

Forest Stewardship Plan



Prepared for Joe and Jane Landowner

Example Plan Prepared by Mike Smalligan
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Plan Duration: 20 Years (July, 2034)
[Updated January 2016]



www.Michigan.gov/ForestStewardship

The Forest Stewardship Program is funded by the United States Forest Service and administered by the Michigan Department of Natural Resources.

This plan also meets the requirements of the American Tree Farm System.
Renewal or revision of a prior Forest Stewardship Plan? – NO

Landowner Contact Information		Plan Writer Contact Information		
Name:		Name:		
Address:		Address:		
Phone:		Phone:		
Email:		Email:		
Property Information				
Total Acres: 63	Forested Acres: 63	Acres in Plan: 63	Tax ID:	
Town:	Range:	Section:	Township:	County:
Property Legal Description (Quarter-Quarter Section, Quarter Section, Section, Town, Range, Township, County):				
How to Find Property from Nearest Town:				
Participation in Related Forestry Programs				
<input type="checkbox"/> I intend to enroll this parcel in the Qualified Forest Program (QF).		[www.Michigan.gov/QFP]		
<input type="checkbox"/> I intend to enroll this parcel in the Commercial Forest Program (CF).		[www.Michigan.gov/CommercialForest]		
<input type="checkbox"/> I intend to enroll this parcel in the American Tree Farm System.		[www.TreeFarmSystem.org]		
<input type="checkbox"/> I intend to apply to the NRCS for financial assistance.		[www.nrcs.usda.gov]		
Michigan's Stewardship Ethic				
Stewardship is an ethic recognizing that the land and its natural inhabitants have an inherent worth and that we have a responsibility to consider the land as we protect, manage, utilize, and enjoy the forest. Stewardship guides us to conduct our activities to the utmost of our abilities, to insure the future health, productivity, diversity, and well-being of the land, its natural communities and species, and to provide opportunities to our successors that are at least equal to ours to use and enjoy the land and its resources.				
Signatures of Approval from Landowner, Plan Writer, and DNR Service Forester				
This plan describes my goals and objectives for my forest. Participation in the Forest Stewardship Program is voluntary and only indicates my intent to practice sustainable forest management. I understand that enrolling forest land into separate property tax programs like the Commercial Forest program or the Qualified Forest program requires my compliance with an approved forest management plan in exchange for the reduction in property taxes.				
Landowner:		Date:		
Plan Writer:		Date:		
DNR Service Forester:		Date:		

After review and approval by the Landowner, the Plan Writer will submit the entire Plan to the nearest DNR Service Forester for their review. **Electronic submission of the Plan is encouraged by emailing a Word document or pdf file to the Service Forester.** The DNR Service Forester will return a hard copy or pdf of the final signature page to the Plan Writer after approval.

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Introduction

Forest Stewardship Program

The purpose of the Forest Stewardship Program is to help forest landowners manage, protect, and enjoy their land. The voluntary program connects family forest landowners with professional foresters and wildlife biologists in the private sector to develop and implement a Forest Stewardship Plan. The United States Forest Service (USFS) supplies funding and partners with the Michigan Department of Natural Resources (DNR) to provide assistance to private forest landowners. See www.Michigan.gov/ForestStewardship for more information. Since 1990, more than 5,400 landowners in every Michigan county have developed a Forest Stewardship Plan to help them protect, manage, and *enjoy* their own forest.

Landowner's Goals

Joe and Jane Landowner have a variety of goals for their property that reflect their personal preferences, the attributes of their forest, and their desired future conditions for their land. Their primary goal is to sustainably manage their forest so they can pass it on to their children in 15 to 20 years as a healthy and productive forest. They have already placed their forest into a trust to plan for their forest succession to pass their land on to their heirs (see www.TiesToTheLand.org for more information on succession planning). When discussing their values and intentions with their forester, Joe and Jane Landowner identified the following goals:

1. Maintain high quality aesthetics because the forest is visible to a public lake.
2. Provide recreational opportunities for walking trails, bird watching, and deer hunting.
3. Enroll in a property tax program to keep costs of ownership affordable.
4. Protect water quality of the creek and lake by limiting soil damage near water.
5. Address forest health issues, especially Emerald Ash Borer and Beech Bark Disease.
6. Sustainable production of timber for occasional income from moderate harvests.

General Property Description

The Landowners have owned this 63 acre forest for almost 50 years. It is a beautiful forest along a lake with a stream running through the forest. The forest has great aesthetics, recreational value, and timber resources. The Landowners do not live on the property year-round but spend most of their summer at a cottage on the south side of the forest. There are some forest health issues with Emerald Ash Borer already present and the potential for Beech Bark Disease. A small Scotch pine plantation is over-mature and already declining.

This property is not located within a “Forest of Recognized Importance” (FORI) which in Michigan are forests along the Great Lakes coastline, forests along Natural or Wild and Scenic Rivers, rare forest types (old growth), or forests that provide important wildlife habitat (>500 contiguous acres, or known habitat for threatened or endangered species).

Throughout this plan I have divided the forest into three separate management units or “stands.” A stand is a forestry term for an area of land containing a similar cohort of trees according to species, age class, site conditions, or management practices. See Ownership Map on page 6.

Stand One is a 30 acre northern hardwoods forest dominated by beech, red oak, and white oak. It is an outstanding example of northern hardwoods with very large diameter and tall trees. It also has an unusual number of large white pine interspersed throughout the stand that are remnants from the old white pine logging era in the late 1800’s.

Stand Two is a 28 acre lowland hardwoods forest with a creek running through the center of the stand that empties into the lake to the east. The stand also has about 1,500 feet of frontage along the lake so soil and water quality issues are very important for Stand Two. Red maple and ash dominate the stand, but the Emerald Ash Borer is starting to cause lots of ash mortality.

Stand Three is a 5 acre Scotch pine plantation in the southwest corner of the property on some sandy soils. It is about 50 years old and has never been thinned. The pines are in poor condition, but a nice understory of red maple and black cherry saplings are starting to replace the pines.

Planning Process

Joe Landowner contacted Mr. Plan Writer in early August of 2014 when interviewing several foresters about developing a forest management plan. They discussed several programs available for Michigan forest landowners including the Forest Stewardship Program, Environmental Quality Incentives Program, Commercial Forestry Program, Qualified Forestry Program, and the American Tree Farm System. Joe Landowner is interested in doing some commercial timber harvests to manage his forest for multiple objectives so he would be eligible for any of these programs (only the tax programs require harvesting according to the landowner’s management plan). Joe Landowner liked Mr. Plan Writer’s forest management philosophy and agreed to hire him to develop a Forest Stewardship Plan. They scheduled a time the following week to meet on the property to discuss Joe and Jane Landowner’s goals and to do an assessment of the forest. They met on August 11 for a site visit to inspect the general condition of the forest and to discuss goals and possible management choices. Mr. Plan Writer collected some basic data while walking through the forest with Joe and Jane Landowner and then returned to his office to write the plan. The Forest Stewardship Plan was sent to Joe and Jane Landowner for their review a few weeks later. After their approval, the plan was sent to the DNR for their review and approval by the end of August.

