



## Forest Management Plan

### Current Agricultural Use Value (CAUV)

Service Forestry Case Record No.: \_\_\_\_\_

Farm Service Agency (FSA) Farm No.: \_\_\_\_\_

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### Prepared for:

Landowner(s): **LeaAnne Keirns (POA) & Denver D. Keirns**

Address: 14494 Keirns Road  
Millfield, OH 45761

Telephone Number: (740) 590-3739

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

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### 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

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Signature and date

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### In cooperation with:

Name: **Rural Action, Inc.**

Address: 9030 Hocking Hills Drive  
The Plains, OH 45780

Telephone Number: (740) 677-4047

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

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Telephone No.: \_\_\_\_\_

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Signature and date

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**This plan may be used for:**

- Current Agricultural Use Value (CAUV)
  - Ohio Forest Tax Law (OFTL)
  - Environmental Quality Incentives Program (EQIP)
  - Personal use independent of any program
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**Date & Term of Plan:**

Date prepared: **March 8, 2024**

Term of plan: **This is a new plan and covers the period beginning March 8, 2024, and ending December 31, 2034.**

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## 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, Denver Dee Keirns by LeaAnne Keirns, POA, 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.

Denver Dee Keirns by LeaAnne Keirns, POA 4/19/2024  
Signature and date

LeaAnne Keirns 4/19/2024  
Signature and date

## **2. Property Map, Location, & Description**

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

### **Section 2a—Overview**

The LeaAnne & Denver D. Keirns property is located in north-central Athens County not far to the northeast of Athens city. The east boundary of the property coincides with the north-south centerline of Section 3. The center of Section 3, marked with a big red “X” on the attached forest stand map, lies along that same boundary. As for the rest of the property boundaries, these coincide with public roads, Keirns Road (Township Road 326) on the west and south, and McDougal Road (County Road 28) on the north and northeast. You can call the Keirns property a kind of peninsula, as it is surrounded on three sides by public roads. It adjoins private land only on the east, along the aforementioned centerline of Section 3, also next to two small residential parcels located along McDougal Road.

This is an old farm. There were probably livestock here for many years and decades, grazing in steep pasture fields and in lower pasture woods. There was also hay cut out of the fields. The last cutting of hay took place eight years ago (or circa 2016), while the last horses came out only recently. I wouldn’t rule out that there were row crops grown on the Keirns farm, too, probably in the 1800s, but I suspect early farmers would have found out pretty quickly that this is land too steep for the plow, planter, harvester, or reaper. Nonetheless, soils are almost certainly eroded, depleted, and compacted from past agricultural use. The best remaining soils are probably in the lower parts of the fields and in ravines. With that being said, I should point out that there appears to be plenty of moisture in the soil in many places, including behind (east of) the house and yard, where you will find such trees as black willow and boxelder.

There are six structures located on the Keirns property. These are: 1) an old house; 2) an old house trailer; 3) an old garage; 4) a new house; 5) an old barn; and 6) an old milk shed along the road. There is also an old horse trailer sitting in the field. Most of these structures are no longer serviceable, although a couple could probably be refurbished, while old beams, planks, barn wood, and so on could probably be salvaged out of a couple of others.

This property was previously in Current Agricultural Use Value (CAUV) for livestock operations. The livestock are gone now, and there has not been any hay cut off in some time, thus the need for a switch-over to commercial timber as the agricultural product to be grown here. More than half of the property is wooded, some with forestland or commercial timberland, while other areas can probably only be considered non-commercial woodland. Given enough time, though, these non-commercial or woodland areas will develop into proper forestland, at which point they could be included with commercial acreage. Another possibility is a rapid conversion by way of planting commercial timber trees in non-stocked or understocked areas. Some of the brush would have to be cut back first. That brush includes some non-native, invasive plants, such as bush honeysuckle and multiflora rose, so no loss if those have to be cut back.

