

# Ohio Department of Natural Resources

## Division of Forestry

### Five Year Forest Management Plan

For

### Maumee State Forest



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5/27/2011

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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 in the next five years:**

- 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:* Northwest Ohio's topography and natural features are a result of the last glacier to pass through this area about 18,000 years ago. As the Wisconsin glacier began its retreat from Ohio, a glacial lake was formed across the northwestern corner of Ohio. As the water level fell, irregular sand beaches and a portion of the lake bottom were exposed. This area, with its poorly drained soils ranging from yellow blow sand to dark muck soil, became known locally as the Oak Openings region. The entire 3,100 acres of Maumee State Forest lies within the Oak Openings region. The Maumee State Forest purchase unit came about as a post-World War II initiative to increase the number and acres of state forest and forest parks in Ohio. In 1945, the Division of Forestry published "A Twenty-year Plan for establishing a More Adequate System of State Forests and Forest parks in Ohio." The plan called for seven more State Forests or Forest parks.

Acquisition of land for Maumee State Forest was initiated in 1946. Most of the land that makes up the present forest was purchased between 1946-1953.

*Past Land Management/Uses:* Much of the current Maumee Forest area was agricultural land before becoming part of the state forest system. In 1948, the first plantations were started in abandoned farm fields. By 1954, the drier old fields had been planted to pine trees and the wetter old fields planted to hardwood trees. The forest was self-supporting for several years from the sale of Christmas trees. The forest covers 3,100 acres. Maumee State Forest is managed under the multiple-use concept including but not limited to, timber, wildlife habitat, forestry research, demonstration of good forest management, soil and water protection, recreational use and unique natural features.

## III. FOREST DESCRIPTION

### A. General

*Property Location Description:* Maumee State Forest is located 15 miles southwest of Toledo in northwestern Ohio with portions in Fulton, Lucas and Henry counties. There are 15 non-contiguous compartments ranging in size from 31.3 to 459.7 acres. The entire 3,100 acre forest is located in the Oak Openings Region and has generally flat topography. In general, there are approximately 1,975 acres of natural hardwood, 362 acres of planted hardwood, 712 acres of planted conifers and 51 acres of natural wetland type treeless areas.

*Soils:* This area, with its poorly drained soils ranging from yellow blow sand to dark muck soil, became known locally as the Oak Openings region. Main soil types include Tedrow, Ottokee, Spinks, Granby and Adrian. Elevation of the land varies less than 29 feet over the entire forest area.

*Water Resources:* There are several small creeks and drainage ditches running through Maumee State Forest. There is one small pond (un-named) located in

Compartment A4 by the APV Trails. With the exception of 40 acre Wildlife Transfer Tract, all of Maumee State Forest is located within the Swancreek Watershed.

*Access Issues/Transportation:* Accessibility to all areas of Maumee State Forest are good. State, county and township roads, typically at one mile intervals, bisect the tracts of land that make up the state forest. Within the forest, there are over 66 miles of firelanes that provide internal access. There is one tract which is landlocked. This is the Ross/Zahrend tract in Compartment C1. There is an undeveloped legal easement off of Road 3 to this tract. The public accesses this tract by way of a rail trail which runs along the south side.

*Potential Productivity:* The productivity of the forest can be generalized by soil types. Tedrow, Ottokee and Spinks soils are fine sands which are generally a bit higher in elevation and have some drainage to them. These soils have a site index range of 65 – 70 and included drier type tree species such as red oak white oak, black oak, cherry, and pine. The Granby soils have a site index range of 70-75. They are darker in color and are found in the lower areas or slight depressions. They are seasonally wet and will have a water table at the surface in the spring and early summer months. Tree species generally found in the Granby Soils include red maple, silver maple, elm, ash, cottonwood, pin oak, swamp white oak, and sycamore. The last soil type, Adrian, (also known as Adrian muck) is a very wet soil type. It has a site index range of 51-76 and is also darker soil type. It is found in the lower elevation areas and is seasonally wet with the water table being at the surface in the spring and early summer months. Adrian and Granby soil types are where the forested wetlands, wet prairie and wet sedge meadow communities are located. Tree species generally found in Adrian soils include the same wet site trees as found in the Granby soils.