Stand Assessment Method

The Plan Writer collected basic stand assessment data by visual survey while walking through the forest with the Landowners on August 11. He had done some research about the property prior to the site visit to determine the potential boundaries of the forest cover types and soil types on the property. One of the actions on the site visit was to confirm the boundaries of the three stands according to their forest type. A few “point samples” were taken in each stand to get a

rough idea of the forest density and the primary tree species occurring in that stand. Saplings and shrubs in the understory, invasive plants, and insect or disease issues were also noted throughout each stand. This was not a formal inventory of the forest as this more expensive data collection and analysis can wait until preparing for a timber sale or other more intensive activity.

Ownership Map

Figure 1. Map of the Landowner property showing forest types and water resources.



(Image Source: <http://websoilsurvey.nrcs.usda.gov/>)

Geographic Location: Parcel is in the NE ¼ of Sec 2, T_N, R_W, ___ Township, ___ County.

Resource Descriptions

Stand One

Narrative Description. Stand One is a 30 acre, uneven-aged, northern hardwoods forest dominated by beech, red oak and white oak. The stand has not been harvested for more than 50 years, and it is an outstanding example of northern hardwoods with very large diameter and tall trees. It also has an unusual number of large white pine interspersed throughout the stand that are remnants from the old white pine logging era in the late 1800's.

Soil. The primary soil type for Stand One is the Spinks-Metea-Coloma complex. These soil types are well drained and have very good site quality for high value trees. The site index for red oak is 66 on Spinks soil types. [Note: site index is the expected height at age 50 for a species on a given soil type. It is used to compare site quality between different soil types.] The well-drained soils in Stand One should be protected from any heavy equipment by conducting any management activity when soils are frozen (Dec-Feb) or dry (late summer-fall). There are no water resources in Stand One.

Water. Stand One does not have any surface water, but is near a creek and lake.

Wetlands. Stand One has well-drained soils and does not contain any wetlands.

Biological Diversity. Stand One has at least 13 tree species and the dominant species in the stand are beech, white oak and red oak. Secondary species include white pine, red maple, sugar maple, big tooth aspen, black oak, black cherry, ash, bitternut hickory, musclewood, and paper birch. This is a good species diversity for a northern hardwoods forest type.

Aesthetic Quality. Stand One has very good aesthetics for a mature hardwoods forest. The forest is on a bluff above a public lake so management activities will be highly visible.

Recreation. Stand One is frequently used by the Landowners and their friends for walking, skiing, trail riding, bird watching, and deer hunting. There are no roads for vehicle traffic in Stand One but there is a nice network of foot trails used by the Landowners and their neighbors.

Timber. Stand One is a northern hardwoods stand with the basal area dominated by beech and several oak species including red oak, white oak, and black oak. Stand One is an uneven-aged stand with many age classes. Stand One is a sawtimber size stand with most of the trees ≥ 10 " in diameter. Merchantable sawtimber is usually 16" to 24" DBH. Stand One has exceptional stand quality and is developing "old growth" characteristics because it has not been harvested for more than 50 years. A forest cover type abbreviation for this stand is "MbO9" where "Mb" is beech, "O" is mixed oak, and "9" represents a saw log size stand with a basal area of > 70 ft² per acre

Density – The basal area for Stand One is 145 ft²/acre. This is an exceptional basal area for this forest type as many mature northern hardwoods forests in southern Michigan have a basal area between 90 and 120 ft²/acre. [Note: The *basal area of a tree* is the cross sectional area of the trunk at 4.5 feet. The *basal area of a stand* is the sum of each individual tree's basal area.]

Volume – The merchantable volume for Stand One is almost 15,000 board feet per acre using the Doyle log rule. This is an exceptional volume for this type of forest. Typical mature, hardwoods forests in southern Michigan may range from 5,000 to 10,000 board feet per acre.

Fish and Wildlife. Stand One has excellent wildlife habitat. Stand One has thick cover and water nearby for wildlife. Deer trails were observed throughout Stand One and I saw a bald eagle fly over while conducting the inventory. The creek does not support many fish, but the lake on the east side of the stand is heavily used for fishing by people living on the lake.

Forest Health. I did not observe any forest health issues (insects, disease, invasive plants) in Stand One. However, the abundance of beech is a potential concern when beech bark disease arrives in this county in a few years (it is not present yet).

Stand Two

Narrative Description. Stand Two is a 28 acre lowland hardwoods stand with a creek running through the center of the stand that empties into the lake just east of the stand. The forest is dominated by white ash and red maple. The stand has more than 1,500 feet of frontage along the lake and most of the soil in the stand is very poorly drained.

Soil. The primary soil types for Stand Two are Cohoctah fine sandy loam (very poorly drained) and Carlisle muck (very poorly drained). Stand Two has average site quality because of the very poorly drained soils. The site index for red maple is 56 on the poorly drained Cohoctah soils. The poorly-drained soils in Stand One must be protected from any heavy equipment by conducting any management activity when soils are frozen or dry.

Water. Stand Two has abundant surface water resources with both a creek running through the stand and significant lake frontage.

Wetlands. The DEQ Wetlands Map Viewer at www.mcgi.state.mi.us/wetlands indicates that all of Stand Two is a wetland according to state and federal definitions. A permit is not required for typical forest management activities in a wetland, but a permit is required for filling, dredging, draining, or development. A DEQ permit (usually \$50 or \$100) is also required for a stream crossing (culvert or bridge). See www.Michigan.gov/DEQWetlands for more information about wetlands. Any management activity in Stand Two should follow the “Sustainable Soil and Water Quality Practices on Forest Land” (Best Management Practices - www.michigan.gov/dnr).

Biological Diversity. Stand Two has at least 15 tree species and the dominant species are white ash, red maple and big tooth aspen. Secondary species include musclewood, elm, black cherry, basswood, bitternut hickory, paper birch, hawthorn, willow, cottonwood, and beech.

Aesthetic Quality. Stand Two has average aesthetics for a lowland hardwoods forest. The forest is visible from the lake and a private road.

Recreation. Stand Two is also used by the Landowners and their neighbors for recreation, primarily walking trails along the creek. There is a forest road for vehicle traffic in Stand Two.

Timber. Stand Two is a sawtimber size stand with most of the basal area in trees ≥ 10 " DBH. Stand Two has average stand quality and is an uneven-aged forest with many age classes. A forest cover abbreviation for this stand is "E9" where the "E" is lowlands and "9" is a sawtimber stand with a basal area >70 ft²/acre. The basal area in Stand Two is 105 ft²/acre which is a good basal area for a lowland hardwoods stand. The merchantable volume of Stand Two is about 5,000 board feet per acre using the Doyle log rule. This is a below average volume for a mature lowland hardwoods stand. Most of the merchantable trees are white ash and red maple.

