Mississippi's Assessment of Forest Resources and Forest Resource Strategy

Conserve working forest landscapes

Enhance public benefits from trees and forests

Protect forests from harm

July 2010

Mississippi Forestry Commission

Mississippi's Assessment of Forest Resources and Forest Resource Strategy.

An analysis of forest-related conditions, trends, threats and an overview of opportunities and strategies to address them.

July 2010

Produced by the Mississippi Forestry Commission with assistance by a grant from the National Association of State Foresters and the USDA Forest Service.

The mission of the Mississippi Forestry Commission is to provide active leadership in forest protection, forest management, forest inventory and effective forest information distribution necessary for Mississippi's sustainable forest-based economy.

Mississippi Forestry Commission
660 North Street, Suite 300
Jackson, Mississippi 39202
Charlie Morgan, State Forester
www.mfc.ms.gov
(601) 359-1386 Phone
(601) 359-1349 Fax

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I. Introduction to Mississippi's Assessment of Forest Resources

The Mississippi Forestry Commission (MFC) is the lead agency for development of Mississippi's Statewide Assessment of Forest Resources and Forest Resource Strategy.

The mission of the Mississippi Forestry Commission is to provide active leadership in forest protection, forest management, forest inventory and effective forest information distribution necessary for Mississippi's sustainable forest-based economy.

This document was prepared in response to the Food, Conservation and Energy Act of 2008 (the Farm Bill) that requires each state to complete a Statewide Forest Resource Assessment (Assessment) and a long-term Statewide Forest Resource Strategy (Strategy) by June 2010 in order to receive funds under the amended Cooperative Forestry Assistance Act (CFAA). The Assessment provides an analysis of forest conditions and trends in the state and delineates priority rural and urban forest landscape areas. The Strategy provides general long-term plans for investing state, federal, and other resources to effectively stimulate or leverage desired action and engage multiple partners.

The new CFAA refers to the process of "redesigning" how federal funding is provided to state forestry agencies carrying out particular forestry programs on privately owned forestland. The MFC uses these funds, through the U.S. Department of Agriculture Forest Service's (USFS) State and Private Forestry (S&PF) programs, to support a number of local forestry programs, including technical forestry assistance to rural and urban landowners, enhancing wildfire protection efforts, and supporting forest health programs that address insects, diseases and non-native invasive species that are affecting the health and productivity of Mississippi's forestland.

The purpose of a "redesigned" S&PF is to shape and influence forestland use on a scale and in a way that optimizes public benefits from trees and forests for both current and future generations. In 2008, the USFS began implementing the Redesign effort in response to the combined pressures on the nation's forests and a decrease in resource funds as well as the need for better partnerships on projects and better program integration. State assessments and resource strategies are integral to S&PF Redesign and required as an amendment to the CFAA, as enacted in the 2008 Farm Bill.

There are three parts to the assessment, strategy and planning process required by the Redesign approach.

Part I - Assessment of Forest Resources

The state forest resource assessment should provide a comprehensive analysis of the forest-related conditions, trends, threats, and opportunities within the state. Assessments must include:

- An analysis of present and future forest conditions, trends, and threats on all ownerships in the state using publicly available information.

- Forest related threats, benefits, and services consistent with the S&PF Redesign national themes.

- Priority rural and urban forest landscape areas to be addressed by the state resource strategy. States can also identify linkages between terrestrial and aquatic habitat, as appropriate.

- Multi-state areas that are a regional priority.

- Existing statewide plans including state Wildlife Strategies, Community Wildfire Protection Plans, and address existing S&PF program planning requirements.

Part I of this document is a comprehensive assessment of Mississippi's forest resources.

National Themes and Objectives:

1. Conserve Working Forest Landscapes

- 1.1. Identify and conserve high priority forest ecosystems and landscapes
- 1.2. Actively and sustainably manage forests

2. Protect Forests from Harm

- 2.1. Restore fire-adapted lands and reduce risk of wildfire impacts
- 2.2. Identify, manage, and reduce threats to forest and ecosystem health

3. Enhance Public Benefits from Trees and Forests

- 3.1. Protect and enhance water quality and quantity
- 3.2. Improve air quality and conserve energy
- 3.3. Assist communities in planning for and reducing wildfire risks
- 3.4. Maintain and enhance the economic benefits and values of trees and forests
- 3.5. Protect, conserve, and enhance wildlife and fish habitat
- 3.6. Connect people to trees and forests, and engage them in environmental stewardship activities
- 3.7. Manage and restore trees andforeststomitigateandadaptto global climate change

Part II - Forest Resource Strategy

The strategy will provide a long-term, comprehensive, coordinated strategy for investing state, federal, and leveraged partner resources to address the management and landscape priorities identified in the assessment. The resource strategy should incorporate existing statewide forest and resource management plans and provide the basis for future program, agency, and partner coordination.

The strategy must include:

- An outline of long-term strategies for addressing priority landscapes identified in the assessment and the national themes and associated management objectives:

- Description of how the state proposes to invest federal funding, along with other resources, to address state, regional, and national forest management priorities.

- A long-term timeline for project and program implementation.

- Identification of partner and stakeholder involvement.

- Strategies for monitoring outcomes within priority forest landscape areas and how action will be revised when needed.

- Description of how the state's proposed activities will accomplish national S&PF program objectives and respond to specified performance measures and indicators.

- How S&PF programs will be used to address priority landscape and management objectives.

- Existing statewide plans including wildlife action plans, community wildfire protection plans and address existing S&PF program planning requirements.

Part II of this document is the forest resource strategy for Mississippi.

Annual Report on Use of Funds

Each year, MFC must submit an annual report based on the new Forest Resource Strategy that describes how Mississippi used all of the S&PF program funds throughout the fiscal year. The report will also describe specific actions taken throughout the year to address the state assessment and resource strategy and will include a comprehensive budget with contributions from all federal, state, and non-governmental partners.

This document includes both the statewide assessment of Mississippi's forest resources and the broad strategy components required by the 2008 Farm Bill.

An annual report will be developed by MFC each year after following the approval of this document that will also include a detailed annual action plan with specific goals, objectives and strategies for each program area and key issues.

II. Mississippi's Forest Resources

The mission of the Mississippi Institute for Forest Inventory (MIFI) within the Mississippi Forestry Commission (MFC) is to survey and report on timber volume and forest resources in Mississippi through a continuous, statewide forest resource inventory necessary for the sustainable forest based economy and to effectively distribute and manage forest inventory based information for economic and public policy development. MFC, through MIFI, has renewed participation in recent years in the Forest Inventory and Analysis (FIA) -- a nationwide program of the Forest Service through its Southern Research Station in Knoxville, Tennessee that summarizes the inventory of forest on public and private lands and includes information on forest health, ecological values, socioeconomic benefits and biological diversity as well as standard tree inventory data. The following description and assessment of Mississippi's forest resource conditions is based on data garnered from MIFI and FIA. Descriptions of natural forest communities are based on the Mississippi Comprehensive Wildlife Conservation Strategy and the Forest Legacy Program Assessment of Need.

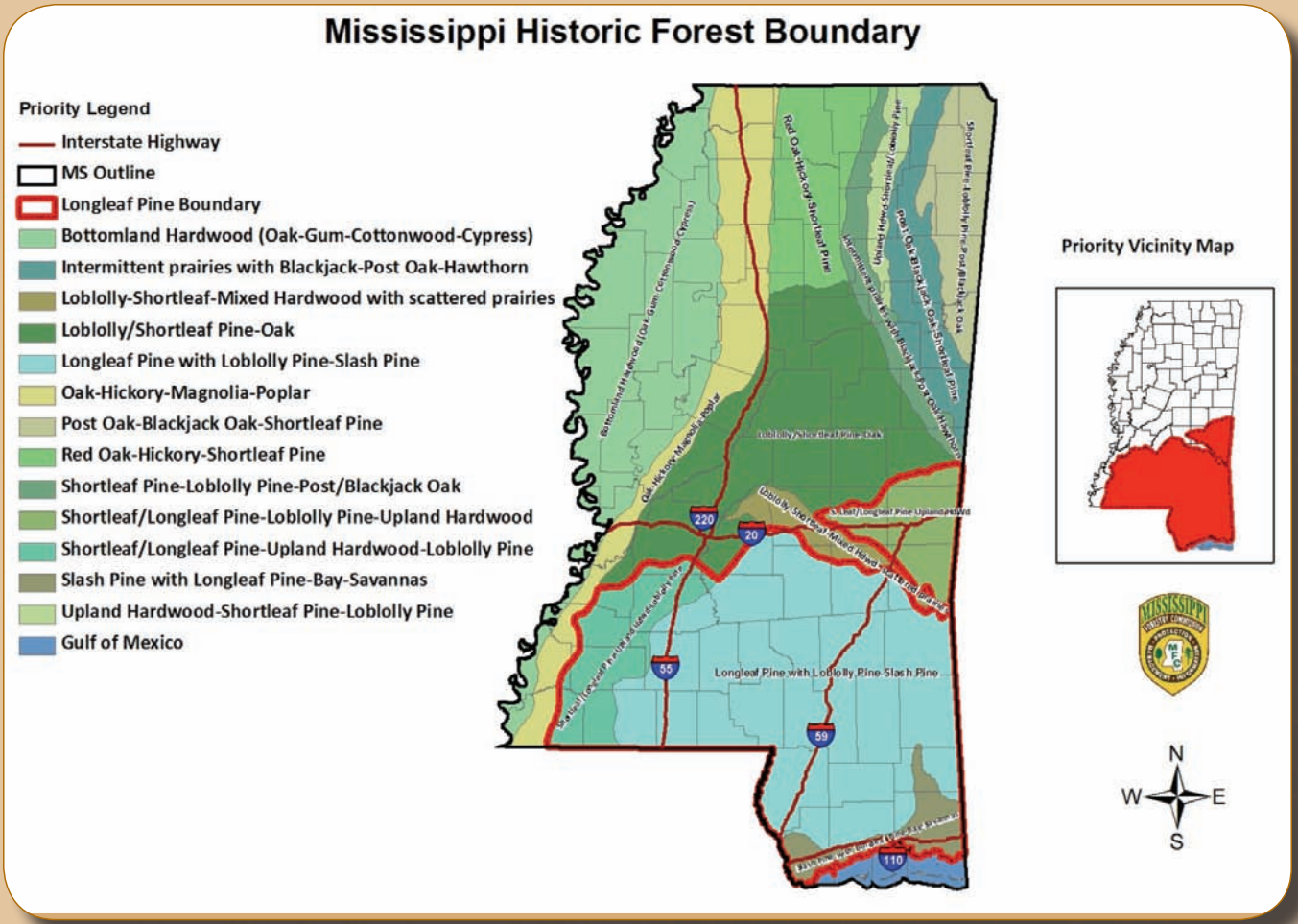
Additional details about forest conditions as well as a description of the public benefits of forests and threats to forest resources are also included in the description of major forest issues of concern in Chapter III – Key Issues.

History of Forest Resources

To appreciate the current condition of Mississippi's forest lands, it is important to understand their history and the result of anthropogenic influence over time. The history of Mississippi's forests mirrors that of the Southeastern U.S. Though Europeans began to explore and settle the Southeast by the mid and late 16th century, their impact on the native plant communities of the region was limited largely to coastal plain, savanna and bottomland forests. Earliest settlements in the Southeast U.S. were established in coastal areas and on old river terraces accessible by boat and barge, thus limiting the European settlers' impact on natural plant communities. These areas were often cleared to make way for agriculture. The quantity of timber taken during this time was limited both by technology and local demand. Consequently, large areas of upland forest in the South were untouched until the 19th century.

Improved agricultural efficiency, a growing population, and better access to European markets by the end of the 18th century provided both the motivation and the capital necessary to expand the conversion of native vegetation to agriculture. People began to move westward into the interior of the South and began to clear increasingly large tracts of land. In this era of increased trade, additional exotic species were introduced to the South.

In the early 18th century botanists from the Northeast such as John and William Bartram made several trips to the Southeast for botanical exploration and collection and published accounts of the natural history of the areas that they visited. In 1775, William Bartram traveled in the Pearl River basin in Mississippi. The Bartrams' books and accounts are full of details of soil conditions in various places, lists of species encountered, and in some cases detailed descriptions of particular species and broad community types, including forests, savannas, glades, and swamps. William Bartram also noted large areas of longleaf pine and "expansive ancient Indian fields."



Historic coverage of major forest types in Mississippi.

Although the Native American population had declined significantly by this time, these people were sufficiently common in the early 18th century to exert a continued impact on wide areas of the southern landscape through their agriculture and, more importantly, their use of fire as a means of manipulating vegetation. The aboriginal practice of burning the forests was adopted by European settlers soon after permanent settlements were established.

During the early 19th century, settlers moved across the region in search of quality farmland to clear for agriculture. The Natchez area was favored as a place to settle and farm due to the fertile lands and tremendous forests. Europeans selected and exploited other areas on the basis of their strategic value for military outposts or their proximity to mineral resources. These areas were less common but usually had equally significant impacts on the local vegetation.

Lumber was needed for development during this period, and the supply was considered "inexhaustible." Small mills sprang up in localized areas. Timber harvest was relatively light due to the primitive logging and milling methods that depended on animals and water for transportation and water flow for running primitive sawmills.

In the mid-1800s, the piney woods of southeast Mississippi were considered to be infertile lands for farming and were inhabited primarily by cattlemen and hunters. In those days, any land occupied by pines was considered to be unfit for the growth of cotton and corn. In 1860, Mississippi's 16 most southeastern counties were the most sparsely populated region in the state, except for the Mississippi-Yazoo River

Delta. One writer correctly predicted that the tremendous pine forests would one day be the center of the lumber trade for the nation.

The timber industry that moved to the South in the late 1800s exploited the vast expanses of pine and hardwood forest land. The steam engine and the use of railroads made it possible for lumbermen to move rapidly through the Mississippi forests. Northern lumbermen and a few from the South purchased huge land holdings, erected sawmills and built railroads to get the logs into the mills. The logging practices of the day were destructive and often left a treeless and fire-ravaged landscape. Some landowners were very farsighted and began to practice selective and seed tree harvests and conserved timber for the future. Most of them, however, operated until their timber supplies were exhausted and then relocated. During this period, mills could operate efficiently only when adequate supplies were available next to the rail spurs.

In the mid-19th century, clearcutting was the primary logging method employed. Modern forestry would not become commonplace in North America until the early 20th century. Extensive areas of forest were leveled to create pastureland. In many places the native forest has never recovered. Forested areas surrounding major river ports were cut to fuel steamboats. Vast acreages of wetlands and river terraces were drained or plowed by the mid-19th century, causing significant losses to local biodiversity in some areas. By the 1880s, a broad sector of Americans, mostly in the Northeast and West, were becoming concerned about the unbridled exploitation of the Nation's forest and wetland resources.

The evolution of forest protection laws and the establishment of national forests in the South parallel the development of the modern conservation movement in the U.S. The federal government began setting aside tracts of land as forest reserves when Congress passed the Forest Reserve Act of 1891. .Since then, national forestlands have been critical refuges of functional native plant communities in the South.

At the turn of the 20th century, the logging industry in the South was producing lumber at its historical peak. So much forest land had been logged that timber companies were finding it difficult to access merchantable trees and were beginning to close mills and move to the newly opened virgin timberlands of the Northwest. Although World War I caused a short-lived resurgence in the demand for timber and naval stores, the conversion of the shipbuilding industry from wood to steel by 1920 caused demand for southern timber and naval stores to fall drastically. By 1930 the majority of the longleaf pine communities had been essentially cut over, as had the interior shortleaf pines. Upland hardwood forests fared somewhat better in some places.

The Great Depression in the 1930s was exceptionally difficult for the people of the South, but it helped the native plant communities of the region. The Civilian Conservation Corps (CCC), established in 1933 did significant reforestation in the South. The formal teaching of forest sciences in the U.S. matured by the 1920s and 1930s so that an abundance of well-trained foresters working for the USFS, state forestry agencies and the CCC were available to supervise and direct the work. The fledgling Forest Service was working to control unauthorized timber cutting on federal land. Unfortunately, this was also the time in which widespread fire suppression activities began. Although this practice was well intentioned at the time, it eventually led to significant declines in native plant communities throughout most of the Southeast.

The timber industry in the South remained depressed until the outbreak of World War II. At about the same time, serious scientific research was started at government and university labs to increase the productivity

of forest land. Much of this work focused on the development of "improved" tree selections and cultivation practices. One of the innovations that arose was the growing of pines in plantations. Large tracts of cutover land, especially in the Coastal Plain and Piedmont, would eventually be converted to pine plantations. This method focused timber production on developed sites. Although those sites were forever altered, this intensive form of silviculture saved many acres of native forest from more traditional timber harvesting.

During the 1950s and 1960s the South began to see significant increases in immigration and urbanization. Land was developed, and large tracts were fragmented. These trends led to rapid increases in demand for building materials, electricity and additional agricultural production.

Improvements in technology and mechanization (especially in agriculture) and decreasing federal commodity price supports led to significant consolidations in the timber and farm industries. In the 1940s, 42 percent of the population in the South lived on farms. By the 1950s, only 15 percent of southerners lived on farms

After the end of World War II, pine forests in the South, including those on state and federal land, were predominantly managed for timber production. The birth of the modern conservation movement in the 1960s came, in part, as a reaction to concerns about public land management priorities and the lax enforcement of environmental laws.

Current Uses/Public Benefits

Today Mississippi's public and private forests provide significant timber resources, recreational and tourism opportunities, aesthetic value, wildlife habitat, water quality protection and other environmental, social and economic benefits. These benefits are discussed in detail in Chapter III by each key issue.

The vast majority of Mississippi's private forestlands are maintained for economic returns from the sale of timber as a primary or secondary objective. Other major uses include management for hunting of game species or for wildlife viewing and aesthetics. Most Mississippi landowners do not have an established, formal plan such as a Forest Stewardship Plan for managing their property. While they do not consider the need for a management plan until they decide to harvest timber, an increasing number of Mississippi landowners have varied management objectives and actively seek technical assistance from state or federal agencies or conservation organizations.

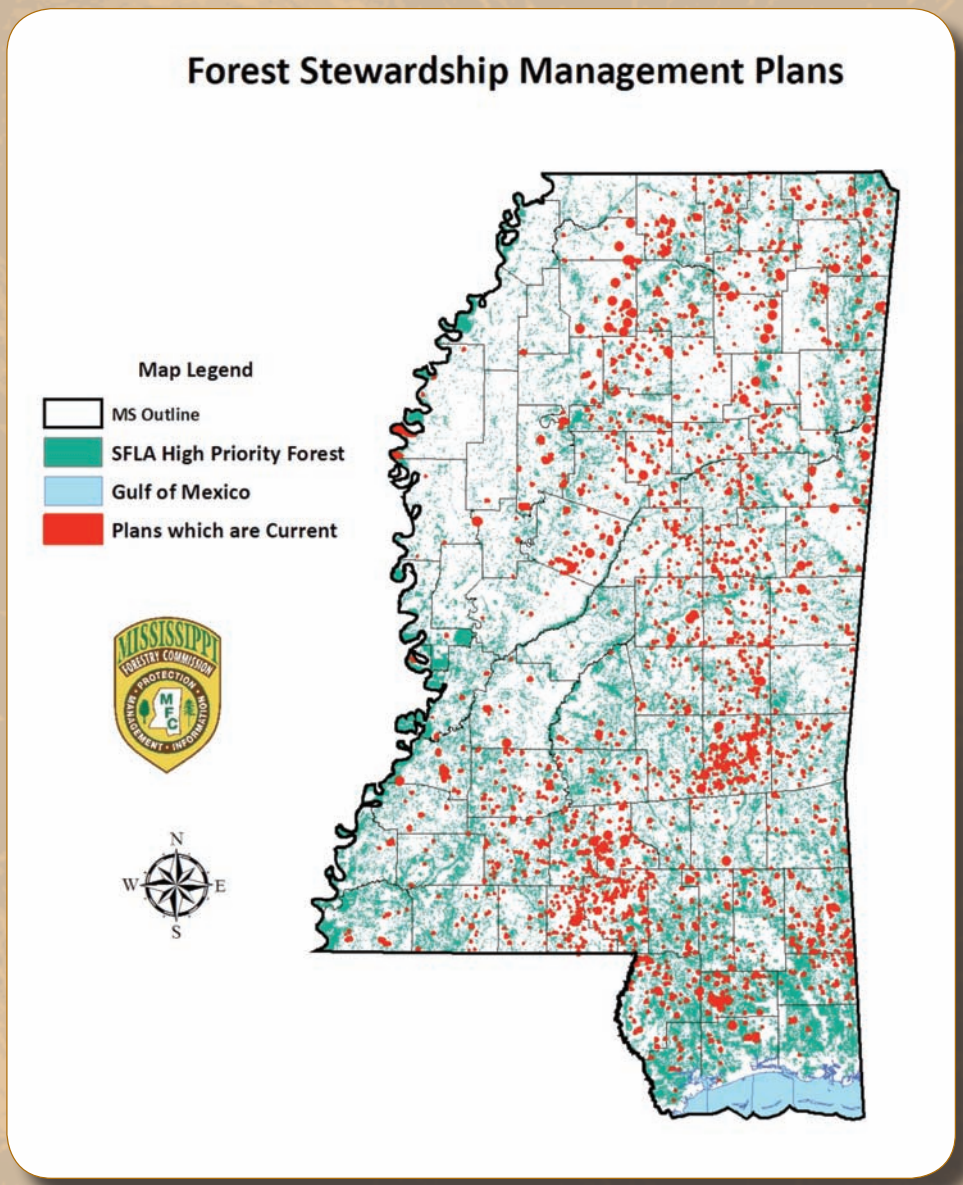
Mississippi's forests and the industry they support contribute $11 to 14 billion to the state's economy and directly employ 54,000 people paying $1.1 billion in wages each year. Timber is an important agricultural crop in the local economy of virtually every county outside the Mississippi Delta. In any year, timber will be among the three most valuable agricultural crops in 65 to 70 of the 82 counties in the state.

Mississippi's forest products industry consists of four major sectors:

- Solid wood products which includes pine and hardwood lumber, plywood, poles, oriented strand board and other "composite" forest products.
- Pulp and paper which includes fine writing papers, "liner-board" used for cardboard boxes, tissue and absorbent papers, and market pulp.
- Wood furniture and related products which consist mostly of upholstered wood furniture such as couches, love seats and recliners.
- Timber harvesting which includes the harvesting and transportation sector.

Because of its abundance of forests, streams, lakes, coastal waters and marshes, Mississippi is a popular destination for Mississippians and non-residents seeking outdoor recreation opportunities. Tourism, wildlife associated and forest-based recreation constitute a substantial segment of Mississippi's economy. According to the *National Survey of Fishing, Hunting and Wildlife-Associated Recreation* report Mississippi residents age 16 and above that participated in wildlife recreation (hunting, fishing, wildlife viewing) in 2006 and spent $1.1. billion.

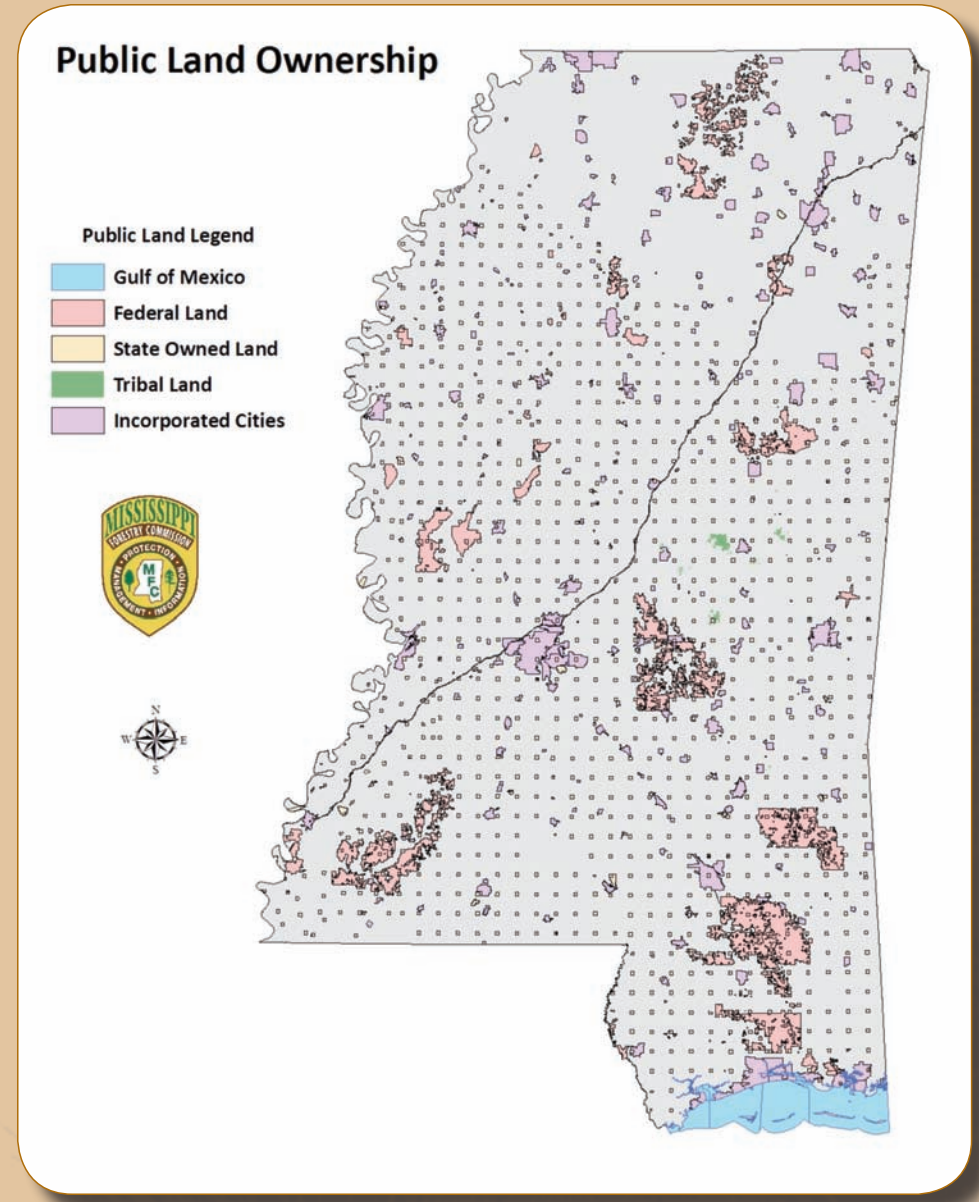
The state has nine national wildlife refuges, six national forests, seven national parks, 24 state parks, and 42 state wildlife management areas, one national estuarine research reserve, over 80,000 acres of coastal preserves and thousands of acres of lands managed by the U.S. Army Corps of Engineers that support and serve the growing tourism and recreation industry. Although not all revenues reported for tourism and recreation are the result of forest-based activities, the natural beauty of Mississippi's forests, combined with the state's diverse topography, make it an increasingly popular vacation destination.



Current forest stewardship plans on private lands.

The most popular forest-based outdoor recreation activities include hunting and fishing, hiking, horseback riding wildlife observation, photography, camping and enjoyment of nature.

Most forest industries that own land in Mississippi recognize the opportunity for outdoor recreation on their lands and some make them available for hunting, hiking and other public recreation use by lease or permit. Recreational use on non-industrial private forestlands is much more limited than on public lands. Fewer landowners are willing to allow the public access to their lands, and an increasing number lease their lands, primarily for hunting, to users who also help protect forest resources.



Distribution of public lands in Mississippi

Often overlooked, the aesthetics forests provide play an important role in the economic and social well-being of Mississippi. The beauty and serenity of public and private forestlands have a positive impact on tourism and economic development. Forests adjacent to urban areas and communities can result in increased property values. They soften the glare and hard lines of developed areas, reduce noise and pollution and act as sound barriers or screens.