*Overstory:* The overstory component of Maumee State Forest basically is made up of either closed canopy hardwood or closed/partially closed canopy pine plantation. Most of the hardwood and pine plantations were planted in the late 40's and early 50's which would make them 55 to 65 years old. The pine plantations were planted on the higher blow sand area and consist mainly of red and white pine with a few scotch and hemlock here and there. The hardwood plantations were established on the lower site and consist mainly of ash, swamp white oak, burr oak, sycamore, cottonwood, soft maple and sweetgum. The acreage of Maumee State Forest is broken down to the following: 1,975 acres of native hardwood (most of which was pastured at one time), 712 acres of conifer/pine plantations, 362 acres of planted hardwood and 51 acres of wet prairie/ wet sedge meadow areas.

*Understory:* The understory component, with the exception of the wet prairie/wet sedge meadow areas, includes tree seedlings/saplings, shrub/brush layer as well as a floral layer. Understory tree species is dominated by red maple and also includes oak, ash, cherry, sassafras, elm, hackberry, dogwood and others. The shrub/brush layer is made up of briars/brambles/blackberries, spicebush, buttonbush, multiflora rose, honeysuckle, autumn olive, buckthorn, poison ivy, Virginia creeper and grapevines to name a few. Land management plans will include efforts to manipulate

the understory component by way of reducing maple domination and encouraging native oak ecosystems as similar to the native systems of the “Oak Opening Region”.

*Herbaceous Layer:* The herbaceous layer varies depending on soil type and forest type. The herbaceous layer can sometimes be sparse on the higher drier site as dominated by an oak or pine overstory. Likewise, the herbaceous layer can be sparse in areas which have a seasonally higher water table in the spring and early summer months. Many areas in between, do contain a healthy herbaceous layer. Common plants would include pokeberry, miscellaneous grasses/sedges, poison ivy, Virginia creeper, garlic mustard, ferns, dogbane and strawberry, skunk cabbage, trillium, mayapple, and trout lily to name a few.

*Habitat Components:* Maumee State Forest contains diverse levels of habitat created by past management or natural processes. Forest types range from oak/cherry and pine on the higher drier sites to elm/ash/maple on the lower wetter sites. As a result of land management activities or through natural events, forest stands vary in size, structural layers and age which offer diverse habitats for birds, mammals, amphibians, reptiles, etc.

In addition to these forest components, there are wetland type areas which contain globally recognized ecosystems such as wet prairies and wet sedge meadows of the Oak Openings Region. Within the next five years, land management plans will include efforts to enhance these globally recognized ecosystems.

*Wildlife Populations:* Maumee State Forest contains all the common wildlife species found in NW Ohio, including deer, turkey, raccoon, skunk, rabbit, and birds of many kinds. Maumee State Forest is open to public hunting and follows hunting/trapping rules and regulations as set down by ODNR’s Division of Wildlife. Maumee State Forest is a popular birding area since it is on a migration route located on the western edge of Lake Erie.

The wet site habitats on Maumee State Forest such as forested wetlands, the Muck Farm Wet Sedge Meadow and the Manore Road Wet Prairie are host to some rare wildlife populations such as spotted turtle, blanding’s turtle, ribbon snake, and salamanders to name a few. Land management practices on Maumee State Forest such as timber harvests and invasives control are geared toward enhancing rare species and wildlife populations.

*Invasive Concerns:* The primary invasive concern is controlling buckthorn in the Muck Farm Wet Prairie. Beginning in July 2009, Recovery Conservation Corps, (RCC) crews spent considerable time in the Muck Farm continuing to cut back the invasive buckthorn. Ohio Woodlands Jobs Corps crews based out of Maumee in October 2009 – March 2010, and also June, 2010 – December 2010 have worked on controlling non-native invasives at the forest.

A grant aimed at controlling invasive species and restoring wetland ecosystems was received from The Nature Conservancy (TNC) and US EPA as part of the Great Lakes Restoration Initiative (GLRI). This grant will provide funding to restore wetland areas and control invasive species in the well known “Muck Farm” area of Maumee State Forest.

