

Ohio Department of Natural Resources

Division of Forestry

Five Year Forest Management Plan

For

Harrison State Forest



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Note: This plan covers the time period for FY 2011 – FY 2015 and will be updated in FY 2016.

OHIO DIVISION OF FORESTRY

I. STRATEGIC PLAN (Effective 2008)

Our Vision: Ohio's state forests will be the best managed forest lands in the country, and will be widely recognized as such.

To fulfill this vision, the Ohio Division of Forestry commits to meeting five objectives.

We will:

- Manage forests to ensure the health and sustainability of forest systems
- Produce high-quality forest products that contribute to local communities
- Provide recreational opportunities that are compatible with sustainable forest management
- Provide unique forestry education sites and promote outreach and long-term research
- Maintain a highly trained and well equipped work force

To fulfill these objectives, the Division of Forestry will develop and implement strategies and plans that allow us to accomplish the following goals by 2011:

- Manage forests to ensure the health and sustainability of forest systems
 - *Implement a proven, verifiable approach to sustainable management*
 - *Manage for site-appropriate, native forest systems and species*
 - *Maintain long-term forest productivity through conservation of soil, water, and forest resources*
 - *Retain or promote stand- and landscape-level wildlife habitat*
 - *Assess the distribution and impact of non-native invasive species*
- Produce high-quality forest products that contribute to local communities
 - *Base State Forest harvest volumes on the goals and guidelines for each forest system, current stand and forest-wide inventories, and science-based silviculture*
 - *Develop marketing strategies to capture the maximum value of forest products*
- Provide recreational opportunities that are compatible with sustainable forest management
 - *Develop a comprehensive recreation plan for the state forest system*
 - *Build recognition for unique and varied recreation opportunities on state forests*
- Provide unique forestry education sites and promote outreach and long-term research
 - *Support forest research with an emphasis on sustainable forest management (silviculture, prescribed fire, native systems, etc.)*
 - *Develop opportunities to showcase forest management practices to the general public, private landowners, and forest industry*
- Maintain a highly trained and well equipped work force
 - *Develop a training, continuing education, and/or certification standard for all division staff*
 - *Inventory and evaluate equipment and facilities and develop maintenance and replacement schedules*
 - *Develop equipment and facilities budgets based on current and projected needs*
 - *Ensure all staff have appropriate health and safety training*

II. FOREST HISTORY

Land Acquisition: Harrison State Forest includes 1,344 acres and was purchased in 1961.

Past Land Management/Uses:

Prior to the 1950's the land use was primarily for agriculture on Harrison State Forest. In the 1950's and 60's most of State Forest was contour-mined for coal. The mining operator reclaimed the spoils by planting trees and shrub seedlings. In the late 1980's approximately 192 acres were re-mined and reclaimed to natural contours and planted with grass (primarily Kentucky 31 fescue and crown vetch).by R & F Coal Company.

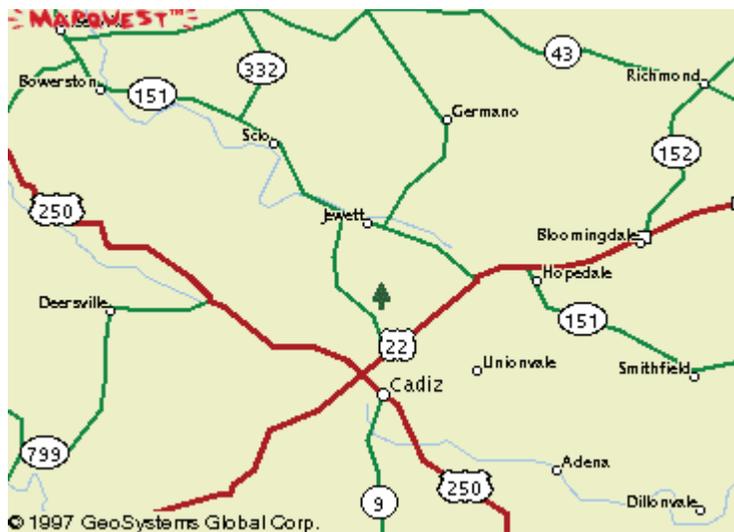
The following is the tree planting history at Harrison State Forest:

- In 1966: 16,000 Austrian Pine and 40,000 white pine were planted at various locations on Harrison State Forest. Some of those plantings were lost in the 1993 surface mine.
- In the spring of 1967: an additional 27,500 white pine were planted.
- In 1970: 30,000 black alder and 4,000 white pine were planted.
- In the spring of 1992: Tree planting in the reclaimed portion began by planting approximately 15,600 trees of a mix of red and white oak, sugar maple, green ash, red gum, and Austrian pine on 25.3 acres using some tree shelters.
- In 1993 approximately 49,900 trees were planted on 82 acres of reclaimed ground with a mix of green and white ash, red oak, yellow poplar, sycamore, red gum, and black locust. This was paid for by the American Forests and was called the Global ReLeaf Heritage Forest.
- In 1995: the planting of 6 acres of old field with approximately 3,000 trees of green ash, red oak, white oak, and black walnut. This planting was funded by the Hardwood Forestry Fund.
- In 2003: 6500 seedlings were planted in various openings on Harrison State Forest.
- The re-enforcement planting on the planted reclaimed site also began in 2003. From 2003 to 2008 approximately 2,000 seedlings per year of mixed species were planted by the fifth graders from all the Harrison County elementary schools to re-enforce the lack of survival of the 1993 planting.

III. FOREST DESCRIPTION

A. General

Property Location Description:



Harrison State Forest is located in Archer Township of Harrison County, 2 miles north of Cadiz, off State Route 9. The primary area lies north of County Road 13, while two smaller tracts are located south of County Road 13. Township Highway 185 leads to one of the forest's main campgrounds.

Soils:

Past coal mining operations have created three general soil conditions at Harrison State Forest:

- Un-mined sites
 - The soils are highly productive in the un-mined sites.
- Unreclaimed mine sites, which includes the seep areas at the base of the spoil
 - The spoils are very rocky to bouldery due to a limestone overburden above the coal removal. Acidity in the spoil and the water is minimal due to the neutralizing effect of the limestone. There are numerous seeps coming from the base of the spoils.
- Reclaimed mine sites
 - The soil composition is very similar to the spoil piles above except for the extreme compaction caused by the intensive grading as the mining operators were putting the land back to its natural contour.