There is enough open ground here—and that ground is probably productive enough—that it could be used to grow and produce timber and non-timber crops such as sawtimber, pulpwood, firewood, fence posts, orchard fruits and nuts, wild fruits and nuts, pasture grass, hay, vegetables, flowers, and so on. Some part of this acreage could also be removed from production and be used to grow prairie plants or pollinator plants. In any case, as you can see by looking at the attached forest stand map, the Keirns property is currently a patchwork quilt of fields and woods. There are lots of options available for making these various areas productive, or at least more productive than they are now.

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## **Section 2b—Location & Area**

### **Athens County, Ohio**

Dover Township

Section 3, Township 10 North, Range 14 West

### **Parcel Identification Number(s) & Area**

G010010013400

49.55 Acres

### **Property Address & Access**

The Keirns property is located at 14494 Keirns Road (Township Road 326), Millfield, OH 45761. The property also has frontage along McDougal Road (County Road 28). Access is by way of driveways and open fields, and there isn't any obstacle to managing the Keirns property for commercial timber production due to access.

### **Does the Landowner Reside on the Property?**

Yes.

### **Nearest City or Town**

The nearest named places are Orinville and Sugar Creek to the south and Millfield and East Millfield to the north. The nearest city or town is Athens, located to the southwest.

### **Location (Specific)**

Jacksonville, OH, Quadrangle (USGS topographic map)

Location of (feature): Old house

Latitude: North 39.41 degrees

Longitude: West 82.073 degrees

Projection (Datum): \_\_\_\_\_

### **Watershed**

Keirns Road is situated on a dividing ridge. Drainage on the property is entirely to the east through unnamed streams into McDougal Branch, a tributary of Federal Creek, which flows in

turn into the Hocking River, with drainage thence into the Ohio River.

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## **Section 2c—Land-Use Types & Area**

### **Area**

**Total: 49.55 Acres**

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

**16.8 Acres—Not currently in production**  
(Fields A through E)

**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.):

**24 Acres** (Stands 1 & 2)

**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):

**5.5 Acres** (Stand 3)

**Homesite(s) & Power Line Right-of-Way (ROW): 3.25 Acres** (Stand H)

**Other Land: 0 Acres**

**Open Water: 0 Acres**

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## **Section 2d—Terrain, Soils, & Other Resources**

### **Terrain**

The Keirns property is situated on slopes and in ravines that drain to the east into an unnamed branch of McDougal Branch, a tributary of Federal Creek. Keirns Road is situated on a dividing ridge. All of the high ground on the property lies along that road, and the entire property is tipped to the east. There are three main ravines or drainage-ways. These are pretty deeply cut and meet just to the east of the property boundary. The main ravine on the north is bordered in some places by some very steep and prominent rock formations, which include lots of cracks, crevices, and small caves, also looser, jumbled-up rocks. The high points, at about 1,020 to 1,040 feet above sea level, are along Keirns Road, including in the area of the house. The low points, at about 960

to 980 feet above sea level, are along or close to the east boundary. Although there is some very steep ground here, there isn't any substantial obstacle to managing the Keirns property for commercial timber production due to terrain.

### **Soils**

Soils on the Keirns property are: Guernsey silt loam; Upshur-Elba silty clay loams; Vandalia-Brookside complex; Westmoreland-Guernsey silt loams; and Westmoreland-Upshur complex. These are common soils found on uplands in southeastern Ohio. They are generally suited to a variety of upland hardwoods and conifers. However, some are eroded, while others are quite rocky in places.

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 Keirns property are as follows:

- For eastern white pine: 75 to 90
- For Virginia pine: 70 to 80
- For black oak: Not available
- For northern red oak: 70 to 81
- For white oak: Not available
- For sugar maple: Not available
- For tuliptree (yellow-poplar): 90 to 95

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 attached custom soil survey. Please be aware, there isn't any need to print this large document. I have included it with this forest management plan only for your information.

### **Water & Wetlands**

There aren't any permanent bodies of water on the Keirns property. Although some low-lying areas (upland depressions, too, where you will find black willow, boxelder, etc.) might be considered wetlands, the property is situated high on the landscape and is tipped pretty steeply to the east.