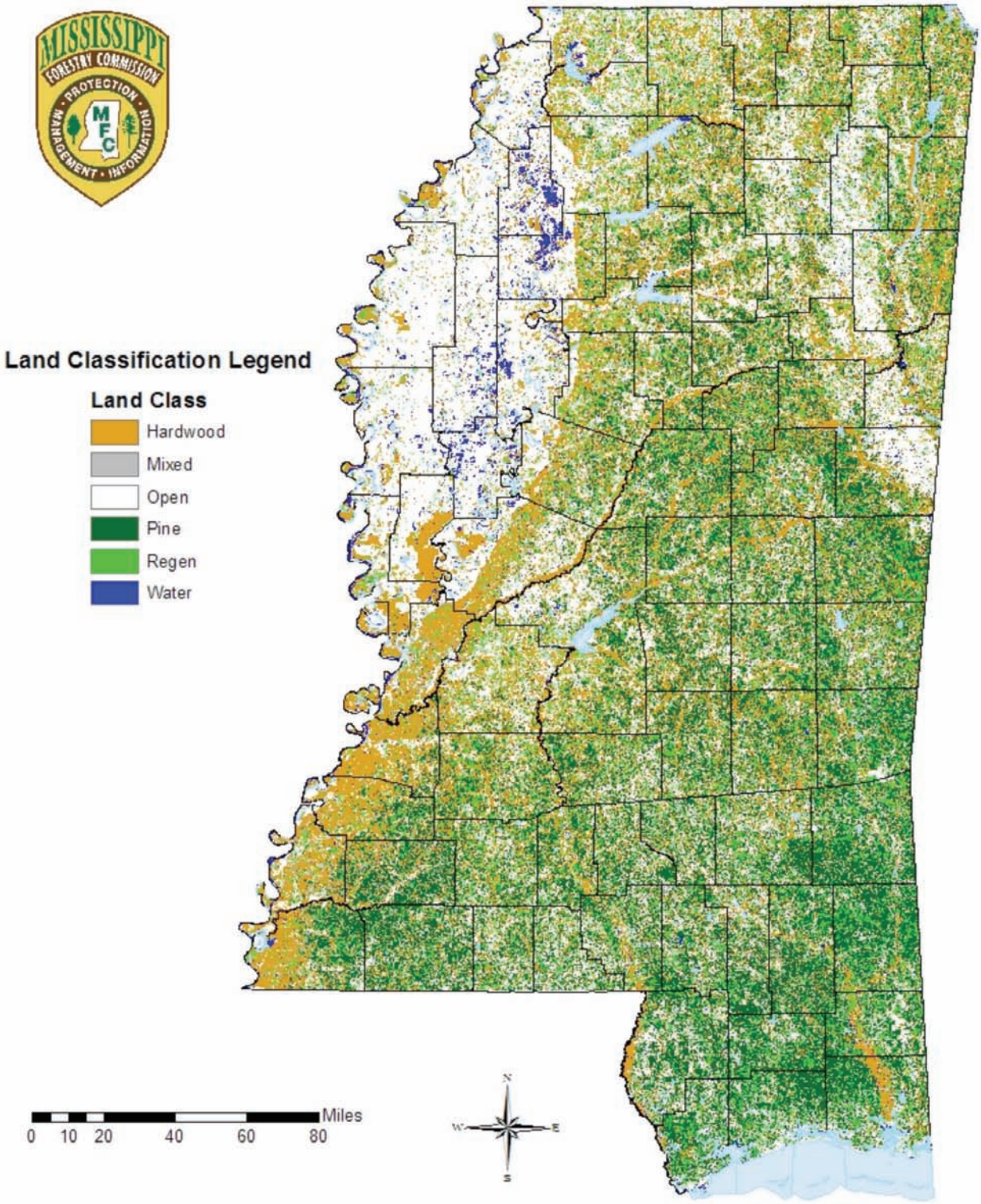
Other non-timber benefits of forest resources are ecosystem services such as carbon storage, water quality protection and soil stabilization are difficult to quantify, but are becoming increasingly recognized in the state as having critically-important public benefits.

Distribution and Abundance

Mississippi is one of the most heavily forested states in the nation. Approximately 65% percent of the total land base is forested, totaling approximately 19.79 million acres. With the exception of the Mississippi Delta, forestry is the predominant land use. The total productive land area of Mississippi is 30,521,018 acres. Pine forests cover 6.62 million acres or 33.45% of the forested area. Hardwood and oak-pine timber types combine to occupy over 53.11% of the state's timberland or 10.5 million acres. Land that is regenerating as forest area but is yet unclassified is 2.66 million acres or 13.45% of the current forested area (MIFI).

Forests are located statewide, but the type of forest cover varies dramatically across the state. The amount of forest cover in Mississippi has actually increased over the past four decades, primarily due to the conversion of agricultural land to pine plantations. The following is a map of general land cover and a current list of forested acres by county.

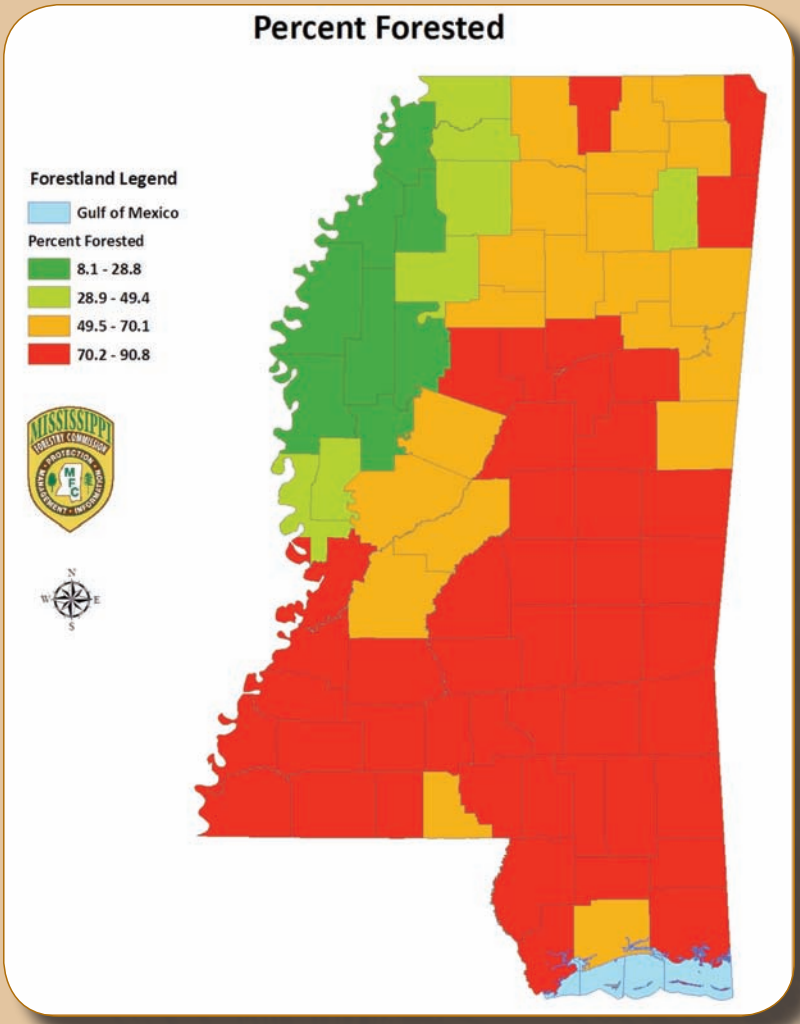
2006 Mississippi Land Classification



Forested Acres by County in Mississippi

COUNTY	FORESTED ACRES	TOTAL ACRES	%
Adams	229,911	311,279	74
Alcorn	165,479	256,857	64
Amite	393,949	468,223	84
Attala	394,103	471,597	84
Benton	183,695	261,462	70
Bolivar	90,926	579,658	16
Calhoun	239,390	376,191	64
Carroll	287,600	405,982	71
Chickasaw	168,153	322,676	52
Choctaw	233,666	268,608	87
Claiborne	260,779	320,894	81
Clarke	383,519	443,753	86
Clay	155,534	266,218	58
Coahoma	79,531	373,143	21
Copiah	397,977	498,702	80
Covington	193,545	265,477	73
DeSoto	136,293	317,835	43
Forrest	236,881	300,831	79
Franklin	329,261	362,704	91
George	237,641	309,513	77
Greene	403,135	459,943	88
Grenada	177,979	287,511	62
Hancock	225,411	320,959	70
Harrison	269,290	385,606	70
Hinds	349,582	561,339	62
Holmes	308,316	488,932	63
Humphreys	39,662	275,892	14
Issaquena	124,454	282,479	44
Itawamba	265,406	345,896	77
Jackson	330,011	470,284	70
Jasper	370,470	433,468	85
Jefferson	286,930	337,423	85
Jefferson Davis	195,232	261,743	75
Jones	338,130	447,718	76
Kemper	421,538	490,859	86
Lafayette	301,538	434,605	69
Lamar	244,054	320,215	76
Lauderdale	376,230	457,744	82
Lawrence	223,798	278,789	80
Leake	293,461	374,532	78
Lee	120,855	289,986	42

COUNTY	FORESTED ACRES	TOTAL ACRES	%
Leflore	73,419	387,967	19
Lincoln	288,282	376,353	77
Lowndes	178,447	330,540	54
Madison	276,964	474,722	58
Marion	262,703	350,981	75
Marshall	274,175	454,137	60
Monroe	298,870	494,119	60
Montgomery	191,212	260,948	73
Neshoba	277,810	365,770	76
Newton	291,121	370,847	79
Noxubee	262,950	448,023	59
Oktibbeha	211,654	295,571	72
Panola	201,124	451,143	45
Pearl River	387,178	523,956	74
Perry	364,162	416,047	88
Pike	185,404	262,842	71
Pontotoc	167,329	320,570	52
Prentiss	166,048	267,673	62
Quitman	39,769	260,090	15
Rankin	371,027	515,788	72
Scott	296,212	390,528	76
Sharkey	93,721	278,305	34
Simpson	291,850	377,820	77
Smith	329,492	407,724	81
Stone	239,629	286,705	84
Sunflower	36,603	452,541	8
Tallahatchie	140,247	417,215	34
Tate	116,998	262,928	44
Tippah	199,146	294,329	68
Tishomingo	217,093	284,546	76
Tunica	67,475	307,624	22
Union	153,730	266,744	58
Walthall	167,169	258,768	65
Warren	284,075	395,962	72
Washington	81,004	487,198	17
Wayne	443,367	520,607	85
Webster	209,589	270,863	77
Wilkinson	376,566	440,206	86
Winston	319,953	390,387	82
Yalobusha	217,490	316,699	69
Yazoo	300,651	597,704	50

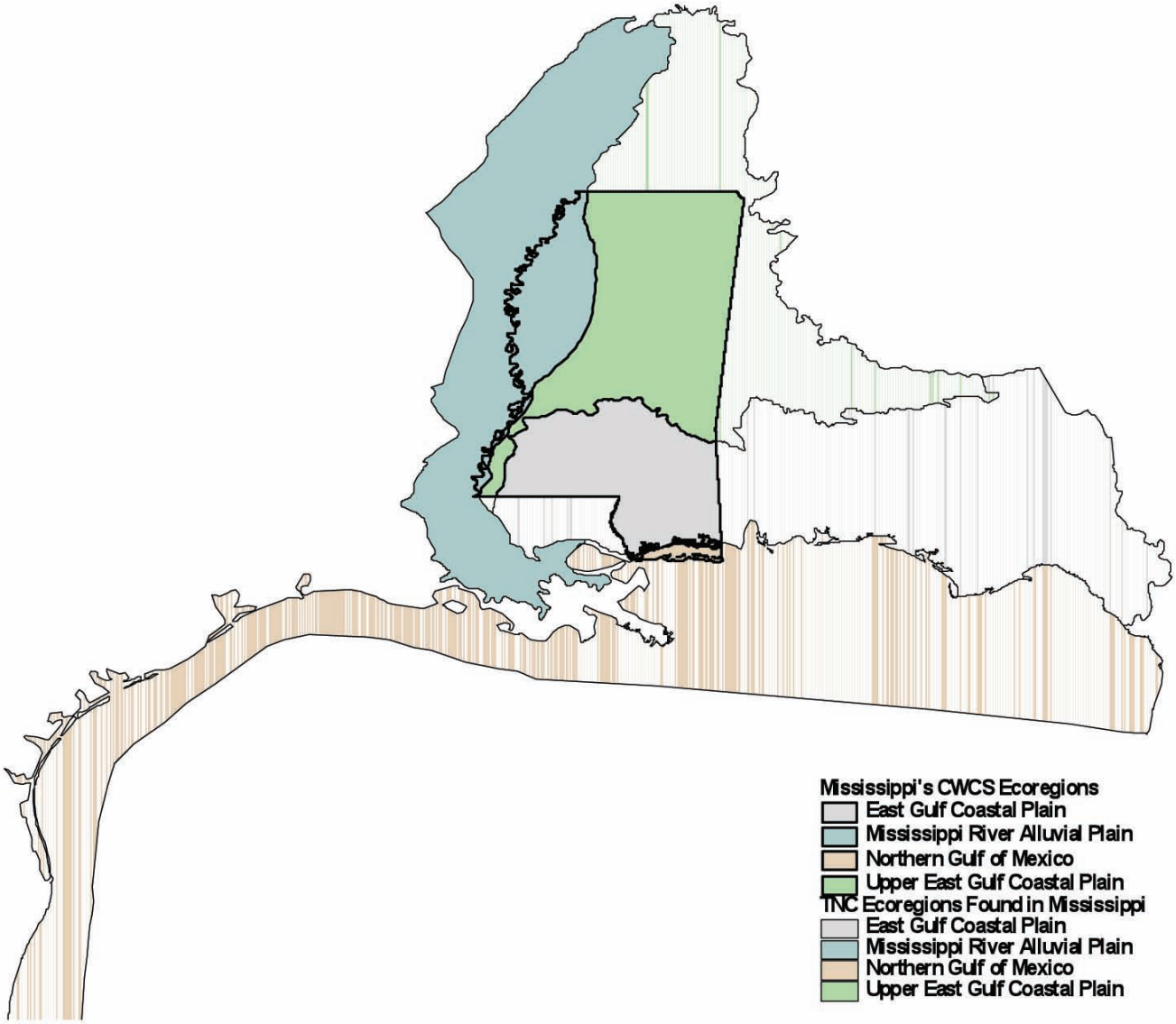


Forest Communities of Mississippi

A natural community is collectively, all of the organisms inhabiting a common environment and interacting with each other. The Mississippi Natural Heritage Program (NHP) has identified at least 159 natural, semi-natural, managed, weedy and probable community types in Mississippi, which includes 77 forest types. Those community types have been assigned priority conservation ranks indicating their relative endangerment or abundance. In 2005, the Mississippi Department of Wildlife, Fisheries, and Parks (MDWFP) led an effort to develop the state's first *Comprehensive Wildlife Conservation Strategy (CWCS)* as part of a nationwide effort to improve biodiversity of wildlife species. The CWCS condensed the 159 community types identified by NHP into 64 types with a description of each community, the wildlife and fish species of concern associated with each type, and identified the major threats and potential conservation actions needed to abate those threats. The community types were also ranked for the purposes of prioritizing the community types that need immediate conservation action. Twenty of the 64 community subtypes are predominantly forested and fall in to nine major forest types:

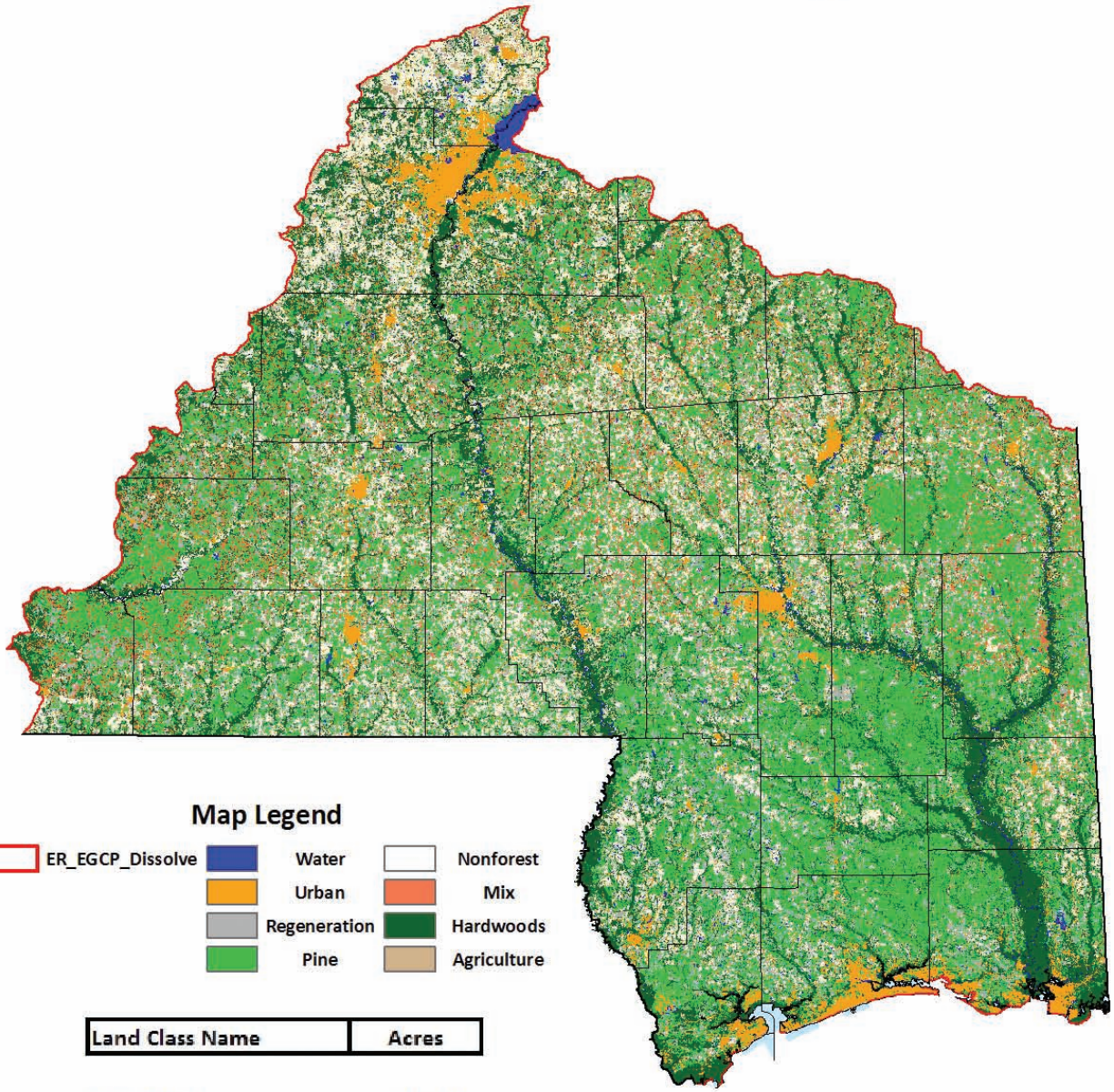
- **Dry-Mesic Upland Forest/Woodlands**
- **Old Fields, Prairies, Cedar Glades and Pine Plantations**
- **Mesic Upland Forests**
- **Bottomland Hardwoods**
- **Riverfront Forests**
- **Wet Pine Savannas/ Flatwoods**
- **Spring Seeps**
- **Swamp Forests**
- **Upland Maritime Woodlands**

These forest community types are organized by the four ecoregions in the state: East Gulf Coastal Plain (EGCP), the Mississippi River Alluvial Plain (MSRAP), the Northern Gulf of Mexico (NGM) and the Upper East Gulf Coastal Plain (EGCP). Ecoregions are commonly considered to be large areas distinguished from surrounding regions by differing biotic and environmental factors and/or ecological processes. Factors that are generally used to distinguish these large regions from one another include differences in climate, physical geography, soils, species or communities.



Ecoregions in Mississippi

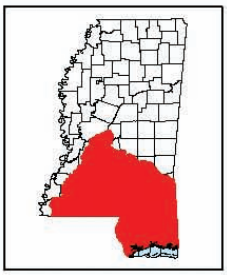
East Gulf Coastal Plain Ecoregion



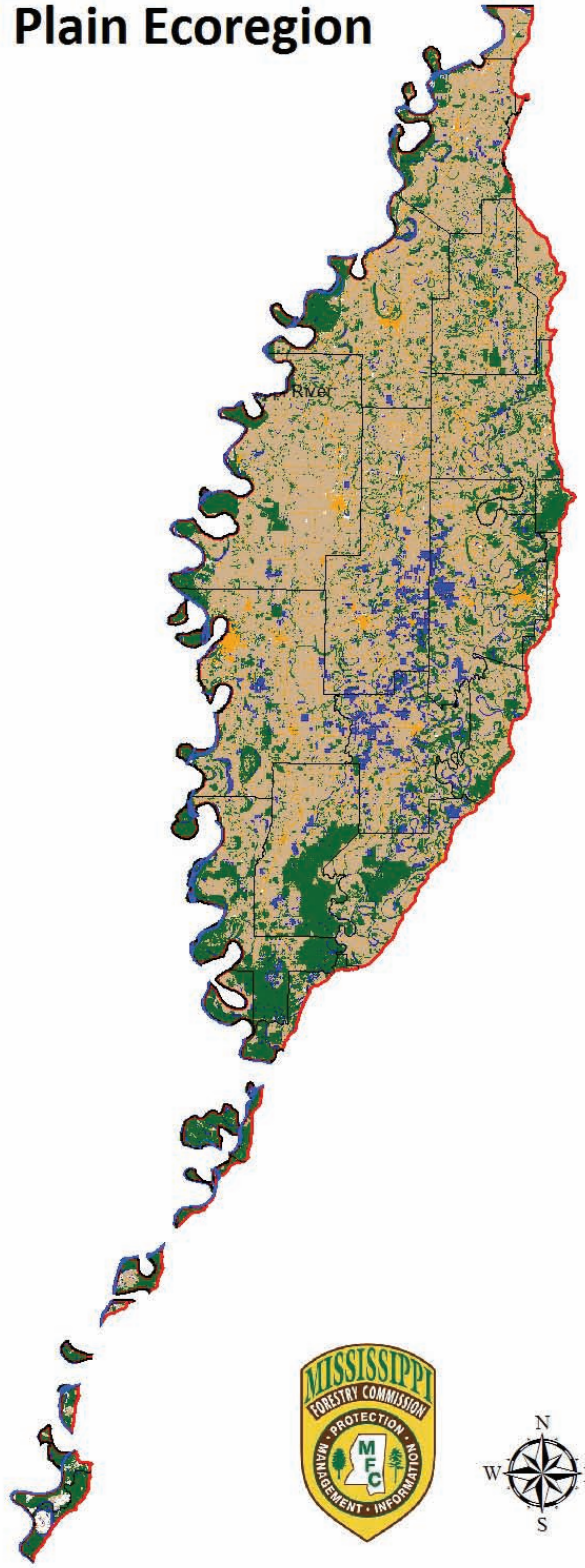
Map Legend

- ER_EGCP_Dissolve
- Water
- Nonforest
- Urban
- Mix
- Regeneration
- Hardwoods
- Pine
- Agriculture

Land Class Name	Acres
Agriculture	71,722
Water	117,591
Regeneration	1,524,252
Nonforest	1,708,827
Hardwood	2,082,428
Pine	3,529,622
Mix	827,014
Urban & Developed Areas	809,717
Total	10,693,285



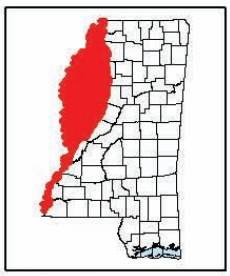
Mississippi River Alluvial Plain Ecoregion



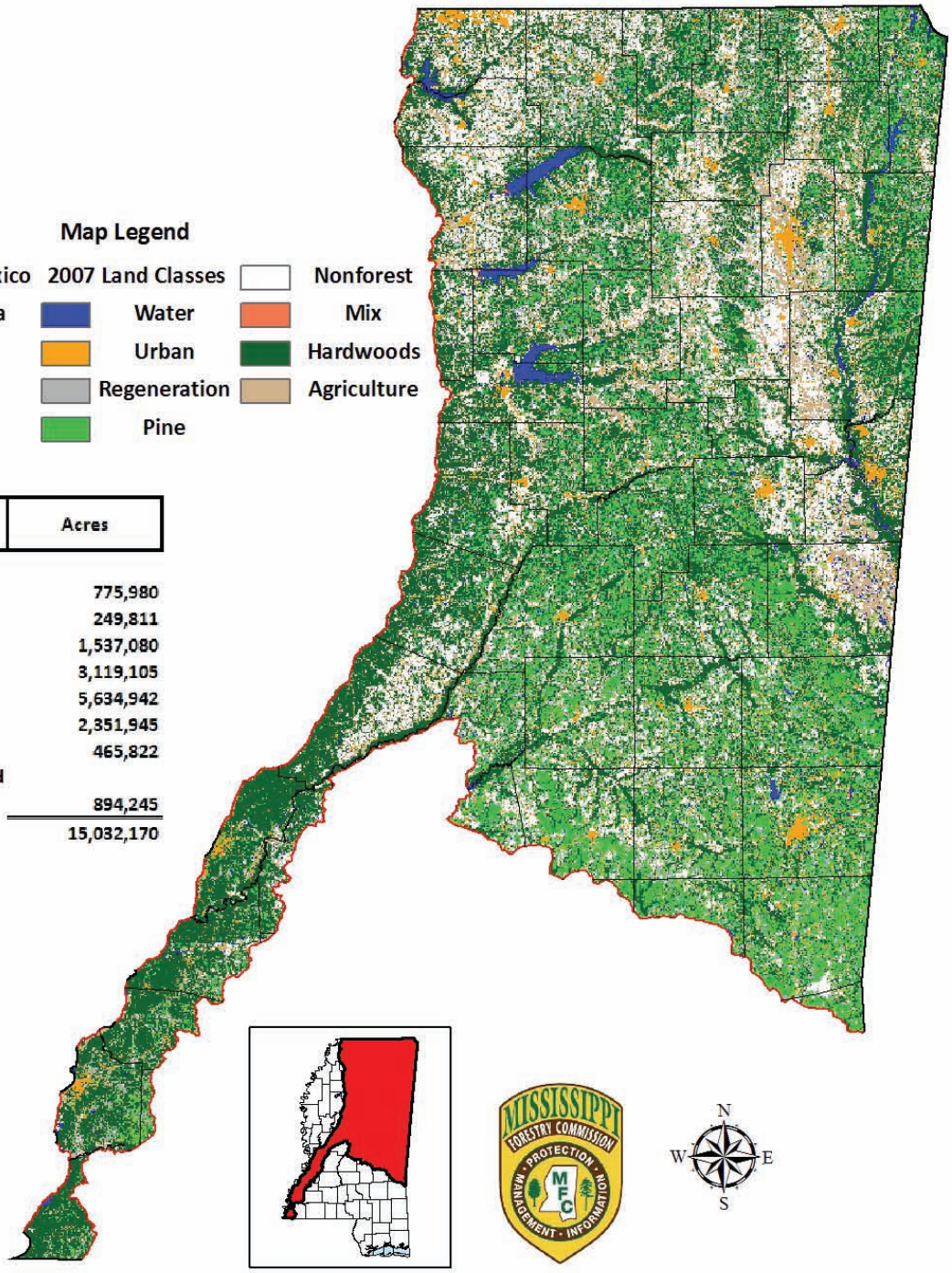
Map Legend

	Class_Name
MRAP Area	
CountyBase	
	Water
	Urban
	Regeneration
	Pine
	Nonforest
	Mix
	Hardwoods
	Agriculture

Land Class Name	Acres
Agriculture	2,810,498
Water	329,803
Regeneration	2,416
Nonforest	51,401
Hardwood	1,303,853
Pine	818
Mix	394
Urban & Developed Areas	290,480
Total	4,789,662



Upper East Gulf Coastal Plain Ecoregion



Land Class Name	Acres
Agriculture	775,980
Water	249,811
Regeneration	1,537,080
Nonforest	3,119,105
Hardwood	5,634,942
Pine	2,351,945
Mix	465,822
Urban & Devloped Areas	894,245
Total	15,032,170

Forest Community Types and Sub-types by Ecoregion				
FOREST COMMUNITY TYPE/ SUBTYPE	**ECOREGIONS***			
	NGM	**EGCP**	**UEGCP**	**MSRAP**
Dry-Mesic Upland Forests/Woodlands		▲	▲	
Dry Hardwood Forests		▲	▲	
Dry Longleaf Pine Forests		▲	▲	
Dry-Mesic Hardwood Forests		▲	▲	
Dry-Mesic Shortleaf/Loblolly Pine Forests		▲	▲	
Old Fields, Prairies, Cedar Glades and Pine Plantations		▲	▲	▲
Northeast Prairie/Cedar Glades			▲	
Pine Plantations		▲	▲	
Old Fields and Young Hardwoods (Shrublands)		▲	▲	▲
Mesic Upland Forests		▲	▲	
Beech/Magnolia Forests		▲	▲	
Mesic Longleaf Pine Savanna/Forests		▲	▲	
Loess Hardwood Forests		▲	▲	
Lower Slope/High Terrace Hardwood Forests		▲	▲	
Bottomland Hardwood Forests		▲	▲	▲
Bottomland Hardwood Forests		▲	▲	▲
Riverfront Forests		▲	▲	▲
Cottonwood/Black Willow/River Birch Woodlands		▲	▲	▲
Wet Pine Savannas/Flatwoods		▲		
Wet Pine Savannas		▲		
Slash Pine Flatwoods		▲		
Spring Seeps		▲	▲	
Hardwood Seeps		▲	▲	
Pine Seeps		▲	▲	
Swamp Forests		▲	▲	▲
Baldcypress/Gum Swamp Forests		▲	▲	▲
Small Stream Swamp Forests		▲	▲	
Upland Maritime and Estuarine Fringe Habitats	▲			
Maritime Woodlands	▲			

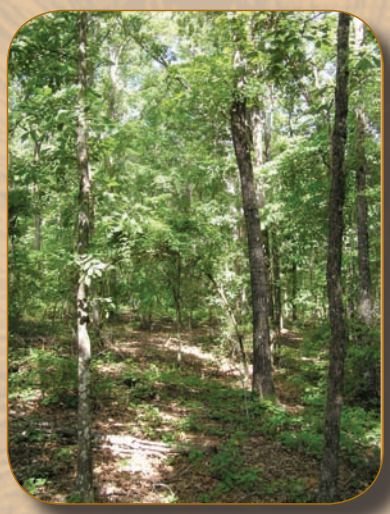
** Northern Gulf of Mexico (NGM), East Gulf Coastal Plain (EGCP), Upper East Gulf Coastal Plain (UEGCP), Mississippi River Alluvial Plain (MSRAP), Source: Mississippi Comprehensive Wildlife Conservation Strategy, 2005*

Forest Community Descriptions

A short description of each of these nine major forest types follows. A full description of the 20 forest community subtypes is found in the current *Mississippi Forest Legacy Program Assessment of Need* referenced in Appendix A and includes more detailed information on their geographic location, size, condition and conservation status. Photos are provided courtesy of MDWFP.

