job, with one person cutting the plant, and the other applying the herbicide. The cut-stump method is **not** recommended for controlling ailanthus or tree-of-heaven. A foliar herbicide such as glyphosate may work with the cut-stump method, but it's probably better to use a brush killer.

3. **The hack-and-squirt method** is carried out, again, in a two-step process. First, make several downward cuts around the circumference of the stem. These are at about a 45-degree angle so that the wound forms a kind of cup for holding the herbicide in place until it can be absorbed into the plant and begin to take effect. Take care not to girdle the stem completely. The idea is that the top and the bottom of the plant are still connected so that the herbicide can be transported throughout. Second, **immediately** apply the herbicide to the several

wounds you have made with your blade. A brush killer works best in this situation.

4. **The basal-bark method** involves the application of herbicide (and other chemicals) only and no cutting at all. The herbicide, a brush killer such as triclopyr, is mixed with a penetrant or carrier and with a chemical dye and applied all around the base of the stem to a height of about 1-1/2 to 2 feet, including any root flares. The carrier or penetrant penetrates the bark and carries the herbicide into the interior of the plant. The chemical dye is used so that you can keep track of which plants you have treated and which remain to be treated. Basal oil is made specifically for basal-bark treatments, but you may use certain other chemicals instead.

I usually recommend that landowners begin controlling non-native, invasive plants before doing very much other cutting in their forestland, as cutting grapevines, trees, and so on allows more sunlight to reach the ground. Any kind of cutting—and the resulting condition of more sunlight reaching the ground—only creates habitat for undesirable plants.

I also usually recommend that landowners attack the worst, most invasive, most threatening non-native plants first. Usually, this means ailanthus or tree-of-heaven and bush honeysuckle. Oriental bittersweet is also an extremely invasive and destructive plant. A bad infestation of oriental bittersweet may be a worse threat even than ailanthus.

Ailanthus or tree-of-heaven (*Ailanthus altissima*) is a non-native tree with no timber value and no wildlife value. In fact this tree is detrimental to native trees and other plants in that it secretes a chemical in the soil that inhibits their growth and reproduction.* Ailanthus also occupies space that can be used to grow good and valuable timber. Although ailanthus often grows out of control, you can eradicate it from your forestland with determined effort. In fact, it's pretty easy to kill as long as you use the right chemical in the right way at the right time of year.

Bush honeysuckle (*Lonicera* spp.) is a shade-tolerant shrub that grows in the understory and can easily take over in the forest, especially on cool, moist sites, such as in stream bottoms. Like ailanthus, it can alter the chemistry of the soil so as to promote its own growth and reproduction. All things considered, bush honeysuckle may be a worse threat to the forest than ailanthus. The reason for this is that bush honeysuckle is very tolerant of shade, whereas ailanthus is not. Nonetheless, you would do well to eradicate them both. Bush honeysuckle is also harmful in that its fruits, when eaten by birds, can actually cause malnutrition in them.

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* The ability of a plant to generate and secrete chemicals in the soil so as to inhibit the growth and reproduction of other plants is called ***allelopathy***. A plant capable of allelopathy is considered ***allelopathic***. Not all allelopathic plants are bad. For example, black walnut is allelopathic towards certain other plants. I think that's one of the reasons that walnut is fairly good at colonizing grassy, old-field sites.

My recommendations for the control of non-native, invasive species are as follows:

1. **Eradicate ailanthus or tree-of-heaven.** Eradicating ailanthus requires the use of herbicide. Simply cutting it will only stimulate its growth and reproduction. Although there are several ways of treating ailanthus, I would recommend either: a) A basal-bark application of herbicide mixed with a penetrant or carrier and a chemical dye; or b) The hack-and-squirt method, in which you apply herbicide to several cuts made around the circumference of the trunk.