Water Resources:

There are 11 dams with healthy ponds scattered through the landscape of Harrison State Forest. One dam is large enough to be considered a class IV dam. Many small ponds exist within the spoils also. The water quality is good in the ponds because of the neutralizing effect of limestone deposits on the acid mine water. There is some ponding by beaver activity in the bottom wet sites.

Access Issues/Transportation:

Harrison State Forest is accessible from numerous public roads, including: County Roads 13 and 17, and Township Roads 185, 186, 182, and 189 to provide public access to the recreation sites. Access for forest management work into mine and un-reclaimed portions, such as the spoils and above the high walls, is limited to non-existent. The tract of Harrison State Forest which lies south of the main unit and the small tract adjacent to CR 13 is landlocked by private property. There is a service road/ bridle trail (blue trail) that runs through the main unit providing some access.

Potential Productivity:

There are multiple ways to measure forest productivity. The Site Index Value is a common measurement of how well a certain tree species grows in the place where it is found, thus defining productivity of the tree species. It is highly correlated to available moisture and soil type. In all but the reclaimed strip-mined land, the height of the trees indicate site indexes of 70 and above; very productive. The main factor inhibiting productivity is the compaction on the reclaimed mined area.

Overstory:

Unmined sites: The overstory species composition on the un-mined portions range from mid-succession on old reverting fields composed of small to medium sawtimber of sassafras, black cherry, red maple, hickories, tulip poplar, ash, red oak and elm transitioning to sugar maple. On the north to southeast aspect the stand composition is primarily pole to small saw timber sugar maple. The south to west aspect is primarily a mix of white oak, black oak, red oak, and scarlet oak transitioning to American beech and sugar maple. There are also pockets of ailanthus. The approximate age of the over story on these sites range from 60 to 120 years old.

Un-reclaimed mine sites (which includes the seep areas at the base of the spoil)

Much of the overstory is a mix of planted small saw timber species such as silver maple, tulip poplar, ash, black locust, cottonwood, Austrian pine and sycamore. Many of the spoil sites are transitioning to sugar maple/beech forest type with a few areas the sugar maples have reached pole to small saw timber size. The approximate age of the over story is 50 years old; based on the approximate year of planting by the operators.

Reclaimed mine sites: Most of this site has no over story. There are small pockets of low vigor black locust saplings to poles. Trees were planted throughout this area in 1992 and 2008 with marginal to good survival. The main tree species that were planted include white and green ash, red oak, white oak, sugar maple, tulip poplar, sycamore, pin oak, black oak, and red gum. White ash, Austrian pine and ailanthus are seeding in from the surrounding trees. Most of the trees that have survived in the plantings are 16 years old. Their height averages 8 feet for those that have not been constantly browsed by deer.

Understory:

Unmined sites: In areas where the over story is solid the understory has some green briar but most is open. Spice bush is almost like an invasive on some sites inhibiting tree reproduction establishment. The understory is very dense under stands with elm mortality with multiflora rose and spice bush.

Unreclaimed mine sites: which includes the seep areas at the base of the spoil: Naturally seeded in seedling to pole size trees such as elm, ash, sugar maple, red oak, and tulip poplar. Where the overstory is thin the understory is filled in with invasives such as multiflora rose, bush honeysuckle, and autumn olive.

Reclaimed mine sites: Autumn olive is spreading throughout the site interfering with the former tree plantings.

Herbaceous Layer: Most of this site has Kentucky 31 tall fescue covering the surface of the reclaimed site. The herbaceous layer for the spoils and the un-mined areas is dependent on the level of elm and black locust mortality in the stands, and includes concentrations of black berries, multiflora rose, poison ivy, and various forbs. In some areas of the un-mined strata there is a heavy covering of Lycopodium.

Habitat Components: Past land disturbances have created various habitat conditions that are very conducive to a diversity of wildlife. Much of the spoil and some of the un-mined portions of the forest have a heavy herbaceous and shrub layer due to continuous mortality of the elm and black locust, while the reclaimed sites include open herbaceous conditions. The un-mined forested areas provide the open woods with larger trees and hard mast production.

Wildlife Populations: There is a wide variety of wildlife species from the over-abundant white-tailed deer to a healthy population of wild turkey and occasional rough grouse.

Invasive Concerns: Ailanthus, autumn olive, bush honeysuckle, multiflora rose, grape vines, and barberry are the invasives that have moved into the openings and are preventing the sustainability of the forest. Bush honeysuckle was planted on the spoil and is by far the most invasive pest and is spreading through all three strata.

B. Landscape Level Information

Adjacent Forests:

Adjacent forests consist of scattered farm/pasture fields, reclaimed and unreclaimed strip mine acres, and woodlots similar in composition to Harrison State Forest (locust, elm, cherry, poplar, ash, red maple, red and white oaks and hickory)

Ecological/Socio-Economic:

The number one industry in the region is Agriculture with active Coal mining fluctuating with economic and environmental trends. Currently recreational opportunities provided by Harrison State Forest are the greatest economical asset to the local communities. Environmental Education programs are provided to the County school district, and revenues from timber harvest will be

shared with the County, Township, and School District as timber matures. Timber revenues can become a substantial asset, and significant contribution to the economy of the local communities.

Social and Economic Impact Evaluation and Monitoring:

The evaluation, incorporation, and monitoring of social and economic impacts of forest management is conducted by the Division in several ways. Data used in our evaluation of social and economic impacts comes from several sources including the Ohio Statewide Forest Resource Assessment and Strategy (FRAS) and a suite of particular programs and efforts specific to state forest management.

A. FRAS

The Food, Conservation, and Energy Act of 2008 (the 2008 Federal Farm Bill) requires each state to complete a *Statewide Forest Resource Assessment and Statewide Forest Resource Strategy* to continue to receive funds under the Cooperative Forestry Assistance Act. The Division completed a document titled "Ohio's Statewide Forest Resource Assessment and Strategy" (FRAS). The purpose of the FRAS document is to provide a basis upon which future strategic directions and actions can be evaluated and selected. It is to be used by the Division of Forestry as well as existing and potential partners to marshal limited resources towards addressing identified forest issues and threats. One of the criteria used in the FRAS, Criterion 6, is the Maintenance and Enhancement of Long-Term Multiple Socioeconomic Benefits to Meet the Needs of Societies. *The results of the FRAS and the associated strategies to deal with the identified threats is a significant source for state forest managers on our understanding and incorporation of social and economic impacts of state forest management.*

The 2010 Statewide Forest Resource Strategy for Ohio is a strategic planning document that will guide all state forestry activities by the Division of Forestry, including programs with funding from USDA Forest Service State and Private Forestry grants. The State Strategy is framed around the key issues identified in the FRAS, as well as the important benefits and services that Ohio forests provide. Stakeholder input was a critical component of the assessment process and, in particular, the identification of key threats and opportunities for Ohio's forests.