Due to the emerald ash borer, many ash trees are now dead or dying on Maumee State Forest. Dead ash trees that pose a hazard will need to be dropped. This will be ongoing for the next 2-3 years.

## **B. Landscape Level Information**

*Adjacent Forests:* Forest land adjacent to Maumee is primarily private ownership in small blocks of 5 – 20 acres. In Lucas County, forest stands belonging to Oak Opening Preserve Metropark (3,700 acres) are adjacent to Maumee.

*Ecological/Socio-Economic:* Maumee State Forest lies in a highly agricultural region in NW Ohio. Toledo and its suburbs are approximately 15 miles northeast of Maumee. There is much urban sprawl pressuring the Maumee State Forest area. Recreational opportunities at Maumee State Forest draw approximately 12,000 annual visitors. The most popular recreational uses are hunting and the APV/ Snowmobile area. Many visitors from lower Michigan come to use the APV trails, since there is no place to ride APV's in lower Michigan. On June 5, 2010 a tornado impacted the Maumee State Forest APV trails causing them to be closed. A salvage harvest and clean-up effort was completed by October 2010.

From an ecological standpoint, Maumee State Forest is located in the southern end of the globally recognized Oak Openings Region.

*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.

### **1. 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.

## 2. 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 National Historic Park and the OSU-Newark Earthworks 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.

3. 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:* Weather and climate data from the Toledo Express airport indicates the annual average maximum temperature is 58.5 F and the annual average low temperature is 38.3 F. The average annual rainfall is 32.5 inches and average annual snowfall is 37 inches. The average annual relative humidity is 60 and the average annual wind speed is 9.4 mph.

*Geology:* Three glaciers have passed over the region, leaving the landscape in a flat condition. As the Wisconsin glacier began its retreat from Ohio, approximately 18,000 years ago, a glacial lake was formed across the northwestern corner of Ohio. As the water level fell, irregular sand beaches and a portion of the lake bottom were exposed.

This area, with its poorly drained soils ranging from yellow blow sand to dark muck soil, became known locally as the Oak Openings region. The elevation of the forest areas ranges from a low point of 660 to a high point of 689 feet above sea level. Only 29 feet difference from high to low!

*Cultural, Historical, & Archeological:* Most of the forest tracts which make up Maumee State Forest were once family farms. Land acquisition from willing sellers began in 1946. These farms had land dedicated to agricultural crops and livestock. Much of the agricultural fields were planted to trees and the pastureland which was already woodland/brushland was left to grow on its own. Old house and barn foundations can still be found in places. Remnants of old fences can often be found near property lines, many over grown with trees.

There is an indication on the USGS Colton Quad map of an old Indian treaty boundary line running through forest areas in Henry County. There is no obvious boundary marks on the land.

#### IV. MANAGEMENT OBJECTIVES

*Zone Descriptions:* (See Land Management Manual, Chapter 2) All state forestland is divided into “zones” that direct the recommendations for management. These zones are intended to provide for management activities on our forest while protecting sensitive features.

**Forest Management Zones** (FMZ’S) are established within each state forest to guide land management decisions. Forest Management Zones in Maumee State Forest are:

Proposed Zones\*\*

Maumee State Forest	
Zone	Acres
1A - HCVF Natural Area	51
1B - HCVF Cultural Historic	
1C - Shawnee Wildness	
1D - HCVF Restoration	129
2 - Reserved Lands	
3A - Resource Protection	
3B - Aesthetic Area	
3C - Timber Wildlife	2,881
3D – Plantation Management Area	5
4A - Intensive Recreation	4
4B - Admin Areas	30
<b>Total Zoned</b>	<b>3,100</b>

\*\* To be reviewed by Forest Advisory Council at July 29, 2011 meeting

*High Conservation Value Forest (HCVF) Monitoring:* A minimum of 20% of the area zoned as HCVF on Maumee State Forest will be monitored annually to ensure HCVF attributes are maintained.