2. **Eradicate bush honeysuckle.** Your options for controlling bush honeysuckle are more varied than with ailanthus or tree-of-heaven. Bush honeysuckle is easy to pull out when it's small. Otherwise, use the cut-stump treatment, the hack-and-squirt method, a basal-bark application, and/or a foliar application of herbicide to eradicate this very aggressive shrub.

3. **Eradicate oriental bittersweet.** Oriental bittersweet is becoming more common and widespread in Ohio, and it is an extremely destructive plant. You do not want it to gain a foothold in your forest. Recommended control is to sever all stems as you would with grapevines, making a high cut and a low cut on each one. Once cut stumps re-sprout, you can treat the resulting foliage with a foliar herbicide such as glyphosate. The cut-stump method, hack-and-squirt method, and basal-bark method may or may not work. You should experiment to see what works best in your forest.

4. **Cut, treat, pull, and otherwise control all other non-native, invasive species so as to promote the growth and reproduction of native species.** Many of the species listed in the table above are shrubs and should be fairly easy to kill using the same treatment you would use on bush honeysuckle. Herbaceous broadleaf weeds (such as garlic mustard), grasses (such as Japanese stilt-grass), and semi-woody species (such as Japanese knotweed) may require a different or more specialized kind of treatment.

Triclopyr is a common brush killer and is very effective in the control and eradication of undesirable plants, as long as it is used correctly and in accordance with the herbicide label. You may also add some **imazapyr** to triclopyr, but that probably isn't necessary. Triclopyr is a commonly used herbicide and is generally available at the farm store. Imazapyr is a more specialized chemical. You may have to special-order it. It's also more expensive, but then again, it's very powerful and effective in low quantities. (These are chemical names. There may be several generic names or brandnames for each. Be aware that different brands may have different concentrations of the active chemical or chemicals.) The penetrant or carrier to use is **basal oil**, diesel fuel, or some other approved chemical. (See the herbicide label for approved chemical names.) Also, you may want to add a **chemical dye** to your mix so that you can keep track of which plants you have treated. Be sure to use herbicide and other chemicals only in the manner prescribed on the herbicide label. A herbicide label is a legal document prescribing how that herbicide is to be used. My mentioning of these chemical names should not be interpreted as an endorsement of any of them.

For more information on controlling non-native, invasive plants, see the following publications:

- **Controlling Undesirable Trees, Shrubs, and Vines in Your Woodland** by Randall B. Heiligmann, Ohio State University Cooperative Extension Service, School of Natural Resources F-45-97 (Jan. 1996), 3pp.

- **Relative Effectiveness of Herbicides Commonly Used to Control Woody Vegetation in Forest Stands** by Randall B. Heiligmann and Dave Krause, Ohio State University Cooperative Extension Service, School of Natural Resources, F-51-06 (July 2006), 4pp.

Section 4c—Controlling Grapevines

Grapevines

There are several species of wild grape (*Vitis* species) that grow in Ohio. These plants are native, and they are good for wildlife. However, they can be hard on trees, especially small trees and trees with thin crowns, such as black walnut and black cherry. I would not recommend that you cut every grapevine in your woods. Instead, I would recommend that you cut only those vines that are growing on good timber-producing trees, mast-bearing trees, crop trees, or other trees that you wish to grow because they meet one or more of your goals of ownership.

Silvicultural Prescription for Controlling Grapevines

Cut grapevines that are growing in timber-producing trees, mast-bearing trees, and other crop trees. Cutting grapevines will help to speed the growth and improve the quality of desirable trees, i.e., the trees you want to grow to maturity. Be on the lookout especially for grapevines growing on black walnut trees, as these two species usually grow in the same kinds of places. Wild grape can be especially hard on walnut, as walnut has a thin crown that is easily overgrown, broken, and torn down by vines. You can leave grapevines that are growing in scrub trees, weed trees, non-crop trees, and dead trees. You can also leave poison-ivy and Virginia creeper vines, as these do not harm trees.