An important role for all stakeholders is to increase public awareness of the benefits forests provide and the role that all Ohioans play in sustaining those benefits. This has been identified as one of the major issues facing Ohio's forests. The Division has several programs, including state forest management, which are listed and committed to accomplishing this goal. Public outreach and educational efforts are identified in each state forest Annual Work Plan.

B. State Forest Efforts - evaluation and monitoring of Social and Economic Impacts

A suite of particular programs and efforts specific to state forest management contribute to our evaluation and monitoring of social and economic impacts. These activities happen at a local or regional level.

- *Civic Activities* – Division staff are members of and associated with various clubs, organizations and civic groups. This is an important way, especially for local forest managers, to stay in touch with their community.
- *Indigenous Peoples Consultation and Cooperation* - The Division works closely with the Hopewell NPS and the OSU-Newark Earthwork Center on training for staff on the significance and protection of cultural resources. Further, the Division extends an offer of cooperation to tribal contacts who may have an interest on providing input into our management.
- *Forest Industries Program* – This program works cooperatively with government agencies and industrial associations to enhance Ohio's domestic and international wood products marketing opportunities.
- *State Forest Timber Sale Revenue Distribution to Local Governments* - Through the "Trees to Textbooks" program, administered by the Ohio Department of Natural Resources (ODNR)

Division of Forestry, a percentage of the revenues generated from state forest management activities go to the county, township, and school district in which the activity took place. Over \$21 million has been distributed since 1983 to some of the most economically disadvantaged counties in Ohio.

- *State Fire Assistance* – The Division has multiple programs to educate local communities on wildfire risks and to provide necessary training, equipment, and suppression assistance to rural volunteer fire departments.
- *Recreation Program* - The recreation program administers all of the recreation facilities, grants, and special uses of our state forests. The division collaborates with a number of not-for-profit recreation organizations on special projects that are compatible with the division's mission. All state forests are open to public recreation.
- *Public Participation and Consultation* – The Division has several means by which citizens' may have a voice to our management of the forests. There is an appointed Forest Advisory Council, annual open houses, public meetings, an open records law, and a friendly open door policy.
- *Other working groups and partnerships* – The Division is involved in a host of working groups, committees, and partnerships that focus on a variety of issues from forest health, Emerald Ash Borer, Logger Training, and many others.

C. Plan for Evaluation and Monitoring over the next 5 years.

The FRAS is a document that is updated every 5 years with new information. The FRAS serves as one type of monitoring since it incorporates social as well as economic data sets in the results. The Division's plan for the incorporation of the FRAS data into our management is as follows:

1. *Training* – The FRAS is an assessment of present and future forest conditions and trends on all ownerships in the state and a strategy document to deal with identified threats. All relevant state forest staff will receive training on the assessment and associated strategies and these strategies will be incorporated into our annual work plans for each forest.
2. *Commitment to Participation in the Strategies* – The FRAS identifies 6 key issues with associated objectives and strategies to mitigate those issues. For each issue, agencies and programs are identified as being key factors towards mitigation. State Forests will commit to playing a key role in the Division's efforts to mitigate the threats and capitalize in the opportunities identified through FRAS. These efforts, identified in the FRAS strategies include:
 - a. Implementation of the Division's strategic communications plan
 - b. Public awareness campaigns reaching citizens living in the wildland-urban interface and the small family forest owners.
 - c. Maintaining a supply of quality forest products and forest services from State Forest indefinitely into the future.
 - d. Provide diverse recreational opportunities.
 - e. Enhance Ohio's diverse markets for forest products and services.
 - f. Improve the quality of urban life through proper urban forest resource management.
3. *Commitment to Participation in the monitoring and update of the FRAS* – State Forest will play a key role in the update and monitoring of the items of the FRAS assessment.

For local or regional Division and State Forest efforts, the Division will attempt to gather data for evaluation and continue monitoring efforts. Specifically, the following activities will be planned for the next five years.

1. Timely reporting for programs or efforts listed above relating to social and economic impacts.
2. Voluntary user registration will be maintained and enhanced. Data from voluntary registration will be summarized for determining trends in use. These trends will be incorporated into the activities identified in the annual work plan.
3. Catalogue public comments are received at public meetings and open houses
4. Catalogue disputes and records requests.
5. Commit to participate in civic activities at each unit location.

6. Commit to the partnership efforts important to state forests and report as needed.
7. Continue to strengthen outreach and education programs.
8. Broaden the scope of our consultation efforts.

All of these monitoring efforts are reviewed at least once per year by the Integration Committee for the Division. The Integration Committee determines the responses and/or actions that need to be taken to address the results of the monitoring. Recommended actions or adjustments to policies or procedures will be considered for inclusion into our policy documents. The results of monitoring will be incorporated in our strategic plan, 5-year management plans, and annual work plans.

Climate: The forest is in the earth's Northern Temperature Zone and is far enough north to enjoy all four seasons. Average annual temperatures range from 41 F to 61 F, with the annual average being 50.7 F. Average annual precipitation is 40.8 inches.