Dry to Mesic (Dry to Moderately Moist) Upland Forests/Woodlands

Upland forests of this type have limited nutrient and/or moisture availability due to the nature of the soils, which are shallow, coarse-textured and well drained. Subtypes of this category include dry to moderately moist hardwood and pine forest associations. Mixed pine-hardwood habitats are classified as either pine or hardwood subtypes, depending on whether pines or hardwoods are more abundant. Fire played an important role in maintaining these habitats by reducing densities of young saplings, recycling nutrients and oxidizing ground litter. This forest type includes four subtypes: Dry Hardwood Forests, Dry Longleaf Pine Forests, Dry-Mesic Hardwood Forests and Dry-Mesic Shortleaf/Loblolly Pine Forests.



Dry to Mesic Hardwood Forest
Photo courtesy MDWFP/MMNS

Although there are no estimates of the losses of dry-mesic upland forests/woodlands in Mississippi, it is possible to envisage their overall condition by understanding the extent of development pressure generated on these habitats. Historically, large areas of upland hardwood and pine forest were converted to agricultural croplands and pasture. The tracts that were chosen were selected from the areas containing the most productive landforms and soils. Most landforms of the coastal plain are not excessively steep or isolated and are therefore accessible to either timber management or agricultural usage.

Today, typical upland forests lack a diverse understory and exhibit very high stem densities. Many commercially managed forests have been converted to pine plantations and, on national forest lands, the trend for the past 50 years has been to promote pine reproduction over that of indigenous hardwood trees. Furthermore, upland forests of Mississippi benefit from prescribed burning. However, timberlands and protected forestlands, such as national wildlife refuges and lands adjacent to Corps of Engineers' reservoirs, are somewhat degraded due to limited exposure to fire, though continued efforts to increase usage on national forest lands are promising. Also, reproduction for some important trees, such as several oak species, is hampered by current management systems.

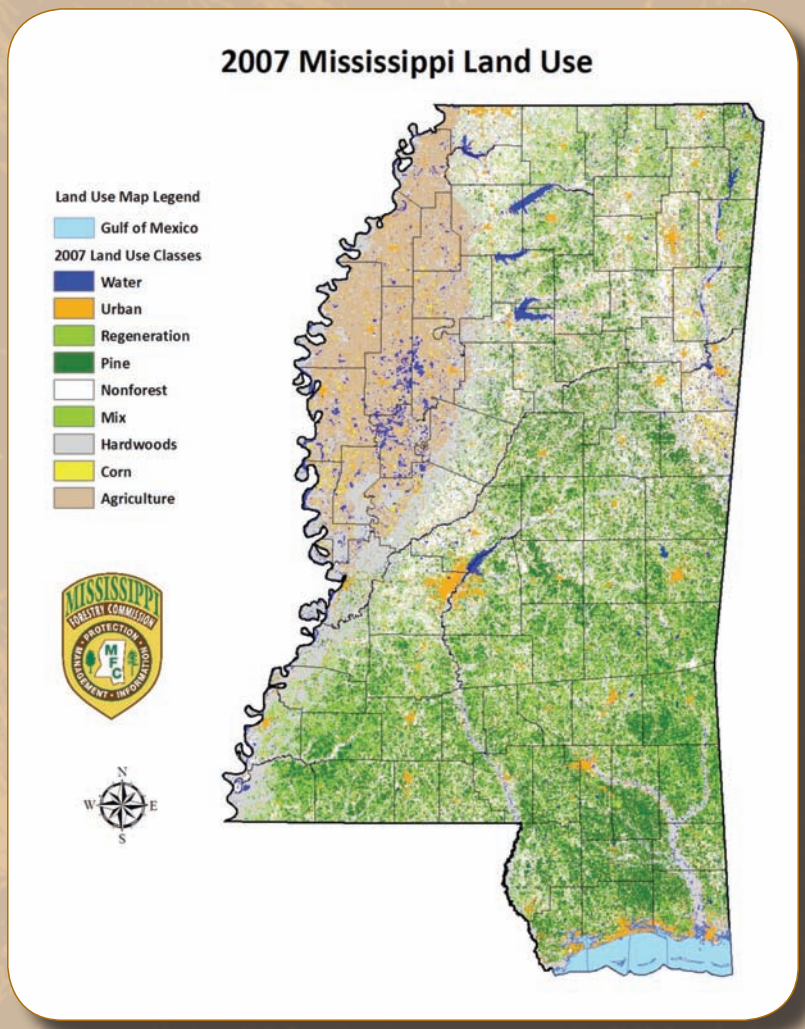
In general, it is likely that more than 90 percent of upland forests of Mississippi have been severely degraded or lost and the condition of the remaining could only be regarded as fair. With an increased interest in conservation, possibly through sustainable forestry practices as the single tree select cut system of timber harvesting, and a renewed interest in forest restoration on private and public lands, these systems may improve.

Old Fields, Prairies/Cedar Glades and Pine Plantations

This category is a collection of naturally occurring prairies/cedar glades and the artificial constructs of agriculture and forestry (pine and hardwood plantations, young hardwoods and old clearcuts). These subtypes occupy a wide range of landforms, soils and moisture conditions. This type includes three forest subtypes: Northeast Prairie/Cedar Glades, Pine Plantations, Old Fields and Young Hardwoods (Shrublands).

Old Field/Young Hardwoods – Shrublands
MDWFP/MMNS

There are no accurate records of historical acreage for the Northeast Prairie of Mississippi; however, estimates suggest that approximately 100,000 acres once existed in northeast Mississippi, some of which included Indian old fields. Historically, the prairies were converted to agriculture uses by the early settlers. A majority of the Blackbelt and Jackson prairies remain under cultivation for cropland and pasturage, or have degraded into cedar glades or grassy fields or have converted to woodland. Some areas exhibit erosion scars, chalk outcrops and weedy aspects. Some gullied lands are being re-graded and converted to fescue pastures. Prairie vegetation is still found on many of the eroded sites, although much is in poor condition. The prairies that exist today occur on forest edges, in pastures, utility corridor rights-of-way and road ditches that are maintained in grass by mowing.



A large percentage of the land surface area of Mississippi is in various stages of regeneration following logging, cropping, or

natural disasters, such as catastrophic fires or windstorms. Land use/land cover classification studies based on satellite imagery indicate that approximately 35 percent of Mississippi is non-forested and is dominated by shrubs, small trees or herbs. The land use/land cover estimates indicate that there are over four million acres of scrub-shrub habitat and nearly seven million acres of pasture/grassland. As agriculture lands go out of production, there has been steady increase in the acreage of pine plantations.

Mesic (Moderately Moist) Upland Forests

Upland forests that are not limited by nutrient or moisture availability are considered moderately moist. Landforms supporting this type are those positioned on the middle to lower slopes, low flats or protected draws. The soils are usually deeper, moderately fertile, consist of loam or clay and have higher moisture holding capacities than those of dry to moderately moist categories. Hydric features, characteristics of wetland soils, are normally not found in the upper horizons of these soils. Plant communities of mesic habitats include beech/magnolia, loess hills and lower slope or high terrace hardwoods.

This type includes four subtypes: Beech/Magnolia Forests, Mesic Longleaf Pine Savanna/Forests, Loess Hardwood Forests and Lower Slope/High Terrace Hardwood Forests.

Beech/Magnolia Forest
MDWFP/MMNS

The diversity of the hardwood and pine forest communities have decreased due to land clearing, overcutting, introduction of invasive species, especially Chinese privet, erosion and the suppression of fire over long periods. Being situated on gently sloping landscapes with relatively deep and fertile soil, the mesic forest types were more likely to be converted to agriculture. The loess forests of Mississippi, which are found on steeper terrain, have remained somewhat intact. However, development surrounding the urban centers of Memphis, Vicksburg, and Natchez is causing significant fragmentation of the loess forest community.

Mesic longleaf forests once formed an extensive blanket across the uplands of the piney woods region but were logged during the last two centuries. Second growth forests, many of which were converted to other pines, now occupy the undulating hills and plains of the region. Because of the current emphasis on timber production, longleaf pine stands are even-aged and have much higher stocking densities. Although dramatic conversion has occurred, longleaf forests are common on national forest lands and a few private holdings. Also many areas have lost their coverage of beech/magnolia trees. However, beech and magnolia remain as the dominant trees

in isolated coves, draws and on steeper terrain, especially across the loess hills south of Vicksburg, in patches on national forest lands and on bluffs or upper terraces of major river systems. Forest management practices that prevent logging in streamside zones, designed to help improve water quality of streams, also help conserve lower slope/high terrace hardwood forests. The expansion of terrace hardwoods onto slopes is a modern condition resulting from the suppression of fire. Conditions described for dry-mesic upland forests also apply to these forest communities.

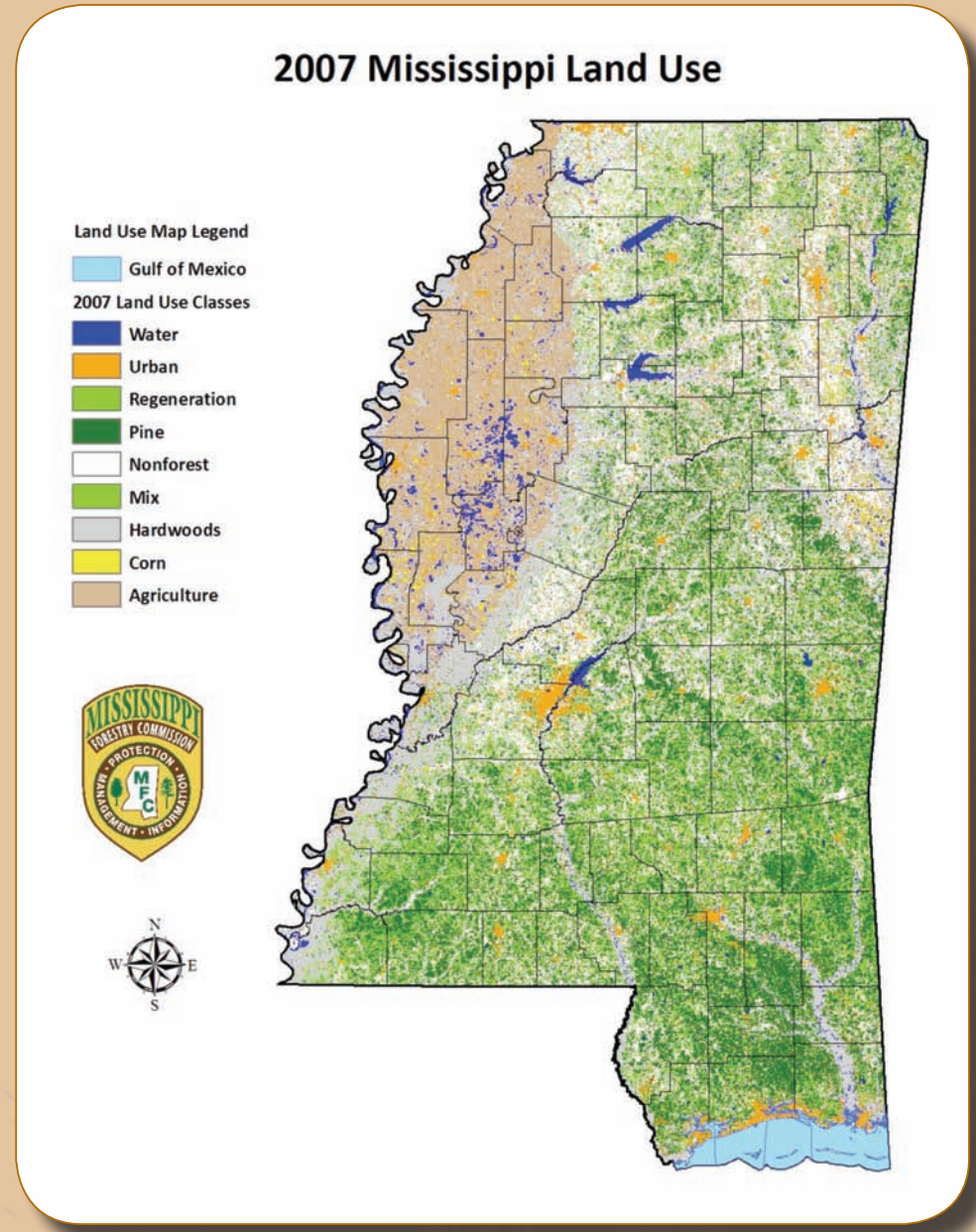
Bottomland Hardwood Forests

Bottomland hardwood forests occur in river floodplains that receive periodic inundation from rivers during heavy rainfall events. Bottomland terraces are irregularly flooded for durations of several days to a month or more. On these lowland sites, the water table remains elevated during the winter and spring seasons and soils remain moist through much of the growing season. Their soils are less acidic and are enriched by the influx of nutrients and sediments during floods. Bottomland forests are considered palustrine. Palustrine communities are composed of hydrophytic plants that grow and persist despite periodic low oxygen conditions in the soil.

Bottomland Hardwood Forest
MDWFP/MMNS

Bottomland hardwood forests and swamps make up parts of three forest communities – bottomland hardwoods, riverfront floodplain forests and swamp forests. Bottomland hardwood forests and swamps were once common in the Southeast. During the last century, the most dramatic wetland loss in the entire nation occurred in forested wetlands of the Lower MSRAP. Of an estimated 24 million acres of the original bottomland hardwood forests, only 5.2 million acres (22 percent) remained in 1978. Fifty-six percent of southern bottomland hardwood and bald cypress forests were lost between 1900 and 1978. Only 15 percent of the Mississippi Delta remained forested and the largest segment remaining is the complex of forests about 100,000 acres in size within and surrounding the Delta National Forest. The largest patches of bottomland forests are the wet bottomland types that contain few tree species. However, significant areas of bottomland hardwood forests remain in the mid-South region, mainly situated in the Mississippi River Valley. It is estimated that over 2.5 million acres of moderately wet bottomland forest and over 0.6 million acres of very wet bottomland forest remain in the lower part of the MSRAP within Mississippi, Arkansas and Louisiana.

The primary cause of bottomland hardwood loss has been conversion of these lands to agricultural production. Additional losses have been caused by construction and operation of flood control structures and reservoirs, surface mining, and urban development. The moderately wet forest types are increasingly fragmented due to improved road access, increased agriculture usage (i.e., pastures and fencing) and closer proximity to development. The wetter tracts are less fragmented but also have lost many of their original functions. They are somewhat less vulnerable to disturbances



because moisture conditions prevented access to these lands. Human activities along streams and other bottomland communities have had, and continue to have, a negative impact in this habitat.

Riverfront Palustrine (Moist) Floodplain Forests

Riverfront soils are lower in organic matter and have higher pH than soils of other bottomland hardwoods. New soils in accretion zones range from fine clay to coarse sand, depending on flow velocities at the time of sediment deposition. Backwater areas contain finer textured substrates and point bars are sandier. The moisture level of riverfront substrates depends on river stage, which is high in the spring, causing saturation or flooding, and low in the fall, bringing drier conditions.Flooding along the riverfront areas reworks sediments from river banks, sandbars and point bars to form new channels, submerging some areas and build new lands elsewhere. Wet exposed mineral soils provide open habitats for cottonwood and willow to germinate. The dominant trees of these areas germinate best in exposed mineral soil, grow rapidly once river levels fall and must tolerate submersion and sediment accumulation. Sedimentation degrades aquatic habitats and kills aquatic organisms, including fish. Riverfront forests, which control shoreline erosion and intercept eroded soil from upland areas, effectively reduce the amount of sediment reaching rivers and streams. This natural community type includes one forest subtype: Cottonwood/Black Willow/River Birch Woodlands.

Cottonwood/Black Willow/Riverfront Forest
MDWFP/MMNS

Dams, channelization, manmade levees and other modifications have restricted the extent of riverfront forests. Bank erosion-accretion process has been slowed or eliminated along leveed and stabilized portions of the Mississippi River. The modified river environment has caused the riverfront cottonwood and willow communities to regenerate poorly.

Although much diminished after river diking, dredging, revetment and channelization projects, the lands between the Mississippi River and its levees still contain the long swaths of riverfront forests. It is estimated that over 500,000 acres of cottonwood-willow forest remains in the lower Mississippi River alluvial plain within Mississippi, Arkansas, and Louisiana. Rivers confined to the western portion of the state and that flow into the Mississippi River, such as the Big Black and Sunflower, are dramatically impacted by the stages of the Mississippi River, which significantly alters their rate of flow and sediment deposition.

Wet Pine Savannas/Flatwoods

Wet pine savannas and flatwoods are found on low, wet, rain-fed coastal flats, foot slopes, depressions, and along drainageways. Wet pine savannas receive moisture through precipitation and are not subject to riverine flooding. Soils are composed of highly weathered, acidic, infertile substrates. The high precipitation and low evapotranspiration rates during the winter and spring season along the Gulf Coast creates a surplus of moisture that gradually percolates through the soil profile. Nutrient-deficient soils develop on these wet flats because nutrients released by weathering are insufficient to replace those removed by leaching. This forest type includes two subtypes: Wet Pine Savannas and Slash Pine Flatwoods.

Wet Pine Savanna
MDWFP/MMNS

It is estimated that less than five percent of the original acreage of wet pine savanna habitat remains in the Atlantic/Gulf Coastal Plain making it one of the most endangered ecosystems in the country. The lack of prescribed burns has had a dramatic negative impact on the size and distribution of wet pine savannas. Fire suppression allowed pines and shrubs to invade and out-compete the native savanna plants. In the 1960s and 1970s, much of the remaining open savanna was converted to pine plantation by planting and ditching (bedding); the latter disrupted the natural water regime. Additional urbanization of the three coastal counties of Mississippi caused significant losses of this habitat. The

savannas of Sandhill Crane National Wildlife Refuge are considered the last remaining large patches of this diverse community.

Slash pine flatwoods have also been adversely impacted by timber harvest, clear-cutting and plantation monoculture. If fire is excluded, the open, herbaceous character of pine flatwoods ground cover is lost, while evergreen shrubs increase in dominance. Contributing to these factors is the dry mat of acidic pine needles which inhibit the growth of most herbaceous species.

Spring Seeps

Springs form when groundwater resurfaces after flowing laterally over less permeable substrates, which place the water table above the spring. Cracks or sloping impermeable strata tend to direct the flow towards the spring head. Springs were important watering points for early settlers but also have ecological importance, especially by providing a moist environment for amphibians. Today, some springs produce commercial spring water. Spring seeps often contain rare plants and may be the only wetlands available to local animal populations during droughts. Larger spring-fed wetlands are considered in swamp, bog or other wetland categories within this *AON* or within the habitat subtypes of Mississippi's *CWCS*. This type includes two subtypes: Hardwood Seeps and Pine Seeps.

Seeps occur throughout Mississippi but are infrequently found in the blackland and interior flatwoods regions of the state. They are more abundant in regions with steep terrain such as the loess hills, Tennessee River hills, and the rolling hills of the longleaf pine region. The number of seeps in Mississippi is unknown and no study of their condition is available. The Mississippi NHP has documented a limited number of spring seeps. Some seeps are destroyed during highway construction by cutting through the vein that provides moisture or by intentionally capping with impermeable materials in efforts to preserve the roadbed. Surrounding land uses will affect the condition of spring seeps. In one instance for example, a seep which supplied moisture to a highly diverse bog was destroyed by the removal of sand and gravel from a nearby hill. Surface and gully erosion will reduce moisture availability to springs by changing subsurface flow patterns. In some instances seeps are less likely to be impacted by humans, as the nature of the saturated soils makes it difficult to carry out standard logging practices or imprudent to construct buildings within the seepage zone.

Swamp Forests

There are about 600,000 acres of swamp habitat in Mississippi, equivalent to about two percent of the state land area. Oxbow lakes, low floodplain terraces, bottomland flats, backwater areas or springheads are common areas to find swamp forest vegetation. The soils of swales or depressions are seasonally to semi-permanently flooded and remain saturated for long periods throughout the year. Two swamp forest subtypes occur in Mississippi: Bald Cypress/Gum Swamp Forests and Small Stream Swamp Forests.

Baldcypress/Gum Swamp Forest
MDWFP/MMNS

Bald cypress/blackgum/water tupelo swamps are found in depressions associated with riverine floodplains. The second subtype, small stream swamp forests, includes

wet pond cypress depressions, white cedar swamps and bay swamp forests.

Mississippi was once covered with mostly unbroken forest, but centuries of land clearing and development have seriously impacted southern swamplands. Fifteen percent of the land surface area of the Southeastern U.S. was once wetland as compared to five percent nationwide. The Southeast accounted for about 47 percent of the total wetland area and 65 percent of the forested wetland area of the conterminous U.S. Despite dramatic losses, the region currently accounts for about 36 percent of all wetlands and 60 percent to 65 percent of all forested wetlands. Although loss rates have declined recently, most wetland acreage lost every year in the country is from southern forested wetlands. The increase in the population of the South has accelerated the rate of wetland losses. Conditions around the state range from losses of around 80 percent in the Delta to more natural conditions in parts of the Pascagoula River watershed. The Pascagoula River is the largest unimpeded main stem river in the lower 48 states surrounded largely by bottomland hardwoods and coastal marsh.

Maritime Woodlands

Maritime woodlands are found on the barrier islands and the mainland coastline of Mississippi. Many of the barrier islands, parts of which are considered wilderness, remained in good condition prior to Hurricane Katrina which made landfall in August, 2005. This hurricane caused overwash and additional destabilization of the fragile dune systems. The barrier islands are gradually diminishing in size by wave erosion and reduced sand accretion. Exotic weeds, which have gained footholds on the mainland in pine flatwoods and savannas, live oak woodlands and shell middens, as well as on the islands, will continue to reduce the condition of these landscapes.

Maritime Woodland
MDWFP/MMNS

The maritime slash pine flatwood/savannas community marks a scenic backdrop to the intertidal marshes along Mississippi's coastline. This community occupies ancient low shoreline beach ridges and low flats situated immediately inland from the tidal marshes. It is also found on the terrace levees of many tidal creeks, occasionally extending into the midst of sprawling black needlerush marshes. In accompaniment with the pine flatwoods, are coastal live oak woodlands situated on prominent coastal cheniers and ancient beach ridges that straddle the coast line. The live oak woodlands are comprised of native live and upland laurel oaks and contain an understory often dominated by saw palmetto. Most of the coastal upland habitat has been urbanized. Therefore it is likely that the maritime live oak forest is one of the rarest communities found in Mississippi.

The community is fire dependent and can become brushy and inaccessible to pedestrian traffic during long intervals between burns. Maritime woodlands, including maritime live oak forests provide essential points for neotropical migrants staging their trans-gulf journey in the fall and recuperating upon their return in the spring.

Like other coastal states, the use of coastal areas as industrial, urban, and residential centers has disturbed much of the natural landscape surrounding coastal wetlands in Mississippi. Over half of the U.S. population lives within 50 miles of the coast and this population is growing at a much faster rate than inland regions. This rapid urbanization of our coasts has destroyed a significant amount of coastal wetlands and fringe habitats, degraded coastal water quality, and severely stressed other coastal ecosystems.

Forest Ownership

According to MIFI, forest ownership for land in Mississippi is primarily by private landowners - families. Traditional family legacy subdivides large holdings into smaller parcels. Families acknowledge the legal distinction in ownership of the land but continue to manage the parcels as contiguous properties.

Mississippi has only recently begun transitioning to a digital format for property records. However, corporate and governmental ownership records are available in geo-referenced digital formats and MIFI has focused on the use of these records to create ownership descriptions. By process of elimination, the non-industrial private land ownership patterns can be discerned as follows.

- Corporate timberland currently accounts for 3.1 million acres.
- Publicly owned federal timberland currently accounts for 2.2 million acres.
- Publicly owned state timberland currently accounts for approximately 1 million acres.
- Native American timberland in Mississippi amounts to approximately 25,000 acres.
- Approximately 78 percent of forest land in the state belongs to nonindustrial private, forest landowners (NIPF).

The following are acreages by general category from the 2006 Mississippi FIA; figures differ slightly from the more recent MIFI, but indicate general acreages by forest ownership.

Area of Forest Land by Category	**Owner**
Category	**Area in acres (thousand)**
Private - Family	12,146
Private - industrial	5,174
Total Private	**17,320**
Public – Federal	1,834
Public – State	236
Public – Local	233
Total Public	**2,303**
Grand Total Forests (2006)	**19,622**

**Mississippi Forests, 2006*

Most of Mississippi's NIPF forest lands are maintained for economic returns from the sale of timber as a primary or secondary objective. Other major uses include management for hunting of game species such as white-tailed deer, wild turkey, squirrels and other game or for wildlife viewing and aesthetics. The majority of Mississippi landowners do not have an established, formal plan for managing their property. While they do not consider the need for a management plan until they decide to harvest timber, an increasing number of Mississippi landowners have varied management objectives and actively seek technical assistance from state or federal agencies or conservation organizations.

Threats to Forest Resources

The following are major threats to Mississippi's forest resources that were identified in the development of this assessment or by other related plans such as the Mississippi CWCS and the FLP AON. Threats, trends and contributing factors are described and discussed in more detail by each key issue area in Chapter III.

- Agricultural Conversion
- Climate Change
- Non-native invasive species (plants/animals)
- Changes in forest structure/ loss of diversity
- Altered fire regime
- Fragmentation/parcelization
- Changes in land ownership (smaller acreages)
- Loss of operational mills in the state
- Changing markets for forest products
- Conversion to offsite forest species
- Incompatible forestry practices (high stocking densities, excessive use of chemicals)
- Second home/vacation home development
- Urban/Suburban development

III. Key Issues

Eight key issues were identified by stakeholders as areas or issues of primary concern regarding Mississippi's natural resources and forest lands.

Issue 1: Forest Sustainability
Issue 2: Resource Markets
Issue 3: Land Ownership Policies
Issue 4: Forest Health
Issue 5: Stewardship Education
Issue 6: Wildfire Fuel Reduction
Issue 7: Climate Change
Issue 8: Wildlife

These critical issues were initially identified during the Mississippi Natural Resources Planning Conference hosted by Mississippi State University (MSU) and were further refined through the use of surveys and stakeholder (agencies, organizations, businesses and individuals) meetings coordinated by MFC staff during 2009 – 2010. The issues were validated by the public in two surveys conducted by the MFC in 2009. A description of how the assessment and strategy process was developed, including public and stakeholder input, is in Appendix A. Major program documents to be incorporated into this document by reference are in Appendix B – *Detailed Program Guidance*. Highlights of the two surveys and public process that led to the development of these priority issues are included in Appendix C.

These eight distinct issues also emerged from the reports, public surveys, literature and stakeholder input as the most important to Mississippians. Priority areas are identified for each issue and illustrated, where possible. Overall strategies to address each key issue are defined in the *Strategic Issues Matrix* in Chapter VI. Programs, partners and resources are described in Chapter VII - *State Forestry Programs*.

Comonents of Each Key Issue

1. Issue Definition

- **Forest Resource** - What specific physical forest resource is the source of public benefits that are at issue here?
- **Public Benefit** - What benefit from this resource makes this important to the public?
- **Key Conditions or Attributes** - What key conditions or attributes of the forest resource are critical for producing the public benefits?
- **Threats and Contributing Factors -** What factors are directly affect key attributes or conditions in a way that is threatening public benefits? What factors are contributing to making direct threats strong and difficult to manage?
- **Opportunities -** What opportunities are available for directly improving key conditions or attributes?

2. Potential Partners

Who are potential partners in addressing this key issue? Note that this is not an exhaustive list of potential partners, but rather a suggested list identified by stakeholders and MFC of possible collaborators who are or should be involved in addressing key issues.

3. Priority Landscapes

What are the priority areas of the state for this issue? Maps of priority areas are included in Chapter IV that were developed by MFC with partner input for each key issue, where relevant.