### **Rare, Threatened, & Endangered Species**

There aren't any known rare, threatened, or endangered species located on the Keirns property.

### **Cultural, Historical, & Archaeological Resources**

There aren't any known cultural, historical, or archaeological resources located on the Keirns property except for the old house and barn, plus the old garage and the old milk shed along the road. The property is located in what you might call a historic part of Athens County, with Mount

Nebo and its association with nineteenth-century Spiritualism located not far to the west, and the Millfield Mine Disaster site located farther to the north.

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## **Section 2e—Timber**

### **Year of Last Timber Cutting**

Timber was last cut on the property about 40 years ago, or in about 1984. Mr. Keirns was the owner of the property at that time, and it was he who sold the timber.

There is currently a timber sale contract for 30 acres of timber to be cut on the property. This is to be a 16-inch diameter-limit at “point of cut,” in other words, at stump height. The buyer is an Amishman out of Dundee, Ohio. The contract is for one year and expires on November 20, 2024.

### **Projected Year(s) of Next Timber Harvest(s)**

Again, timber will probably be cut during the next eight months. I would call this not a harvest but simply a cutting. That cutting is likely to be pretty hard. I doubt there will be very much timber left of any size, and I doubt there will be another possibility for a full-scale timber sale for a long time to come after that. However, there is likely to be a lot of firewood that can be salvaged after the cutting. There will almost certainly be a need for timber stand improvement (TSI) work afterwards.

### **How to Sell Timber**

See Section 4e for details on the recommended practice for selling timber.

**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. 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

**Ohio Department of Natural Resources (ODNR)**  
**Division of Forestry**  
**Service Forester**  
**Project 22—Athens, Morgan, and Washington counties**  
Vacant as of January 2024  
Contact:  
**Cameron Bushong**  
360 East State Street

Athens, OH 45701  
(740) 517-5586  
Cameron.Bushong@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.
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**Stand 1** (Dark blue on the forest stand map.)

**Area:** 13 Acres

**Stand 2** (Light blue on the forest stand map.)

**Area:** 11 Acres

**Stand 3** (Purple on the forest stand map.)

**Area:** 5.5 Acres

**Forest Type:** Oak-hickory; mixed hardwoods; old-field/early-successional hardwoods; and bottomland or riparian hardwoods

**Species:** White oak, chestnut oak, northern red oak, black oak, scarlet oak, shagbark hickory, pignut hickory, mockernut hickory and/or bitternut hickory, greenbrier; sugar maple, American beech, blackgum, spicebush, wild hydrangea; yellow-poplar, bigtooth aspen, black locust, sassafras, white ash (dead or dying from emerald ash borer), flowering dogwood, blackberry, black raspberry; American sycamore, black walnut, American elm, eastern cottonwood, boxelder, black willow, American hornbeam, eastern redbud, wild grape

**Non-Native, Invasive Plant Species:** Ailanthus or tree-of-heaven (tree); autumn-olive (shrub), bush honeysuckle (shrub), garlic mustard (perennial herb), Japanese barberry (shrub), Japanese honeysuckle (vine), multiflora rose (cane or shrub). There may be and probably are others.

**Location & Site Conditions:** Stands 1 through 3 comprise all of the forestland and woodland located on the Keirns property. These stands are of varying ages, the oldest being Stand 1, and the youngest being Stand 3. All three stands were probably once used for pasture. Stand 1 would have been pasture woods except on the steepest and rockiest places. Stands 2 and 3 appear to have developed either from pasture fields or lightly stocked pasture woods. All three areas would have been degraded from past agricultural use.

**Stand 1** (dark blue on the forest stand map) is the oldest and most well developed of these three stands. It is situated deep in ravines, including some very rocky ravines; on

steep or very steep slopes; and on a long, narrow ridge in the southeastern part of the property. Stand 1 is at least 65 years old. It may have been continuously wooded for 80 to 100 years or more. However, most of the older trees were probably cut off a long time ago. The few exceptions are large, spreading trees, some of which have fence wire in them, all of this evidence of past grazing and use as pasture woods.