Make two cuts on every grapevine if possible, one at around eye height or head height, the other close to the ground. Although new vines or tendrils might grow from a cut stump, they will probably not do very well in shady woods. There isn't any need to pull cut grapevines out of trees. Once you have severed the stem, everything above that cut will die and will gradually decay, break apart, and come out of the tree.

Section 4d—Other Timber Stand Improvement (TSI)

Once you have non-native, invasive species well under control, begin cutting trees to improve your woods. Candidates for cutting include trees that are:

1. Bent, bowed, broken, cracked, leaning, root-sprung, badly scraped, badly wounded, or otherwise badly damaged;

2. Crooked, twisted, badly forked, extremely branchy, multi-stemmed, weak in their structure (i.e., prone to damage, breakage, structural failure, etc.), or otherwise poorly formed or extremely defective;

3. Rotten, diseased, dying, or badly infested with insects that are likely to kill the tree;

4. Overtopped, stunted, in decline, or otherwise growing poorly or lacking in vigor; and/or

5. Species that are considered weedy, overabundant, or otherwise undesirable because of their low value in terms of timber production, mast production, or other values in accordance with your goals of ownership.

This kind of work is called timber stand improvement (TSI). TSI is a non-commercial activity. In other words, it does not generate income, or if it does, the generation of income is not the primary purpose of this activity. Think of it instead as an investment in your forestland, with the monetary payout made later, at the time you sell and harvest timber, but with non-monetary payouts made before then in the form of better, more attractive, and more productive forests.

TSI includes the following practices:

1. **Weeding**—Weeding is the cutting or other treatment of weedy or undesirable plant species. Non-native, invasive species are certainly in the category of weed species. Others weed species may include grapevines, which can damage, choke out, and even destroy trees. Weed species may also include trees such as boxelder, elm, buckeye, aspen, and low-quality red maple, but before cutting trees of this type, remember your management objectives and cut only those trees and other plants that move you towards meeting your objectives.

2. **Thinning**—Thinning is the cutting of certain trees so as to improve the spacing among the trees that remain, thereby improving their growth rates, health, and vigor. In other words, thinning reduces stand density or stocking levels so as to optimize productivity on every acre of forestland.

3. **Crop tree release**—Crop trees are those trees that produce your "crop," whatever that crop happens to be. For example, if your goals of ownership include timber production, then your

crop trees are those trees that produce high-quality and high-value timber such as black walnut, white oak, northern red oak, black oak, black cherry, yellow-poplar, and sugar maple or hard maple. For another example, if mast production for wildlife habitat is one of your goals, then your crop trees will include hard-mast producers such as white oak, chinkapin oak, black walnut, American beech, and shagbark hickory, as well as soft-mast producers such as persimmon, flowering dogwood, and black cherry. For a final example, if fall color and other aesthetic qualities are among your goals, then your crop trees might include flowering dogwood and eastern redbud (for their springtime blossoms); blackgum and sugar maple (for their fall color); large trees for their cultural, historical, and aesthetic value; and trees having a unique form, bark pattern, structure, or appearance for purposes of maintaining visual variety in your forest.

4. **Cull tree removal**—Cull trees are those trees that have little or no monetary value because they are rotten, hollow, very poorly formed, or otherwise extremely defective. Cull tree removal involves the girdling, deadening, or felling of trees, in other words, the removal of those trees from the overstory, though not necessarily from your woods.

5. **Coppice cutting**—Coppice cutting is the cutting of damaged trees of desired species so as to stimulate the growth of a better and higher quality stem or trunk. A coppice cut is made as close to the ground as possible so that the new stem or sprout is in contact with and grows from the ground rather than from a stub above ground level. Coppice cutting works best or perhaps only on young, vigorous trees. Trees that are more advanced in age or that are lacking in vigor may not respond to cutting by putting out viable shoots or sprouts. Also, coppice cutting works only on hardwoods. If you sever the stem of a pine tree or other conifer, you have probably killed that tree.