Issue 1: Forest Sustainability

Sustainable development of forest resources balances protecting forests from fragmentation, invasive species, fires, insects and disease while encouraging economic growth, financial return, cultural stability, recreational opportunities and environmental values such as soil and water. The federal definition of "sustainable" from the *2010 National Report on Sustainable Forests* means to create and maintain conditions, under which humans and nature can exist in productive harmony, that permit fulfilling the social, economic and other requirements of present and future generations of Americans. Today, the "triple bottomline" concept, which refers to the need to measure progress on three interrelated aspects of a system (environment, economy and society) is used as a shorthand way to describe agency commitment to sustainability.

Forest Resource

Forests dominate much of Mississippi, covering 65 percent of Mississippi's landscape. Almost 80 percent is in private, nonindustrial ownership. Private forest lands are essential to sustaining both the forest products industry and a healthy environment (clean air and water, soil conservation, biodiversity).

Public Benefits

Productive and healthy forests provide many economic, social and environmental goods and services. Landowner objectives for ecosystem goods/services (or natural benefits) are to establish a market value for services such as clean water and clean air. (Ecosystem services or natural benefits refer to services that are valued economically but rarely bought or sold, such as cleansing water and air, regulating climate, providing beauty and inspiration; ecosystem goods refer to items with monetary value in the market place, such as wood and food products, medicinal plants, tourism, and recreation.) Water quantity and water quality are major criteria for measuring the effects of forest management practices. Water quantity refers to the timing and total yield of water from a watershed, while water quality refers to the suitability of drinking water, recreational uses, and as habitat for aquatic organisms and other wildlife.

Key Attributes

The nature of goods and services provided by forests can change over time as a consequence of changes in social and economic demands, different technologies, and landscape-level or local actions taken in the forest to provide those goods and services. Change in the productive capacity of forests is often a signal of unsound forest management or unforeseen agents affecting ecosystems. Educating the public on potential problems of an unhealthy forest is critical to ensuring long-term forest sustainability. Increasing efforts to reach landowners and the public through a variety of methods to encourage stewardship and communicate the value of productive, well-managed forests, opportunities for managing ecosystem goods and services (such as water quality and carbon storage), forest health issues resulting from non-management and estate planning are examples of targeted education that improve sustainability.

Direct Threats and Contributing Factors

Forest fragmentation and/or forest parcelization, insect and disease problems, invasive species, wind events such as hurricanes and tornadoes, and wildfires constitute major threats to sustainability. Parcelization in the context of forestry

generally refers to division of ownerships that result in smaller holdings. This can result from inheritance of forests by multiple heirs, subdividing large blocks into smaller forest parcels, or sale of large holdings to multiple buyers or to single purchasers who in turn subdivide the land at some future date. Absentee ownership tends to increase correspondingly. As the number of landowners increases, the average tract size decreases.

Fragmentation refers to physical isolation of forest tracts from one another. It generally results from parcelization of ownership, but can also be caused by introducing infrastructure (roads, power lines, etc.) into the forest or even forest management activities that have the same effect. Fragmented forest land is most prominent in areas experiencing urban expansion. Fragmentation is accelerated in the wildland/urban interface (WUI) because of the construction of buildings, roads, and parking lots. Fragmented forests cannot provide the same ecological and economic values as forests in rural areas. As fragmentation of forest land increases, the number of large forested tracts decreases.

With the transfer of property known as "intergenerational transfer," the number of absentee landowners increases. In addition, heirs often sell all or part of the property for a variety of reasons, including tax liabilities, lack of interest in ownership, need for revenue, or when real estate value exceeds timber and agricultural revenue potential.

The reduction in forest markets due to the economic recession makes sustainability difficult to attain. Currently out of 140 forest product mills in Mississippi, 11 are closed and 14 are idle. Also, Mississippi's growth to drain ratio indicates that the state is growing 35-40 percent more volume than it is consuming. Markets for other forest-based products, such as ecosystem services, are not very developed in the state or Southeast yet.

Opportunities

Retention of existing industries and the development and attraction of new ones is critical. With new markets and technologies emerging, such as bio-energy and carbon sequestration, Mississippi is situated to promote the abundance of forest resources in the state to potential investors. The increase in funding for expansion of certain forest conservation programs, particularly through USDA Natural Resources Conservation Service (NRCS) and Farm Services Agency (FSA), also present opportunities to implement sustainable forest management on more private lands in target areas identified through those programs.

MFC serves as the lead organization on the Statewide Forestry Water Quality Protection Project which evaluates the implementation and use of voluntary Best Management Practices (BMPs) throughout the state. By monitoring voluntary BMPs on a continuous cycle and widely distributing the results, BMP implementation rates will increase. Through this program, the MFC is working with other forestry-related groups to promote water quality and is evaluating practices in areas of streamside management zones (SMZs), woodlands trails and roads, forest harvesting, site preparation, tree planting, landings, wetlands, fire line construction and revegetation of disturbed forest sites. Some type of forest activity occurs on nearly 850,000 acres annually in Mississippi (approximately five percent of the state's forest land). If BMPs are not followed on these acres, the sites will be prone to increased sediment, increased water temperature and nutrient loading – impacting a critical ecosystem service.

Potential Partners

- Alcorn State University (ASU)
- Landowners with Forest Stewardship Plans
- Longleaf Alliance
- Mississippi Department of Environmental Quality (MDEQ)
- Mississippi Department of Wildlife, Fish and Parks (MDWFP)
- Mississippi Development Authority (MDA)
- Mississippi Forestry Association (MFA)
- Mississippi State University (MSU)
- MS Prescribed Fire Council
- Pole Industry
- Tree Farmers of America
- The Nature Conservancy
- U.S. Army Corp of Engineers (USACOE)
- U.S. Department of Defense
- USDA Farm Services Agency (FSA)
- USDA Forest Service
- USDA Natural Resources and Conservation Services (NRCS)

Priority Landscapes

- Wildfire fuel reduction priority areas
- Natural Range of longleaf pine
- Southern Forest Land Assessment high priority areas
- High priority watersheds defined by MDEQ Basin Plans
- Priority areas for invasive species and forest pest programs
- MIFI charts of growth and drain
- Priority Areas for MS Forest Stewardship Program
- Forest Legacy Areas
- Forested wetlands

Issue 2: Forest Resource Markets

Optimizing Mississippi's abundant forest and water-related resources requires the development and enhancement of diverse markets for natural resource products, including, but not limited to, markets for wood fiber, habitat for wildlife and outdoor recreation, and natural benefits (also called ecosystem services) such as carbon sequestration and water quality protection. If resource markets are not developed sustainably, negative impacts may include degradation of forest resources and accelerated fragmentation. Primary threats to resource markets fall into three categories: social, economic (job loss, landowner income loss) and environmental.

Forest Resource

Of the 19.7 million acres (65 percent) of the total land base in forest land, pine is the predominant forest type in the state covering 6.6 million acres or 33 percent of the timberland. Hardwood and oak-pine types combined occupy over 53 percent (10.5 million acres). Land that is regenerating as forest covers approximately 13 percent or 2.6 million acres. Nearly all (99 percent) of the forest land is considered available for timber production. The remaining forest land area is either unproductive forest land or reserved forest land where timber removals are prohibited by law. The year 2008 marked the 16th straight year Mississippi's timber production value was over $1 billion, making timber the second most valuable agricultural commodity. The vast majority of forest land is in private ownership, but Mississippi also has six national forests totaling 1.3 million acres. Loblolly-shortleaf pine occupy the largest portion of this acreage (471,576+) followed by oak-hickory (270,669+) and loblolly-slash pine (264,039+).

Non-timber forest products include recreation, water, wildlife and aesthetic values that also contribute immensely to the state economy and well-being of the population. According to the 2006 National Hunting and Fishing Survey, state residents and nonresidents spent $1.1 billion on wildlife recreation (hunting, fishing, wildlife viewing) in Mississippi. Of that total, trip-related expenditures were $324 million and equipment purchases totaled $491 million. The remaining $257 million was spent on licenses, contributions, land ownership and leasing, and other items.

Mississippi's forests also sequester (capture) significant carbon from the atmosphere. A pine plantation can sequester one to four metric tons per acre per year.

Public Benefits

Timber provides a very significant source of revenue for landowners, provides jobs, contributes to the tax base for counties and the state and makes a variety of wood products available for consumption. Logging, forestry and wood processing employ approximately 54,000 people and generate $1.1 billion in annual income. Between 1995 and 2006, Mississippi landowners received more than $10.8 billion for their standing timber, or nearly $899 million annually. Forest, logging, primary wood processing and furniture manufacturing contribute $11-14 billion to state's economy.

Severance tax collections on forest products were $3,303,444 in 2008. Twenty percent of severance tax collections, or about $662,717, were returned to counties where the timber was harvested. Eighty percent, or about $2,642,755, went to the Forest Resource Development Program (FRDP) to provide cost share funds to non-industrial private forest landowners for reforestation and other forest management practices

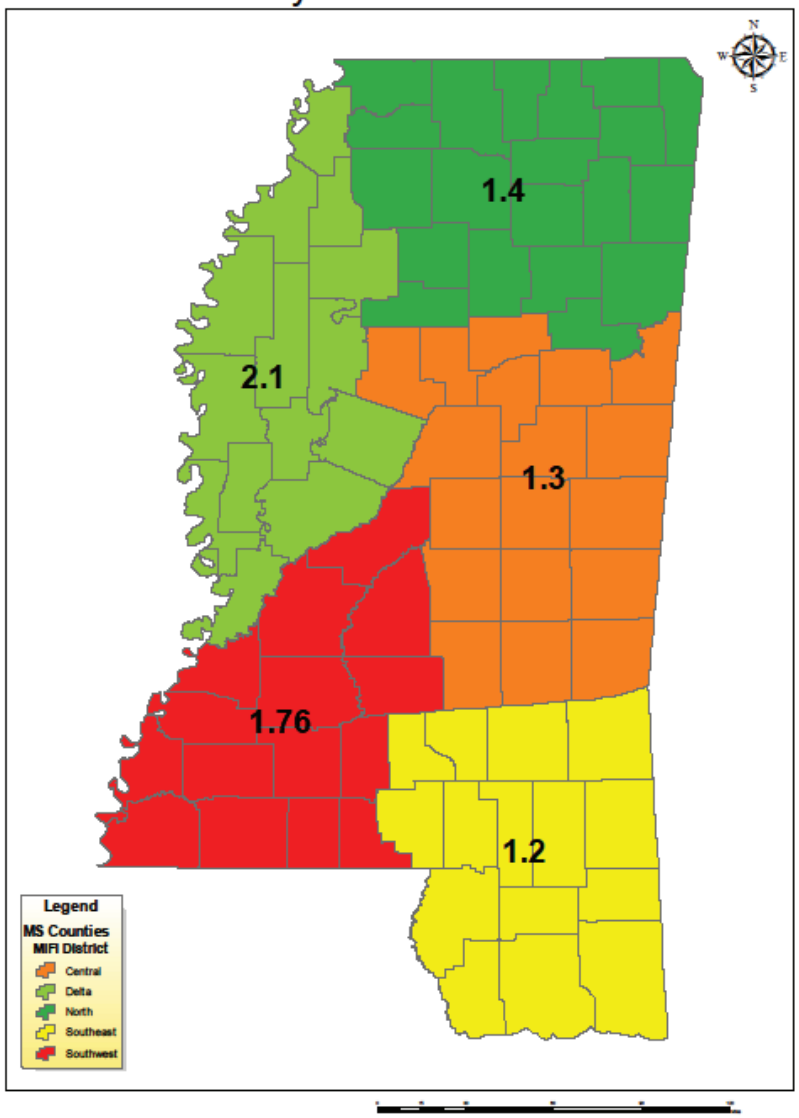
Nature-based recreation in Mississippi also generates significant revenue. The estimated economic impact from activities such as hunting, fishing, hiking, and camping increased to $2.7 billion in 2008, which resulted in 71,435 full and part-time jobs (hunting = $1.2 billion, fishing = $690 million, wildlife watching = $791 million). Operations and businesses that are directly dependent on forest health, diversity, function, ecosystem services, and aesthetics (including horse trail operations, birding, gun ranges, hunting and fishing guide services and outfitters, orienteering recreation, wildlife watching, freshwater fishing outfitters, and consumptive uses such as hunting) create an economic impact of $48 million annually in Mississippi in 2008 dollars.

Forests clearly influence the market value of real property, particularly with recreation potential. According a 2008 analysis conducted by Mississippi State University (MSU) of sales of 800 forested (recreational) properties, there was a $654/acre increase in sales price because of the recreation value of forest lands. This represents a 52 percent increase in sale value from sales of lands without wildlife recreation potential. Mature hardwood and mixed hardwood forests were primary influential variables in increases in sale value of lands sold for outdoor recreation.

Key Attributes

Healthy forest conditions, a balance of age classes, products and species are critical to timber production and other forest markets. Currently, Mississippi is growing more timber than it is consuming (growth to drain). Net annual softwood growth exceeds removals by 29 percent and net annual hardwood growth exceeds removals by 22 percent.

Approximately 46 percent of Mississippi forest land is in the sawtimber product class, 26 percent in pulpwood and 27 percent in regeneration. According to the 2006 FIA, 59 percent of Mississippi's southern pine forest stands are artificially regenerated. This reflects the economic impact of pine



Average growth to drain ratio by Mississippi Institute for Forest Inventory district.

plantations in the state. The sawtimber area has increased 17 percent since 1994, while the regeneration has decreased 25 percent since 1994. Bottomland hardwood forest land area, while still predominately occupied by stands of large average diameter, appears to be experiencing an increase in regeneration. The area of bottomland hardwood forests in the sapling-seedling size class increased by 93 percent to 884,956 acres. This may be the result of reforestation and afforestation efforts occurring in the delta region over the past decade. Still the origins of 72 percent of Mississippi forest stands are natural regeneration.

Very few southern pine plantations are in longleaf pine (only 255,000 acres in the southeast Mississippi). However, there are 2,146,254 acres of loblolly pine plantations in Mississippi. Longleaf acreage represents almost a 90-percent decrease from an estimated 2.1 million acres in 1935. Perry, Forrest, and Lamar counties have the most acres of longleaf pine in Mississippi, accounting for almost half of the longleaf acres in the state. According to the MSU Extension Service, compared to other longleaf-producing states, Mississippi has the greatest percentage of longleaf pine sites classified as "superior quality," which is attributable to suitable climate, topography, and soils. Superior sites are capable of producing at least 85 cubic feet per year when fully stocked. More than 75 percent of Mississippi's longleaf pine sites are superior quality, whereas only 15 percent of longleaf sites outside Mississippi are superior.

Longleaf pine's primary economic advantage is that its tall, straight, knot-free form is ideal for producing high-valued poles, which are worth 30 to 40 percent more than sawtimber. Longleaf pine stands usually produce a much greater percentage of poles than other pine species. An additional benefit of longleaf pine is that more landowners are interested in planting species native to the site, and for most upland sites in south Mississippi, longleaf pine is the native species. Also, longleaf is more resistant than loblolly or slash pine to insects such as the southern pine beetle (SPB) and diseases such as annosus root rot and fusiform rust and is less susceptible to damage from hurricanes than other southern pines, particularly loblolly pine. Landowners now have access to knowledge and techniques (machine planted bare root, hand planted container seedlings, herbicides to control competition, use of fire) to largely overcome factors that limit initial reforestation efforts with longleaf pine.

Natural forest communities support native fauna and flora that serve as indicator species for ecosystem health, support recreational resources and are valued for aesthetics, cultural heritage and natural benefits. Today's remnants of longleaf pine forests are some of the most biologically diverse ecosystems outside of the tropics. More than 140 species of vascular plants can be found in a 1000 square meter, with as many as 40 to 50 plants in a square meter. Nearly 900 endemic plant species – species found nowhere else – are found in these longleaf pine ecosystems across the Southeast U.S. One hundred and seventy of the 290 reptiles and amphibians occurring in the Southeast are found in these systems, with 30 reptile and amphibians that are specialists to longleaf systems are federally threatened or endangered.

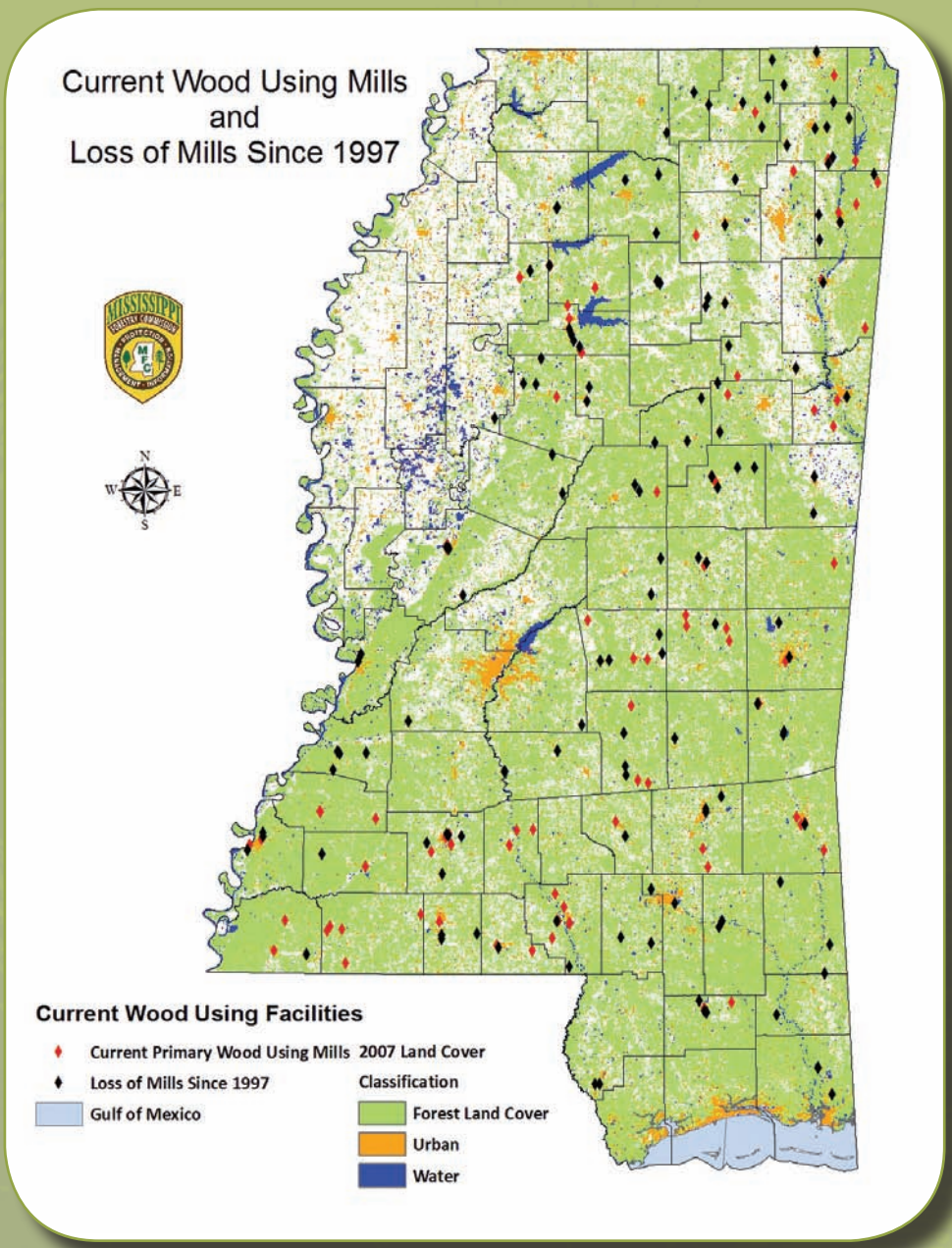
Ecosystem services or natural benefits of healthy forests that have market values or potential values include: flood abatement and amelioration that reduces property and resource damage; preventing soil erosion; protection of water quality through filtration of sediment and pollution; water quantity through flood pulse, aquifer recharge and water supplies; improved air quality through carbon sequestration and natural pollution filtration processes; and habitat for native pollinators (which is estimated at $57 billion annually in U.S.).

Threats and Contributing Factors

The global recession in recent years has been a major influence on Mississippi's traditional and emerging forest resource markets, along with changes in industrial ownership, globalization of the forest products industry and an aging domestic manufacturing infrastructure that have occurred over the past two decades.

A major trend affecting timber markets over the past five years has been loss of operational mills in the state. A study in 2009 revealed that 8 percent of mills closed and 11 percent were idle. Some mills that were operating were not at full capacity. The 2009 harvest value was also 20 percent lower than in 2008. This sharp reduction in harvest value is mostly attributable to declines pine sawlog production. Also, no new mills have been built in Mississippi since 1989 (Bowater plant in Grenada). Mississippi has an aging mill infrastructure that could lead to more mill closures.

Changing market conditions are also a factor. A comparison between 2007 and 2008 harvest volumes and delivered values by product category reveals harvest volume of pine sawlogs decreased by 11.1 percent, and its value declined 13.4 percent. Pine pulpwood volume increased by 0.2 percent while the value increased 11.8 percent. The volume of pine poles decreased 9.1 percent while their value decreased 15.7 percent. Hardwood sawlog volume decreased 4.9 percent while value increased 2 percent. Hardwood pulpwood harvest volumes were



Current wood using mills and mills closed in Mississippi since 1997

reduced by 1 percent while value increased by 19.7 percent. The 2009 harvest value was 19.9 percent lower than the 2008 value. This sharp reduction in harvest value is mostly attributable to declines in pine sawlog production. The estimated value of the harvesting and transportation sector accounted for 50.7 percent of the total harvest value in 2009, an 8.8 percent increase over the previous year. This relative increase in harvesting and transportation cost and decrease in standing value as a proportion of the total harvest reflects lower stumpage rates and increased hauling distances for some forest products.

Property taxes (on many forest properties) are assessed on a productive potential that will never be realized. In some cases, excessive property taxes limit the owner's capability to invest in forest improvement practices that would help realize the productive potential.

Funding cuts at universities and state agencies have reduced research focused on forestry. There is still the need for research and the transfer of the technology, particularly for new markets such as bio-fuels. The long time frame between the timber inventory in the early 1990's and the recent 2006 inventory created a situation where investors, forest industry, and other resource decision makers lack timely and accurate information to make investment decisions. This may have contributed to the fact that no new major timber using mills have been built since the late 1980s in Mississippi, there have been limited upgrades to existing timber using mills, and many other timber using mills have closed. With that it is imperative that Mississippi maintains and updates its current forest inventory information to facilitate and

encourage investment in Mississippi's forest products community and industry.

Large reduction in acres of prescribed burning due to litigation threats, public concerns about air quality, higher costs, burning parameters that limit the number of legal burning days and fewer contractors that supply the service threaten the viability of resource markets for both timber and recreation. Mississippi's *Comprehensive Wildlife Conservation Strategy* (2005) developed by the Mississippi Department of Wildlife, Fisheries and Parks (MDWFP) emphasizes the detrimental effect that loss of prescribed fire has had on certain natural forest communities, particularly longleaf pine in south Mississippi and has allowed the spread of certain invasive plant species such as Japanese privet.

The workforce (loggers and buyers) that supports the timber harvesting industry has seen a significant decrease in numbers in recent years in response to the changing markets and economic slump. There is a growing concern that, as economic recovery occurs, there may not be a sufficient skilled workforce to meet the new demand for timber resources and the financing that was once available to provide capital for what is considered a volatile business.

Transportation of forest products continues to be a challenge. Tighter restrictions on road use and a growing trend toward higher road bonds for timber harvesting, as well as routing of log trucks by county supervisors, have complicated the process of moving forest products and increased logging cost. County supervisors often view log trucks as the primary negative influence on roads while other types of heavy transportation are not held to the same standard. Bridges may not have a sufficient weight limit to permit loaded log trucks to pass safely. In many cases these bridges are not easily identified on rural county roads. This does not allow the county or state to assess the potential magnitude of this problem.

Mississippi lacks significant other transportation mode such as railroads, which would provide more cost-effective transportation of wood products while reducing pressure on the highway system. Managers of deep water ports on Mississippi's coast will not allow shipping of wood products to global markets, thus restricting the state's ability to meet increasing global demand for timber products. Currently, all shipping must be containerized and the existing ports' shipping requirements make shipping cost prohibitive. The State of Mississippi controls 2 of the 16 ports, and the remaining 14 ports are locally owned and operated.

Forest fragmentation and parcelization, or the division of forest land into increasingly smaller areas, has an extremely adverse impact on ecosystem processes and biodiversity as well as the ability to manage and harvest timber. According to the 2006 forest inventory, 53 percent of Mississippi's forest land is in parcels of 20 acres or less and 83 percent are in parcels of 100 acres or less. Privately owned tracts are trending toward smaller parcels which have unintended consequences such as the decreased profitability of harvesting. Highly mechanized systems require tract sizes of at least 40 to 50 acres. With a smaller tract size, opportunities for harvesting diminish to a point that is not considered viable for commercial harvest. Forest fragmentation often results from parcelization of ownership, but can also be caused by introducing infrastructure (roads, power lines etc.) into the forest or even forest management activities that have the same effect.

Only five percent of Mississippi landowners have a written forest management plan. Many landowners do not understand the opportunities that proper forest management provide such as increasing revenue potential by managing for multiple uses such as timber, recreation, wildlife habitat and the potential for other emerging markets such

as carbon sequestration. When landowners harvest timber they seldom seek the advice of consulting foresters or the MFC.

Coupled with lack of management on private lands, there is a lack of education among landowners concerning issues affecting both existing and emerging forestry markets. Many landowners are aware of carbon and bio-fuels markets, but are uncertain of their future potential value. Some estimates project that carbon offsets could be a $60 billion market in 2012, on a par with U.S. corn and wheat markets. This will make forestry mitigation opportunities more important in the future. Although prices on carbon contracts are fairly low at present, there is potential for them to increase as power plants and heavy industries seek to offset their generation of carbon dioxide through sequestration programs. To date, Mississippi has failed to develop the bio-fuels market on par with other southeastern states such as Florida, Alabama and Georgia.

Public and recreationists attitudes regarding changing forest types influence resource markets sometimes create conflict between different market users. For example, expanding acreages of plantation pine over the past two decades in areas that were once covered by mixed pine-hardwood, hardwood-pine, or hardwood forest stands are seen as a negative by the public, particularly recreationists. Negative attitudes regarding certain aspects of forest management have evolved based on both real and perceived experiences such as “ugly cutovers,” expansive loblolly pine plantations, and a history of excessive clearcutting of mature bottomland hardwood stands. While some public criticism is merited, a general lack of public understanding and appreciation of the value and opportunities of good forest management exists. This failure to understand the impact that forestry has on Mississippi’s economy, both at the state level and county level, has led to a strong lack of support and in some cases an unfriendly attitude toward forest management that is an essential part of sustaining healthy forests and Mississippi’s economy.

Opportunities

Opportunities for improving forest markets and forest management fall into four main categories: Certification programs, cost-share programs and existing and emerging economic opportunities, landowner education, and urban forest management. The following is an overview.

Certification Programs

The American Tree Farm System® (ATFS) certifies land management to the American Forest Foundation’s Standards of Sustainability. Under these standards, private forest landowners must develop a management plan and pass an inspection by an ATFS volunteer forester. ATFS has certified 24 million acres of privately-owned forest land managed by over 90,000 family forest landowners, making it the largest private forest conservation program in the U.S. Currently in Mississippi, there are 3,200 landowners who participate with 2 million acres in the ATFS. ATFS certification is free for landowners.

The Sustainable Forestry Initiative® (SFI) Inc. is a non-profit organization dedicated to promoting sustainable forest management. SFI works with conservation groups, local communities, resource professionals, landowners, and many other organizations and individuals who share its passion for responsible forest management. The SFI forest certification standard is based on principles that promote sustainable forest management, including measures to protect water quality, biodiversity, wildlife habitat, species at risk, and forests with exceptional conservation value. The standard is used widely across North America, and has strong acceptance in the global marketplace, resulting in a steady supply of third-party

certified wood from well-managed forests. This is especially important because of the growing demand for green building and responsible paper purchasing at a time when only ten percent of the world's forests are certified.

The Forest Stewardship Council (FSC) is a non-profit organization devoted to encouraging the responsible management of the world's forests. FSC sets high standards that ensure forestry is practiced in an environmentally responsible, socially beneficial, and economically viable way. Landowners and companies that sell timber or forest products seek certification as a way to verify to consumers that they have practiced forestry consistent with FSC standards. Independent, certification organizations are accredited by FSC to carry out assessments of forest management to determine if standards have been met. These certifiers also verify that companies claiming to sell FSC certified products have tracked their supply back to FSC certified sources. This chain of custody certification assures that consumers can trust the FSC label.

FSC's model of certification allows products that flow from certified forests to enter the marketplace with a credential that is unique. Any FSC-labeled product can be traced back to a certified source. This aspect of the system is the basis for any credible certification system and is the link between consumer preference and responsible, on-the-ground, forest management.

Note that although SFI and FSC present opportunities for certification, they are cost prohibitive to the majority of landowners.