Fish and Wildlife. Stand Two has excellent wildlife habitat with thick cover and water nearby for wildlife. Deer trails were observed throughout Stand Two. The stand is also adjoining a lake that is used for fishing.

Forest Health. Emerald Ash Borer is the primary insect problem in the stand infecting most or all of the ash trees. Ash trees are about a third of the stand basal area so EAB will dramatically impact the stand. Secondary forest health issues include Dutch Elm Disease but elm is a minor component of the stand. I did not observe any noxious or invasive plant species in Stand Two.

Stand Three

Narrative Description. Stand Three is a 5 acre Scotch pine plantation. It is about 50 years old and has never been thinned. The pines are starting to decline and blow over but there is already some advanced regeneration of red maple and black cherry in the understory.

Soil. The primary soils in Stand Three are Brems sands and Abscota loamy sand. Both soils are moderately well drained, sandy soils. Stand Three has average site quality because of the sandy soils. The site index for pin oak is 59 on Brems soils.

Water. There are no water resources in Stand Three.

Wetlands. There are no wetlands in Stand Three because the soils are sandy and well drained. See www.Michigan.gov/DEQWetlands for more information about wetlands.

Biological Diversity. Stand Three has low diversity with just three tree species present – Scotch pine, red maple and black cherry. More than 75% of the stand is Scotch pine.

Aesthetic Quality. Stand Three has poor aesthetics as the pine plantation is overgrown and the trees are starting to fall over. The stand is visible from a private road.

Recreation. Stand Three is not used for recreation because the pines and the hardwoods in the understory are too thick for easy walking. There are not any roads or trails in Stand Three.

Timber. Stand Three has average stand quality for a pine plantation and Scotch pine has very poor market value. The basal area of Stand Three is around 180 ft²/acre and this is a high basal area for a Scotch pine plantation. The volume of timber in Stand Three is almost 11,000 board feet per acre using the Doyle log rule and this is a good volume of board feet per acre for a Scotch pine plantation of this age. Most of the Scotch pine are about 12" in diameter. A forest cover abbreviation for this stand is "I9" where the "I" is for exotic species and "9" is sawtimber.

Fish and Wildlife. Stand Three has excellent wildlife habitat with very thick cover and water available nearby. Deer trails were observed throughout Stand Three.

Forest Health. I did not observe any insect or disease problems in Stand Three, apart from some minor canker disease on the black cherry. I did not observe any noxious or invasive plant species in Stand Three.

Entire Property

The following natural resource elements are more applicable to the entire property than the stand level scale so they can be described in general terms for the entire property.

Threatened and Endangered Species. The Department of Natural Resources (DNR) and the Michigan Natural Features Inventory (MNFI) report that the Lake herring or Cisco (*Coregonus artedii*) is a Threatened species (legally protected) that may be present in the adjoining lake, although it was last observed in 1984. Eutrophication of a lake (excess nutrients leading to algae blooms and decreased oxygen) is the biggest threat, and typical forest management activities should not have any impact if the fish is still present in the lake. For more information about the fish, see the MNFI website at http://mnfi.anr.msu.edu/abstracts/zoology/Coregonus_artedii.pdf.

Archeological, Cultural, or Unique Natural Sites. The DNR reports that the archeological database does not show any concerns for historical sites in this section of the Township. Standard Seven of the American Tree Farm System is Protect Special Sites – “Special sites are managed in ways that recognize their unique historical, archeological, cultural, geological, biological or ecological characteristics.” There are no known special sites on the property. More information about historical sites in Michigan is available at www.Michigan.gov/Archaeology.

Fire. Prescribed fire is a management tool used to reduce hazardous fuels or unwanted understory plants. Prescribed fire should only be conducted by highly trained and properly insured professionals. All prescribed fires require a Burn Permit available from the DNR at www.Michigan.gov/BurnPermit. Prescribed fire is not likely to be a suitable tool for Stands One or Two in the Landowner forest. More information about prescribed fire is available on the Michigan Prescribed Fire Council website at <http://FireCouncil.org>. Wildlife is not a significant risk in this County or for the hardwood forest types on the property. However, more information about minimizing the risk of wildfire in Michigan can be found at <http://firewise.msu.edu>.

Carbon Cycle. Carbon dioxide is removed from the atmosphere through photosynthesis and decomposition of organic matter into the soil. Carbon dioxide is released to the atmosphere through respiration, deforestation, and soil tillage. More than 63% of the terrestrial carbon stocks in Michigan’s forests are in soil organic carbon while only 19% is in the above ground biomass (trunk, branches, leaves). Below ground biomass (roots), dead wood, and litter (dry leaves) make up the remaining 17% of the carbon stocks in Michigan’s forests. Healthy forests produce clean air and oxygen through photosynthesis. Therefore, forests in Michigan and around the world are very important ecosystems that remove carbon dioxide from the atmosphere and help to reduce the global impacts of climate change. More information about the forest carbon cycle is available at www.fs.fed.us/ecosystemservices/carbon.shtml.

Soils Map

Figure 2. Soil map of the Landowner forest obtained from USDA Web Soil Survey.



(Source: <http://websoilsurvey.nrcs.usda.gov/>)

Legend for the Landowner Forest Soil Types

Symbol	Soil Name	Percent Slope	Acres	Percent
8	Cohoctah fine sandy loam		19.8	31.2%
17B	Spinks-Metea-Coloma complex	1 to 6	4.1	6.5%
17C	Spinks-Metea-Coloma complex	6 to 12	17.1	26.9%
17D	Spinks-Metea complex	12 to 25	3.5	5.4%
32	Carlisle muck		6.2	9.7%
88	Ceresco fine sandy loam		4.6	7.2%
94B	Brems sand	0 to 4	2.0	3.2%
95A	Abscota loamy sand	0 to 3	5.6	8.8%
W	Water		0.7	1.1%
Totals for Area of Interest			63.6	100.0%

Soil Series Descriptions

NOTE: The following soil series descriptions are taken from the USDA Web Soil Survey available online at <http://websoilsurvey.sc.egov.usda.gov>.

Cohoctah. The Cohoctah series consists of very deep, poorly drained or very poorly drained soils formed in loamy alluvial deposits on flood plains. Slope ranges from 0 to 2 percent. Native vegetation is red maple, white ash, swamp white oak, American elm, alder, and quaking aspen. The site index for red maple is 56 and the expected annual growth rate is 29 ft³/acre. [Site index is the expected height at age 50 and is used to compare the quality of soil for growing trees.] Cohoctah soils are poorly suited for harvesting equipment because of low strength and wetness.

Spinks. The Spinks series consists of very deep, well drained soils formed in sandy eolian or outwash material. They are on dunes, moraines, till plains, outwash plains, beach ridges, and lake plains. Slope ranges from 0 to 70 percent. Native vegetation is hardwoods, dominantly of oak and hickory. The site index for red oak is 65 and the expected annual growth rate is 57 ft³/acre. Spinks soils are well suited for harvesting equipment.