6. **Understory removal**—Understory removal is a more specialized practice under TSI. The purpose here is to put more sunlight on the ground so as to favor the reproduction of trees that are intolerant of or intermediate in their tolerance of shade, especially oak. Foresters used to recommend that landowners cut their dogwood, ironwood, and musclewood trees, in other words, to remove the understory. These three species are natives, however; I would not recommend cutting all individuals of any native species. In other words, I don't like to make blanket prescriptions on native species of any kind. Instead, if you're considering an understory removal, I would recommend consulting with a professional forester or well-qualified forestry technician before proceeding.

7. **Training and pruning**—Training and pruning is work done on seedlings and other very young and small trees so as to promote good timber form and quality. Side-branch pruning is done on seedlings, saplings, and larger trees, again, to promote good timber form and quality. Training and pruning is usually done in tree plantings. Side-branch pruning can be done in a plantation setting as well as on native trees in old fields or in the forest. Keep in mind that side-branch pruning may not be an economically gainful activity except with the most valuable species, such as black walnut and white oak. Side-branch pruning can also improve

the appearance of stands of planted eastern white pine.

Again, in any TSI operation, trees to favor include timber-producing and mast-bearing trees, also any other tree that you wish to grow because it meets one or more of your goals of ownership.

So:

Trees to favor include: Oak, hickory, walnut, cherry, yellow-poplar, sugar maple, persimmon (a highly valued wildlife tree), and white pine, plus the best, straightest, cleanest, healthiest, most vigorous, most desirable, and most valuable of other native species, such as red maple, beech, sycamore, blackgum, hackberry, and so on. Also, you should favor long-lived trees such as oak, hickory, and sugar maple over short-lived trees such as aspen, black locust, and sassafras. Also, favor high-value trees over lesser-value trees wherever possible. For example, aspen and buckeye are very low-value timber species. If they are competing with or overtopping more highly valued species such as oak, hickory, walnut, and cherry, I would not hesitate to cut them. Be aware that elm (because of Dutch elm disease) and ash (because of the emerald ash borer) no longer make good crop trees.

Trees to discriminate against include those that are bent, bowed, broken, cracked, forked, crooked, twisted, multi-stemmed, rotten, diseased, stunted, lacking in vigor, overabundant, weedy, or otherwise inferior, poorly formed, extremely defective, undesirable, or unlikely to move you towards your goals of ownership. Red maple in particular can be a poor and overly abundant tree, especially on old-field sites and in oak-hickory woods. Be sure to leave certain hollow trees or trees with cavities for their wildlife benefits. Also, there isn't any need to cut dead trees. These, too, can be good for wildlife, and they don't compete for resources with living trees.

Silvicultural Prescription for Timber Stand Improvement (TSI)

Undertake timber stand improvement (TSI) with the advice and assistance of a professional forester or well-qualified forestry technician. TSI is designed to favor desirable trees at the expense of undesirable trees. Desirable trees include timber-producers and mast-bearers such as oak, hickory, walnut, cherry, yellow-poplar, sugar maple, persimmon, and other native trees as described above. Trees to discriminate against are also described above.

Guidelines for Timber Stand Improvement (TSI):

- **In sapling and poletimber stands** (dominated by trees from 3 to 11 inches in diameter-at-breast-height [dbh]): Invasive species control and grapevine control, as well as other weeding, thinning, and crop tree release. In high-value stands such as stands of black walnut or white oak, you may also want to prune trees for good form and improved timber quality.

- **In sawtimber stands** (dominated by trees 12 inches dbh and greater): Cull tree removal,

grapevine control, cutting of firewood, improvement harvesting, intermediate harvesting, or final harvesting. See the following Section 4e for more on selling and harvesting timber.