Climate - Cadiz - Ohio

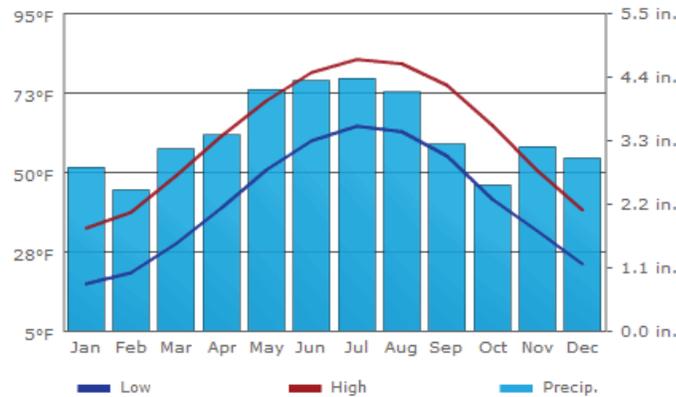
Temperature - Precipitation

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	Jan	Feb	March	April	May	June
Average high in °F	34	38	49	60	70	78
Average low in °F	18	21	30	40	51	59
Av. precipitation - inch	2.83	2.44	3.15	3.39	4.17	4.33
	July	Aug	Sep	Oct	Nov	Dec
Average high in °F	82	81	74	63	50	39
Average low in °F	63	61	55	42	33	24
Av. precipitation - inch	4.37	4.13	3.23	2.52	3.19	2.99

[Free climate chart on your website](#)

Cadiz Climate Graph - Ohio Climate Chart



Totals and averages

Annual average high temperature	59.9 °F
Annual average low temperature	41.4 °F
Average temperature	50.7 °F
Average annual precipitation	40.8 in.

Geology: Fernwood State Forest is in the Western Allegheny Plateau, specifically in the Monongahela sub-ecoregion, which is characterized by a terrain of steep un-glaciated wooded rounded hills and ridges.

A substantial portion of the land at Harrison State Forest has been strip mined for coal. The State does not own the mineral rights on Harrison State Forest. Much of the forest has been re-mined in later years again, for coal.

Cultural, Historical, & Archeological:

A few foundations of old homesteads have been found and protected on the forest. Further investigations will be undertaken to locate and map any other similar sites.

IV. MANAGEMENT OBJECTIVES

Zone Descriptions: Forest Management Objectives are guided and designated by Zone Classifications. The descriptions are described in detail in the Division’s Land Management Manual Chapter 2

The approximate breakdown of the zones on Harrison State Forest are as follows:

Harrison State Forest	
Zone	Acres
1A - HCVF Natural Area	
1B - HCVF Cultural Historic	2
1C - Shawnee Wildness	
1D - HCVF Restoration	
2 - Reserved Lands	6
3A - Resource Protection	11
3B - Aesthetic Area	
3C - Timber Wildlife	1,232
4A - Intensive Recreation	71
4B - Admin Areas	
Total Zoned	1,322

Strategic Plan Relationships:

Past land uses from farming to surface mining, the introduction of invasive plant species and the constant elm mortality have left much of the forest cover in an unhealthy condition. To accomplish the goals of the strategic plan and to increase sustainability, the following is recommended:

1. Stratify the forest into three possibly four strata:
 - a. Un-mined lands
 - b. Surface mined and left un-reclaimed (spoils)
 - c. Surface mined and reclaimed
 - d. (Optional) Seep areas along the boundary between un-mined and mined and un-reclaimed.
2. Establish a new compartment lay out based on the strata
3. Establish an inventory system in conjunction with “Genus” to determine silviculture needs and/or monitor outcomes of past silviculture treatments.
4. Primarily in the spoil strata establish access along the tops of the spoil to improve the efficiency of the silviculture treatments.

The silviculture priorities will be as follows in all strata:

1. Eliminate invasives such as ailanthus, autumn olive, grapevines, bush honeysuckle, and multiflora rose.
2. Implement silviculture practices appropriate for the stand age and conditions to improve health, production, quality, and the sustainability of the forest.

Maintenance and Enhancement of Forest Services

In developing this 5-year forest management plan, the Division recognizes the important public benefits and services that our State Forests provide. These services include but are not limited to soil and water resources, municipal watersheds, aquatic life, wildlife, carbon storage, and recreation and tourism. These services are considered in our management of state forest and the development of our management plans. It is the intent of the Division to maintain and/or enhance these services through proper forest management.

Soil Quality

The Ohio Statewide Forest Resource Assessment and Strategies, 2010 (FRAS) include criteria and strategies dealing with soil quality for Ohio's forests. The FRAS report includes data from FIA and other soil data that show that the Soil Quality Index (SQI) for Ohio's forest soils is superior to that of neighboring states. The higher SQI is attributed to greater cation exchange capacity and a more desirable calcium-aluminum ration. Low calcium-aluminum ratios are indicators of acid deposition. The average amount of soil carbon in the top 20 cm of mineral soil is 22 tons per acre and similar to neighboring states indicating the importance of protecting the top 20 cm of mineral soil. Certain forest management practices can increase carbon sequestration. The FRAS assessment cites that although Ohio's forests are maturing, the amount of carbon stored per unit area has changed little over the past 6 years. Over the next 5 years the Division will take the following actions to maintain or enhance soil quality on state forests:

- Continue to require and promote the use of Best Management Practices for logging practices to control erosion.
- Develop guidelines for acceptable working conditions for logging during times wet weather to prevent sedimentation and minimize rutting.
- Develop guidelines for the retention of biomass in the forest including live tree and snag retention.
- Promote carbon sequestration tree plantings on state forests.
- Conduct training for all relevant state forest staff on BMP's and biomass retention.
- Commit to the strategies outlined in the FRAS strategies document.

Water Quality

The Ohio Statewide Forest Resource Assessment and Strategies, 2010 (FRAS) include criteria and strategies dealing with water quality in Ohio's forests. This assessment cites that the amount of forest within a watershed is a very important factor on infiltration rates and timing of surface runoff that reaches a stream. The Ohio EPA data shows that despite this fact the water quality of the most heavily forested watersheds in Ohio varies. These data show that the principle cause of impairment of Ohio's forested watersheds is related to landscape modifications from agriculture and urban development. Specifically, the pollutants that enter streams in these impaired watersheds are from 1) human or livestock sewage, and agriculture chemicals, and 2) sediment from agriculture or urban development. Acid mine drainage is also cited as a factor. The Ohio EPA has also designated many Superior High Quality Waters and Outstanding State Waters based on a number of factors including aquatic life. Several of these streams are located on Ohio's State Forests. Over the next 5 years the Division will take the following actions to maintain or enhance water quality on state forests:

- Continue to require and promote the use of Best Management Practices for logging practices to control erosion.
- Develop and analyze our pesticide use policy on state forests with the intent of limiting pesticide use to only directed applications mostly for invasive species control.
- Continue to implement a "Streamside Management Zone" (SMZ) policy on all harvests.