**ACRES BY COMPARTMENT FOR MAUMEE STATE FOREST**

<b>FULTON COUNTY</b> Compartment - Acres		<b>LUCAS COUNTY</b> Compartment - Acres		<b>HENRY COUNTY</b> Compartment - Acres	
A1	77.19	B1	164.54	C1	58.68
A2	264.45	B2	224.22	C2	112.69
A3	347.74	B3	215.31	C3	283.50
A4	259.90	B4	185.42	C4	459.74
A5	218.18				
A6	31.27				
A7	196.68				

*Strategic Plan Relationships:* The future management strategies of Maumee State Forest must include continued efforts to communicate and collaborate with partner agencies, organizations, universities and constituents. Specific project examples include the following;

- Continue to work with the US Forest Service with the Elm tree research project. The planted Elm trees are hoped to be resistant to Dutch Elm Disease. There are currently 15 trees planted in the research project that began in the summer of 2003.
- Work with USDA Forest Service on the resistant ash plot establish in 2007 at the Maumee Tree Improvement Area. Approximately 300 ash trees were planted with origins ranging from Europe, China, Eastern US and Western US.
- Continue to help outside agencies facilitate research projects on Maumee such as EAB forest ecology, floral/fauna studies, wet prairie studies, vernal pool studies, Fraxinus seed studies, Sirex wood wasp studies, salamander research, box turtle/spotted turtle/blandings turtle studies and Lepidoptera studies.
- Continue working with the Toledo Trail Riders on projects and issues relating to the APV trails.
- Continue working with the Green Ribbon Initiative (GRI) partners to promote projects and education of the Oak Opening Region.
- Continue work with Oak Openings Working Group on restoring Oak Opening habitat within Maumee State Forest
- Continue working with local Ohio Horse Council groups on bridle trail project and issues.

*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:* Over the next five years, the 20 year cruise schedule will focus on the continuation of collecting inventory data on the pine plantations. This should allow us to continue pine plantation harvesting and thinning in conjunction with the overall plan to eventually convert the pine plantations to native hardwoods and specifically to an oak ecosystem similar to communities of the globally recognized Oak Openings region. Cruising inventory data on the hardwood stands within the cruise schedule will be done as time allows.

*Harvest Restrictions:* The presence and location of seasonally wet soils is a big factor when harvesting in Maumee State Forest. The low impact harvesting equipment commonly used must have relatively dry/stable soils to properly operate on. Since Maumee is flat land, soil erosion is rarely a factor, but soil displacement through tire compaction and rutting must be kept to a minimum. BMP practices applicable to Maumee harvest operations will be implemented (for example wet soils, ditch crossings, riparian protection).

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.

*Harvest Amounts:* Pine plantation harvesting has occurred on Maumee State Forest since 2001. Since that time 6 separate harvest operations have been held. Harvest sizes have ranged from 46 to 115 acres. The volume of wood removed has been recorded in tons and includes a combination of thinning and clearcutting operations. Final harvest statistics have yielded a range of 81 to 106 tons per acres with an over all average of 93 tons per acre. Harvest operations being planned in the next 5 years are expected to fall into these ranges. Approximately 300 acres of Maumee Forest was directly impacted by the June 2010 tornado. As a result, an increase in harvest amounts did occur in 2010.

*Draft sustained yield for non-inventoried forests using FIA:* 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. (Maumee State Forest not part of the inventory)

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.

The table below also shows the average harvest of pine and hardwood volume for the 10 year time period of 2000 – 2009. The figures for harvest as a percentage of growth are rough estimates since an inventory has not been completed at Maumee. They do illustrate the trend however that over the past 10 years, harvests have concentrated on removing the non-native pine that was planted for soil erosion purposes with the goal of increasing native hardwoods. More accurate data will be available after an inventory of Maumee is completed in the future.

**Estimated Inventory and Growth Data and Average Harvests Levels for pine and hardwood - 10 year average (2000 – 2009)**

(USFS FIA growth data on hardwoods & Glatfelter growth data on pine. Maumee State Forest Average Harvest calculated from actual harvests.)