Carlisle. The Carlisle series consists of very deep, very poorly drained soils formed in woody and herbaceous organic materials in depressions within lake plains, outwash plains, ground moraines, flood plains and moraines. Slope ranges from 0 to 2 percent. Major tree species include American elm, white ash, red maple, willow, tamarack, quaking aspen, and alder. The site index for red maple is 56 and the expected annual growth rate is 29 ft³/acre. Carlisle soils are poorly suited for harvesting equipment because of low strength and wetness.

Ceresco. The Ceresco series consists of very deep, somewhat poorly drained soils that formed in loamy alluvium on flood plains in river valleys. Slope ranges from 0 to 3 percent. A large amount is in woods consisting of elm, ash, and cottonwood. The site index for red oak is 66 and the expected annual growth rate is 57 ft³/acre. Ceresco soils are moderately suited for harvesting equipment because of wetness and flooding.

Brems. The Brems series consists of very deep, moderately well drained soils formed in acid sandy outwash on outwash plains and moraines. Slope ranges from 0 to 8 percent. Native vegetation is deciduous forest. The site index for pin oak is 59 and the expected annual growth rate is 43 ft³/acre. Brems soils are moderately suited for large equipment for being too sandy.

Abscota. The Abscota series consists of very deep, moderately well drained soils that formed in sandy alluvium on flood plains. Slopes range from 0 to 6 percent. Native vegetation is American elm, red maple, black ash, and sycamore. The site index for red maple is 56 and the expected annual growth rate is 29 ft³/acre. Abscota soils are moderately suited for harvesting equipment for wetness and flooding.

Assessment for the Natural Resources Conservation Service

“Resource concerns” present or possible on this property include water quality degradation, soil erosion, plant health, and invasive plants. Potential “conservation practices” for this property include stream crossings, forest trails and landings, riparian forest buffers, forest stand improvement, tree establishment, and tree site preparation.

Recommendations

Desired Future Conditions

Forestry management activities are meant to accomplish the landowner's goals for that particular stand and to bring about desired future conditions for the forest. The goals for the entire property include recreation, maintaining aesthetics, conducting sustainable timber harvests, maintaining excellent wildlife habitat, and protecting soil and water quality.

Stand One is a 30 acre northern hardwoods forest has great aesthetics and biodiversity for recreation. It also has high quality timber with very good economic value. This stand can support timber harvests every ten to fifteen years without compromising the aesthetic and recreational value of the forest. I suggest managing this stand for sustainable timber production that is compatible with the maintaining biodiversity, recreation, and aesthetics. The desired future condition is the continuation of a mature, healthy northern hardwoods forest.

Stand Two is a 28 acre lowland hardwoods forest has good biodiversity but poor timber quality due to forest health issues and poorly drained soils. However, it is very important for water quality with a creek and 1,500 feet of lake frontage. Stand Two should be managed to minimize the forest health impacts and maximize soil and water protection. The desired future condition is the continuation of a lowlands hardwoods forest that protects soil and water resources.

Stand Three is a 5 acre Scotch pine plantation. The trees are mature and starting to decline so the current stand should be harvested and replaced with more desirable trees. Unfortunately the market for Scotch pine is very limited so removing these trees may be a cost rather than income. The desired future condition is a replacement of a Scotch pine with a natural hardwoods forest.

General Activities for the Entire Property

Activity 0-1: Join the American Tree Farm System and Michigan Forest Association. You should consider joining the American Tree Farm System (www.TreeFarmSystem.org) to certify that your forest is sustainably managed. Certification documents the public goods that "Tree Farmers" provide to society including wood, water, recreation and wildlife. Certified forests are assessed by a third party to show society that both the American Tree Farm System and forest landowners are complying with their "Standards of Sustainability." The minimum requirements to join Tree Farm are ten acres of forest, a current forest management plan, compliance with the "Standards of Sustainability" (listed in the Appendix), and a free inspection by a Tree Farm Inspector. There is no additional cost for you after developing this Forest Stewardship Plan.

You may also want to consider joining other forest landowner groups. According to USFS research, only 4% of family forest owners have a written forest management plan (Butler, 2008). Your investment in this management plan puts you into an elite group of forest owners! The Michigan Forest Association (MFA) is an organization of private forest owners in Michigan and only costs around \$40 in annual dues (www.MichiganForests.org). MFA provides useful forest management information (magazines, newsletters, emails) and opportunities for networking with other active and involved forest landowners (annual conferences, workshops, field days).

Activity 0-2: Monitor Forest Health Annually. Forest health is an issue of moderate concern with Emerald Ash Borer already present in Stand Two and a high potential for Beech Bark Disease in Stand One. I recommend monitoring the forest regularly (each year and during different seasons) for changes that may indicate additional insect or disease problems. The “Forest Health Highlights” publication about forest insects and diseases is a great resource updated annually and available at www.Michigan.gov/ForestHealth. MDA has information on regulated forestry pests at www.Michigan.gov/ExoticPests.

There are several new insects and diseases that are not yet present in Michigan but are in nearby states so landowners should monitor their forest and report any unusual problems to the DNR for an early response (Asian longhorn beetle for maple, Thousand cankers of walnut, etc.). To report an unusual insect or disease in your forest, please contact Roger Mech, the DNR Forest Health Monitoring Specialist, at MechR@michigan.gov, or 517-243-0300.

Integrated Pest Management (IPM) should be practiced to protect soil and water. IPM requires correctly identifying pests, setting an economic or action threshold, and then implementing the best method to control the pest. IPM actions may include cultural, mechanical, biological, and chemical controls. Chemical pesticides are a useful tool but should not be the first or only choice to control pests. For example, the best way to prevent oak wilt is the cultural practice of not wounding oaks between April and July. If oak wilt does become established, the primary action is a mechanical control of severing roots to prevent the spread of the fungus through root grafts.

Emerald Ash Borer. The Emerald Ash Borer (EAB) is an exotic pest that is attracted to both healthy and dying ash trees. All living ash trees ≥ 16 " DBH should be included in the next timber sale. Harvest smaller diameter ash trees for firewood. This County is within the Level One Quarantine Area so logs or firewood cannot legally leave the Lower Peninsula. Girdled trees could be left standing to provide tall snags for wildlife, but ash crowns quickly become brittle and fall apart. See www.EmeraldAshBorer.info for more information about EAB.

Beech Bark Disease. Beech bark disease (BBD) is initiated by a scale insect that attaches to the tree and feeds on its sap. The tiny scale (~1 mm) secretes a white, wooly, waxy covering and the trunks look like they are covered in white powder. The scale feeding damage allows a fungus to invade the tree which inhibits the flow of sap which causes a general decline in tree health and eventually kills the tree. Controlling the natural spread of BBD is not feasible because both the scale and fungus are moved by the wind. If the scale is not in your forest, consider reducing the amount of beech in your forest so that beech is <20% of the stand basal area. If beech scale is already present, harvest the infected trees. Do not move infested firewood as this will spread the scale and fungus that causes beech bark disease. See <http://na.fs.fed.us/fhp/bbd>.