- Review our current state forest zones and Ohio EPA high quality water locations for possible gaps with the intent to maintain and protect the current high quality status of those streams.
- Conduct training for all relevant state forest staff on BMP's, SMZ's, and EPA water quality data.
- Commit to the strategies outlined in the FRAS strategies document.

Public Recreation and Tourism

Forests are an important aspect of outdoor recreation in Ohio. All State Forests managed by the Division of Forestry are open to public recreation and the Division maintains a Recreation program to administer those recreational uses of the forest. The ODNR 2008 Statewide Comprehensive Outdoor Recreation Plan (SCORP) shows that there are 3,638 forest-based recreational sites in Ohio. It further shows that Ohio ranks low nationally for per capita outdoor recreation acreage. The SCORP shows that forest-based recreational sites are the most popular; including camping, niche recreation, and trail-based recreation. The Division maintains a large network of trails for horse riding, hiking, biking, and ATV riding. Over the next 5 years the Division will take the following actions to maintain or enhance public recreation on state forests:

- Maintain our backcountry recreation resources for all state forests.
- Build recognition for unique and varied recreation opportunities on state forests.
- Develop trail standards for maintenance and seek funding for activities.
- Build partnerships with recreational user groups.

V. LAND MANAGEMENT GOALS

Inventory Goals:

Since the compartments will be altered to the new inventory strategy, a new cruise schedule will be created. The inventory priority will be focused on the un-mined portion first due to the potential of using commercial logging to bring the forest cover into better health and sustainability. The other two strata will be inventoried based on the needs of the Division's new inventory strategy and "GENUS" to establish base-line data

Harvest Restrictions:

Harvest restrictions are generally determined by the zoning within the state forest. For more information please refer to the Land Management Manual and Exhibit B. Examples of restrictions include Streamside Management Zones and visually sensitive areas. Most of the restrictions are due to the steepness and slip potential of the sites and conditions created from the past mine operations such as boulder fields, and seeps.

A Wet Weather Logging Policy has been designed to protect water quality, public infrastructure, and soil productivity during the harvesting of Harrison State Forest timber sales. This policy restricts logging during various states of wet weather conditions to allow for better resource protection.

In all cases, BMPs shall be followed as listed in BMPs for Erosion Control on Logging Roads in Ohio, ODNR - Division of Forestry.

Any method of logging other than by means of animals, motor trucks, farm or crawler tractors, hydraulic tree shears and rubber tired four-wheel-drive skidders may be employed only with the advance approval of the Timber Sale Administrator in charge of the harvest. Tracked cut-to-length harvesters and forwarders are commonly used, and may be contractually required, for pine harvests. More specialized equipment or techniques may be necessary to limit harvesting impacts. In such a case this will be identified on the marking transmittal and will become part of the timber sale contract.

Most of the restrictions are due to the steepness and slip potential of the sites and conditions created from the past mine operations such as bolder fields and seeps.

Harvest Amounts:

In 2009, the Division of Forestry procured the services of LandMark Systems to provide a comprehensive inventory of the 8 largest state forests (Brush Creek, Hocking, Pike, Richland Furnace, Scioto Trail, Shawnee, Tar Hollow, and Zaleski). The purpose of this project was to provide decision support for forest management activities, to update our current inventory database, and provide forest inventory information for the public. This project produced an inventory of approximately 156,000 acres or 84% of the entire acreage of state forest land. The remaining 16% of state forest land was not part of this project.

The acreage of state forest land that was not inventoried totals roughly 30,000 acres. These acres are located on 12 separate, relatively small state forests. While the Division of Forestry desires an inventory on these smaller state forests, a lack of resources to perform such an inventory was not possible at the current time. The Division does forest inventory work in the form of compartment prescription cruising on these state forests. This approach has been useful for our management of the forest, however, it does not provide for the data needed to maintain an inventory database or to calculate growth using a growth and yield model.

Despite the limitations of our data on the 30,000 acres of smaller state forests, the Division feels that it is reasonable to use US Forest Service Forest Inventory and Analysis (FIA) data to make estimates of the inventory and growth of the timber volume on those forests. These data were estimated for 12 different state forests and are summarized in the table below.

For each state forest, the inventory and the net growth rates were estimated based on data from FIA and applied to the entire state forest. This estimate is noted in the table below as the "Total" growth rate. However, each state forest has a system of management zones that define the management options for those areas. Several zones provide for limited or restricted management. Therefore, the estimate of growth & yield is also provided for only zones 3B and 3C where forest management is active. This calculation is noted in the table below as the "Constrained" growth rate.

Also provided in the table is the average harvest volume over the last 10 years. The purpose of these estimates is to provide evidence that the harvest and removal of forest products from state forests are sustainable and well within the estimated growth of the forest

All estimated using FIA data. Average Harvest calculated from actual harvests.

Harrison State Forest (FIA Data)

Total Inventory (board feet)	Productive Acres	Total Growth Bd Ft / Yr	Zone 3B and Zone 3C Acres Only	"Constrained" Growth Bd F / Yr	Average Harvest - Last 10 Years	Harvest as % of Growth
5,071,319	1,321	290,303	1,232	270,744	0	0%

A proposed harvest in Compartments 2,3,and 4, covering approximately 150 acres is scheduled for 2011 could provide approximately 500,000 Board Feet of material.

Special Concerns:

Any silviculture treatment that will create an opening is an invitation to invasive plants to become established. It is very important the surrounding invasives be eliminated well in advance the treatment to prevent the above from happening.

Threatened/Endangered Species:

The Ohio Natural Heritage Database through Division of Natural Areas and Preserves provides all the threatened or endangered (T/E) species in or near Harrison State Forest and across the state. The database is to be checked, prior to starting any treatment, for any T/E species in or within one mile of the treatment area and make necessary adjustments to protect the species identified.

The identification, conservation and enhancement of rare, threatened, and endangered species is of the utmost importance to the Division of Forestry. The Division has a legal obligation to comply with laws of

this country and state and a moral obligation to use the tools at our disposal for the conservation of these species. The Division of Forestry employs several mechanisms to aid in the identification, conservation, and enhancement of rare, threatened, and endangered species on State Forest land that are discussed below.