Cost-Share Programs for Forest Management Practices

A variety of federal and state cost-share programs are available in Mississippi to

Examples of Federal Forest Management

Farm Bill Program	Agency	Agreement period	Curbing Water Erosion	Conserving Soil and Water Resources	Establish Wildlife Habitat
Environmental Quality Incentives EQIP	NRCS	More than 1 year, but less than 10 years	√	√	√
Wildlife Habitat Incentive Program	NRCS	More than 1 year but less than 10 years			√
Conservation Reserve Program CRP	FSA	10-15 Years	√	√	√
Conservation Stewardship Program CSP	NRCS	5 Years	√	√	√
Forest Legacy Program	USFS	Permanent			
Wetlands Reserve Program WRP	NRCS	Permanent or 30 year easements			√

help landowners finance the implementation of forest management practices for timber production, recreation, wildlife habitat, soil and water quality protection and aesthetics. The following table lists some of the more common federal programs and funding sources. A short description of state cost-share programs follows. It is important to note that funding of the programs can change rapidly, as demonstrated in the 2008 Farm Bill where some programs were removed and others increased or decreased in funding. A description of additional cost-share programs available in Mississippi is included in Chapter VII.

State Cost-Share Opportunities

The Forest Resource Development Program (FRDP) is a state program funded by severance tax. Landowners are approved on first-come, first-served basis. Funds can be used for a variety of silvicultural practices such as reforestation of pine and hardwood, prescribed burning, invasive species control, and various herbicide treatments. The program requires a forest management plan, usually written by an MFC forester. Plans for tracts of less than 250 acres are incorporated into Forest Stewardship Plans.

In 1999, the Mississippi Reforestation Tax Credit (RTC) was implemented. RTC allows a Mississippi taxpayer who reforested Mississippi land to claim a 50 percent tax credit against approved costs. The maximum amount of tax credit that could be taken during his or her lifetime is $75,000 per taxpayer, $10,000 limit per year. The credit is claimed against the lesser of actual cost or average cost as established by the Mississippi Forestry Commission. The RTC can be used by private individuals, groups and associations, including trust property and estates. It cannot be used by corporations that manufacture products or their subsidiaries, or by public utilities or their subsidiaries. A written reforestation

Cost-Share Programs in Mississippi

Managing Forest Lands	Implementing Forest Management Plans	Restoring Wetlands	Create Forest Management Plans
√	√	√	√
√	√		
√		√	
√			
		√	

prescription prepared by a graduate forester of a Society of American Foresters (SAF)-accredited institution or by a forester registered under the Mississippi Foresters Registration Law of 1977 is required for the use of the Mississippi RTC. While the Mississippi RTC is an enticing incentive for reforestation, it does not negate the use of the federal tax recovery provisions.

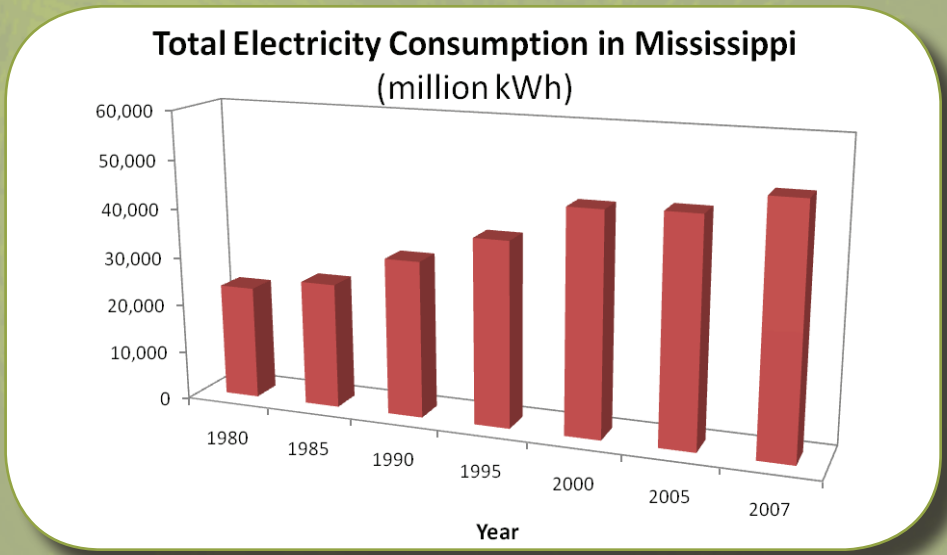
Economic Opportunities for Forest Management and Markets

Mississippi's traditional forest markets will continue to be strong assets for the state. Logging, forestry and wood processing employees approximately represent 54,000 people who provide $1.1 billion in income. Landowners received more than $10.8 billion for their standing timber betwee1995-2006, or nearly $899 million annually. Forest, logging, primary wood processing and furniture manufacturing contribute $11 to14 billion to state's economy.

Though the past three years were difficult for traditional forest markets, primary forces driving Mississippi's timber markets do appear to be improving. U.S housing starts are expected to reach an annual rate of one million units by 2011. There are a number of factors expected to help bolster new home construction such as historically low home mortgage rates and the home buyer tax credit. Also, homeowner improvement spending is expected to bottom during the first quarter of 2010 and then modestly increase. These expectations are based on a rise in existing home sales and stabilization in existing home prices. Given these expected improvements in the housing sector, demand for wood products should increase gradually.

Mississippi is developing a strong ecosystem market that includes both consumptive and non-consumptive uses and has an estimated total economic impact for Mississippi of $2.7 billion in 2008 dollars.

Wood products are an abundant renewable resource that can be stored in various forms and is available throughout the state. It is an attractive form of renewable energy for the developing bio-fuel market. The federal renewable fuels standard calls for producing 30 percent of the nation's energy from biomass by the year 2030. Based on energy consumption information compiled by Redux, in 2003 Mississippians consumed an estimated 1,183.8 trillion British thermal units (BTUs) of energy, ranking 23rd in the nation. Coal accounted for 35 percent of the total energy consumed with natural gas supplying 42 percent, nuclear supplies 19 percent, and petroleum 1 percent. Renewable sources supplied only three percent of the state's needs. Conversely, Mississippi emits 62.13 million metric tons per year of carbon dioxide which ranks 34th nationally.



"Mississippi's annual average increase in electricity consumption from 1980-2005 was 2.6 percent, slightly higher than the U.S. average of 2.2 percent. With manufacturing edging out agriculture as the state's largest industry, state energy use and per capita

energy consumption will most likely continue to rise. The state will undoubtedly need new sources of power to keep up with this growth in the years ahead. The following chart illustrates Mississippi's growing electricity demand from 1980-2007." (Advance Mississippi).

The July 2008 website edition of *Forbes* ranked Mississippi among the top five states in the nation for potential biomass energy. The Mississippi Development Authority's web page promotes biomass as offering significant opportunities for Mississippi's future. The state produces or has the capability to produce sufficient feed stock for building and sustaining markets for energy, fuel, and other products. Wood products are the principal source of biomass in the state and currently are being used to make paper, wood products, mulch and as a fuel to generate steam and electricity.

Assuming a heating value of 8,000 BTUs per dry pound, this resource could provide up to 64 trillion BTUs of renewable energy potential each year. Estimates reflect a 6.8 million dry tons per year of wood available for bio-mass use. This reflects a 70 percent recovery of wood residuals from harvesting practices. At present residual wood left on-site following harvesting is potential energy lost, representing 69 percent of the biomass available. Energy markets work off stable, long-term, fixed-price supply, which is the expectation, when moving into generating energy from bio-fuels. But, due to factors such as logistics, weather, wood storage characteristics, and mill expectations, that is not how traditional forest utilization markets work. Also, Mississippi has yet to allow the practice of "net metering" so that companies can economically generate electric power and sell it to the grid. The development of woody biomass products will provide future jobs and income, decrease energy costs, and provide landowners an opportunity to grow trees on a short rotation. All of these benefits provide incentives to participate in some form of forest management.

Although prices on carbon contracts are fairly low at present, there is potential for them to increase as power plants and heavy industries need to offset their generation of carbon dioxide through sequestration programs. Carbon credits are trading for $3.50 in other states. Landowners, on average, can expect $10 -20 per acre in revenue from the sale of carbon credits in the future.

Also, in 2007, a convergence of interests led to the formation of the *America's Longleaf Restoration Initiative* (the *Initiative*) as an umbrella for the collaborative efforts of more than 20 state and federal agencies, stakeholders and organizations. The 15-year goal for the plan is an increase in longleaf acreage from 3.4 to 8.0 million acres, with more than half of this acreage targeted in range-wide "Significant Geographic Areas" in ways that support a majority of ecological and species needs.

Landowner Education

Education opportunities are vital to encouraging more active management of private forest lands for multiple uses. Existing MFC efforts that offer the most potential for improving forest management and expanding resource markets are:

Minority outreach efforts such as the Underserved Landowner Outreach program provide assistance to underserved landowners in Mississippi. This program has three primary goals: 1) to provide outreach support and technical assistance to underserved landowners; 2) to encourage young people to seek careers in forestry; and 3) to work with Alcorn State University (ASU) to develop and/or enhance projects of mutual forestry interest.

Environmental Field Days are held every fall and spring. These events are sponsored jointly by the NRCS, MFC and MDFWP to

target reaching 5th grade students. They focus on the significance of stewardship of forests, soil and water and present a long-term effort to improve public understanding and appreciation of the benefits of natural resources and forest and natural resource management.

Both the MSU and ASU Extension Services host a variety of training classes for both landowners and resource managers. Topics include how to thin trees, forestry taxation, carbon credit markets, and invasive species control and others. The MSU ES also hosts the weekly *Farm and Family Radio* which show is dedicated to forestry issues and current events.

The Mississippi Professional Logger Training Program was first established in 1996 to assist logging business owners and loggers in their profession. Logging is an ever-changing industry which brings a high demand for new training on logging practices. This professional program along with other associations provides the most up-to-date educational programming needed to become certified in the state of Mississippi and will be essential as certification programs evolve. This educational programming is currently centered on the Sustainable Forestry Initiative.

Urban Forestry Opportunities

The Transportation Enhancement Tree Planting Program is a statewide initiative to plant trees for the purpose of enhancing transportation. The program is administered by the MFC with financial support from the Mississippi Department of Transportation (MDOT) and advisory support from the Mississippi Urban Forest Council, Inc. (MUFC).

Urban and Community Forestry Assistance Challenge Grant Program is designed to aid in the development of long-term, self-sustaining urban and community forestry programs. Other programs and events such as Tree City USA and Arbor Day events also encourage the practice of tree planting and stewardship of forest resources particularly in urban areas. Because these popular programs reach large numbers of people, they represent good opportunities for improving public awareness about the importance of forest management and the variety of market values forest resources provide.

Potential Partners

- Alcorn State University (ASU)
- Alcorn State University Extension Service (ASUES)
- Longleaf Alliance
- Electric Power Associations
- Forest Products Industry
- Members of Banking and Financing Community
- Mississippi Association of County Supervisors (MAS)
- Mississippi Consulting Foresters
- Mississippi Department of Environmental Quality (MDEQ)
- Mississippi Department of Transportation (MDOT)
- Mississippi Department of Wildlife, Fisheries and Parks (MDWFP)
- Mississippi Development Authority (MDA)
- Mississippi Economic Development Council (MEDC)
- Mississippi Forestry Association and County Forestry Associations (MFA/CFA)
- Mississippi Forestry Commission (MFC)
- Mississippi Gulf Coast of Economic Alliance
- Mississippi Institute for Forest Inventory (MIFI)
- Mississippi Loggers Association (MLA)
- Mississippi Prescribed Fire Council
- Mississippi State University Extension (MSUES)
- Mississippi State University College of Forest Resources (MSU CFR)

- Mississippi State University Forest and Wildlife Research Center (MSU FWRC)
- Mississippi State University, National Resource Enterprises (NRE)
- Mississippi Urban Forest Council
- SUM Task Force
- USDA Farm Service Agency (FSA)
- USDA Forest Service (USFS)
- USDA Natural Resource Conservation Service (NRCS)
- USDA, Forest Service, Southern Research Station (Forest Inventory and Analysis)
- Wood fuel industry

Priority Landscapes

- Statewide
- Mill allocation by type and status, including new emerging market mills
- Growth to Drain – Areas of state where growth is out pacing usage
- Limited railroad lines in Mississippi
- Limited deep water ports in Mississippi
- Longleaf acres present /historic acreage

Issue 3: Land Ownership Policies

Because most of Mississippi's forest land is in private, nonindustrial ownership, maintaining a productive and sustainable future for Mississippi's forests and other natural resources is dependent on the development of a natural resource policy structured to promote and maintain private ownership. Without actively managed private forest lands, the availability of raw material needed to support the forest products industry decreases. If incentives are not in place to retain privately owned forest land, property ownership changes along with land management objectives. Increasing property taxes and urban expansion are significantly threatening productive private forest land ownership in Mississippi.

Developing a natural resource policy that reflects a wide variety of forest land management objectives is challenging due to diversity of landowners in the state who have a broad array of management objectives such as producing traditional forest products, managing fire, managing and conserving wildlife, and enhancing recreation and aesthetics and protecting water quality and water resources.

Forest Resource

The majority of Mississippi's private forest lands (70 percent) are family forests. According to the 2008 National Woodland Owner Survey, there are 163,000 family forest landowners in Mississippi and 69 percent of those are at least 75 percent forested. Most family forest landowners in the state have relatively small holdings (less than 100 acres), which they have held for more than 10 years.

Public Benefits

Forest landowners maintain ownership for a variety of reasons. Some utilize their forest land for economic pursuits such as timber production. Others use their forest land for recreational enjoyment, ranging from the traditional outdoor recreation such as hunting, fishing and camping, to aesthetics, wildlife watching and hiking. Many Mississippi forest landowners have a deep-rooted conservation land ethic that supports traditional Southern quality of life issues. In addition, these landowners strongly defend private property rights.

Key Conditions or Attributes

Societal pressures are creating significant challenges to maintaining traditional

forest management objectives. Although Mississippi is largely a rural state, forest ownership is increasingly being affected by changing landownership objectives and values. Traditional forest management economic objectives are being replaced by non-traditional management objectives, such as ecosystem goods/services and other non-timber management objectives. The pressure on landowners to maintain forest land use and ownership increases in areas affected by urban expansion.

For some landowners, a tax burden is created when family forest land passes to the next generation (intergenerational transfer). Each time property is transferred due to intergenerational transfer, the number of absentee landowners increases. In addition, heirs often sell all or part of the property due to a variety of reasons, including taxes, no interest in owning the property and real estate value exceeds timber and agricultural revenue potential.

Globalization of the timber industry, loss of wood products manufacturing facilities and increasing property values are factors that can adversely impact the economic feasibility of maintaining forest ownership for the private, nonindustrial landowner. Recent forest inventories in Mississippi reveal that 30 percent more timber is available for harvesting without affecting the sustainability of the forest resource. One reason for this increasing surplus of merchantable timber is the lack of new and expanded forest product industries.

The sustainability of forest-based revenue produced by both consumptive and non-consumptive products on privately owned forest land is dependent on traditional and non-traditional markets. Obviously, if private forest landowners do not have a market for their timber, there is no financial incentive to continue making long-term investments in the management of their forests. This can lead to changing land management objectives, changes in land use or outright sale of property. For non-consumptive products such as ecosystem services, more research is needed to establish acceptable market values. Without a market value, there is no financial incentive for private landowners to manage for these benefits either.

Threats and Contributing Factors

Changes in forest cover and forest types due to the influence of parcelization, fragmentation and urbanization can significantly impact forest quality and a forest's ability to provide timber, wildlife habitat, recreation, and environmental amenities. These influences can change a landowner's forest management objectives and can lead to the landowner selling or changing the land use of the property.

Increasing parcelization and fragmentation of forest land have negative impacts on:

- Economic contributions of forests and forest products
- Clean water production
- Forest-based recreation
- Hunting and non-consumptive wildlife enjoyment
- Biological diversity
- Air quality improvement
- Aesthetics
- Other "quality of life" values

Urbanization pressures (e.g., land value increases near population and recreation centers, increased regulations are not conducive to forest management, etc.) significantly influence forest landowners to sell property or convert their property to another land use. Urbanization will continue to expand, resulting in an increasingly fragmented forest land base. Urban expansion results in the permanent removal of natural forest cover for new residential, commercial, industrial, and governmental developments. Once the forest cover is removed for urban development, it is rarely, if ever, re-established to forest cover, and

the amount of quality of life benefits provided by the forest cover are substantially reduced, if not altogether completely lost.

When landowners with an urban influence and background acquire forest land in rural areas, their management objectives are sometimes contrary to traditional forest management objectives. But, these landowners can have significant influence on legislative and local land use regulations and ordinances, which can adversely impact traditional forest management practices (e.g., prescribed burning, timber harvesting, use of chemicals for forest management, etc.). These impacts are most prominent in the area of urban expansion called the wildland/urban interface or WUI.

Forest landowners sell all or part of their property for many reasons: to offset increase in property tax, because they cannot afford inherited property, to pay off debts or other financial obligations, and/or when the value of the property has greatly increased due to encroaching real estate and commercial development. Changes in land use regulations that do not support active forest management objectives can also influence some landowners to sell their property.

When individuals are searching for forested property to purchase, they are often motivated by factors such as investment opportunity (land value speculation, timber revenue, etc.), outdoor recreation (traditional and non-traditional), to own/build a "place in the woods," privacy and to build an estate to pass along to children or other heirs.

Opportunities

Any approach to addressing land ownership policies in the future requires an understanding of the different categories of forest landowners and consideration of their respective land management objectives. Four categories of landowners are:

1. Active landowners with economic and traditional forest management objectives.
2. Active landowners with ecosystems goods/services and/or non-traditional management objectives.
3. Passive landowners with no forest management objectives.
4. Underserved landowners with no access to or assistance from natural resource government agencies.

Natural resource agencies, organizations, and individuals working with private landowners will need to develop new approaches to providing advice and assistance to the myriad of forest landowners with different and sometimes opposing land management objectives. Tools that are available or are evolving include changing land use and resource policies being developed at the local, state and national levels, new information and education programs targeted to diverse types of forest land owners and new and revised landowner incentive programs offered by the state and federal agencies.

Potential Partners

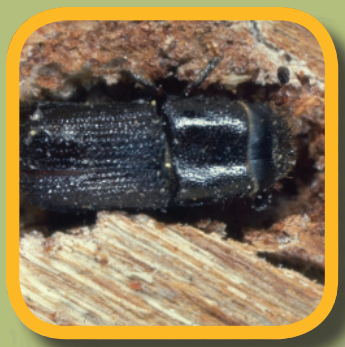
- Alcorn State University Extension Service (ASUES)
- County Forestry Associations (CFA)
- Financial institutions (forestry and land financing)
- Forest industry representatives
- Landowner organizations
- Mississippi Association Conservation Districts
- Mississippi Association of Consulting Foresters
- Mississippi Association of Supervisors (MAS)
- Mississippi Department of Agriculture and Commerce
- Mississippi Department of Transportation (MDOT)
- Mississippi Department of Wildlife, Fisheries and Parks (MDWFP)
- Mississippi Farm Bureau Federation
- Mississippi Forestry Association (MFA)
- Mississippi Forestry Association

Government Affairs committee (MFA)
- Mississippi Forestry Commission (MFC)
- Mississippi Legislature
- Mississippi Loggers Association (MLA)
- Mississippi Planning and Development Districts
- Mississippi State Tax Commission
- Mississippi State University Extension Service (MSUES)
- National Woodland Owners Association (Mississippi chapter)
- Natural Resources Conservation Service (NRCS)
- Northeast Mississippi Natural Resources Initiative
- Private forestry consultants
- Resource Conservation and Development Councils (RC&D Councils)
- Southern Forests Network
- USDA Farm Services Agency (FSA)
- USDA Forest Service (USFS)

Priority Landscapes

- Increasing urbanization and (Wildland Urban Interface) WUI areas
    - DeSoto/Tate Counties
    - Tupelo
    - Jackson Metro
    - Meridian
    - Hattiesburg/Laurel
    - Gulf Coast
- Mississippi Forest Legacy Areas as identified in the *Mississippi Forest Legacy Program Assessment of Need (2007 – 2012)*
    - Northeast MS
    - Central MS
    - South MS
- Priority forest communities ranked in the *Mississippi Comprehensive Wildlife Conservation Strategy*
- Rural forested areas of the state – by watershed
- Statewide, all property owners

Issue 4: Forest Health



Forest health refers to the capacity of a forest community across the landscape for renewal, for recovery from a wide range of disturbances and for retention of its ecological resiliency, while meeting current and future needs of people for desired levels of values, uses, products, and services.

Forest Resource

Across Mississippi, native and non-native invasive flora and fauna have caused adverse impacts on the value, productivity, functionality and ecosystem services of forest communities on both public and private lands. Maintaining forest health is especially challenging on private, nonindustrial lands which constitute the majority of forest lands in the state. According to the most recent state forest inventory, 53 percent of private forests are in tracts less than 20 acres, limiting landowners ability to actively manage properties, to successfully control invasive flora and fauna, to manage for diversity or to effectively manage their forest land at all.

Native species such as the southern pine beetle (SPB), which exhibits periodic outbreaks causing rapid and widespread tree mortality, pose a greater threat than ever due to the increased abundance, distribution and susceptibility of its preferred hosts, loblolly and shortleaf pine. Non-native invasives like the recently introduced redbay ambrosia beetle and associated laurel wilt disease have the potential to virtually wipe out redbay in Mississippi and other nearby states and may significantly

impact other native plants in the *Lauraceae* family. Threats by other non-native species already established and spreading within the U.S. include the emerald ash borer, Asian longhorned beetle, Eurasian woodwasp, sudden oak death and thousand cankers disease (TCD) of black walnut. These threats pose great challenges in keeping these and other potential new pests out of state borders, and in mitigating their impacts if and when they should arrive. Non-native invasive plant species such as cogongrass, kudzu, Chinese tallowtree and others have exhibited escalating impacts as infestations and have spread virtually unabated throughout the state for years and even decades, until some recent efforts of late. Other issues of concern regarding forest health involve lack of forest structure (the complexity of the vertical and horizontal forest), and age and species diversity in some areas.

Public Benefits

Healthy, diverse forests provide multiple public benefits including timber, recreation, aesthetics, soil, air and water quality protection, and wildlife habitat. Clearly, when the health of the forest is threatened or compromised, so are organisms that depend on it, including humans. Invasive plants displace native plant species, alter the physical and chemical properties of the soil and can result in decreased tree regeneration by shading the forest floor which can significantly impact the economic value of timber as well as the ecological functions of the forests to support wildlife species, filter pollutants from water, and prevent soil erosion. Diseases and insect damage can also diminish or destroy natural forest communities, and can be devastating to timber values, recreation, aesthetic values and property values. Diversity and structure of forest stands provides more abundant and diverse habitats and food sources for wildlife species.

Key Conditions or Attributes

Native tree species, diversity, varied age classes and structural stages are key conditions for healthy forests. Mississippi's forest communities include all of the organisms inhabiting a common environment and interacting with each other (plants, birds, mammals, reptiles, amphibians, invertebrates, micro organisms and other wildlife). Natural forest communities are adapted to local conditions and those that have not been impacted by non-native, invasive species, disease or insects or removal of trees are more stable and functional.

Maintaining native forest communities by limiting the growth of invasive species and spread of insects and disease and ensuring the adequate structure, diversity and ages of forest stands is critical to forest health. Protecting forest health requires active planning and forest management on public and private forest lands in rural and urban areas.

Threats and Contributing Factors

Invasive Plants

In recent years, public attention has focused on invasive plants in Mississippi because of the increased efforts to control the spread of cogongrass. Cogongrass, kudzu, Chinese tallowtree and Japanese climbing fern are the four most damaging plants to the overall health of Mississippi forests.

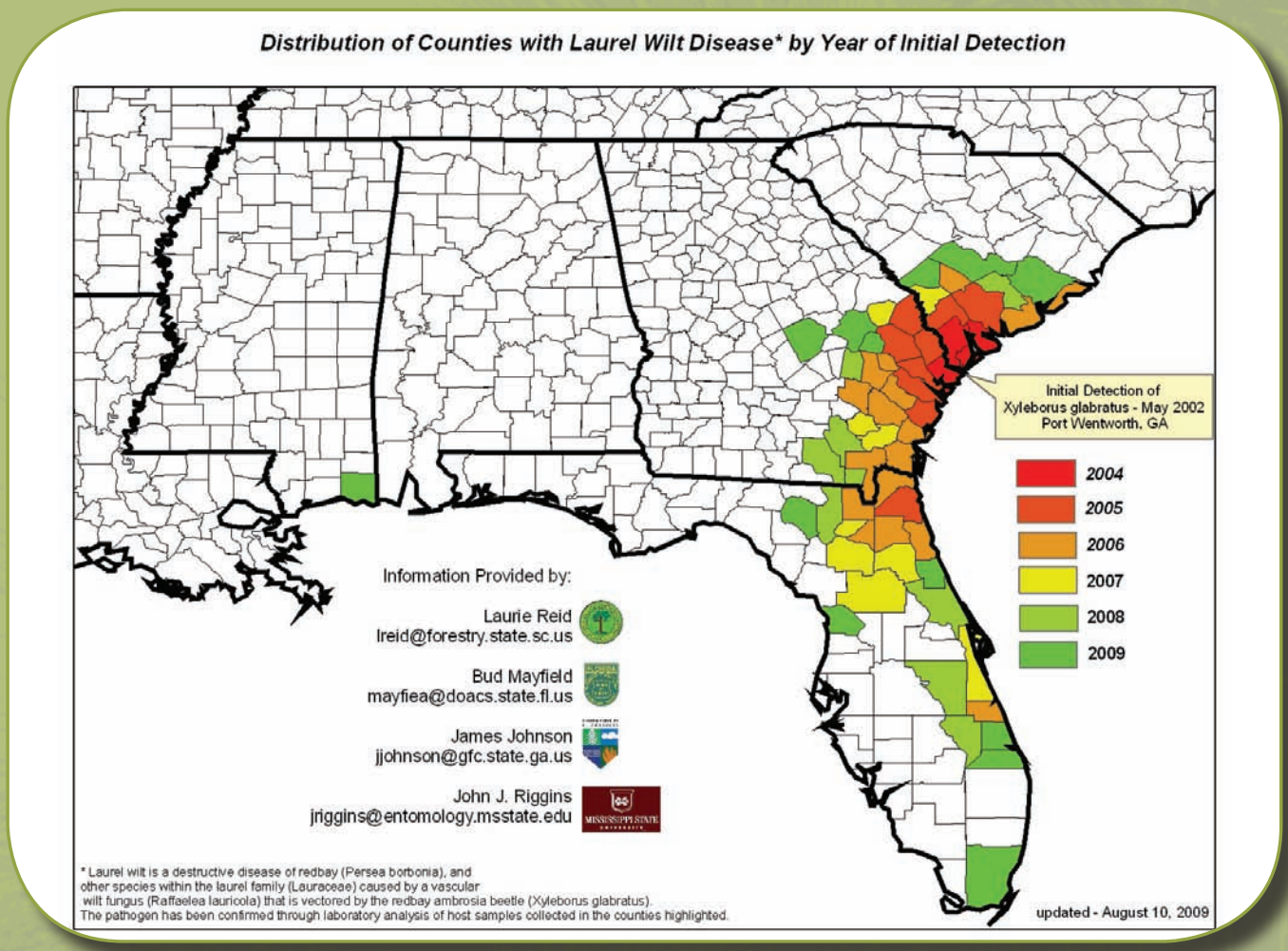
The spread of these invasive plant species is increasing in Mississippi. Agriculture equipment, forestry logging equipment, fire suppression equipment, highway mowing equipment and construction equipment (primarily dirt moving) have all contributed to the increased distribution of these plants. Most forest landowners also lack awareness about these problematic plants and how to avoid or control them. The impact to the farmers and landowners of Mississippi is immense. Species such as cogongrass lower production, limit the options of

management for the forest landowner for regeneration, create fire hazards and these plants outcompete the native vegetation. Cogongrass also produces a toxin that prevents any other grass species from growing, thus eliminating native species from certain sites and altering ecosystems.

Due to the high cost of treatment and the long-term commitment required to eradicate kudzu, many landowners do not attempt to eliminate this pest from their property. The use of Chinese tallow trees in the urban landscape has accelerated the spread of this species across the state.