Oak Wilt. Oak wilt is caused by a fungus that is transported by beetles and root grafts. Red oak is more susceptible to oak wilt than white oak. It is far easier to prevent oak wilt than it is to treat a stand after infection. The best way to prevent oak wilt is to not harvest, wound or prune any oak trees between April and July when the trees are actively growing and the beetles are also active. Timber sales should be conducted in the fall or winter. See <http://na.fs.fed.us/fhp/ow>.

Activity 0-3: Enroll in Property Tax Program. The State of Michigan offers two tax reduction programs to help lower your property taxes on forest land, and both of these programs require a written forest management plan prior to enrolling in the program. The Landowner forest meets

the biological requirements of both programs so you should choose which program best fits your financial situation and personal goals for your forest. The Commercial Forest program does not allow buildings so a new tax ID will need to be created to separate the pole barn and a few acres from the commercial forest land.

The Qualified Forest (QF) program reduces property taxes by up to 18 mills for landowners with parcels at least 20 acres in size and who comply with their forest management plan to optimize their forest resources. Landowners do not have to allow the public on their land to hunt or fish, so this program is more attractive to family forest owners who own land for their own recreation. There is a \$50 application fee and an annual fee equivalent to 2 mills to help fund the operation of the program. Landowners must also report timber harvests or other forest practices in the year they occur. See www.Michigan.gov/QFP for information and program enrollment forms.

The Commercial Forest (CF) program provides a specific property tax of \$1.25 per acre for landowners that have at least 40 acres of forest and are engaged in sustainable timber production in support of the state's forest products industry. Participating landowners must make their land open to the public for foot access for hunting and fishing, so this program is usually more attractive to corporate forest owners who own large forests in the Upper Peninsula. The application fee is \$1 per acre with a minimum fee of \$200 and a maximum fee of \$1,000. See www.Michigan.gov/CommercialForest for more information and the application forms.

The recommendations in a Forest Stewardship Plan are voluntary unless the property is enrolled in the Commercial Forest Program or the Qualified Forest Program, especially those related to commercial timber harvests. *Landowner Statement of Compliance: "I hereby acknowledge that I have reviewed this forest management plan and understand my responsibilities regarding conducting management practices and harvests as called for in the plan."*

Stand One Activities

Activity 1-1: Commercial Timber Harvest. Stand One is a very high quality forest from an economic and timber perspective because of the abundance of high quality trees in commercially desirable tree species like red oak, white oak, sugar maple, and beech. Sustainable timber production is compatible with other goals. It is possible to conduct a conservative timber harvest every ten to fifteen years while keeping aesthetics, biodiversity, wildlife habitat, and recreation as equal priorities. I recommend a timber harvest between 2016-2018 to manage Stand One for long term productivity and health.

Timber Harvest Objectives. The primary objective for any timber sale is to *improve the forest*, as defined according to the values of the landowner and the attributes of the forest. A timber sale should improve the species composition and growing conditions of remaining trees for future timber sales. A forester's primary concern is *keeping quality trees* in your forest, instead of selling most of your quality trees (a practice called high-grading). A timber sale can be used to improve wildlife habitat, develop trails for recreation, improve forest health, and regenerate new trees. Finally, a timber sale should also seek to *optimize* (but not necessarily maximize) the profits for the landowner in keeping with the above objectives.

Timber Harvest Method. Foresters use “even age” and “uneven aged” methods to harvest trees. Even aged methods create a new cohort of trees with a similar age throughout the entire stand. “Shelterwood” or “clearcut” favors the regeneration of shade intolerant species like aspen, oak or black walnut. Uneven aged methods preserve variation in age classes in the stand. “Single tree selection” or “group selection” favor the regeneration of shade tolerant species like sugar maple and beech. Use uneven aged methods in Stand One to maintain diverse age classes and species.

Timber Sale Process. You can hire a consulting forester to assist you with a timber sale or you can manage your own sale. Either way, there are five basic steps in a timber sale. The timber sale process can take six to eighteen months, so start planning a year before the desired time.

Step One. A forest inventory measures the attributes of the forest to determine how to proceed with the sale. This Forest Stewardship Plan does not include this inventory, but the visual stand assessment determined that Stand One is ready for harvest anytime in the next few years.

Step Two. The inventory is used to decide what trees to sell and what trees to keep. Determine the trees to sell, paint those trees at stump and breast height, measure volume, and estimate market value. Based on a licensed boundary survey, identify the property corners and property lines so that all trees that are included in the sale are within your property boundary.

Step Three. You or your forester should advertise your timber sale. The true market value of the trees marked for sale is determined by getting multiple bids. Send the prospectus to several reputable timber buyers to invite them to inspect the trees marked for harvest and bid on the sale.

Step Four. The fourth step is to negotiate a timber sale contract between the landowner and the timber buyer. Select the best buyer based on price and other factors (reputation, timing, equipment, references, etc). Negotiate a comprehensive contract, collect a performance bond, verify insurance, and collect full payment *prior to* harvest (for a stumpage sale).

Step Five. Supervise the harvest to ensure the contract is followed. Determine the location of skid trails and log landing for harvest equipment (place them where you would like to improve recreational trails for later use). Visit the site during timber harvest to verify performance. Also visit the site after the harvest to determine the refund of the performance bond.

Timber Sale Timing. Stand One has a high basal area so plan for a timber harvest in the winter of 2016. Mark the trees for sale in the summer of 2015. The harvest should be conducted in a season when the soil is frozen or dry. A fall or winter harvest will reduce the exposure of wounded trees to insects (bark beetles) or disease (oak wilt). Avoid a spring harvest to minimize rutting which damages both the soil and the roots of the residual trees. Harvest most of the mature beech trees before beech bark disease arrives in this county. Selection harvests are often done on a ten to fifteen year interval. Stand One may be ready for another harvest around 2030.

Forest Certification. There are several applicable Standards of Sustainability for properties certified by the American Tree Farm System. See Appendix for more info about Tree Farm.

Standard Three - Reforestation and Afforestation. Natural seeding from the residual trees in the stand should produce adequate regeneration. Planting seedlings to regenerate this stand is not likely to be biologically necessary, economical, or even successful with the high deer population.

Standard Four - Air, Water, and Soil Protection. Logging operations should be conducted in the winter when the soil is both dry and frozen. Harvest operations should be suspended if soils are too wet and susceptible to damage. Be sure to follow Best Management Practices (“Sustainable Soil and Water Quality Practices on Forest Land” at www.Michigan.gov/PrivateForestLand).

Standard Six - Forest Aesthetics. A single tree or group selection harvest in this stand will have minimal impacts on aesthetics. Conducting the sale in the right season and harvesting a conservative number of trees (four to eight trees per acre) will maintain good aesthetics.

Standard Eight - Forest Product Harvests. This standard requires using qualified natural resource professionals, a contract, and complying with this plan when conducting a timber sale.