- **In high-graded or heavily cut-over stands**: Cull tree removal, conversion of cut-over areas to group openings or true clearcuts (a group opening is basically a miniature clearcut), further cutting to improve the woods, and coppice cutting of preferred species that have been badly damaged by logging.

- **In all stands**: Favor crop trees, i.e., trees that offer a benefit, provide a service or product, or meet your goals of ownership in some other way. In general, a crop tree is straight, tall, well formed, healthy, vigorous, relatively free of defects, un-branched for at least 10 or 12 feet (the more, the better), and has a large and healthy crown.

Some publications that might be of help to you in this area:

- **Forest Improvement Handbook** by Ron Rathfon, Mike R. Saunders, and Don Stump, Purdue University Cooperative Extension Service, Department of Forestry and Natural Resources, and Indiana Division of Forestry, FNR-IDNR-414 (Oct. 2009), 28pp.

- **Improve Your Woodlot by Cutting Firewood**, USDA Forest Service, Northeastern Area State and Private Forestry (Aug. 1978), 8pp.

- **How to Release Crop Trees in Precommercial Hardwood Stands** by Neil I. Lamson, et al., USDA Forest Service, Northeastern Forest Experiment Station NE-INF-80-88 (1989), 8pp.

- **Crop Tree Management: A New Tool to help You Achieve Your Woodland Goals** by David K. Apsley and Randall Heiligmann, Ohio State University Cooperative Extension Service, School of Natural Resources F-50-02 (Feb. 2002), 4pp.

- **Corrective Pruning of Black Walnut for Timber Form** by Walter F. Beineke, Purdue University Cooperative Extension Service, Department of Forestry and Natural Resources, FNR-76 (Feb. 1988), 8pp.

- **Improving Black Walnut Stands** by David N. Bruckerhoff, Kansas State University Agricultural Experiment Station and Cooperative Extension Service, Kansas Forest Service, L-718 (Sept. 2005), 2 pp.

Section 4e—Selling and Harvesting Timber

Checklist for Selling Timber

When it comes to the management of your forestland, the decision to sell timber is one of the most important ones you will ever make. In fact, it may be a once-in-a-lifetime decision, and you will surely want to make it in the right way. Below is a checklist for selling timber the right way.

1. **Work with a forester** who is committed first and foremost to serving YOU.

2. **Have your forester—with your input—select, mark, tally, and estimate volume and/or tonnage of trees that will be offered for sale.**

3. In any single-tree or group selection (both are considered acceptable silvicultural systems), select trees for cutting from: 1) A full range of species, including low-value species such as beech, elm, sycamore, aspen, buckeye, and red maple; 2) A full range of diameters, including poor and stunted trees in the smallest diameter classes (i.e., trees less than 16 inches in diameter-at-breast-height [dbh]); and 3) A full range of quality, including very poor trees, even if these trees are cull trees (i.e., trees with little or no merchantable value). If you do not include low-value and low-quality trees in your timber sale, you are essentially high-grading your woods.

4. **Sell ONLY the trees marked for sale by your forester.** Don't make any side deals with the logger or timber buyer.

5. **Advertise your timber sale as widely as possible.**

6. **Sell your timber by way of a sealed-bid process** and in an open market. A widely advertised, competitive, open-market, sealed-bid sale sets timber buyers up in competition with each other, thereby: 1) Relieving you of the burden of determining the value of your timber; and 2) Maximizing the dollar amount you receive for your timber.

7. **Sell timber ONLY by way of a written contract presented BY YOU to the timber buyer.**

8. **Require payment in full and up front, before any timber is cut.** Also, require the payment of a refundable performance bond as a guarantee that the timber buyer or logger will do a satisfactory job of reclaiming, restoring, and repairing the site at the close of the logging operation.

9. **Require proof of workers' compensation** (or equivalent from Amish buyers or loggers) **and liability insurance coverage** from the timber buyer and/or logger.