Total Inventory (board feet)	Stand Type	Productive Acres	Total Growth Bd Ft / Yr	Zone 3B and Zone 3C Acres Only	"Constrained" Growth Bd Ft/ Yr	Average Harvest - Last 10 Years Bd Ft	Harvest as % of Growth
19,730,890	Pine	712	267,000	712	267,000	575,800	215 %
	Hardwood	2169	476,659	2,190	476,659	13,831	3%

*Note that the harvest data as a result of the tornado that impacted Maumee State Forest in June 2010 is not included in the above table.*

**Special Concerns:** Maumee State Forest is located within a unique geologic and ecologic area known as the Oak Openings, one of America’s rarest habitats. The Oak Openings is a long, narrow band of sandy soil just west of Toledo that extends into southern Michigan. The Oak Openings is home to nearly one-third of all Ohio’s rare plants and a host of rare animals. The Green Ribbon Initiative is a grass-roots partnership to save and restore the Oak Openings region. This effort includes participants such as The Nature Conservancy, The Oak Openings MetroParks, and the Ohio DNR. Efforts include outreach and education as well as restoration work on public or NGO lands.

For the Oak Openings region there are two conservation plans that are important to the Division of Forestry. They are the “Oak Openings Region Conservation Plan” written by

the Green Ribbon Initiative partners, and the “Karner Blue Butterfly Conservation Plan” written by the Ohio DNR – Division of Wildlife.

*Oak Openings Region Conservation Plan:* The Oak Openings Region Conservation Plan’s purpose is to “promote, restore and protect the long-term viability of the natural areas in the Oak Openings region, enriching our quality of life and contributing to the preservation of global biodiversity.” To accomplish this purpose, the plan outlines four objectives with associated goals and strategies. These objectives deal with education, research, land protection, and increasing health and biodiversity through restoration.

The Division of Forestry is an active partner of this effort and is committed to the objectives, goals, and strategies of this conservation plan. Maumee State Forest serves as one of several anchor points in this plan, encompassing over 3000 acres of Oak Openings habitat. For Maumee State Forest, we plan to continue this partnership and accomplishing the goals of the plan through educational efforts of the Division and by installation of at least 3 restoration sites on the Maumee State Forest. The Division also plans to evaluate the restoration potential and cost over the next five years in the hopes of identifying new candidate sites for restoration. The Division has already begun and will continue work on a wet prairie restoration site of over 40 acres with invasive species control. In addition, the Division conducted a salvage harvest in the area impacted by the Spring 2010 tornado and can be considered a restoration site. These sites were treated by salvaging the damaged timber and retaining oak trees to maintain an oak woodland/oak savanna type of habitat.

A restoration plan has been developed for restoring approximately 177 acres of oak openings habitat within the Compartments C3 and C4 in Henry County. Monitoring of the HCVF restoration areas will be conducted annually by researchers and Division of Forestry staff.

*Karner Blue Butterfly Conservation Plan:* The Karner Blue Butterfly Conservation Plan was written by the Ohio DNR – Division of Wildlife’s Karner Blue Butterfly Recovery Team. Its purpose is to outline objectives and strategies for the recovery of the Karner Blue Butterfly for a 10 year period. The Karner Blue was considered extirpated from Ohio until reintroduction efforts in 1998. Historically, the Karner Blue was limited to Oak Openings region. Therefore, this conservation plan is a key part of our management strategy at Maumee State Forest. The plan mentions that the success of the Karner Blue is directly dependent on the quality and quantity of oak savanna and prairie habitat in the Oak Openings. The Karner Blue is closely associated with the legume, wild lupine (*Lupinus perennis*). This plant is a historical part of sandy soils and savanna conditions that historically existed in the Oak Openings.

The Division of Forestry plans to restore at least 3 sites to oak savanna or wet prairie habitats at Maumee State Forest. These restoration efforts and our management of Maumee State Forest comply with the stated restoration goals and strategies of the conservation plan.

Examples of Oak Openings restoration management activities that will be used at Maumee Forest include:

- Controlling/reducing invasive buckthorn in the wet prairie areas using, control burns, manual cutting and herbicide treatments
- Thinning and opening up pine stands, and allowing native hardwoods to get established
- Control burns at wet sedge prairie on Manore Road and oak openings/blue lupine site on C.R. C.

*Threatened/Endangered Species:* 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 an 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

From past experience, most of the listed species on Maumee State Forest are turtles, floral plants or grasses and sedges and generally located in the wetter/lower areas. Also from past experience, it has been common to find that most listed species on Maumee State Forest have one common threat.....natural succession or invasive plants. Harvest operation in general will help the majority of listed species by setting back succession or by opening up the area to direct sunlight that many of these plants require. During harvest operations, den trees and snags that do not pose a hazard are left standing.