Stand Two Activities

Activity 2-1: Commercial Timber Harvest. Stand Two is a lowlands hardwoods forest with average timber quality, average basal area of 105 ft²/acre, and major forest health concerns with Emerald Ash Borer (EAB) already present and killing trees. Stand Two should be harvested when a timber sale is conducted in Stand One (2016-2018). The stand can be improved by reducing ash and mature maples to allow for regeneration. The stand is on wet soils with a creek and lake frontage so follow Best Management Practices to protect soil and water quality. Maintain a Riparian Management Zone (RMZ) of 100 feet on either side of the creek and along the lake. Trees may be harvested within the RMZ, but leave enough trees to shade the creek and avoid cutting trees right along the bank. Keep soil disturbance to a minimum and avoid building roads in the RMZ when possible. The harvest should be conducted when soils are dry or frozen. It may be necessary to improve the stream crossings to allow for large harvesting equipment to cross the creek. This requires a DEQ permit (\$50 or \$100), and NRCS may have funding for a stream crossing (Code #578). Aesthetics along the lake may be impacted so harvest the ash and mature red maple and leave most other species. Natural regeneration should be successful, but it may be wise to limit the reproduction of ash as the future impacts of EAB are not known.

Activity 2-2: Forest Stand Improvement. A timber harvest in Stand Two will not adequately deal with EAB in the small diameter ash trees. Because timber sales only occur every ten to fifteen years for most hardwoods forests, it would be good to do some forest stand improvement (FSI) activities between timber sales (2018+). The primary forest stand improvement activity for Stand Two is to address forest health by removing ash trees too small to sell for timber (<15” DBH). Secondary objectives include improving aesthetics, protecting soil and water quality, and managing for wildlife habitat. This activity is likely to be a cost rather than an expense, but forest stand improvement activities are eligible for funding from the NRCS (Code #666).

Small ash trees have low timber value but excellent firewood value so forest stand improvement activities should focus on salvaging small ash for local firewood use. If this produces more firewood than you can use personally, it may be possible to sell it to nearby campgrounds or other people who burn wood for heat. Most of Michigan is under a federal quarantine to slow the spread of the EAB (see www.EmeraldAshBorer.info), but seasoned ash firewood can be moved within the quarantined areas. For local firewood, see www.FirewoodScout.org. Forest Stand Improvement activities should also follow Best Management Practices near the creek and lake to protect soil and water quality.

Stand Three Activities

Activity 3-1: Commercial Timber Harvest. Stand Three is a 5 acre Scotch pine plantation that is 50 years old and rapidly declining. Scotch pine has very little market value so there is no economic reason to try to improve this stand. I recommend a regeneration harvest (clearcut) to remove the pines and start a new stand. This county does not have a significant market for conifers, and 5 acres is a small stand even if there were good markets nearby for red pine. Therefore, I recommend converting this pine stand back to a hardwoods stand. The clearcut can occur anytime in the next few years, but sooner would be better (2016-2018), especially if it can be included in the timber sale in Stand One and Two. The seasonal timing of this harvest is more flexible with sandy soils supporting equipment most months of the year and no forest health restrictions either.

It may be possible to sell the Scotch pine for chips (biomass) or other local markets (some Amish mills buy Scotch pine). However, removing the Scotch pine may be an expense rather than income. This harvest could qualify for NRCS funding through a forest stand improvement (Code #666) to address plant productivity concerns since Scotch pine is considered to be an invasive plant. Best Management Practices certainly apply to harvests on sandy soils, but it is easier to protect well drained sandy soils. Aesthetics will be a concern since this small clearcut will be visible along the road so I recommend discussing the harvest with neighbors before cutting the pines to explain your objectives. Pine plantations are often re-planted with other pine seedlings, but this plantation should be converted to a natural hardwoods stand. There is advanced natural regeneration of black cherry and red maple so these and other hardwoods should successfully colonize the site (aspen and oak are nearby in Stand Two). Wait two to five years to see if the hardwoods are successful in natural establishment on the site.

Activity 3-2: Plant Trees and Shrubs. If natural regeneration of hardwoods is not successful in Stand Three within several years after the pines have been removed, it may be necessary to plant seedlings (2020-2022). Planting hardwoods may not an economical land investment due to the high initial costs and long rotation length (80 years or more). Most forestry plantations are conifers like red pine that have a shorter rotation length and good economic returns if located near well-developed markets. However, you can certainly try planting some high value hardwood species like red oak, white oak, red maple, sugar maple, and black cherry if natural regeneration is not adequate in Stand Three. You could plant about 680 trees per acre or at 8'x8' spacing in the spring.

The site will require preparation to remove competing weeds and ongoing weed control for a few years after planting. The young seedlings will require fencing or tree tubes to prevent deer or rodent damage. If you are buying a large quantity of tree seedlings, purchase them directly at wholesale prices from a commercial seedling nursery. The DNR maintains a list of about 25 commercial nurseries around the state that produce tree seedlings for forestry planting available at www.Michigan.gov/PrivateForestLand. You could also plant some shrubs like grey dogwood, hazelnut, serviceberry, sumac, crabapple, hawthorn, ninebark, and wild plum for wildlife habitat. The NRCS may provide funding for Tree and Shrub Establishment (#612) and Tree and Shrub Site Preparation (#490) that would be helpful if you are planting several thousand seedlings.

Summary Table

The previous recommended activities are summarized in Table 1. This table includes space for you to make notes about your management decisions over the next twenty years. See descriptions above for the proper season to conduct management activities. The timing of timber sales should be based primarily upon biological considerations like stand age, density, and forest health issues, but timing can be modified by several years according to other factors including economics (timber prices, income needs, taxes) or landowner preferences. Please note that enrolling in the Commercial Forest or Qualified Forest property tax programs will require complying with the recommendations in this Forest Stewardship Plan.

Table 1. Summary of Recommended Management Activities for the Next Twenty Years.

Stand	#	Acres	Activity Description	Dates		Cost Share	Cost / Income
				Planned	Complete		
Entire Forest	0-1	63	Join Tree Farm & Michigan Forest Association	2014			
Entire Forest	0-2	63	Monitor Forest Health	annual			
Entire Forest	0-3	63	Enroll in QF or CF Property Tax Program	2014 or 2015			
One	1-1	30	Commercial Timber Harvest	2016 and 2030			
Two	2-1	28	Commercial Timber Harvest	2016 and 2030		EQIP #578	
Two	2-2	28	Forest Stand Improvement	2018-20		EQIP #666	
Three	3-1	5	Commercial Timber Harvest	2016		EQIP #666	
Three	3-2	5	Plant Trees and Shrubs	2020-22		EQIP #612	

Monitoring

The successful implementation of this Forest Stewardship Plan is dependent upon frequent monitoring by the landowner. The landowner or their agent (consulting forester) should walk the entire forest at least annually to inspect the forest for changes and to evaluate the success of earlier management activities. Monitoring for forest health issues should occur more frequently, at least two or three times a year to look for signs and symptoms of insects or disease during different seasons. All Forest Stewardship Plans should also be adaptable and flexible enough to accommodate changes in landowner goals or forest resources over the ten to twenty year planning period. Plans for the Commercial Forest Program must allow for record keeping of silvicultural practices and amendments due to unexpected events or natural disasters. Please use the table at the end of this plan to record notes and make modifications to this plan as needed.