10. **Monitor the timber sale and logging operation** by visiting the timber sale area at the beginning of the logging operation and at least twice a week afterwards until it is completed.

11. **Require the logger to implement best management practices (BMPs)** for water quality and soil conservation during and at the close of the logging operation.

12. **Follow up timber harvesting with timber stand improvement (TSI)** with the advice and assistance of a professional forester or well-qualified forestry technician. 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.

13. **BY NO MEANS HIGH-GRADE YOUR WOODS!** High-grading is an all too common practice whereby the biggest, best, and most valuable timber is cut and removed while the smallest, poorest, and least valuable timber remains. High-grading goes by many disguises:

    Types of High-Grading (or, Four Ways to Wreck Your Woods)

    - **Diameter-limit cutting**—In diameter-limit cutting, every tree of value over a certain diameter—usually 14 to 18 inches either at stump height or breast height—is cut and removed. Diameter-limit cutting is a form of high-grading because it always results in the removal of the best and most valuable timber. It also usually results in the removal of all or most of the oak, while beech, buckeye, blackgum, and other low-value species are left behind. Don't sell timber by way of a diameter-limit.

    - **High-grading by species**—Some species—white oak, red oak, walnut, cherry—are in general more valuable than others. If a logger or timber buyer wants to cut trees of these species while leaving behind beech, blackgum, locust, elm, sycamore, etc., he is looking to high-grade your woods. Even some foresters are inclined to high-grade by species, especially when they operate on a percentage of the sale for their fee. Don't high-grade by species.

    - **A so-called "select cut" or "select harvest"**—If someone uses the term "select cut" or "select harvest," **WATCH OUT!** What he wants to "select" for cutting are your best, most valuable trees. The term "select cut" or "select harvest" is used in contrast to clearcutting, where clearcutting is judged to be "bad" and "select cutting" is judged to be "good." There are other ways of cutting, though. You can read about alternatives below. In any case, don't sell timber by a so-called "select cut."

    - **High-grading by timber quality or value**—As the landowner, one of your objectives should be to improve growing conditions for your best, and most promising trees, i.e., your future forest. That means cutting trees that are either: a) Mature; or b) In decline, diseased, damaged, stunted, or otherwise seriously defective. Don't leave these trees in the woods

while harvesting your best, most valuable timber.

Alternatives to High-Grading

So what are the alternatives to high-grading? High-grading in all of its forms is mismanagement. The alternative to high-grading is to manage your forestland well. You can do this by continuing to work with a professional forester. If you decide to harvest timber, whether it's for firewood or sawlogs and whether it's for your own use or for commercial sale, talk to a professional forester first. A forester is a person with the knowledge and experience necessary to help you manage your woods. Be aware that not all foresters are good. Some are in fact bad. And some people who call themselves foresters are not in fact foresters. Be sure to investigate your prospective forester before proceeding to work with him or her.

There are many different kinds of managed cutting, but all have the same goal, that is, to improve the value, quality, and productivity of your woods. Remember, as the owner of forestland under the Current Agricultural Use Value (CAUV) program or Ohio Forest Tax Law (OFTL) program, you have stated that as your goal as well.

Harvesting Timber

There are two basic approaches to harvesting timber, and each depends on the kind of stand in which you're working:

1. If you're trying to improve the quality, value, and productivity of the future stand (i.e., the residual stand, in other words, the stand that remains after you cut), then you're engaged in **intermediate cutting or intermediate harvesting**. It's called *intermediate* because it takes place at some intermediate stage between the time that the stand started growing (i.e., its year of origin) and a final harvest meant to regenerate the stand. Intermediate harvesting includes: a) harvesting firewood, fenceposts, or other small or low-value products; b) improvement harvesting, in which low-value and low-quality timber is cut and sold; and c) commercial thinning, by which trees are removed so as to improve the spacing between the trees that remain, and by which you earn some amount of income. Intermediate harvesting is appropriate in stands that have not yet reached maturity.