Over the next 5 years, high emphasis will be given to land management practices to enhance or restore the globally rare habitats of Oak Openings Region. Projects already being considered include the following; (1) Muck Farm wet sedge meadow habitat restoration and expansion, (2) Manore Road Wet prairie habitat restoration and expansion, (3) oak savannah habitat restoration, (4) forested wetlands/wet wood

restoration and (5) continued conversion of pine plantations to native oak ecosystems. These projects will be achieved by working with conservation partners in the oak openings and applying land management practices such as mechanical timber harvesting, prescribed fire, herbicide treatments and manual cutting.

*Biodiversity Conservation Goals:* The conservation of biological diversity is a critical component of the sustainable management of state forests. The management of Maumee 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:* Wildfire suppression is a responsibility that has been traditionally associated directly with the Division of Forestry. Our staff and volunteer fire departments suppress fire on our state forestland. We support volunteer fire departments with technical assistance and heavy equipment on larger fires and multiple fire situations. In order to keep wildfire losses to a minimum, we maintain close contact with and provide training to fire departments in our area. The Maumee Fire District encompasses parts of Fulton, Lucas and Henry counties. Within this area are nine fire departments. Fire departments are eligible for financial assistance for wildfire suppression through Cooperative Agreements.

*Fire Suppression Objectives:* Aggressively suppress wildland fire starts within the forest.

When requested, support area fire departments in their suppression efforts with equipment, personnel and planning.

*Prescribed Fire:* Prescribed fire is used on Maumee State Forest for fuel reduction, resource management and habitat enhancement. In the recent past, prescribed fire has been used on 9 sites on Maumee ranging in size from 2 – 40 acres.

*Fire Prevention:* Over the next several years, we intend to participate in parades and fire prevention programs with Smokey Bear as requested and as time allows. We will also provide general fire prevention information and handouts to local fire departments, educational institutions and the general public. The Smokey Bear costume can be provided to those sponsoring genuine fire prevention events and activities.

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

Maumee staff members will be allowed to participate in the Division's Inter-Agency Fire Crew program as workload and budget allows.

*Training:* Provide fire related training sessions for our Division personnel. Provide basic wildfire training and information to the local fire departments as requested.

*Fire Department Contacts:* Distribute new information on fire program or host meeting for all departments within the Fire Protection District. Investigate all fire reports as submitted by the VFD's. Update the Fire Department Information Sheets as needed.

Maintain Cooperative Agreements for Wildfire Suppression. Current agreements are with the following fire departments:

1. Delta Community
2. Liberty/Washington Township
3. Monclova Township
4. Providence Township
5. Spencer township
6. Springfield Township
7. Swanton
8. Whitehouse

*FireWise:* Continue to promote the FireWise program within the Maumee Fire Protection Area.

*FEPP/FFP:* Continue to promote the participation of fire departments in the Federal Excess Property Program (FEPP) and Fire Fighters Program (FFP). Continue to complete annual inspections of federal property within our fire protection project.

The following is a list of FEPP Equipment in The Maumee Fire District:

1. Mack R-9 Tanker – Delta Community
2. Mack R-9 Tanker – Swanton
3. AM General 2.5 ton 6x6 Cargo Truck - Swanton
4. Chevy 4x4 1200 Gallon Tanks Truck – Whitehouse
5. Mack R-9 Tanker – Providence Township
6. (2) Portable Pumps – Maumee State Forest
7. Hose Reel booster – Maumee State Forest
8. 83 Gallon Tank – Maumee State Forest

## **VII. RECREATION**

*History, Opportunities and Maintenance;*

*Bridle:* There are two bridle trail areas on Maumee: Lucas County (3 miles) and Henry County (5 miles) bridle trails. The bridle trails will be inspected at least twice each year. The trails will be mowed and downed trees cleared as needed. Will continue working with Volunteers and OHC groups to maintain the bridle trails.

*Hiking:* There are over 66 miles of firelanes/hiking trails (limited access roads) on the forest. These will be inspected, mowed and cleared of down trees at least once this year. We will promote and maintain the Stewardship Trail kiosk and trail system.