Appendix I – General Forestry Information

Glossary of Common Forestry Terms

The following glossary is adapted from www.dnr.state.md.us/forests/gloss.html.

- Agroforestry** - a land-use system that combines both agriculture and forestry in one location.
- Alley Cropping** - widely spaced rows of trees with annual crops growing in between the rows.
- Basal Area (Tree)** - cross sectional area of a tree at 4.5 feet off ground in units of square feet (ft²).
- Basal Area (Forest)** - basal area of all trees per acre summed up, in units of ft²/acre; measure of density.
- Biomass** – harvesting and using whole trees or parts of trees for energy production
- Board Foot** – a measure of volume 1 foot by 1 foot by 1 inch or 144 cubic inches of wood.
- Bolt** – 8 foot long log
- Browse** - parts of woody plants, including twigs, shoots, and leaves, eaten by forest animals.
- Carbon Cycle** – the biogeochemical cycle to exchange carbon between the biosphere and atmosphere by means of photosynthesis, respiration and combustion.
- Clearcut** - the harvest of all the trees in an area to reproduce trees that require full sunlight.
- Cord** - a unit of wood cut for fuel that is equal to a stack 4 x 4 by 8 feet or 128 cubic feet
- Cordwood** - small diameter or low quality wood suitable for firewood, pulp, or chips.
- Crop Tree** - a young tree of a desirable species with certain desired characteristics.
- Crown** - the uppermost branches and foliage of a tree.
- Cruise** - a forest survey used to obtain inventory information and develop a management plan.
- Cull** - a sawtimber size tree that has no timber value as a result of poor shape or damage.
- Diameter at Breast Height (DBH)** - diameter of a tree trunk taken at 4 1/2 feet off the ground.
- Diameter-Limit Sale** - a timber sale in which all trees over a specified DBH may be cut. Diameter-limit sales often result in high grading and is a very poor forestry practice.
- Endangered Species** – a species in danger of extinction.
- Even-Aged Stand** - stand with age difference between oldest and youngest trees is minimal (<10 years).
- Forestland** – land at least one acre in size that is at least 10 percent stocked with trees.
- Forest Farming** - cultivating high value specialty crops in the shade of natural forests.
- Forest Stand Improvement (FSI)** - any practice that increases the health, composition, value or rate of growth in a stand. Also called Timber Stand Improvement when focused on timber.
- Group Selection** - harvesting groups of trees to open the canopy and encourage uneven aged stands.
- Habitat** - the ecosystem in which a plant or animal lives and obtains food and water.
- Hardwoods** - a general term encompassing broadleaf, deciduous trees.
- High Grading** - to remove all good quality trees from a stand and leave only inferior trees.
- Intolerance** - characteristic of certain tree species that does not permit them to survive in the shade.
- Landing** - cleared area where logs are processed, piled, and loaded for transport to a sawmill.
- Log Rule** - a method for calculating wood volume in a tree or log by using its diameter and length. Scribner, Doyle and the International 1/4-inch rule are common log rules.
- Lump-Sum Sale** - a timber sale in which an agreed-on price for marked standing trees is set before the wood is removed (as opposed to a mill tally or unit sale).
- Mast** - nuts and seeds such as acorns, beechnuts, and chestnuts that serve as food for wildlife.
- Over-mature** - trees that have declined in growth rate because of old age and loss of vigor.
- Overstocked** - trees are so closely spaced that they do not reach full growth potential.
- Pole Timber** - trees 4 to 10 inches DBH.
- Pre-Commercial Operations** - cutting to remove wood too small to be sold.
- Prescribed Fire** – an intentional and controlled fire used as a management tool used to reduce hazardous fuels or unwanted understory plants (invasive, undesirable species, etc.).
- Pulpwood** - wood suitable for use in paper manufacturing.

Range - cattle grazing in natural landscapes.

Regeneration - the process by which a forest is reseeded and renewed.

Riparian Forest Buffers - strips of land along stream banks where trees, shrubs and other vegetation are planted and managed to capture erosion from agricultural fields.

Salvage Cut - the removal of dead, damaged, or diseased trees to recover value.

Sapling - a tree at least 4 1/2 feet tall and between 1 inch and 4 inches in diameter.

Sawlog - log large enough to be sawed economically, usually >10" diameter and 16' long.

Sawtimber stand - a stand of trees whose average DBH is greater than 11 inches.

Sealed-Bid Sale - a timber sale in which buyers submit secret bids.

Seed-Tree Harvest - felling all trees except for a few desirable trees that provide seed for the next forest.

Selection Harvest - harvesting single trees or groups at regular intervals to maintain uneven-aged forest.

Shelterwood Harvest - harvesting all mature trees in two or more cuts, leaving trees to protect seedlings.

Silvopasture - growing trees and improved forages to provide suitable pasture for grazing livestock.

Silviculture - the art and science of growing forest trees.

Site Index - measure of quality of a site based on the height of a dominant tree species at 50 years old.

Site Preparation - treatment of an area prior to reestablishment of a forest stand.

Skidder - a rubber-tired machine with a cable winch or grapple to drag logs out of the forest.

Slash - branches and other woody material left on a site after logging.

Snag - a dead tree that is still standing and provide food and cover for a variety of wildlife species.

Softwood - any gymnosperm tree including pines, hemlocks, larches, spruces, firs, and junipers.

Species of Special Concern - not threatened or endangered yet, but has low or declining populations.

Stand - a group of forest trees of sufficiently uniform species composition, age, and condition to be considered a homogeneous unit for management purposes.

Stand Density - the quantity of trees per unit area, evaluated in basal area, crown cover or stocking.

Stocking - the number and density of trees in a forest stand. Classified as under-, over-, or well-stocked.

Stumpage Price - the price paid for standing forest trees and paid prior to harvest.

Succession - the replacement of one plant community by another over time in the absence of disturbance.

Sustained Yield - ideal forest management where growth equals or exceeds removals and mortality.

Thinning - partial cut in an immature, overstocked stand of trees to increase the stand's value and growth.

Threatened Species - a species whose population is so small that it may become endangered.

Timberland - forest capable of producing 20 ft³ of timber per acre per year.

Tolerance - the capacity of a tree species to grow in shade

Under-stocked - trees so widely spaced, that even with full growth, crown closure will not occur.

Understory - the level of forest vegetation beneath the canopy.

Uneven-Aged Stand - three or more age classes of trees represented in a single stand.

Unit Sale - a timber sale in which the buyer makes regular payments based on mill tally and receipts.