Pre-Activity Assessment

Prior to any site-disturbing activities, the Division conducts an assessment using the most up-to-date relevant data sources available. These data sources include the Ohio Biodiversity Database, formally known as the Natural Heritage Database, administered by the Ohio DNR – Division of Wildlife, Biodiversity Program. This data is used to plot the actual suspected or known locations of rare, threatened, and endangered species. The Division seeks to review all compartments, harvests, and prescribed fires using this data. Over the next five years, the Division is expected to review dozens of compartments using this data. Further, the results of our reviews can be used by the Biodiversity Program to update the data set.

These reviews are used to map locations of species or sites and used as a planning tool for the layout of activities. The Division of Wildlife staff offer recommendations on the life history of the species found as well as mitigation efforts to be considered.

Review by Relevant Specialists

Prior to any site-disturbing activities, all reviews that note a positive “hit” of a possible sensitive species is offered to a relevant specialist for a ground survey. A botanist or a biologist is asked to review the site on-the-ground for their recommendation or concerns. Mitigation and recommendations are communicated in the pre-activity assessment documents.

Commitment and Partnerships

Ohio has several Conservation Plans that the Division of Forestry references in our management of the state forests. These plans are put together by various partnerships that the Division is active in one form or another. The relevant conservation plans are listed below

- The Conservation Plan for the Karner Blue Butterfly
- The Conservation Plan for the American Burying Beetle
- The Strategic Plan for the Management of Ohio’s Black Bear Population
- The Conservation Plan for the Timber Rattlesnake
- The ODNR Indiana Bat Management Strategy

These plans outline specific objectives, goals and strategies for the recovery, management, and habitat requirements for these species. The Division is committed to complying with the recommendations of these plans. Further, over the next five years the Division will:

- Ensure all relevant state forest personnel are trained and have an understanding of these plans and strategies.
- Maintain an active role as a partner in the composition and review of these plans.
- Commit to restoration efforts on state forests as budgets allows.
- Commit to the review of our activities by various partners of these plans.
- Promote and enhance our educational efforts for the protection of rare, threatened, and endangered species through landowner education, brochures, trade shows, and public website.
- Achieve and maintain forest certification

Consultation with Other Experts and Interested Citizen’s

The Division actively solicits the input of various experts from academia, NGO’s and other partners. Their input on the identification and conservation of the sensitive species is valuable to our work. The Division promotes our Pathway’s to Participation program whereby citizen’s can have a voice, through and open house process and various public meetings, on items that we should consider in our management. For the next five years, the Division will:

- Commit to continued solicitation of comments and input from local experts
- Commit to enhancing and refining our Pathway's to Participation program
- Commit to annual open houses
- Commit to public meetings for new efforts

Biodiversity Conservation Goals: The conservation of biological diversity is a critical component of the sustainable management of state forests. The management of Harrison State Forest is consistent with the biodiversity goals and strategies outlined in the statewide Forest Resources Assessment and Strategies 2010 (FRAS). The goals outlined below, developed as part of the FRAS 2010 project, are specific to some of the key threats to biological diversity in Ohio's state forests. These biodiversity goals and strategies were developed from consultation with a host of partners and finalized with the input of stakeholders and the public at-large. The biodiversity goals are the results of the analysis of the key threats in Ohio as determined by the FIA project, Wildland-Urban Interface data, the Division of Wildlife, The Nature Conservancy, NatureServe, Landfire, 2007 State of Birds Report, the Ohio Bird Conservation Initiative, and the Appalachian Mountains Joint Venture to name a few.

1. Promote regeneration of oak-hickory forests
 - a. Enhance oak regeneration in appropriate forest types.
2. Protect Ohio's unique or rare forest plant species and biological communities
 - a. Protect high conservation value forests.
 - b. Provide information and resources to private landowners to conserve rare species or communities.
3. Maintain habitat for a diversity of forest-associated wildlife
 - a. Manage for a diversity of forest wildlife by maintaining a sustainable distribution of successional stages.
 - b. Increase the area of early-successional forest habitat (age class < 20 years old) and forests over 100 years old (e.g., old forests) on state forests.
 - c. Ensure that critical habitat requirements for rare forest wildlife species are being met.

VI. FIRE MANAGEMENT

History:

Fernwood's protection area covers the state forest lands of Fernwood/Harrison/Yellow Creek/ Beaver Creek and Sunfish Creek State Forests, and encompasses all other lands within a seven county area in East Central Ohio comprised of Jefferson/Harrison/Tuscarawas/Stark/Carroll/Columbiana and Belmont Counties.

The Division of Forestry began fire protection in the southern portions of the state in 1923. Since this time, the Division has expanded and modified our fire management techniques and strategies within the designated forest fire protection area as changes in capacity by both the Division and Ohio's fire service have occurred. New technology has also dramatically changed the way the Division manages fire within Ohio. Additionally, scientific research during the past 20 years has shown that use of fire within the forests of Ohio can benefit the forest by altering species composition and stand structure.

The Fernwood Wildland Fire Staff has been reduced in number over the years due to re-organizational moves, and budget reductions. The offices at Tuscora, New Philadelphia and Barnesville were consolidated into one office at Fernwood State Forest.

Fire Suppression Objectives:

The Eastern Forests fire protection area covers seven counties. This area has a moderate risk of problematic wildland fires with potentially high impact to values (property/infrastructure) due to significant Wildland Urban Interface. Although average fire size is small (.25 acre/fire), this area has had a

historically high number of fire starts. Human caused fires, specifically debris burning, are the biggest challenge the Division and local fire departments face.

The Wildfire Program focus remains to support our regional fire service partners with aid in the forms of Prevention Programs, Training, Equipment Acquisition, Technical Assistance, and Suppression.

Prescribed Fire:

The Division will review management prescriptions on all forests in the region after initial inventory and mapping projects have been accomplished through the Genus program, and determine potential Rx Fire projects based on silvicultural, and /or fuel management needs. There are currently no prescribed fires planned for Harrison State Forest.