**Stand 2** (light blue) is intermediate in its age and development. It is situated on mid to lower slopes and in ravines. All are of these areas are old-field-type sites. Some parts of this stand are good and productive. Others are brushy and overgrown. The age of this stand is probably 45 years or less.

**Stand 3** (purple) is the youngest and least well developed of the three stands described here. It is situated on upper slopes and in the upper parts of ravines, mostly on old-field sites; also around the edges of the woods, again, on old-field sites. The age of this stand is less than 45 years in most places. I think we can consider Stand 3 to be a marginal forest stand or a non-commercial woodland stand.

**Description:** Again, Stands 1 through 3—29.5 acres in all—comprise all of the forestland and woodland located on the Keirns property. The acreage represented by these three stands fits pretty well with the acreage covered under the current timber sale contract, 30 acres in all. However, I don't think the timber buyer is going to cut any timber in certain areas, the reason being that there isn't any merchantable sawtimber to be found there. If these certain areas are left untouched, then they can be properly managed for commercial timber production beginning this year.

In any event, **Stand 1** is a well-stocked, uneven-aged stand of brush, briars, vines, seedlings, saplings, poletimber, and sawtimber. It includes some good and valuable timber, also some not so good timber. The timber sale contract calls for a 16-inch diameter-limit cutting at stump height ("point of cut"). All of the best and most valuable timber above that diameter will of course be cut. Some less valuable timber may be left behind. We won't know until the cutting has been completed.

**Stand 2** is also generally well stocked and uneven-aged. It contains less sawtimber than Stand 1. In some places, there is little to no sawtimber at all. However, there are many good and productive trees under the diameter-limit, for example in the northernmost part of Stand 2, also in an area I have marked "a" on the forest stand map. The northernmost part is a nice stand of saplings, poletimber, and small sawtimber. Area "a" is a small stand of saplings, most of which are yellow-poplar. Hopefully these areas will remain untouched.

Most of **Stand 3** has only recently reverted to wooded cover versus old-field-type cover of grasses, forbs, and small woody plants, such as blackberry and black raspberry. Old-field conditions persist: Stand 3 is poorly stocked and generally brushy and overgrown,

with few trees, or few good trees. Non-native, invasive species may be profuse in this stand and in other areas around and along the edges of the woods.

We're waiting right now to see what happens in the cutting. Conditions in the woods, especially in Stand 1 and parts of Stand 2, will be drastically changed once that cutting takes place. I can make recommendations right now, and you could begin work right now, but my recommendations could very well be out of date by the end of the year. It would be a good practice now or this summer to begin getting non-native, invasive species under control. After all, heavy cutting will only help to create more habitat for these plants, most of which thrive on disturbance and require full sunlight in which to grow and reproduce. As for other timber stand improvement (TSI) work, I would say just wait, see what the cutting brings, and afterwards update your forest management plan. And after that, begin your management activities in earnest.

**Recommended Silvicultural Treatment:** 1) Begin your efforts at controlling non-native, invasive species. 2) Once the cutting is done, have a professional forester or well-qualified forestry technician look at your woods again with the idea that you will update your forest management plan to reflect the altered conditions in your woods. I feel certain that timber stand improvement (TSI) work, including weeding, thinning, crop tree release, and cull tree removal, will be needed. I just can't say yet where, how, and to what degree that work ought to be done.

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**Fields** (Brown and tan on the attached forest stand map.)

**Total Area: 16.8 Acres**

Field A: 8.5 Acres

Field B: 2.2 Acres

Field C: 1.5 Acres

Field D: 3.0 Acres

Field E: 1.6 Acres

**Non-Native, Invasive Plant Species:** Same as Stands 1 through 3.

**Location, Site Conditions, & Description:** Fields are on upper elevations, mostly above the level of the woods and mostly in the western part of the property. Most of these areas are situated on steep ground. Field B, on the other hand, is on a nice, level, though small, ridgetop. These areas have been open and used for a long time to grow hay or pasture grass. Consequently, soils are eroded and depleted and may be compacted. Over all, these sites are degraded.