Insects

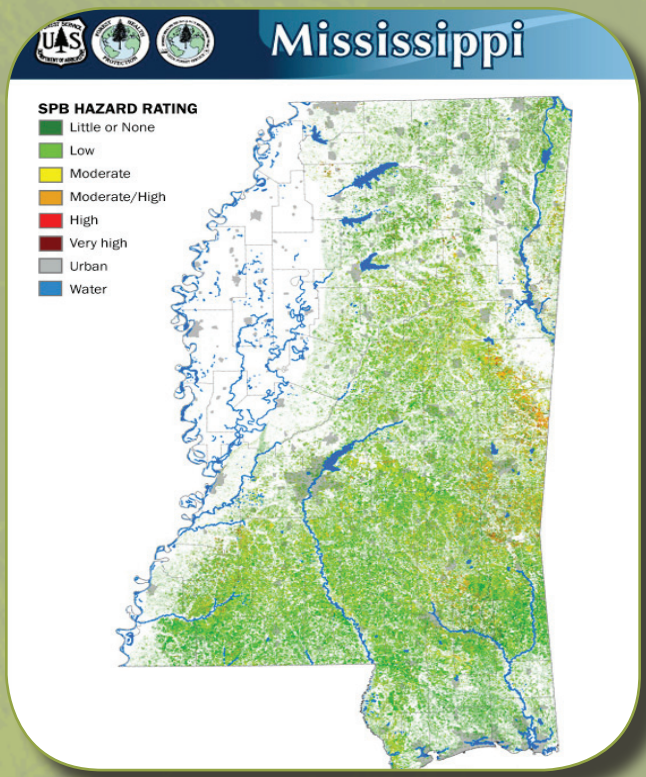
Invasive, non-native pests have not been a high priority until 2009 with the discovery of the redbay ambrosia beetle in Jackson County, Mississippi, and the emerald ash borer (EAB) in Missouri and Kentucky. Some trapping under the Early Detection Rapid Response (EDRR) programs is done annually. Thus far the redbay ambrosia beetle is the only new threat that the state has had to address. Presently, studies are being conducted in Jackson County to determine how the redbay ambrosia beetle entered Mississippi, the extent of the spread and possible avenues of response to this pest. This non-native insect has the potential to render redbay and sassafras trees extinct from the Mississippi landscape. The EAB has not been identified in the state yet, but EDRR trapping is presently being conducted across the state to detect any entrance



The August 2009 distribution map shows the unusual jump of the redbay ambrosia beetle from the East Coast to Mississippi.

into the area. Movement of firewood from one infested location to another location has been the main avenue for this insect to move across county and state lines. It has been documented that human movement of firewood contributed to the spread of this pest in Florida. This finding has helped develop the “Don’t Move Firewood” campaign across the South.

The SPB has been the most destructive insect killer of pines in the Southeastern U.S. This native bark beetle attacks and kills southern pines in an area roughly approximating the geographical range of the shortleaf pine. The SPB population periodically increases to epidemic proportions. When this occurs, the area suffers severe timber losses. Since Mississippi started keeping records in 1971 on beetle outbreaks, there were several years where the losses approached $15 million dollars and higher.

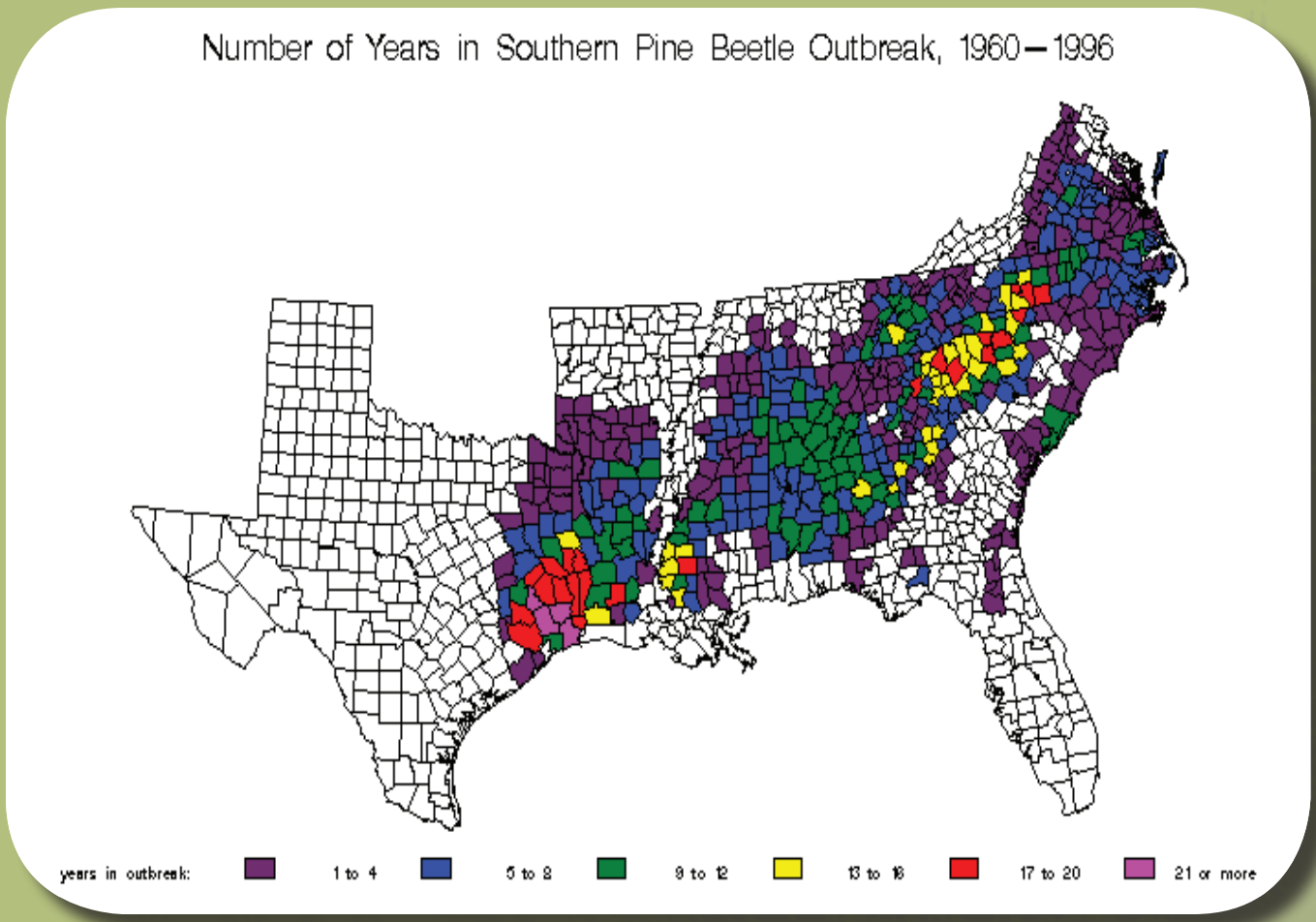


Southern pine beetle hazard risk rating

Many areas in Mississippi are at a moderate to high hazard for SPB attacks. The 1988 court-mandated requirement to manage national forest lands to promote survival of the endangered red-cockaded woodpecker (RCW) may serve to aggravate the SPB problem. Currently, rotation ages have been extended and hardwood mid-story trees have been eliminated in RCW foraging areas and in colony sites. Some managers anticipate that these manipulations may increase susceptibility to SPB infestations long-term. Others predict that the reduced basal areas desired for these sites might just help in the prevention of SPB attack. The cavity trees may serve as focal points for potential infestation.

Male and Female Southern Pine Beetle
Courtesy of Bugwood Network

Mississippi was a “battle ground” for the fight against the SPB until 1996. Since then, there have been no major outbreaks, and the 2009 flight surveys indicated no active beetle spots anywhere in the state. Establishing pine plantations on idle pasturelands and converting upland hardwood areas to pine plantations is a continuing trend on private lands in the state. These cover type conversion trends will not help reduce the risk of Mississippi timberlands to the SPB.



Courtesy of www.barkbeetle.org

Forest Structure and Diversity

Mississippi forests are composed of a variety of age classes and successional stages. During the 2006 state inventory, 137 tree species were measured.

Most forest land is occupied by southern pine forest consisting of young stands (1 to 20 years old), while a large percentage of bottomland hardwood forest and upland pine/mixed hardwood forest are in stands older than 20 years. While high diversity and structure provide benefits to wildlife and often enhance recreational experiences and values, mature, more even-aged, younger forest stands are sometimes more desirable when timber management is a priority. For instance, most mills in the state cannot cut timber over 24" in diameter at breast height (DBH), thus making older trees, often called "over mature," less preferable for timber production. The use of more fabricated lumber created from fiber technology or chips that can be produced from smaller trees has resulted in fewer markets for landowners with stands of large timber size classes. These recent market trends create challenges as well as opportunities for private landowners and can impact forest health. Mill closings affect timber prices offered to landowners, which in turn may discourage any active forest management on some private lands.

Other recent economic trends affect diversity in some forest stands. For example, during 2008, the harvest volume of pine sawlogs in Mississippi decreased 11.1 percent, pine pulpwood volume increased 0.2 percent,

hardwood sawlog volume decreased 4.9 percent and hardwood pulpwood volume decreased by 1 percent. The primary reason for these decreases was the troubled residential construction sector and the record-setting fuel prices during 2008. If it is not economically feasible to thin a pine stand or harvest trees on a planned schedule, some landowners abandon or delay harvest that promotes healthy forest stands.

Some consider the USDA's Conservation Reserve Program (CRP) administered by the FSA peak signup years during the mid-1980s and 1990s as a "scourge of monoculture" that resulted in establishment of many pine plantations on former agricultural lands in Mississippi. While plantation pines lack structure and diversity compared to natural forest stands, they do provide certain benefits such as carbon sequestration and habitat for some wildlife species while also providing revenue for landowners and fiber for local mills.

It is critical to recognize that the landowner objectives play a large part in the diversity of his or her forest land. For those managing pine plantations for timber production, biodiversity will be much lower than if the owner's objective is to enhance mast production for game species and hunting. Other factors such as the long-term return on investments for a hardwood stand versus a pine stand also influence a landowner's management and reforestation decisions. Site-specific species play an important role in diversity. Some soils and areas of the state support high species diversity (e.g. upland hardwoods in north Mississippi), while other areas may naturally support less diversity (e.g. some wetlands dominated by Tupelo gum, baldcypress and black willow).

Opportunities

Invasive Plants

The fight against invasive plants should continue to be a joint effort among several partner agencies to implement education/awareness programs (particularly within areas identified for suppression or eradication of pests and plants) and on-the-ground control and eradication measures. Continued funding of existing programs through the USFS is critical.

Insects

The MFC has taken the lead in Mississippi in obtaining funding through the USFS for redbay ambrosia beetle research in Jackson County conducted by Dr. John Riggins, Assistant Professor of Forest Entomology, Department of Entomology and Plant Pathology at MSU. The Mississippi Department of Agriculture and Commerce (MDAC) is actively trapping across the state for pests that may enter the state and notifies appropriate agencies of their findings. Also, inspections of nursery stock by MDAC are vital to detections that may be discovered during their visits. These agencies are well-positioned to collaborate on new landowner education/awareness efforts.

A USFS-funded program in Mississippi currently pays landowners $50 per acre as an incentive to thin high hazard plantations threatened by SPB. This incentive helps offset any low pulpwood prices that may discourage a landowner from not thinning their plantations at the appropriate time. This program should receive support to continue. Opportunities exist today that help keep this forest pest from making a big comeback. Increased education efforts emphasizing good forest stewardship and proper timber management should be a natural fit for the existing SPB programs. These education efforts should be focused on private landowners and local school boards. The MFC will continue to work with the USFS in conducting annual detection flights and spring trapping surveys to monitor for any potential build up of SPB populations.

Forest Structure and Diversity

Education efforts focused on private landowners about proper timber management and stewardship must continue. Emphasis should be on helping the landowner meet their personal goals while emphasizing the importance of diversity.

Potential Partners

- Alcorn State University (ASU)
- County Forestry Associations (CFA)
- Kudzu Coalition
- Local school boards
- Mississippi Association of Conservation Districts (MACD)
- Mississippi Association of Consulting Forsters
- Mississippi Department of Agriculture and Commerce (MDAC)
- Mississippi Department of Environmental Quality (MDEQ)
- Mississippi Department of Wildlife, Fisheries and Parks (MDWFP)
- Mississippi Forestry Association (MFA)
- Mississippi Forestry Commission (MFC)
- Mississippi Loggers Association (MLA)
- Mississippi Soil and Water Conservation Districts (MSWCD)
- Mississippi State University Extension Service (MSUES)
- National Wild Turkey Federation
- Other state forestry agencies (Alabama, Georgia, Louisiana)
- Private natural resource professionals
- Resource Conservation and Development Districts (RC & D)
- The Nature Conservancy (TNC)
- USDA Farm Services Agency (FSA)
- USDA Natural Resources Conservation Service (NRCS)
- USDA Forest Service (USFS)

Priority Landscapes

- Invasive plants - Species specific distributions (with emphasis on eradication north of I-20 and suppression south of I-20)
- Pests - Southeast MS, Jackson County and I-10 corridor
- High hazard areas on Southern Pine Beetle Hazard Rating
- Longleaf pine historic distribution in East Central and South MS

Issue 5: Stewardship Education

Stewardship education means informing and educating Mississippi's landowners, youth and the public about the proper stewardship of our forest resources.

Forest Resource

By promoting the proper management and responsible use and protection of the state's natural resources, the harmful effects of wildfires, insects, diseases, invasive species, and storms can be minimized while improving, enhancing and restoring the health and productivity of all forest communities in Mississippi, whether urban or rural, or public or private.

Public Benefits

Providing effective natural resource education is vital to raising the level of environmental awareness in both youth and adults. At a young age, learning the importance of the forest and related natural resources can lead to the pursuit of a career in natural resources. Also, a better understanding of the wise use and stewardship of natural resources by the public, policymakers and landowners results in better, more informed decisions regarding resource management and public policy issues affecting the economic and ecological values of all of Mississippi's forest resource.

According to the two public surveys conducted by the MFC for the Mississippi Assessment (see Appendix C) the need for Stewardship Education received very important ratings by 64.4 percent of the responders to the web survey (general public) and 78.7 percent of the responders to the mail survey (defined as underserved landowners).

Key Conditions or Attributes

All entities (agencies, organizations, professional societies, universities and colleges, public and private schools) involved in stewardship education in the state must work together to promote a unified message of the importance of and stewardship of Mississippi's natural resources: stable and fertile soil, productive and sustainable forests, clean air and water, abundant fish and wildlife, and a public educated about the sustainable, responsible use and appreciation and value of these natural resources.

Threats and Contributing Factors

Natural resource education is more important now than ever before. Like the rest of the Southeast U.S., Mississippi is quickly transitioning from a rural, agricultural-based society to a more urban, media-connected society with an ever-widening disconnect to the land and natural resources. Instead of the hands-on experiences garnered by growing up on the farm, exploring forests and fields, hunting, fishing and other nature-based recreation activities, children's and young adults' experiences with nature are very limited and information and learning is achieved primarily from classroom, television, internet and other social media outlets. Public opinion is increasingly shaped by these virtual experiences as opposed to actual field experiences.

In the past, forest stewardship education efforts in the state have been broad and varied in scope and have focused on the small group setting for both youth and adults. These efforts have been delivered primarily by natural resource agency and college personnel, and oftentimes programs have not been coordinated among various providers (agencies, organizations, educational institutions) by one entity.

Natural resource organizations and agencies, through their outreach programs, currently offer a variety of educational experiences through varied traditional methods to include forestry field days, workshops, short courses, conservation clubs in the classroom, summer camps, and many other talks and programs with conservation-minded audiences, in small group settings. Topics and programs are broad and include: landowner education on technical issues such as forestry practices, management plan development, estate planning, taxation, marketing, best management practices, and wildlife management to working with youth groups of different ages in conservation carnivals and clubs, 4-H, Future Farmers of America (FFA), Envirothons, and many other resource education programs. While these outreach efforts have been effective with small groups, the numbers of people reached is relatively small, compared to the state's population.

Most educational outreach personnel agree that one-on-one and classroom approaches are the most meaningful ways to educate. However, recent funding reductions and the possibility of future reductions for education programs within resource agencies and organizations threaten the delivery of these education methods and programs (which are already limited by lower funding and personnel). Further personnel reductions will adversely affect the effectiveness of the traditional methods and the development of any new methods for delivering key messages about forest stewardship.

Opportunities

Traditional programs and methods of delivery are needed; however, more web-based education and outreach programs should be developed and used to reach a wider audience. Access to information, technical guidance and educational programs via the internet is an efficient method to reach more people who cannot attend programs in person and will allow agencies and organizations to meet demands with fewer personnel.

Funding reductions may have some beneficial effects. It may ultimately force more coordination of stewardship education efforts in the state among the traditional forest stewardship educators and programs. Decreased budgets will also necessitate focus of limited resources and personnel on highest priority forest issue such as those described in this assessment: forest sustainability, resource markets, renewable energy, land ownership policies, forest health, wildfire and fuel reduction, climate change and wildlife conservation.

Increased emphasis by Congress and federal agencies on providing services and resource education to underserved landowners will ultimately result in improved conditions for private forest lands.

Potential Partners

- Alcorn State University Extension (ASUES)
- Department of Wildlife Fisheries and Parks (MDWFP)
- Mississippi Association of Consulting Foresters
- Mississippi Association of Cooperatives
- Mississippi Department of Agriculture and Commerce (MDAC)
- Mississippi Department of Education
- Mississippi Department of Environmental Quality (MDEQ)
- Mississippi Forestry Association (MFA)
- Mississippi Forestry Commission (MFC)
- Mississippi Museum of Natural Science (MMNS)
- Mississippi Soil and Water Conservation Commission (MSWCC)
- Mississippi State University Extension (MSUES)
- Private Natural Resource Professionals
- Resource Conservation and Development (RC&D)
- USDA Forest Service
- USDA Natural Resource Conservation Service (NRCS)

Priority Landscapes

Note: Stewardship education should be targeted to priority geographic areas defined for other key issues discussed in this document.

- Statewide for general stewardship education
- Priority areas of Mississippi identified in other key issue areas and State and Private Forestry programs
- Urban expansion areas within Forest Legacy Areas
- Underserved populations by county

Issue 6: Wildfire Fuel Reduction

Development around forested areas continues to increase the potential for catastrophic impacts from wildfires. Reducing or eliminating various fuels from the forest structure in cost effective ways is integral for the protection of Mississippi's forest resources and the safety and protection of persons and property. To decrease the threat of wildland fire to communities and the forested

landscape, more fuel reduction treatments need to be performed by prescribed burning, mechanical treatment or other means.

Forest Resource

Fire is critical for forest health, and all forest resources in the state are impacted by fire.

Public Benefit

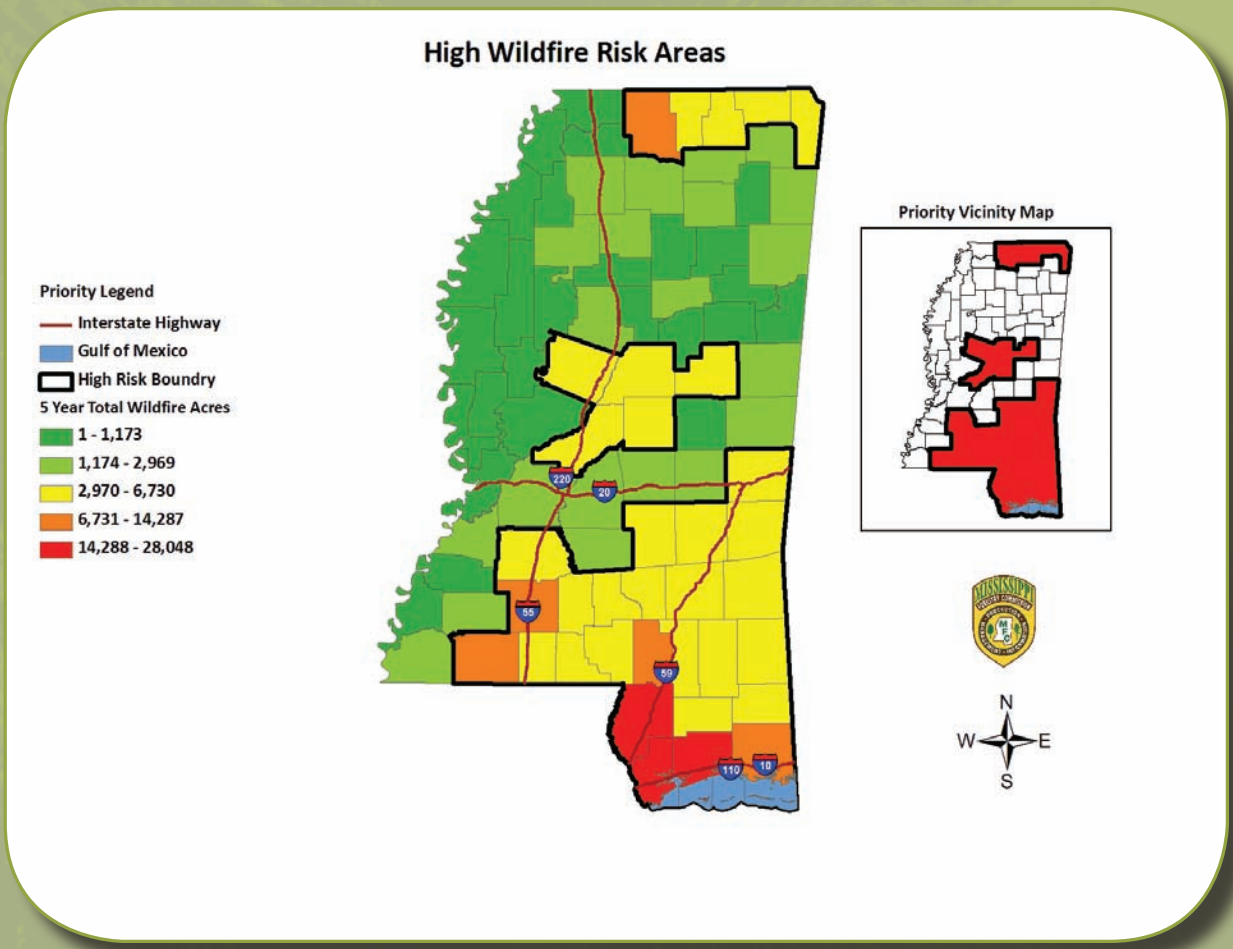
Use of prescribed burning and other means of reducing fuel loading decreases the threat of wildland fires around the WUI and rural communities. *The Southern Wildfire Risk Assessment* (SWRA) shows those Communities at Risk (CAR) are statewide.

Key Attributes

Reducing fuel loading means less intense wildland fires. Certified Prescribed Burn Managers use their skills with prescribed fire to address fuel loadings as well as forest health and proper forest management for a variety of landowner objectives such as wildlife habitat and timber. Fire is also an essential tool in management of habitat for wildlife species of concern that use fire-dependent communities like longleaf pine.

Direct Threats and Contributing Factors

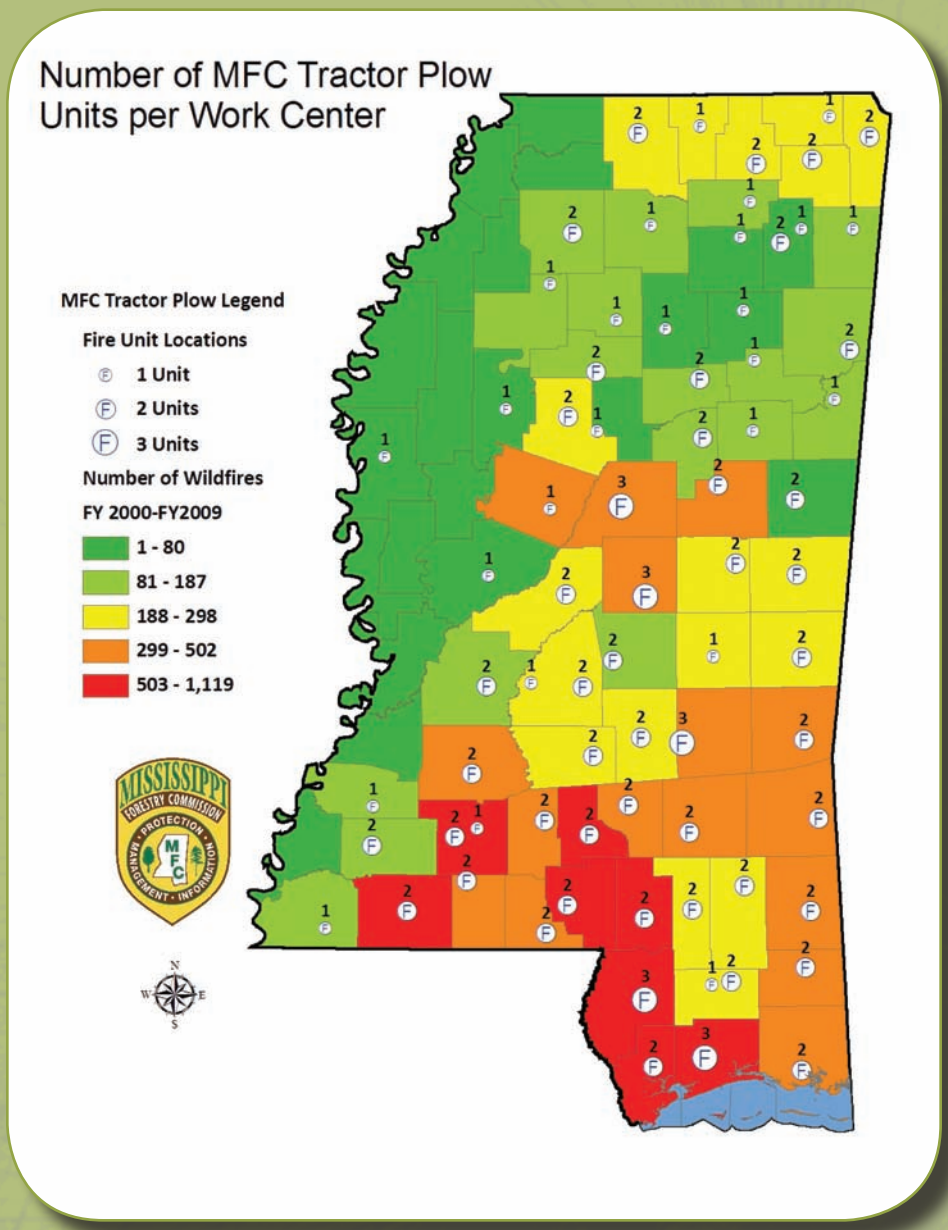
Increased urbanization creates greater liability threats from escaped fires and smoke hazards along with a negative public opinion and/or poor understanding of the needs and benefits of prescribed fire. One of the barriers to applying fire to the landscape is smoke management. As urban and suburban areas and infrastructure encroach into natural areas, resource managers must constantly monitor weather and adjust burn areas to minimize the impacts of smoke on highways and communities. Air quality regulations in expanding WUIs limit the opportunity to use prescribed fire by reducing the number of burn days.



Also, small acreages in the WUI limit the ability and willingness of treating those areas by prescribed burning, mechanical treatments or other means due to elevated cost to perform the work. There are a limited number of certified prescribed burners to perform this work. The liability involved when doing a prescribed burn is a major limiting factor here.

Spread and migration of invasive, fire-adapted exotic species (e.g. cogongrass, eastern baccharis, Chinese tallowtree, etc.) has enlarged the threat of wildfire by increasing fuel loading and fire intensity.

There are a limited number of fire suppression resources in the state. The MFC has downsized over the years so there are fewer tractor/plow units. Along with this there has been an increase in the number of Volunteer Fire Departments (VFD), but with the changing economy, there are fewer volunteers who respond to fires. Though these VFDs may be equipped, they have high turnover and a serious manpower shortage in many areas of the state. Consequently, as MFC tractor/plow units and personnel decreased, the average fire size has grown. This is due to longer response times for the MFC units.



At one time the MFC had many cooperators around the state. Industrial forest landowners such as Weyerhaeuser, Georgia-Pacific, International Paper and other companies had tractor/plow units and would assist MFC crews with fire suppression in the past. In recent years, these companies have sold much of their timberland and no longer have these fire suppression units. The timberland is still there, and the MFC still has responsibility to suppress those fires that occur on that land. Investment companies or private individuals now own some of these forest lands, but do not have the means of suppressing wildland fires. Also these lands are often not being managed as intensively

as they were in the past. Therefore, the frequency of prescribed burning is not being accomplished and fuel loadings have increased as a result.

Opportunities

The *One Message Many Voices* campaign being started in the South to promote prescribed burning is an important opportunity that will help increase awareness among the general public and public officials about the need for prescribed burning of forest lands (fuel reduction, ecosystem management, reducing competition etc.).

The *County Wildfire Protection Plans* (CWPPs) depict those areas most threatened by wildland fire and aids county fire coordinators by identifying high risk areas to identify fuel reduction grant opportunities. Currently, there are 34 counties with CWPPs. Plans should be developed for remaining counties in the coming years.

The Prescribed Burn Short Course is offered twice a year. This training has the potential of increasing the number of Certified Prescribed Burners in the state.