Fire Prevention:

Each fire season, the majority of wildland fires are human caused and usually result from debris burning. In order to promote wildfire prevention and awareness the Forest Manager will work with the District Forest Manager and Columbus staff to coordinate activities such as:

- Promote wildfire prevention programs through local fire departments utilizing Smokey's "A Fire Prevention Teachers Workbook".
- Place roadside fire danger signs in strategic locations in all seven counties. Generally these signs will be maintained by cooperating fire departments.
- On high fire danger days forest will send out "Smoke Signals" advising cooperating fire departments information on weather conditions, potential fire behavior and safety reminders.
- Work with regional media outlets to share fire prevention information and develop fire prevention public service announcements.
- Investigate fire according to Division policy. Special emphasis will be made to investigate all suspected debris burning fires in areas that have higher than average occurrence.
- Law Enforcement patrol of high fire occurrence areas during periods of high fire danger.

Other Fire Program Issues: (FEPP,FFP,Training,etc.)

Eastern State Forest employees are encouraged to participate in Ohio's Interagency Fire Crew. This program gives the personnel and the Division additional experience and training opportunities that broaden their overall wildland fire suppression knowledge.

Classroom training will be offered to all Volunteer Fire Departments as requested. Staff training will be available through the Fire Management Program.

Visits are made to each Volunteer Fire Department Association a minimum of once per fire season. The Forest Officer will visit each fire department, update the Fire Department Information Sheet, document the visit and file a report to the Forest Manager once per year.

The Firewise program will continue to be promoted within the Eastern Forests Fire Protection Area, and all Federal Excess Property will be inspected at least once per year there are currently a total of 44 items with an approximate value of \$984,285.00 are placed with 32 Fire Departments.

VII. RECREATION

History:

Most of the recreation facilities at Harrison State Forest were funded through the Appalachian Regional Development Act of 1965 and the Ohio Capital Improvements program. Over the years many trails have been developed and maintained. The Division's 1st Volunteer Agreement, was developed with the horse group called Buckeye Trail Riders in 1989 at Harrison State Forest. This agreement led to expanding the initial 10 miles of bridle trails into 26 miles, and has provided maintenance assistance in the forest for over 20 years.

Strategic Goals/Opportunities:

The Division's goal is to provide quality low - impact recreation opportunities, such as hunting, fishing, wildlife observation, camping, horseback riding, hiking, and picnic-day use for our visitors. A greater attention to regular maintenance on trails throughout each year will be given.

Campgrounds:

There are two campground areas located at Harrison State Forest: Ronsheim and Trailriders Campgrounds. These sites are equipped with picnic tables, fire rings, and vault latrines. Campers must provide their own water. Ronsheim Campground includes seven family campsites. Trail Riders Campground offers 20 sites for both family and/or horse camping. Division staff will periodically inspect and remove hazard trees from camp and picnic areas,

Shooting Ranges:

There is one shooting range at Harrison State Forest. Division staff will repair and repaint the shooting benches as needed

Trails (bridle, backpack, etc.):

There are approximately 26 miles of combined bridle and hiking trails at Harrison State Forest. The Division plans to reroute part of the bridle trail that falls within the proposed timber harvest area in Compartments 2, 3, 4.

Maintenance:

Recreation facilities such as latrines, gun ranges, and the campground infrastructure(signs, site posts, trash receptacles, fire ring, picnic tables etc.) will be scheduled for a 3 year restoration rotation that will include repainting, reconstruction, and facility replacements (as needed). Hazard tree inventory and removal will be conducted periodically to ensure public safety. Routine patrols and inspections by staff will be conducted, and maintenance projects will be performed when problems arise. Routine mowing, trash collection, and cleaning will be accomplished through contracts with local special-needs workshops.

VIII. PUBLIC AWARENESS

Strategic Goals:

Information and Education about forest resources in Ohio is an ongoing component of the Division of Forestry. The following events are held annually to maintain partnerships and enhance public knowledge about the Division of Forestry and wise forest management:

- An Open House for the Eastern State Forests on 7/29/2010
- Forest Heritage Festival during the 3rd weekend in October
- Regional OHC Ride-Weekend at Harrison State Forest on September 16-19, 2010

Partnerships: Important partnerships at Harrison State Forest include:

Ohio Wildfire Exposition,
Ohio Horse Council,
Carroll County OHC Chapter,
Buckeye Trail Riders,
Ohio Farm Bureau Chapters,
Harrison County SWCD,
Emergency Management Directors and County Sheriffs,
School Districts in Harrison County,
Harrison MRDD,
Harrison County Commissioners,
Township Trustees in Archer/Harrison

Volunteers:

The Division will strive to maintain the current Cooperative Volunteer Agreement with the Buckeye Trail Riders and the OHC Chapter of Carroll County for maintenance of the Harrison bridle trails.

Interpretive Programs:

The Division will continue to coordinate and provide speakers for the Harrison County 5th grade Environmental Education and Tree Planting days

Future projects:

Information and Education about forest resources in Ohio is an ongoing component of the Division of Forestry. In addition to continuing previous events and partnerships, we plan to revise and reprint new Forest Maps for Harrison, and to maintain information on web site.

IX. LAW ENFORCEMENT

History:

As Harrison State Forest has evolved in the past 40 years various law enforcement issues have been inherent to the area. Minor to moderate abuse of alcohol and illegal narcotics has always been active in our recreation areas. Litter and vandalism, particularly on our gun ranges is a continuous maintenance issue. By far the greatest threat to the forest resources has been caused by the illegal access of ATV's.

Philosophy/Purpose:

State forests currently have 10 fully commissioned law enforcement officers plus 3 commissioned managers. The purpose of retaining commissioned officers is to enforce the Forest Rules that are depicted within the Ohio Revised Code. One very important aspect of the Law Enforcement program is that of resource protection. Forest Officers protect property boundaries from encroachment, recreation resources from undesignated use, guard against timber theft and watch for signs of watershed degradation. Specific law enforcement polices and procedures are delineated within the Division of Forestry's Law Enforcement Manual

Strategic Goals

The Forest Officer will attend annual In-Service training, weapons re-qualification, first responder training (CPR and First Aid) and other mandatory training as required by the Ohio Revised Code, Ohio Peace Officers Training Academy regulations, Ohio Department of Natural Resources and Division of Forestry law enforcement policies.

Equipment:

- Forest Officer will be afforded all equipment listed in the Division's Law Enforcement manual.
- Forest Officer will be provided a patrol vehicle with a MARCS radio system, MCT, overhead light bar, siren and other equipment as listed in the Division's Law Enforcement manual.
- Forest Officer equipment will be maintained and repaired as needed.