Fields A and B are large and generally open. They could probably pretty easily be turned back into hayfields or pasture fields. Fields C and E are small and closed in. They are also somewhat brushy and overgrown. Field D, though larger, is in the same kind of condition.

Again, fields on the Keirns property are mostly on steep ground and on sites that have been degraded by decades—actually more than a century—of agricultural use. However, they could be brought back into production. Following are some possible uses and products:

- Hardwood tree plantation for commercial timber production (sawtimber). Trees to plant could include oak, hickory, black walnut, and persimmon (for wildlife).
- Pine plantation for commercial timber production (pulpwood in the short term or higher-value products in the long term).
- Black locust planting for fuelwood production, possibly also for fence posts. Be aware that black locust sprouts readily from stumps and roots. Once established, it can become weedy and hard to get rid of. However, locust firewood has a very high BTU content.
- Christmas tree plantation.
- Orchard tree plantation for domesticated fruits and nuts, such as apples, peaches, pears, cherries, plums, pecans, walnuts, and almonds.
- Tree plantation for wild fruits and nuts, such as persimmons, pawpaws, black walnuts, and hickory nuts.
- Planting of berry patches for growing blackberries, raspberries, blueberries, strawberries, cranberries, etc.
- Planting of seasonal and decorative plants, such as pumpkins, gourds, Indian corn, pine (for pine boughs, pine cones, etc.), holly, vines, etc.
- Gardens for commercial production of vegetables, flowers, or other products.
- Prairie plantings or pollinator plantings.
- Rent fields for hay production, pasture, boarding of horses, etc.

**Recommended Silvicultural Treatment:** 1) Begin your efforts at controlling non-native, invasive plant species, eventually to eradicate them. 2) Look into possibilities for bringing fields back into production. Consult with any or all of the following:

- a) U.S. Department of Agriculture (USDA);
- b) Athens County Soil & Water Conservation District (SWCD);
- c) Ohio State University Extension;

- d) Rural Action, Inc;
  - e) Ohio Division of Forestry and/or Division of Wildlife;
  - f) Other agencies and organizations.
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**Homesite & Power Line Right-of-Way (Stand H)** (Yellow on the attached forest stand map.)

**Area:** 3.25 Acres

**Non-Native, Invasive Plant Species:** Same as Stands 1 through 3.

**Location, Site Conditions, & Description:** Stand H includes the area around the houses, also the power line right-of-way (ROW) that cuts through the middle part of the property to high ground along McDougal Road. Some part of this area may be available for agricultural production, such as for garden vegetables or flowers.

**Recommended Silvicultural Treatment:** 1) Begin your efforts at controlling non-native, invasive plant species, eventually to eradicate them. 2) Look into possibilities for using this and all other acreage on your farm for agricultural production or other business purposes. Some ideas: hunting leases; refurbishment of the house and/or house trailer as a short-term or long-term rental property; agritourism; sale of old equipment, tools, etc.; sale of beams, planks, barn wood, etc., for woodworking or crafts. I'm sure there are other possibilities. In the process of all of this, you might want to form a business for insurance purposes and for protection from liability.

## 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 can 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 stiltgrass, 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 online or in print from Ohio State University Extension.
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; and c) damage, break down, or destroy native plants. Following is a table listing some common non-native plant species and the level of threat I believe they represent.