2. If you're trying to regenerate or reproduce a new stand from a mature, over-mature, or heavily damaged, badly high-graded, diseased, or extremely defective stand, you're engaged in **regeneration harvesting**, which involves four accepted silvicultural systems or methods. From least to most intensive, these are:

    - **Single-tree and group selection**, in which individual trees or groups of trees are cut for purposes of regenerating those species that are tolerant of shade or somewhat tolerant of shade. The most shade-tolerant species include maple, beech, basswood, blackgum, and hemlock. Others that are somewhat tolerant of shade include elm, ash, white oak, and

hickory. Contrast this method with a so-called "select cut" or "selective cut" in which a forester, timber buyer, or logger goes after the best and most valuable trees without having the goal of properly managing the forest. If the openings created by group selection are large enough (one-half to one acre or more), trees that are intolerant of shade, such as cherry, yellow-poplar, walnut, red oak, and pine may also be able to reproduce and grow. The single-tree and group-selection method promotes the development of uneven-aged stands.

- The **shelterwood method**, in which certain larger trees are left so as to provide shelter for a new generation of trees. In a typical shelterwood cutting, those larger trees are removed in a later harvest.

- The **seed-tree method**, in which fewer large trees, always of preferred species, are left so as to produce the seed necessary to regenerate the stand. The seed-tree method is seldom used in Ohio because our forests are regenerated satisfactorily by other methods. The seed-tree method might be used in order to regenerate shortleaf pine or pitch pine, possibly also stands of oak, hickory, walnut, or other trees with heavy seed.

- **Clearcutting**, in which every tree greater than 2 to 4 inches in diameter is cut, regardless of species, size, quality, value, or location. Clearcutting (a form of even-aged management) is appropriate when you are trying to regenerate trees that are more nearly intolerant of shade, such as oak, pine, cherry, and yellow-poplar.

Remember, these systems or methods can be mixed and matched on any given piece of property. It's never all or nothing. The most important thing to remember is that if you manage your forestland well and avoid high-grading, it will pay you dividends for as long as you own your land.

A forester can help you make decisions and can help you improve the value, quality, and productivity of your forestland. Be sure to talk to a forester before you do any cutting, whether it be commercial or non-commercial. You might also have a look at various publications regarding timber sales, including the following:

- **Marketing Timber** by William L. Hoover, Purdue University Cooperative Extension Service, Department of Forestry and Natural Resources FNR-111 (July 2002), 12pp.

- **Tips on How to Get the Most from Your Timber Harvest** by William L. Hoover and John R. Seifert, Purdue University Cooperative Extension Service, Department of Forestry and Natural Resources FNR-138 (June 2002), 4pp.

Section 4f—Other Management Activities

1. **If you are interested in planting trees, look into government programs available for offsetting your costs.** Be sure to consult with a professional forester or well-qualified forestry technician as to species, spacing, site preparation, weed control, etc., before proceeding.

2. **Create and manage wildlife habitat as you so desire.** Some of the things you can do to provide habitat for wild animals include:

   - **Retain and promote the growth, health, vigor, and reproduction of mast-bearing trees,** especially black walnut, butternut or white walnut, persimmon, hickory, trees in the white oak group (i.e., white oak, chestnut oak, chinkapin oak, post oak, swamp white oak, and bur oak), and trees in the red oak group (northern red oak, black oak, scarlet oak, shingle oak, pin oak, Shumard oak, and blackjack oak).

   - **Retain a diversity of tree species in your forest,** as diversity in plant species translates into diversity in terms of wildlife.

   - **Eradicate non-native, invasive plant species.**

   - **Retain certain den trees and hollow trees,** especially oak, hickory, walnut, and sugar maple.