Patrol Priorities:

- Patrol and conduct building checks each shift
- Respond to emergencies and requests for help and give assistance within Officer's training and capabilities.
- Patrol and enforce litter, vandalism, forest regulations and Ohio Revised Code on all forests

Special Projects:

- Assist in special projects with other forests as the workload and budget allows
- Replace vandalized signs at all Forests as needed
- Inventory sign type and location on state forests, and maintain an inventory for replacements
- Install new locks and routinely oil all cable access gates on all forests

Other Duties (VFD's, FEPP, court, boundary, etc.):

- Contact Courts within the Eastern Forests Fire Protection Area and update Information sheets prior to Spring and Fall Fire seasons. There are currently 14 Courts within the seven County Fire Protection Area

- Conduct and/or coordinate Wildfire Prevention programs
- Check state forest boundaries on all state forests in the eastern region.

X. FACILITY MAINTENANCE AND INFRASTRUCTURE

Buildings:

There are 3 buildings on Harrison State Forest : 2 latrines at the Trailriders Campground and 1 latrine at the Ronsheim Campground. These will have general maintenance, routine cleaning and repairs done as needed.

Division staff will periodically inspect and remove hazard trees from camp and picnic areas, as well as repair and repaint the shooting benches located at the rifle range as needed.

Roads:

There are no Division owned roads on Harrison State Forest, but the Division staff will work with ODOT on projects consisting of repaving access roads, parking areas, site pads, replacing guardrails and boundary posts into Trailriders and Ronsheim Camps and the Rifle Range. We also plan to work with the regional ODOT office to install locator/directional sign for Harrison State Forest.

Dams:

Ronsheim Dam at Harrison State Forest is an earthfill dam constructed in 1967 by the ODNR Division of Reclamation. The approximate 4.0 acre lake created by the dam is a popular fishing spot on the forest. The Division is currently working with ODNR Engineering section to make repairs to the structure that were recently identified. In addition to monitoring and coordinating repairs at Ronsheim, regular maintenance of cutting and treating woody vegetation on the dams will be done.

In addition to Ronsheim Lake, there are ten ponds located on Harrison State Forest ranging in size from 0.2 to 2.4 acres.

Grounds:

The Division will continue to plant Norway spruce and arborvitae trees at the Trailriders campground to develop natural site screens.

Boundaries:

There are approximately 75 miles of boundary lines around the Eastern Forests, including Harrison State Forest. With a 5 year rotation we plan to inspect and repaint, as needed, 15 miles of boundary each year. There are approximately 11.7 miles of boundary around Harrison State Forest.

XI. BUDGET/STAFFING

SFY 2011 Budget Eastern State Forests

500 Payroll-Fund GRF			\$253,828
510 Personal Services-			\$250
520 Supplies & Maintenance			\$96,500
	Harrison OIH		\$18,000
	Fernwood OIH		\$18,000
	Operating		\$60,500
530 Equipment			
Total			\$350,578

Personnel: The following is a list of personnel for the Eastern State Forests:

Forest Manager:	Frank Corona
Forest Officer:	Brian Stamp
Land Management Forester:	Vacant
Equipment Operator:	Eric Traczyk

Training:

- Provide proper training and equipment for all employees, including: CPR/annually, First Aid/every 3rd year, and Interagency Fire Crew Refresher/annually
- Provide a minimum of 36 hours of training for the Forest Officer as mandated by the F.O.P. contract. This will be accomplished through in-service training sessions at the Ohio Peace Officer's Training Academy (OPOTA), annual weapons qualifications, scenarios and other training.

Safety:

- Coordinate Monthly Safety meetings for entire staff
- Conduct annual inspection of lock out/tag out tool boxes.

Equipment:

Eastern Forest Region Equipment List	
Equipment	Eastern
Vehicles	<i>Patrol/SUV, 2005, 4x4, 5000lb. Hitch, Electric Brake Controller, 7 wire round plug, LE equipped</i>
	<i>Dakota Crew Cab, 2007, 4x4, 5000lb. Hitch, 7 wire round plug, 4 wire flat plug, Cap, Ladder Racks, MARCS equipped</i>
	<i>Dozer transport, 1999 Freightliner, diesel, ducktail bed, deisel supply tank, MARCS equipped</i>
	<i>1ton Dump truck, 2008, 4x4, pintle hitch, Electric Brake Controller, 7 wire round plug, w/out MARCS</i>
	<i>1ton Crew Cab, 2006, 4x4, Gas, Utility Body, 10,000lb. Hitch, Electric Brake Controller, 7 wire round plug, MARCS equipped</i>
	<i>3/4ton Pickup, 2005, 4x4, Xtended Cab, 5,000lb. Hitch, 7 wire round plug</i>
	<i>Dakota Pickup, 2002, xtended cab, 2wd, tool box, bumper hitch, 4 wire flat plug</i>
Dozers/Tractors	<i>Dozer, JD450 w/ angle blade, rear winch w/ chokers</i>
	<i>Tractor, JD 65 hp, 4x4 w/ bucket and grapple/forks/brushhog/angle-tilt blade</i>
Trailers	<i>Trailer, double axle, low boy, 8'x24', 14,000 lb. Beaver tail, elec brakes, manual ramps, 7 wire round plug</i>

	<i>ATV trailer, 6'x12', 2" ball hitch, single axle rear agte amp, 4 wire flat plug</i>
ATV's	<i>Polaris Sportsman 500, 4wd, 3000 lb. Front winch</i>
	<i>Kawasaki Mule, Diesel/4wd/1000Lb Hydraulic lift Bed/1200Lb tow capacity w/1.25" and 2" frame hitch/2500Lb front winch/Convertible from 3-6 Passenger Capacity</i>
Misc./Other	<i>50 Gallon UTV slip on unit, 50gpm pump, *fits in the bed of the Kawasaki Mule</i>
	<i>150 gallon slip on unit, 23hp, 200gpm pump w/Class A Foam proportioner</i>

XII. MONITORING AND ENVIRONMENTAL ASSESSMENTS

Monitoring protocol will be established by the GENUS Program. Each management activity will receive an EA prior to any actions based on the policy/ requirements dictated by the Division's Timber Management Manual.

XIII. EXHIBITS

- Exhibit 1: Harrison State Forest Overview
- Exhibit 2: Harrison State Forest Zone Map