Veneer Log - a high-quality log of a desirable species suitable for conversion to veneer.

Well-Stocked - stands where growing space is effectively occupied but there is still room for growth.

Windbreaks - rows of trees to provide shelter for crops, animals or farm buildings.

Michigan Laws Related to Forestry

- Natural Resources and Environmental Protection Act, Public Act 451 of 1994
- Right to Forest Act, Public Act 676 of 2002
- Commercial Forest Act, Parts 511 and 512 of Public Act 451, 1994, as amended
- Qualified Forest Program, Public Acts 42 and 45 of 2013

Forest Health

The DNR publishes the annual “Forest Health Highlights” that has information about the forest insect and disease problems in Michigan. See www.Michigan.gov/ForestHealth for a pdf of the most recent edition. To report an unusual insect or disease in your forest, please contact Roger Mech, the DNR Forest Health Monitoring Specialist at MechR@michigan.gov or 517-243-0300.

DNR Forest Health - www.Michigan.gov/ForestHealth
DNR Invasive Species Info - www.Michigan.gov/InvasiveSpecies
MDARD Exotic Forest Pests – www.Michigan.gov/ExoticPests
USFS Forest Health - <http://fhm.fs.fed.us/>

Wildlife Habitat

The DNR Wildlife Division has an excellent publication on managing wildlife habitat at www.michigandnr.com/publications/pdfs/huntingwildlifehabitat/Landowners_Guide/index.htm.

DNR Wildlife Division’s Landowner Incentive Program – www.Michigan.gov/DNRLIP
Michigan United Conservation Clubs - <https://mucc.org>
Quality Deer Management Association – www.qdma.com
Audubon Society - www.MichiganAudubon.org
Foresters for the Birds – <http://vt.audubon.org/foresters-birds>
Ruffed Grouse Society - www.RuffedGrouseSociety.org
National Wild Turkey Federation - www.nwtf.org
Michigan Trout Unlimited – www.MichiganTU.org

Best Management Practices

Best Management Practices (BMPs) are guidelines published by the State of Michigan to protect Michigan’s water resources from non-point source pollution and erosion while working on forest land. BMPs are now called “Sustainable Soil and Water Quality Practices on Forest Land” and the document is online at www.Michigan.gov/PrivateForestLand. BMPs include proper location and construction of logging roads, the use of riparian management zones, installation of culverts and other stream crossings, proper use of pesticides and other chemicals, and site preparation for planting. BMPs also include the proper seasonal timing of activities to minimize the spread of insects or disease. Any forest management activities should minimize soil erosion near wetlands and surface water. Tree Farm certification requires compliance with best management practices.

Forest Economics

Capital Gains Tax Information. Profits from timber sales are taxed as capital gains, rather than ordinary income, if you own the timber for more than twelve months. Expenses, including the cost of a management plan or a consulting forester’s fees for a timber sale, can be deducted from profits. There are many great tax related resources available on www.TimberTax.org, including the most recent edition of the annual “Tax Tips for Forest Landowners.”

Appendix II - Related Forest Management Programs

The following forestry programs require a forest management plan prior to enrollment. This Forest Stewardship Plan includes some additional elements required by these separate programs.

American Tree Farm System

I recommend that you enroll in the American Tree Farm System to certify the sustainable management of your forest. There is no additional cost to enroll. This Forest Stewardship Plan is written to help you comply with the American Tree Farm System's eight Standards of Sustainability listed below. See www.TreeFarmSystem.org for more information about the Tree Farm program, forest certification, and the Standards.

1. **Commitment to Practicing Sustainable Forestry.** Forest owner demonstrates commitment to forest vitality by developing and implementing a sustainable forest management plan.
2. **Compliance with Laws.** Forest management activities comply with all relevant federal, state and local laws, regulations and ordinances.
3. **Reforestation and Afforestation.** Forest owner completes timely restocking of desired species of trees on harvested sites and non-stocked areas where tree growing is consistent with land use practices and the forest owner's management objectives.
4. **Air, Water, and Soil Protection.** Forest management practices maintain or enhance the environment and ecosystems, including air, water, soil and site quality.
5. **Fish, Wildlife and Biodiversity.** Forest management activities contribute to the conservation of biodiversity.
6. **Forest Aesthetics.** Forest management plans and management activities recognize the value of forest aesthetics.
7. **Protect Special Sites.** Special sites are managed in ways that recognize their unique historical, archeological, cultural, geological, biological or ecological characteristics.
8. **Forest Product Harvests and Other Activities.** Forest product harvests and other management activities are conducted in accordance with the management plan and consider other forest values.

Qualified Forest Program

The Qualified Forest property tax program exempts forest owners from paying local millage taxes up to 18 mills in each tax jurisdiction (township). Landowners must have between 20 and 640 acres, an approved forest management plan, and agree to comply with the prescriptions in their forest management plan. Landowners must report harvests to MDARD after they occur. A Forest Stewardship Plan is an acceptable forest management plan for the Qualified Forest program. See www.Michigan.gov/QFP for more information and enrollment forms. The application deadline is September 1 for tax benefits in the following year.

Commercial Forest Program

The Commercial Forest Act gives property tax breaks for forest owners in Michigan. Landowners pay a specific rate of \$1.25 per acre for property taxes and the State of Michigan

pays counties another \$1.25 per acre. Landowners must have at least 40 acres of contiguous forest, a management plan, and conduct commercial harvests as prescribed in the plan. Landowners must allow public foot access for hunting and fishing. Landowners must notify the DNR before they harvest commercial forest products. A Forest Stewardship Plan is an acceptable forest management plan for the Commercial Forest program. For more information and enrollment forms, see www.Michigan.gov/CommercialForest. The application deadline is April 1 for tax benefits in the following year.

Financial Assistance Programs

The Natural Resources Conservation Service (NRCS) administers several programs such as the Environmental Quality Incentives Program (EQIP) that may provide financial assistance to forest owners to implement “conservation practices” to address “resource concerns” on their land. Landowners must have an approved forest management plan prior to enrolling. Forest Stewardship Plans are accepted by the NRCS when applying for EQIP funding even though FSP plans do not require the same level of detail as NRCS conservation activity plans. You may need to work with your District Conservationist and forester to fill out supplemental “Job Sheets” if you apply for financial assistance. See www.mi.nrcs.usda.gov/technical/forestry.html for info.

Some of the recommended activities in this plan may have potential for financial assistance. NRCS “conservation practices” related to forestry include forest trails and landings, stream crossings, riparian forest buffers, forest stand improvement, tree and shrub establishment, brush management, early succession habitat, wetland wildlife habitat, and upland wildlife habitat. NRCS conservation practices are funded to address “resource concerns” (environmental problems) like soil erosion, soil quality, water quality degradation, plant productivity, habitat fragmentation, invasive plants, forest health, etc. Contact your local NRCS Service Center to apply for financial assistance (see www.nrcs.usda.gov/wps/portal/nrcs/main/mi/contact/local).

Updates and Modifications