   - **Leave standing dead trees (called snags) and fallen dead trees in your forest.**

   - **Create brush piles and put down cover boards for invertebrates and small vertebrates.**

   - **Put up nest boxes and bat boxes.**

   - **Protect springs, seeps, ephemeral pools, and other wetlands.**

   - **Provide permanent or semi-permanent sources of drinking water** by constructing, digging out, or putting in wildlife watering holes, ponds, tanks, etc.

   - **Keep cats in the house.** It is estimated that cats kill upwards of one billion birds and upwards of six billion mammals every year in the United States. To quote my wildlife professor, house cats are called house cats for a reason: they belong in the house.

   - **Consult with a forester, wildlife manager, or other natural resources technician on wildlife habitat management.** You can also look at various publications, including

publications issued by university extension services, state and federal agencies, and non-governmental organizations.

3. **If you have rare, threatened, endangered, or otherwise uncommon species on your property, do what you can to promote their health, vigor, growth, and reproduction**. For example, **butternut or white walnut** (*Juglans cinerea*) is a native tree species that is being wiped out by a non-native fungal disease called butternut canker. Butternut may yet have a chance at survival, but it may need our help. You can manage butternut just as you would any crop tree (it's very similar to black walnut) by cutting grapevines that are growing on it, thinning around it, releasing it from competition with its neighbors, and even propagating it and planting new trees in sunny spots on your property. See:

   - **Conservation and Management of Butternut Trees** by Lenny Farlee, et al., Purdue University Cooperative Extension Service, Department of Forestry and Natural Resources FNR-421W (July 2010), 10pp.

4. **Protect and preserve cultural, historical, and archaeological resources**. Unlike natural resources, cultural, historical, and archeological resources are non-renewable. Once they have been destroyed or removed, they can't be brought back. If you have resources like these on your land, even if they're only 40 or 50 years old, you should protect and preserve them if at all possible.

As a professional forester, I am available to help you in the implementation of your management plan and the management of your forestland. If you have questions or need further advice and assistance, please contact me. Good luck in your efforts and with the management of your land and forests.

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5. Schedule of Management Activities

Years	*Stand(s)*	*Area (Acres)*	*Activity*	*Notes*
2025-2027	All	15.662	Locate and mark your property boundaries by applying brightly colored paint to trees and fenceposts along the perimeter at a distance of no more than 50 or 60 feet between marks.	
2025-2030	Wherever found	Wherever found	Do your best to eradicate the worst non-native, invasive species, specifically bush honeysuckle.	
2025-2035	Wherever found	Wherever found	Cut, treat, pull, and otherwise control all other non-native, invasive species with a goal of eventual eradication.	
2025-2035	Wherever found	Wherever found	Cut grapevines that are growing in timber-producing and mast-bearing trees. You can leave grapevines that are growing in weed trees, scrub trees, non-crop trees, and dead trees. You can also leave poison-ivy vines and Virginia creeper vines, as these do not harm trees.	

2025-2035	1 & 2	7.5	Undertake timber stand improvement (TSI) work, to include weeding, thinning, crop tree release, and cull tree removal (the last if needed), all with the advice and assistance of a professional forester or well-qualified forestry technician. I would begin in Stand 1, which will almost certainly respond more vigorously to treatment than will Stand 2. Also, I would do all of the recommended work (non-native species control, grapevine control, TSI) in rapid order, all in one season or one year if possible. I would also recommend completing all of the recommended work in one stand before moving on to the next. If possible and if desired, include commercial activities (i.e., sell what you cut) in your improvement cutting.	
2025-2035	3	1.0	Same as Stands 1 & 2. If desired, convert this stand to a black walnut planting.	
2025-2035	4	5.4	Same as Stands 1 & 2.	
2034-2035	All	15.662	Update your forest management plan so as to maintain your status under CAUV.	

FOREST STAND MAP

Capstone Village, Ltd. / David Funk
Property – United Lane Location
Athens County, Ohio
Athens Township, Sec. 13 & 19 (Fr. 73 & 83),
T6N, R13W
15.662 Acres Total