<b>Common Non-Native, Invasive Plant Species in Ohio</b>			
<i>Common name</i>	<i>Scientific name</i>	<i>Form</i>	<i>Level of threat</i>
Ailanthus or tree-of-heaven; stink tree	<i>Ailanthus altissima</i>	Tree	Very High; overstory tree; allelopathic
Autumn-olive	<i>Elaeagnus umbellata</i>	Shrub	Medium; usually not a problem in forests; can be very invasive in old fields and strip-mined sites
Bush honeysuckle (Three species: Amur, Morrow, and Tartarian honeysuckle)	<i>Lonicera</i> 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, may be harmful to birds
English ivy	<i>Hedera helix</i>	Vine	High; low-growing vine; not especially common in forests but can become very invasive; tolerant of shade; evergreen

European privet Border privet	<i>Ligustrum vulgare</i> <i>L. obtusifolium</i>	Shrubs	Medium to high; may form thickets
Garlic mustard	<i>Allaria petiolata</i>	Biennial herbaceous plant	Very high; tolerant of shade; allelopathic; displaces native herbaceous plants
Japanese barberry	<i>Berberis thunbergii</i>	Shrub	Medium to high; usually a low-growing shrub; correlated with increased populations of deer ticks, which may carry tick-borne illnesses
Japanese honeysuckle	<i>Lonicera japonica</i>	Vine	Medium to high; can destroy small trees, but usually not a problem in forests due to its lack of shade-tolerance
Japanese knotweed	<i>Reynoutria japonica</i> , <i>Fallopia japonica</i> , or <i>Polygonum cuspidatum</i>	Perennial, semi-woody plant	Very high; forms very dense growths along streams, roadsides, and ditch banks; crowds out native species
Japanese stiltgrass	<i>Microstegium vimineum</i>	Annual grass	High; forms monocultures along trails and in sunny spots in the forest
Kudzu	<i>Pueraria montana</i>	Vine	Very high; grows over everything in its path; problematic only in the southernmost parts of Ohio
Multiflora rose	<i>Rosa multiflora</i>	Shrub or cane	Medium; mostly a nuisance; may be in decline

Oriental bittersweet	<i>Celastrus orbiculatus</i>	Vine	Very high; strangles and destroys trees
Royal paulownia or princess-tree	<i>Paulownia tomentosa</i>	Tree	High; overstory tree; problematic only in the southernmost parts of Ohio
Wineberry	<i>Rubus phoenicolasius</i>	Shrub or cane	High; may form very dense growths, even in shady woods
Winged euonymus or burning-bush	<i>Euonymus alatus</i>	Shrub or small tree	Medium to high; often a tall and dense shrub or small tree; may form thickets
Wintercreeper	<i>Euonymus fortunei</i>	Vine	High; low-growing vine; not especially common in forests but can become very invasive; tolerant of shade; evergreen

## 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. Brush killers are generally applied to 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, 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.

Continued next page.

**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.

**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.

\* 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, 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 stiltgrass), 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 should 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.) See the following publications for more information:

- **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 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 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 the 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, 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 fungus 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.

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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

<i>Years</i>	<i>Stand(s)</i>	<i>Area (Acres)</i>	<i>Activity</i>	<i>Notes</i>
2024-2025	All	49.55	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.	
2024-2027	Wherever found	Wherever found	Begin your efforts at eradicating the worst non-native, invasive species, specifically ailanthus or tree-of-heaven and bush honeysuckle.	
2024-2034	Wherever found	Wherever found	Continue your efforts at invasive species control by cutting, treating, pulling, and otherwise going after all non-native, invasive plant species, all with a goal of eventual eradication.	
2024-2034	1-3	29.5	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.	

2024-2025	1-3	29.55	Monitor your timber sale/enforce your timber sale contract and your timber harvest plan (silvicultural operations & management plan) filed with Athens County SWCD.
2024-2025	All	49.55	Once the cutting is done, have a professional forester or well-qualified forestry technician look at your land again and update your forest management plan. Look especially at the need for timber stand improvement (TSI) work.
2024-2034	1-3	29.55	Begin work on the recommendations laid out in your updated forest management plan.
2024-2034	All	49.55	Look into possibilities for maximizing the use of your farm and all of its acreage for agricultural production and generation of income. Be sure to consult with land management and business professionals if needed.
2033-2034	All	49.55	Update your forest management plan so as to maintain your status under CAUV.