*APV and Snowmobile:* There are approximately 5 miles of APV and snowmobile trails. These trails were established in 1972. These trails will be inspected for downed trees quarterly or after major wind events. Grading will be performed as needed or as ground conditions will allow. Trails will be remarked as needed. Continue to work with the volunteer group, Toledo Trail Riders, on trail clean-up and maintenance projects.

In the Spring of 2011 a proposal was made to expand the Maumee APV and Snowmobile trails as well as the parking area. This proposal was based on user requests and subsequent direction from ODNR administration. The current proposal is to add an additional 2 miles of trail and to expand in size the APV parking area. This proposal will be open for public comment at the FY 2012 Maumee Open House.

*Hunting:* All areas of Maumee State forest are open to public hunting as outlined by ODNR Division of Wildlife rules and regulations.

*Miscellaneous Use:* Berries, nuts and mushrooms may be gathered and removed from Maumee State Forest as on all state forestland. Geocaching is permitted. A special use permit must be obtained to place a geocache on Maumee State Forest.

Recreational facilities, trailheads, picnic areas and other places where forest visitors congregate will be periodically inspected for hazard trees. Trees identified as possible hazards to users will be removed by the forest crew.

*Strategic Goals:* On June 5, 2010 a tornado impacted the Maumee State Forest APV trails causing them to be closed. A salvage harvest and clean-up effort was completed by October 2010.

Over the next year or two, it is intended to get mile markers strategically placed on the bridle trails in Henry County. This 5 mile bridle trail is marked, but does not contain mile markers.

## **VIII. PUBLIC AWARENESS**

*Strategic Goals:* Information and Education about forest resources in Ohio is an ongoing component of the Division of Forestry. An Open House is held yearly at Maumee State Forest. Partnerships with recreational users are continuing with bridle clubs (Fulton, Lucas and Henry County Chapters of the Ohio Horse Council (OHC). Two Eagle Scout Projects have recently been completed at Maumee. The Toledo Trail Riders APV club began volunteer work on the trails in the APV Area. Individual or group volunteering is handled on a case by case basis. A volunteer agreement form must be completed for volunteer projects. Volunteer Agreements have been or are currently maintained with the following groups:

1. Fulton County OHC
2. Henry County OHC
3. Boy Scouts
4. Cub Scouts
5. The Toledo Trail Riders

The Stewardship Trail offers a self guided tour of forest management practices on the forest. In FY 2006 this demonstration area was developed and opened at Maumee State Forest. Outside input for the Stewardship Trail was requested and received from woodland interest groups, SWCD's and OSU Extension. On May 20, 2006 a grand opening was held for the new demonstration area called "The Stewardship Trail at Maumee State Forest". The Stewardship Trail is a self-guided walking tour through a section of the forest providing examples of a variety of forest management techniques including emerald ash borer management. The trail consists of 18 different points of interest. Visitors can choose from a one mile or two mile hiking loop through the forest and will encounter a range of management treatments including pine thinning, pine clearcuts, prescribed burns, wildlife management areas, invasive species, insect/disease trees, riparian corridor and emerald ash borer ash salvage logging areas.

## **IX. LAW ENFORCEMENT**

*History:* 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 policies and procedures are delineated within the Division of Forestry's Law Enforcement Manual

*Strategic Goals:* Respond to emergencies and requests for help and give assistance within Officer's training and capabilities.

Protect and assist forest visitors through routine patrol and incident investigation. Issue warnings or citations as warranted for Ohio Revised Code and Forest Rules violations.

Investigate assigned wildfire reports and issue warnings or citations for Ohio Revised Code Chapter 1503.18 violations.

Assist in special projects with other forests and other ODNR Divisions. Request special projects as needed to address specific issues/problems to maintain a safe and enjoyable experience for the forest visitor. Assist other forests with special projects as workloads and the budget allows.

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.

Non-mandatory training will be offered to the officer as workloads and the budget allows.

Officer will be afforded all equipment listed in the Division's Law Enforcement manual. 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.