Potential Partners

- Mississippi Department of Wildlife, Fisheries and Parks (MDWFP)
- Mississippi Wildlife Fire Advisory Council
- MS Insurance Department State Fire Marshall
- Prescribed Burn Council
- The Nature Conservancy (TNC)
- U. S. Fish and Wildlife Service (USFWS)
- U.S. Forest Service, National Forests in Mississippi
- Volunteer Fire Departments

Priority Landscapes

- Southern Wildfire Risk Assessment (SWRA) – Identifies Community at Risk (CAR), high fire occurrence areas, location of MFC tractor/plow units and VFDs
- County Wildfire Protection Plan (CWPP) – Currently 34 counties have these plans. The plans identify areas at risk to wildland fires. This includes public infrastructure and other important areas in the county.
- Location of Certified Prescribed Burn Managers (CPBs)– Target counties where there are few or no CPBs.
- Invasive Species Areas – Target areas for suppression and elimination of non-native invasive species identified in Forest Health section

Issue 7: Climate Change

Climate change is defined as the actual or theoretical changes in global climate systems occurring in response to physical or chemical feedback, resulting from human or naturally induced changes in planetary terrestrial, atmospheric, and ecosystems. According to the U.S. Environmental Protection Agency (EPA), there is potential for both beneficial and adverse effects on forests due to elevated concentrations of carbon dioxide and increasing temperatures. That are potential adverse effects from changing precipitation patterns, increased insects and diseases, and the potential for more and frequent weather events. The adverse effects are less certain, more variable and include serious adverse impacts such as increased wildfire, drought and major losses from insects and disease.

Forest Resource

Changes in plant species composition in response to global climate change may cause some forest types to expand, such as oak-hickory, while others may contract such as maple-beech-birch. Species conditioned to warmer climates, such as sweetgum and longleaf pine, may expand their range north. The area of suitable conditions for other species such as yellow poplar may decline. Coastal forests, such as low-lying baldcypress swamps, may decline in extent and health due to an increase in inundation and saltwater intrusion as sea levels rise.

These changes in plant composition can also increase ecosystem vulnerability to other disturbances such as wildfire and biological invasion. Disturbances can dramatically change forest ecosystem structure and species composition, can cause short-term productivity and carbon storage loss and improve opportunities for invasive species to become established.

Public Benefit

Forest ecosystems help regulate the earth's climate over the long term and patterns of precipitation through the carbon cycle. The carbon cycle influences climate because atmospheric carbon, in the form of carbon dioxide, is the main greenhouse gas. These greenhouse gases trap heat leaving the earth's surface and create a "blanket" that warms the earth's atmosphere. The concentration and build up of greenhouse gases contribute to abnormal long-term climatic changes.

Forests are major repositories of carbon, also called "sinks." Trees absorb carbon dioxide during photosynthesis, and some of the carbon becomes "sequestered" in branches, trunks and roots while some is in soils when leaves and other tree parts decay. A standing forest, by sequestering carbon, removes carbon dioxide from the atmosphere and helps prevent the buildup of greenhouse gases. It is projected that forests in the South, which comprise 29 percent of U.S. forest cover, account for approximately one-third of the annual carbon sequestered in the U.S.

On a local and regional level, forests provide shade, reduce air temperatures and can create cooler microclimates under the forest canopy as well as in bodies of water. Cooler water holds more oxygen, which supports beneficial habitat for plant and animal life. Forest canopies in urban areas block sunlight and can reduce energy costs.

Potential beneficial effects of elevated levels of carbon dioxide and increased temperature, such as increase photosynthesis, nitrogen deposition and warmer soils which may increase forest growth, are limited to certain areas of the country and certain forest types. Adverse effects (drought, storms, insect outbreaks and wildfire) are as important to ecosystem function as changes in temperature, precipitation, atmospheric carbon dioxide, nitrogen deposition and ozone pollution. The beneficial impact on forest growth in some parts of the country from climate change is offset by the more significant and serious adverse effects from increases in wildfires, and the decreases in growth and productivity caused by pests and disease.

The U.S. EPA Administrator, in its recent *EPA Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act* found that the total scientific record "provides compelling support for finding that the greenhouse gas air pollution leads to predominantly negative consequences for biodiversity and the provisioning of ecosystem goods and services for ecosystems and wildlife important for public welfare in the U.S., both for current and future generations. The severity of risks and impacts may only increase over time with accumulating greenhouse gas concentrations and associated temperature increases and precipitation changes."

Key Conditions or Attributes

Healthy forests have a higher carbon storage potential than any other land use in the state. Conversion of forest to non-forest uses and degradation of forests reduce the size of vegetative carbon sinks. Maintaining existing forest cover and reforestation of converted areas, such as agricultural lands, will increase the carbon storage potential of Mississippi's landscape.

The same basic silvicultural guidelines for maintaining forest health in Mississippi apply to maintaining healthy forests under changing climatic conditions such as planting site appropriate species (native species adapted to soil and site conditions), minimizing stand disturbances that stress trees, removing diseased trees, and planting at appropriate spacing and densities.

Threats and Contributing Factors

Precipitation and weather extremes are key to many forestry impacts from climate change. Some areas in the Southeast are likely to experience increases in precipitation (western portions of the Southeast), that can lead to increased forest productivity while others in the eastern portion may experience more drought, which leads to reduced forest productivity. More prevalent wildfire disturbances and droughts (along with other extreme weather events such as hurricanes) can cause forest damage, and pose the largest threat to forest ecosystems over time, especially where conversion to off-site species has occurred.

The effects of climate change command more management resources and public attention as well. For instance, the ability of parks and protected areas to serve as refuges for some plants and animals may decline with shifts in extent, range and distribution of some forest types.

Though expansion of forest cover can play a large role in addressing climate change, the carbon market in the U.S. and in Mississippi is not well-developed as discussed earlier. Unlike foreign carbon markets, the U.S. market has no mandatory cap policy, carbon sequestration programs are voluntary with industries, and states are forming their own policies, making a coordinated regional and national effort to reduce greenhouse gas difficult.

Opportunities

Various measures (incentives, markets and practices) can help ensure Mississippi's forest lands supply ecosystem services (natural benefits) that are needed to help offset the effects of climate change. Expansion of existing protected forest area in public ownership, particularly bottomland hardwood forests and coastal wetland forests will continue to be important, but the amount of public forest land is not likely to increase substantially in the coming years and decades. Preservation of moist, mature forests on public lands and adjacent private lands through conservation easements, acquisition and long-term forest protection programs will help prevent large amounts of carbon from reaching the atmosphere if these areas were logged and will also provide habitat protection for wildlife species that depend on mature forest ecosystems. Increasing resilience of existing forests on public and private lands by restoring natural fire regimes and restoring natural hydrology to riparian forests will increase their resistance to climate change.

Existing forest programs that provide incentives for afforestation, forest conservation and management on private lands should be continued and promoted (e.g., CRP, WRP) and new efforts such as those devoted to restoration and management of longleaf pine in its natural range like America's Longleaf. Emerging and maturing U.S. markets and payment systems for ecosystem services such as carbon sequestration represent a potential new revenue stream that may provide private landowners additional income and

motivation to keep land in forest cover and to reforest land in agriculture or open fields.

However, more pilot programs and local examples are needed to demonstrate the effectiveness of purchasing carbon offsets and raising awareness. Private landowner participation in sustainable forest certification programs should also be encouraged and developed at the state level. A critical component of all emerging and existing opportunities for addressing climate change in the state should be coordinated with other regional and national efforts and must include a significant public outreach and education component.

Potential Partners

- Alcorn State University Extension (ASUES)
- Carbon Fund (CF)
- Chicago Climate Exchange (CCX)
- Department of Energy (DOE) National Voluntary Greenhouse Gases Program
- Mississippi Development Authority (MDA)
- Mississippi Department of Environmental Quality (MDEQ)
- Mississippi Department of Wildlife Fisheries & Parks (MDWFP)
- Mississippi Forestry Association (MFA)
- Mississippi Institute for Forest Inventory (MIFI)
- Mississippi State University (MSU)
- Mississippi State University Extension (MSUES)
- National Park Service (NPS)
- Sustainable Forest Initiative (SFI)
- The Nature Conservancy (TNC)
- U.S. Department of Defense (DOD) Military Installations and Stennis Space Center
- USDA Forest Service (USFS)
- U.S. Fish & Wildlife Services (USFWS)
- Longleaf Alliance
- Mississippi Fish and Wildlife Foundation

Priority Landscapes

- Priority areas for WRP (MS River Alluvial Plain ecoregion)
- Priority areas for CRP
- Open land (agriculture, pasture, open fields) adjacent to public lands
- Mature forests on public lands and adjacent private lands
- Forest Legacy Areas

Issue 8: Wildlife

Forested communities in Mississippi are important for many common resident and migratory fish and wildlife species as well as species of concern. The conversion and/or changes in structure and composition of Mississippi's natural forest communities have spurred the decline of many species of concern such as the black pine snake, gopher tortoise, red cockaded woodpecker, Louisiana black bear and Mississippi Sandhill crane. Maintaining, protecting, enhancing and restoring, where possible, natural forest communities with appropriate structure and composition and of sufficient size is critical to the survival of these species. While forests on public lands are critically important in the conservation of many species, private lands offer significant opportunities for management, protection and restoration of habitat for forest-dependent species.

Forest Resource

Forest communities in Mississippi provide diverse habitat for resident and migrating wildlife species. The *Mississippi Comprehensive Wildlife Conservation Strategy* (CWCS) 2005 identified and described the location and condition of key habitats and natural communities essential to the conservation of 297 fish and

wildlife species of greatest conservation need (SGCN) in the state including 18 amphibians, 70 birds, 34 crustaceans, 74 fish, 17 mammals, 49 mussels and 35 reptiles. The majority of these SGCN as well as common species depend on natural forest communities for at least part of their life cycle (breeding, nesting, foraging, overwintering, cover, and roosting). Trees provide food such as berries, nuts, seeds, buds, young stems, leaves, bark and nectar which also offers a bound or free source of water for some species. Forest cover for wildlife includes young hardwoods and pines, flooded hardwoods, mixed stands, edges, tree tops, open woodlands and thickets. Tree cavities, leaf nests, forest floor and canopies offer reproductive areas.

The CWCS classified Mississippi forest communities (which encompass both public, private nonindustrial and industrial forest lands) into nine major forest *types* (below) and 20 sub-types (discussed in Chapter I).

1. Dry-Mesic Upland Forest/Woodlands
2. Old Fields, Prairies, Cedar Glades and Pine Plantations
3. Mesic Upland Forests
4. Bottomland Hardwoods
5. Riverfront Forests
6. Wet Pine Savannas/Flatwoods
7. Spring Seeps
8. Swamp Forests
9. Upland Maritime Woodlands

The CWCS ranked the following forest *sub-types* as highest concern for wildlife species in the state.

- Small stream swamp forests
- Dry longleaf pine
- Bottomland hardwoods
- Hardwood seeps
- Lower slope/high terraces hardwoods
- Mesic longleaf pine savannas
- Dry hardwood forests
- Bald cypress/gum swamp forests
- Dry-mesic hardwood forests
- Loess hardwood forests
- Dry-mesic shortleaf/loblolly pine
- Beech/Magnolia forests

Public Benefit

As discussed earlier, fish and wildlife species support abundant recreational activities enjoyment in the form of hunting and fishing and wildlife watching in the state. Fish and wildlife, as intrinsic components of the forest communities, also provide important natural benefits as pollination, seed dispersal and soil and nutrient recycling as well as control of other populations (insects, plant species). These ecosystem services are directly attributable to wildlife species within the forest ecosystem. Wildlife species such as birds, reptiles, crustaceans and amphibians can be good indicators of environmental conditions.

Key Conditions or Attributes

Healthy, functioning and diverse forest ecosystems are critical to providing habitat for both SGCN and common fish and wildlife species. Natural forest communities are adapted to local conditions and those that have not been impacted by non-native, invasive species, fire suppression, disease or insects, fragmentation, air pollution, or removal of trees are more

stable and functional. Large patches of forest communities that are interconnected, healthy and have diversity in structure, plant species and ages will provide higher quality habitat for more wildlife species. Maintaining native forest communities on private and public lands through active planning and coordinated management is essential to ensuring habitat for common species and SGCN in Mississippi in rural and urban areas.

Fire is an important ecological process that maintains many types of forest communities statewide in Mississippi and should be emphasized for its substantial benefits to wildlife. For example, fruit and seed production is stimulated after a fire. Yield and quality increases occur in herbage, legumes, and browse from hardwood sprouts. Openings are created for feeding, travel, and dusting. Selecting the proper size, frequency, and timing of burns is crucial to the successful use of fire to improve wildlife habitat. Prescriptions should recognize the biological requirements (such as nesting times) of the preferred wildlife species. Also consider the vegetative condition of the stand and, most importantly, the changes fire will produce in understory structure and species composition.

Threats and Contributing Factors

Mississippi's CWCS identified major threats to forested habitats used by SGCN by habitat type and within each ecoregion. Major threats to fish and wildlife that depend on forest communities that were ranked as "High" or "Moderate" in the CWCS are:

High Threats:

- Altered Fire Regime - fire suppression, fire lanes (residual effect of stopping fires from moving, fragmentation/edge effect from firelanes), season of burn, frequency of burning, change in plant composition, encroachment of invasive species as a result of altered fire regime.
- Forest Conversion – to off-site species
- Incompatible Forestry Practices - Improper planting densities, diseases related to planting densities, herbicide use on site preparation, planting offsite species, improper silvicultural practices (thinning rotations, bedding/shearing, highgrading)
- Invasive Species – Japanese climbing fern, Japanese honeysuckle, St. Augustine, cogongrass, Johnson grass, kudzu, bamboo, Chinese tallow, Japanese privet, southern pine beetle, feral hogs, fire ants.

Moderate to High Threats:

- Agricultural Conversion – historical conversion to row crops, catfish ponds
- Second Home/Vacation Home Development – habitat loss, fragmentation (particularly associated with vacation homes around lakes, streams, reservoirs)
- Urban/Suburban Development – habitat loss, fragmentation
- Road Construction – habitat fragmentation, runoff

Because the vast majority of forest land in the state is in private ownership, and is not actively managed by the landowner, implementation of any practices that may address the threats, such as prescribed burns and invasive species control, are very challenging. On properties where timber production is the sole or primary use of forest land, there can be conflicts between the goals of the landowner and the needs of wildlife species. Also, in most communities in Mississippi (at the county and city level), little to no landscape level planning occurs that considers forest conservation and

habitat protection when those political subdivisions develop long-range master plans for their communities. This often results in road, subdivision and utility development that furthers fragmentation of habitat.

Opportunities

Several existing and emerging conservation programs are available or will soon be available in the state to encourage conservation actions and practices that will improve or protect forest habitat for wildlife species of concern as well as to keep common species common, as recommended in Mississippi's CWCS and Forest Legacy Assessment of Need. Federal programs such as the CRP, WRP as well as Wildlife Habitat Incentives Program (WHIP), Partners for Fish and Wildlife (PFW), the Healthy Forest Reserve Program (HFRP) and the Landowners Incentive Program (LIP) through the MDWFP are key conservation efforts being implemented in Mississippi that support restoration, conservation and management of high priority natural forest communities such as longleaf pine, forested wetlands, riparian areas, and habitat for threatened and endangered forest species in conservation priority areas identified in each program's guidance document. MFC's Forest Legacy Program provides competitive grant funds to protect and restore natural forest communities threatened by conversion to non-forest use.

Because wildlife benefits from burning are substantial, programs that encourage or provide assistance with prescribed burning on private lands present one of the greatest opportunities to improve habitat for wildlife particularly where loblolly, shortleaf, longleaf, or slash pine is the primary overstory species. Periodic fire tends to favor understory species that require a more open habitat. A mosaic of burned and unburned areas maximizes "edge effect" which promotes a large and varied wildlife population. Deer, dove, quail, and turkey are game species that benefit from prescribed burns and habitat for SGCN such as gopher tortoise, indigo snake, and red cockaded woodpecker are also enhanced by burning.

One of the most significant emerging opportunities for forest conservation on a regional scale is through America's Longleaf – A Restoration Initiative for the Southern Longleaf Pine Forest. This Initiative published a 15-year range-wide conservation plan in 2009 with a goal to increase longleaf acreage in its historic range from 3.4 to 8.0 million acres. The plan recommends six major strategies, and specific objectives and action steps to accomplish this overarching goal. MFC is taking the lead role in coordinating Mississippi's participation in this effort, and in April 2010 hosted a local coordination team meeting to begin identifying restoration opportunities in the state that will support this regional effort.

Potential Partners

- Alcorn State University (ASU)
- ASU Extension Service (ASUES)
- Ducks Unlimited (DU)
- East Mississippi Community College
- Jones County Community College
- Land trusts in MS
- Mississippi Department of Environmental Quality (MDEQ)
- Mississippi Department of Marine Resources (MDMR)
- Mississippi Department of Wildlife Fisheries and Parks (MDWFP)
- Mississippi Prescribed Fire Council
- Mississippi State University (MSU)
- MS Association of Conservation Districts
- MS Fish and Wildlife Foundation
- MS Museum of Natural Science (MMNS)
- MS Soil and Water Conservation Association
- MS Wildlife Federation

- MSU Extension Service (MSUES)
- National Oceanic and Atmospheric Administration (NOAA)
- National Park Service (NPS)
- National Wild Turkey Federation/MS Chapter (NWTF)
- Naval Air Station Meridian
- Stennis Space Center
- The Nature Conservancy (TNC)
- U.S. Department of Defense
- U.S. Fish and Wildlife Service (USFWS)
- U.S. Forest Service (USFS)
- USDA Farm Services Agency (FSA)
- USDA Natural Resources and Conservation Services (NRCS)
- Wildlife Mississippi

Priority Landscapes

- Conservation Priorities identified through the USDA State Technical Committee for Farm Bill programs such as CRP, WRP, WHIP, HFRP
- Priority areas identified in the PFW and LIP programs.
- Priority areas identified in the Range-wide Conservation Plan for Longleaf Pine
- High ranking natural forest communities identified in CWCS
- Forest Legacy Areas
- Natural Areas identified by MS Natural Heritage Program (forested)
- High priority drainages identified by CWCS (Tombigbee, Northeast Hills/ TN River, Pascagoula River, Lower Coastal Plain/Pearl River)
- Upper East Gulf Coastal Plain ecoregion
- East Gulf Coastal Plain ecoregion

IV. Priority Forest Areas

Priority landscapes or priority areas in Mississippi were defined for each key issue defined and discussed in Chapter III. The following is a list of those priority landscapes for the state by key issue area with map illustrations for many of the priority areas that were developed by MFC. Areas that are a priority for multiple states in the Southeast are marked with an asterisk (*). Not all areas are illustrated, and there may be other priority landscapes identified through future planning and development of MFC's annual action plan. Many priority areas overlap for key issues. For instance, high priority areas for wildland fire fuel reduction are also key areas targeted for longleaf pine restoration and non-native invasive plant control.

Geographic areas where Mississippi has the greatest opportunity or need to collaborate with other states in the region include:

1. The target area for longleaf pine restoration and management within its historic range.

2. Priority areas for certain non-native, invasive plant and pest suppression and eradication.

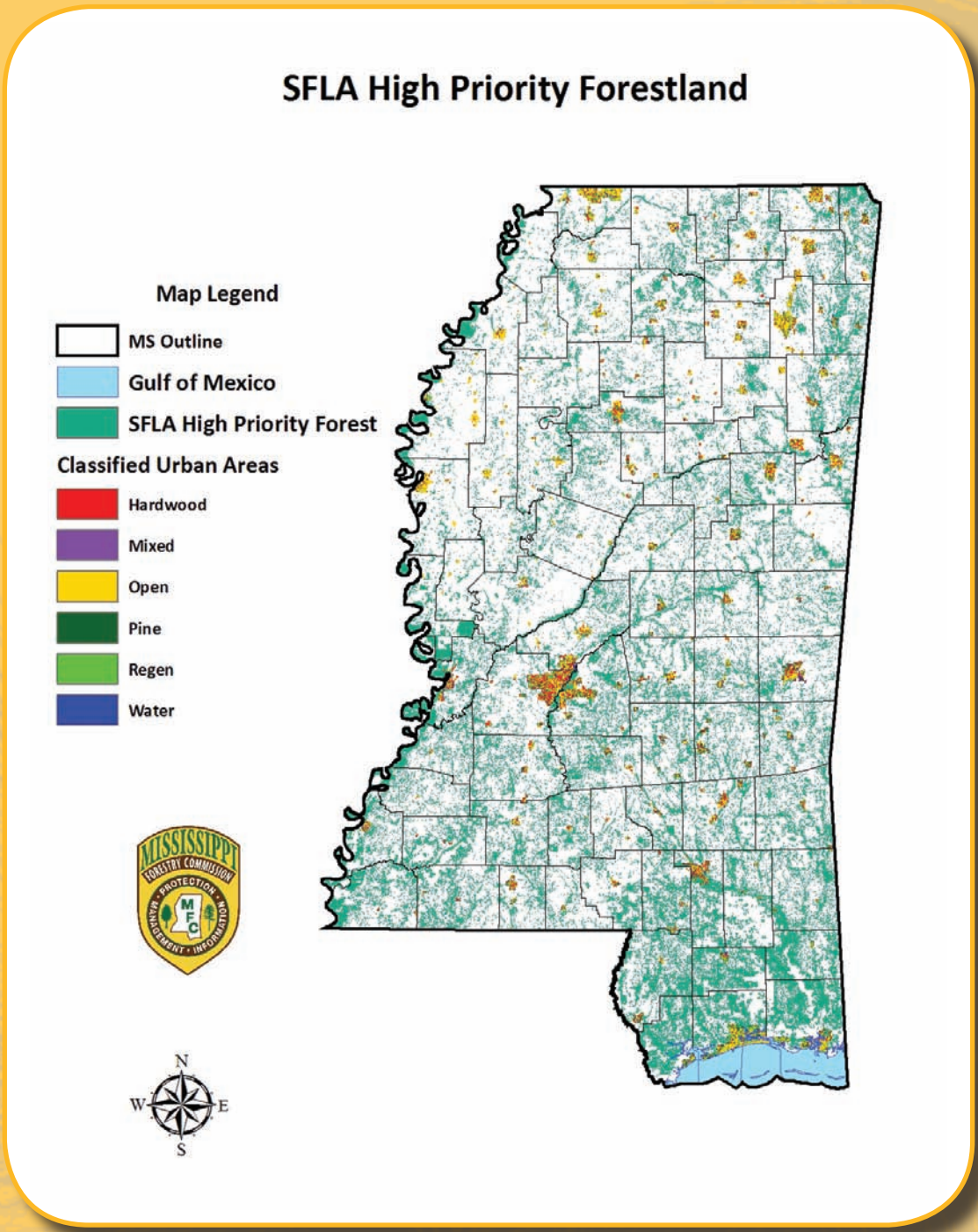
3. Multi-state priorities for afforestation such as agriculture and pasture lands identified by federal Farm Bill private forest land incentive programs such as the Wetlands Reserve Program (WRP), Conservation Reserve Program (CRP) and others.

Priority landscapes are also identified in Mississippi's strategic issues matrix found in Chapter VI.

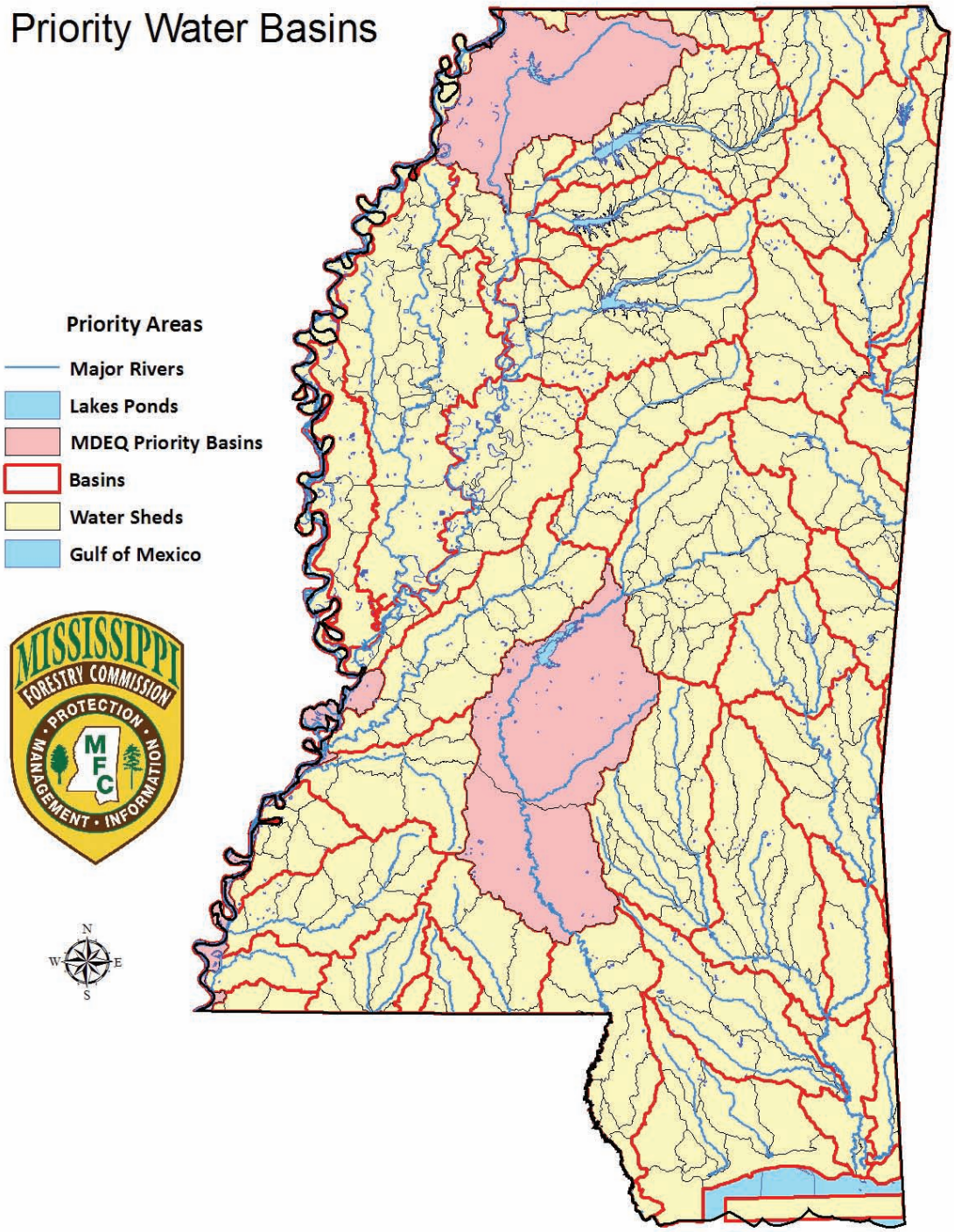
Priority Areas by Key Issue

Issue 1: Forest Sustainability

- Wildfire fuel reduction priority areas
- Natural range of longleaf pine* **MULTI-STATE**
- Southern Forest Land Assessment (SFLA) high priority areas
- High priority watersheds defined by MDEQ Basin plans.
- Priority areas for invasive species and forest pest programs* **MULTI-STATE**
- Priority areas for MS Forest Stewardship Program
- Forest Legacy Areas



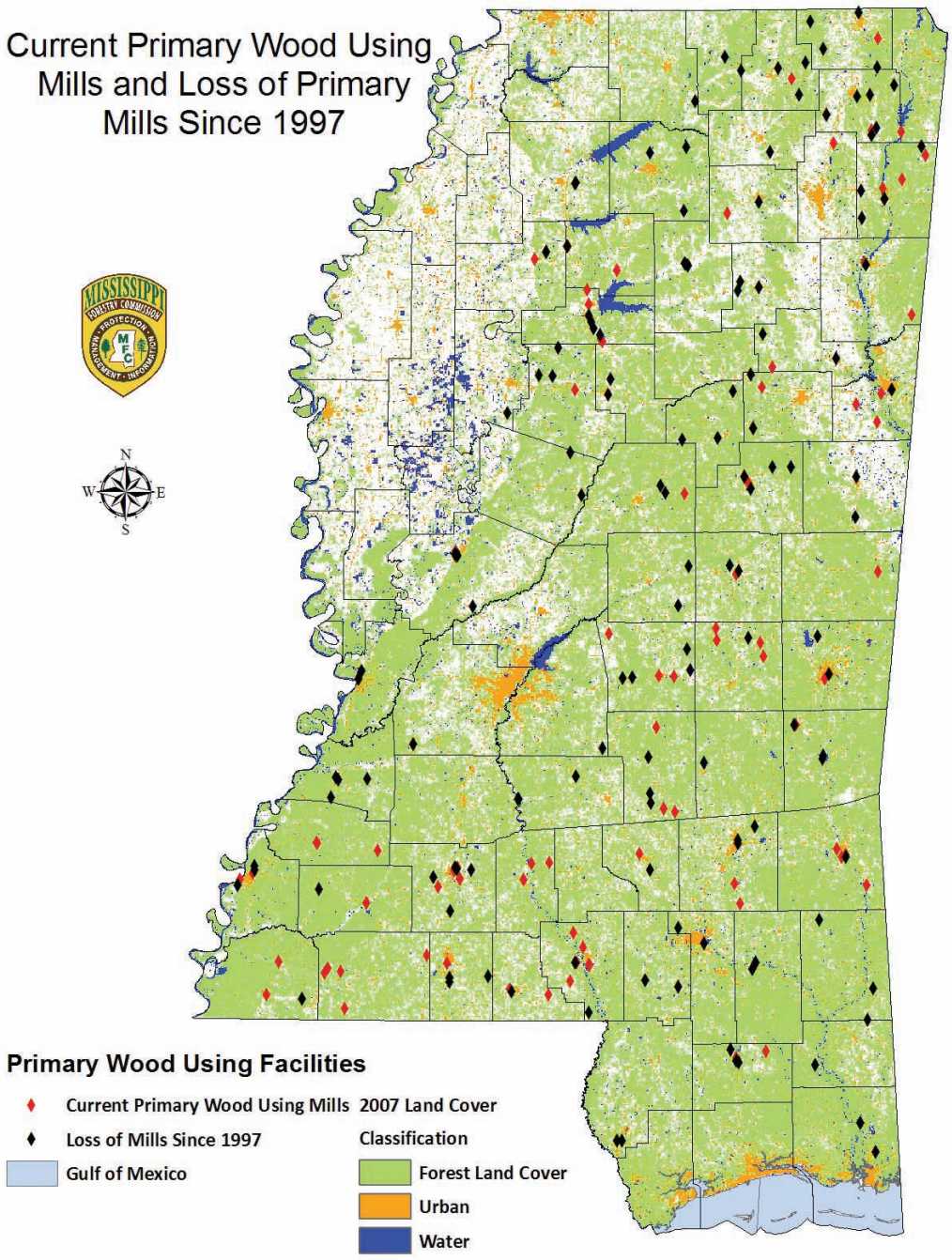
Priority areas identified by the Southern Forest Land Assessment