*Other Enforcement Issues:* Law enforcement activities at Maumee State Forest will be accomplished primarily by the Maumee Forest Officer. Occasionally, additional assistance may be needed from other Division Forest Officers, as well as other agencies such as: County Sheriff's, Ohio State Highway Patrol, ODNR Division of Parks and Wildlife.

The following duties will be accomplished over the next 5 years:

- Contact each court within the Maumee Fire Protection Area to update court information annually.
- Maintain contact with Lucas County Juvenile, Henry County Juvenile, Fulton County Juvenile, Eastern District Court (Fulton Co.), Napoleon Court (Henry Co.), Sylvania Court (Lucas Co.) and Maumee Court (Lucas Co.).

- Maintain contact with Fulton, Lucas and Henry County sheriff's offices, as well as with State Highway Patrol Post 48.
- Conduct annual highway vehicle safety inspections on unit vehicles.
- Annually inspect all highway signs, repairing and/or replacing as necessary.
- Annually inspect all gates, repairing and/or replacing as necessary.

## **X. FACILITY MAINTENANCE AND INFRASTRUCTURE**

*Building/Infrastructure Maintenance:* Perform general maintenance, routine cleaning and repair to buildings and structures located on the forest. Buildings/structures include:

1. Headquarter Building
2. Block Storage Building
3. Refrigeration Trailer
4. Storage Barn
5. APV Latrine
6. (3) Information Kiosks

Lock-Out-Tag-Out and Confined Space procedures will be followed in identified areas.

Confined Space's at Maumee State Forest include the APV Latrine on Road 2 and the hydraulic lift vault in the HQ building.

Regular maintenance and mowing by forest crew will be performed at the Windbreak Arboretum, Tree Improvement Area, APV Area, Forest Headquarters and Camp Trail parking area.

Gas pipelines, transmission lines, and telephone right-of-ways are found throughout Maumee State Forest. Right-of-way activities are closely monitored to insure that Best Management Practices are used to minimize damages and work with the industry personnel to minimize the aesthetic impacts of their work.

Inspect all culvert crossings. There are 12 bridge/culvert crossings on the forest. The final wooden bridge was replaced by a culvert in FY 2008.

*Roadway Maintenance:* There are no forest roads on Maumee State Forest. Through the ODOT Cooperative Roadway Program, the HQ and APV Area parking lots will be maintained. These lots were last repaved in October 2009.

*Boundary Maintenance:* There are approximately 24 miles of boundary line on Maumee State Forest. Approximately 20% of the known boundary will be repainted annually with yellow paint. Signage and boundary markers will also be checked and replaced as necessary.

## **XI. BUDGET/STAFFING**

*Maintenance:* The Maumee State Forest maintenance budget has been around \$29,000 to \$30,000 for the last two years. It is anticipated that future budgets will be similar, but are always subject to change.

*Personnel: Maumee Forest has 3 permanent employees:*

1. Forest Manager 2, Don Schmenk
2. Equipment Operator 2, Dean Druschel
3. Forest Officer 2, Andrew Philpot

*Equipment: Vehicles and Equipment include:*

1. 2008 Ford Patrol Truck
2. 2003 Ford Cargo Van
3. 2002 Freightliner Transport Truck
4. 1998 Chevy Pickup
5. 1998 International Dumptruck
6. 1973 Fire Engine/Pumper
7. (4) tractors
8. (1) bulldozer
9. (2) equipment trailers
10. 2009 Dodge pickup 4 x 4 (OWJC program)
11. (1) Excavator, mini

## **XII. MONITORING AND ENVIRONMENTAL ASSESSMENTS**

Monitoring and environmental assessment on Maumee State Forest are accomplished in a multi faceted system of research and forest inventory. Specific examples include the cruising and inventory of the pine plantations as scheduled in the cruise cycle. This data incorporated into the "Genus" database will provide growth/yield sustainability models. Also, through the USDA Forest Service, there are permanent plots set up on Maumee which measure tree growth, health, vigor, herbaceous layers, invasives, ecological succession, etc. ODNR Division of Wildlife sponsor research of unique wildlife species. Many Universities also perform species monitoring and research through special use permit process. As part of the special use permit process, research results must be provided to the Division of Forestry.

## **XIII. EXHIBITS**

# COMPARTMENT MAP