Priority watersheds identified by Mississippi department of Environmental Quality

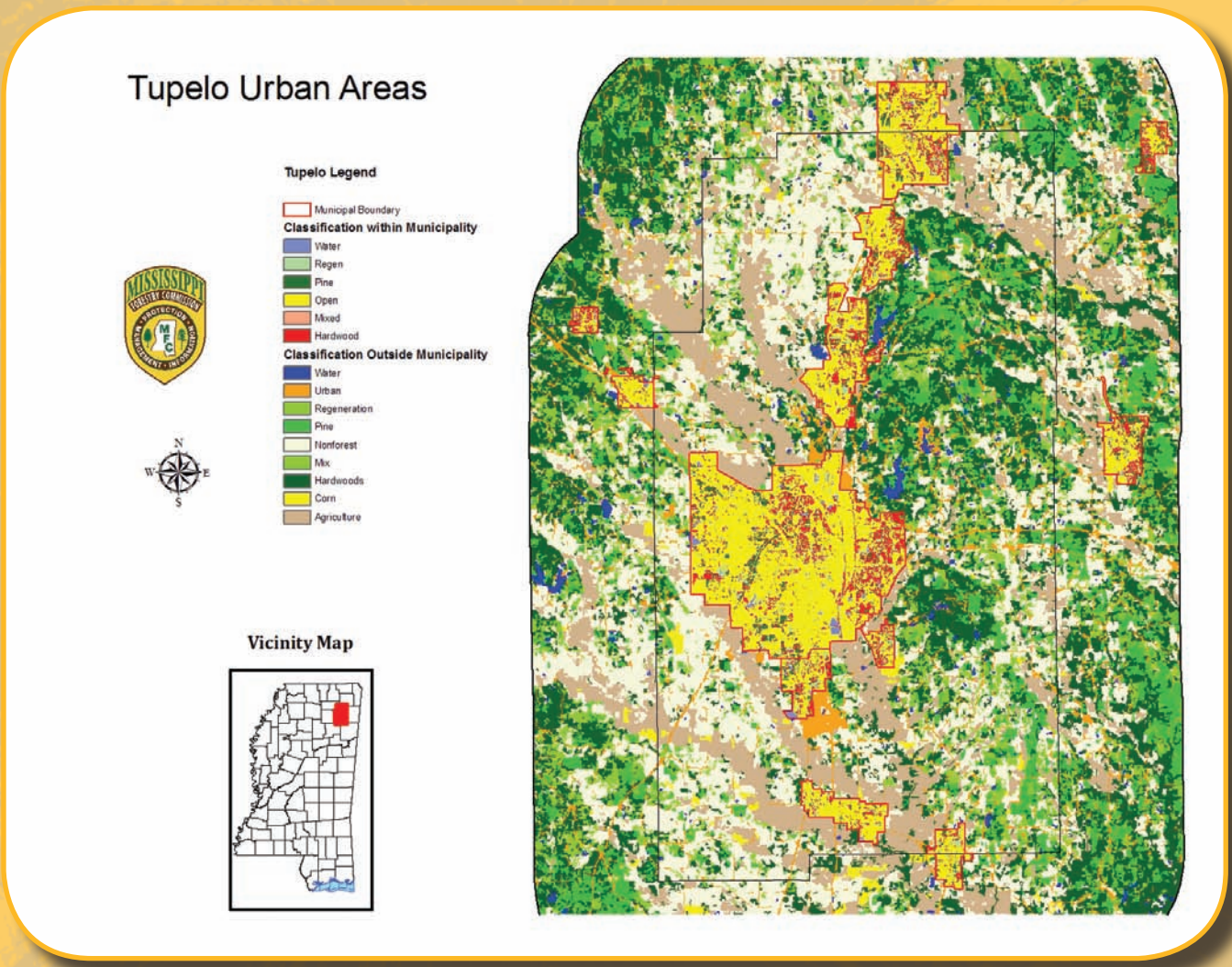
Issue 2: Resource Markets

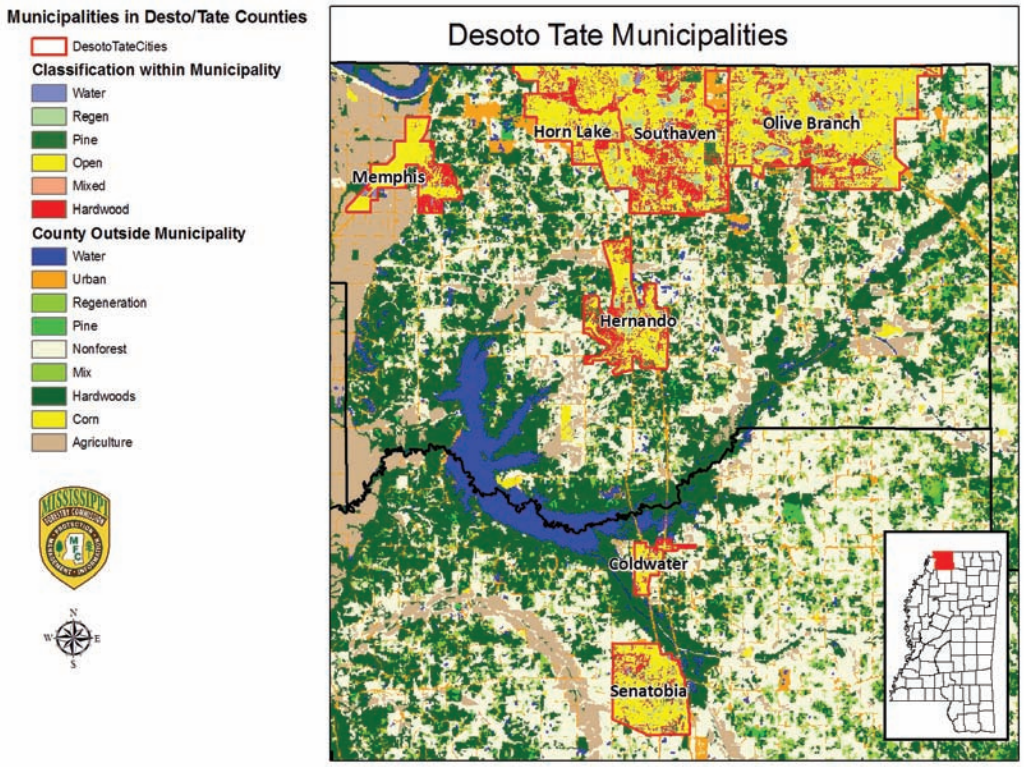
- Statewide
- Mill allocation by type and status, including new emerging market mills
- Growth to Drain – Areas of state where growth is out pacing usage
- Limited railroad lines in Mississippi
- Limited deep water ports in Mississippi
- Longleaf acres present / historic acreage* **MULTI-STATE**

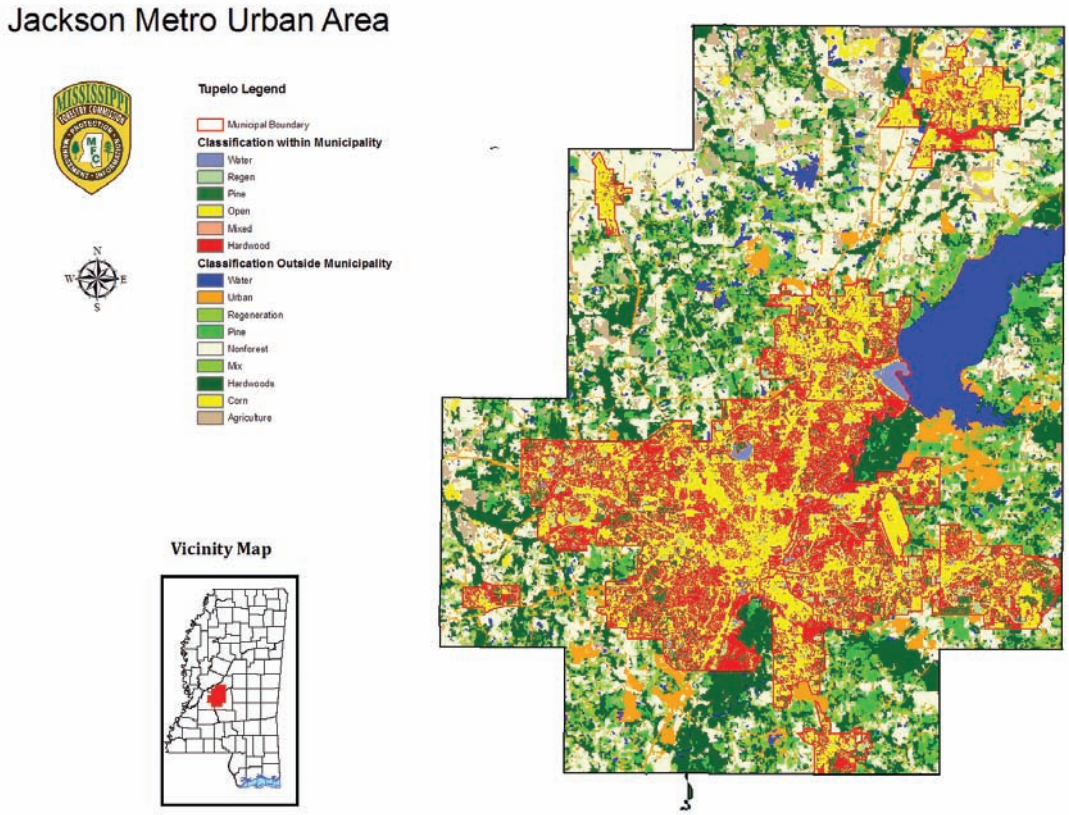


Issue 3: Land Ownership Policies

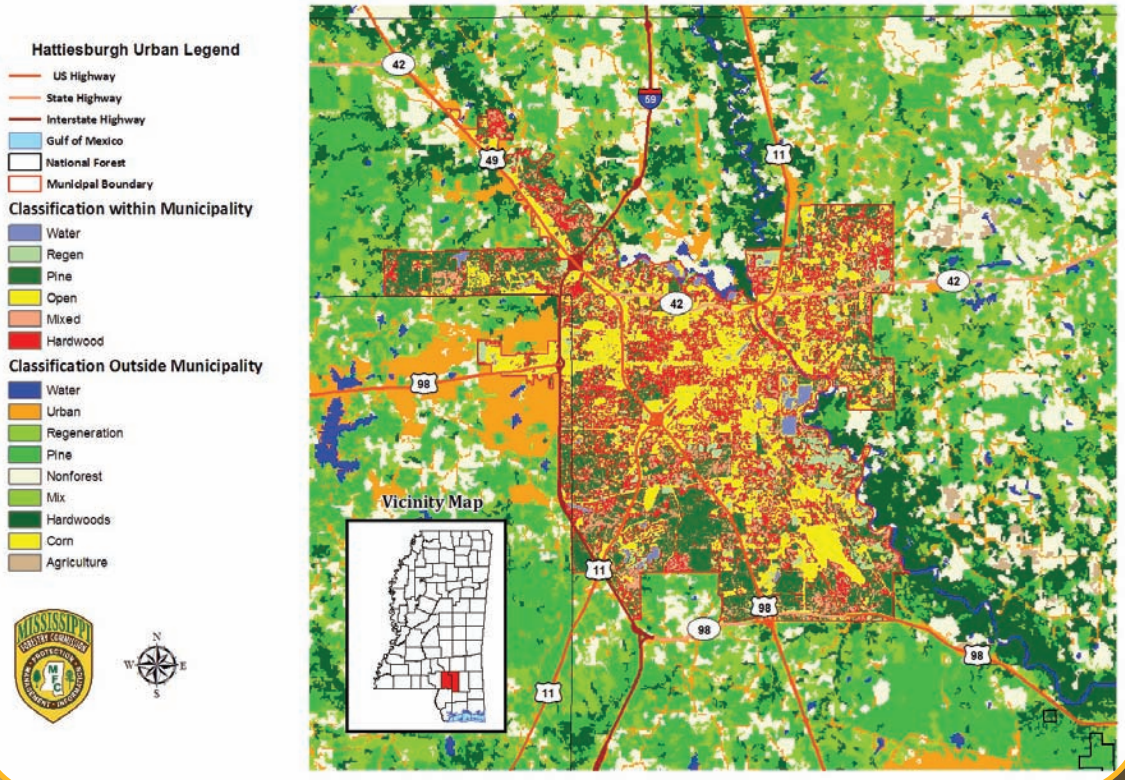
- Increasing urbanization and WUI areas
  - DeSoto/Tate Counties
  - Tupelo
  - Jackson Metro
  - Meridian
  - Hattiesburg/Laurel
  - Gulf Coast
- Mississippi Forest Legacy Areas
- Priority forest communities identified in the Mississippi Comprehensive Wildlife Conservation Strategy
- Rural forested areas of the state
- Statewide, all forestland property owners



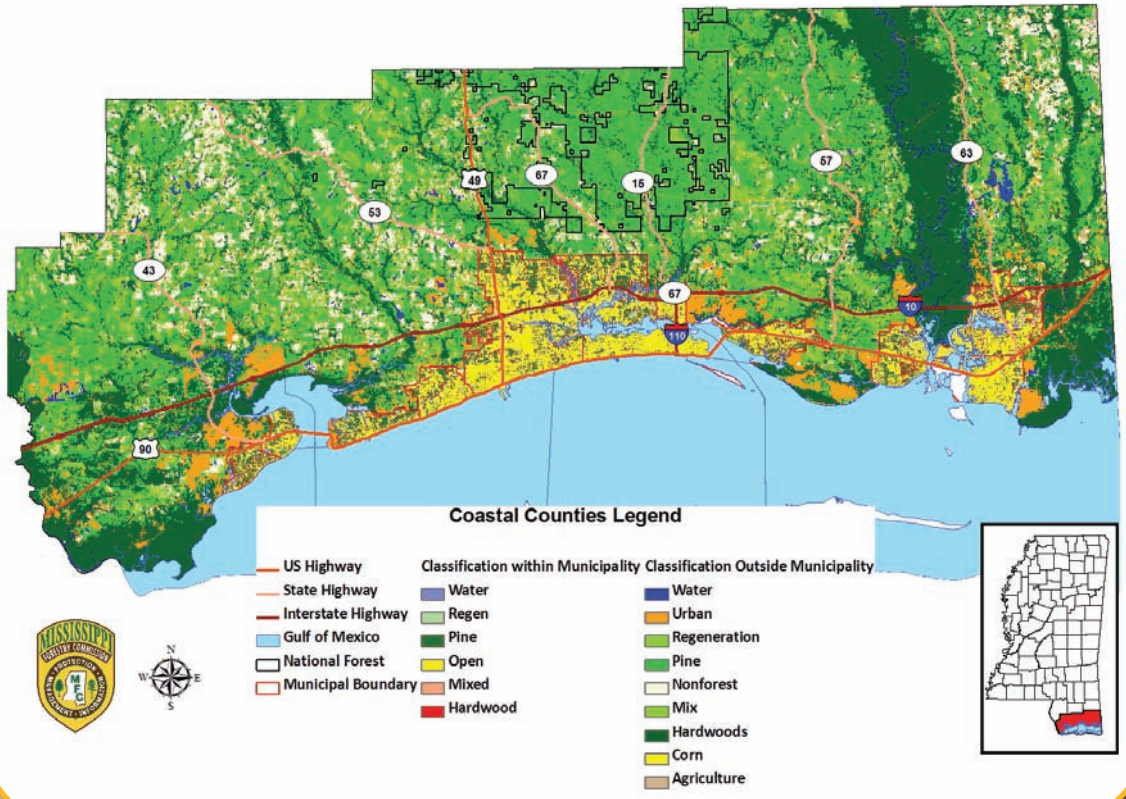

Municipalities in Desto/Tate Counties
DesotoTateCities
Classification within Municipality
Water
Regen
Pine
Open
Mixed
Hardwood
County Outside Municipality
Water
Urban
Regeneration
Pine
Nonforest
Mix
Hardwoods
Corn
Agriculture
Desoto Tate Municipalities
Horn Lake
Southaven
Olive Branch
Memphis
Hernando
Coldwater
Senatobia


Jackson Metro Urban Area
Tupelo Legend
Municipal Boundary
Classification within Municipality
Water
Regen
Pine
Open
Mixed
Hardwood
Classification Outside Municipality
Water
Urban
Regeneration
Pine
Nonforest
Mix
Hardwoods
Corn
Agriculture
Vicinity Map

Hattiesburg Urban & Wildland Interface



Coastal Counties Urban & Wildland Urban Interface



Meridian Urban & Wildland Urban Interface

Urban & Wildland Interface Legend

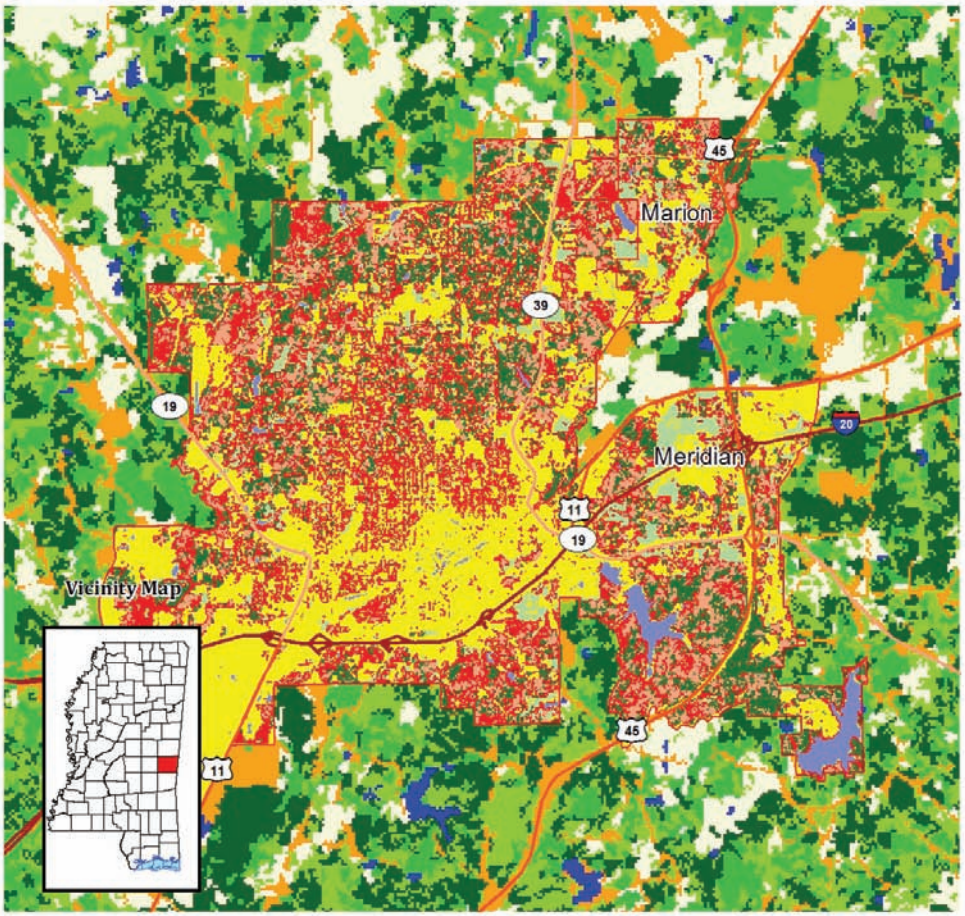
- US Highway
- State Highway
- Interstate Highway
- National Forest
- Municipal Boundary

Classification within Municipality

- Water
- Regen
- Pine
- Open
- Mixed
- Hardwood

Classification Outside Municipality

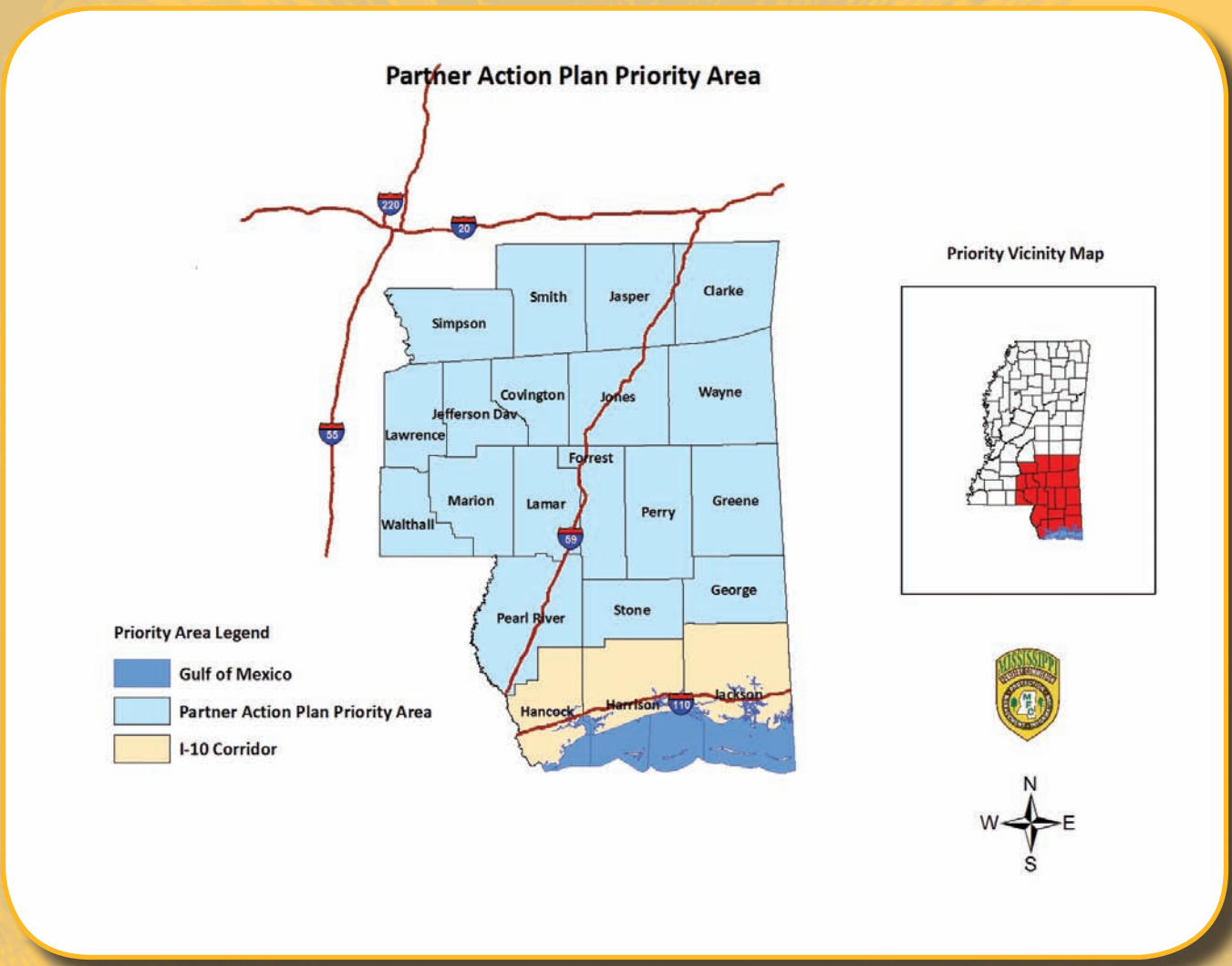
- Water
- Urban
- Regeneration
- Pine
- Nonforest
- Mix
- Hardwoods
- Corn
- Agriculture



Issue 4: Forest Health

General

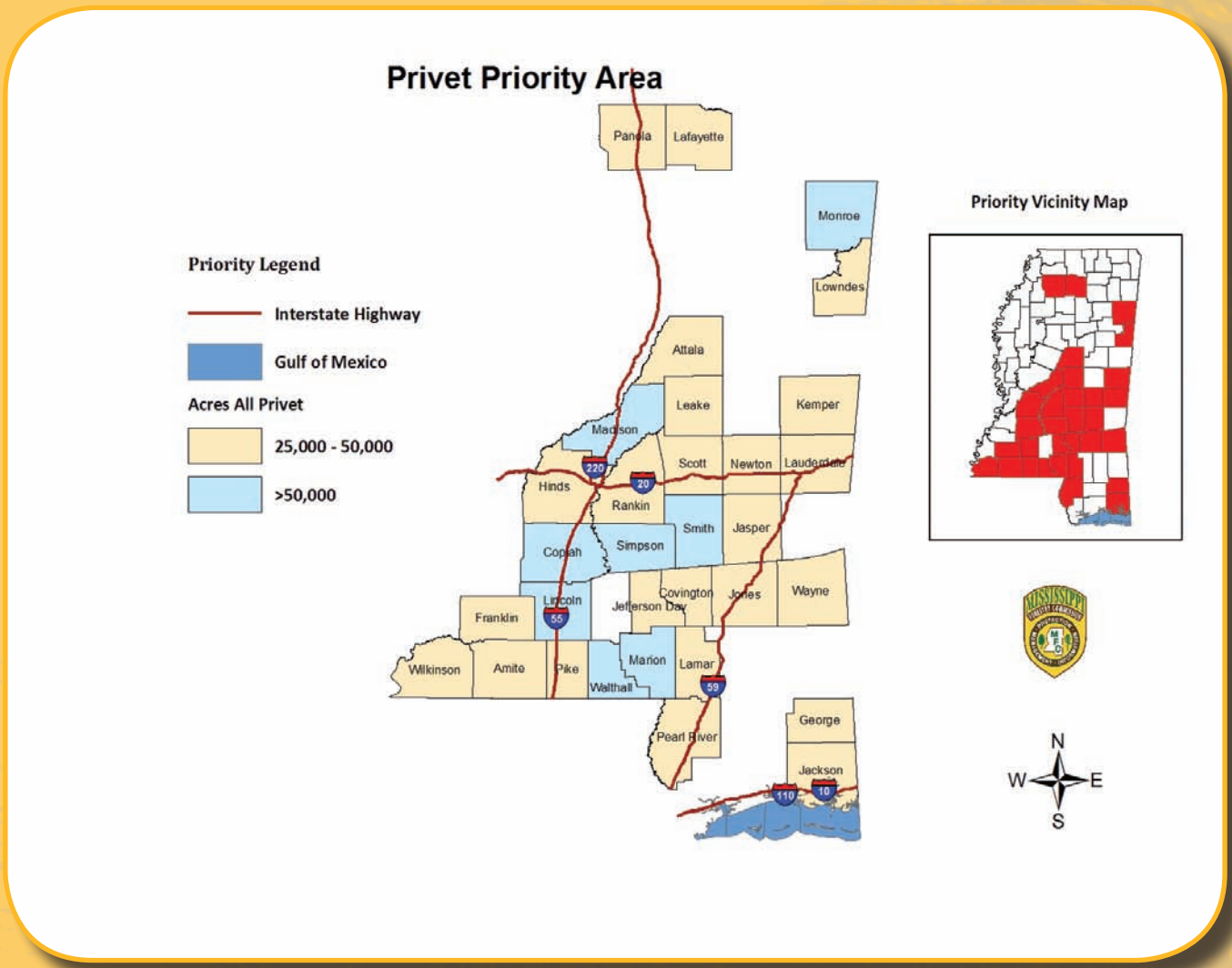
- Invasive plants - Species specific distributions (with emphasis on eradication north of I-20 and suppression south of I-20)* **MULTI-STATE**
- Pests - Southeast Mississippi, Jackson County and I-10 corridor* **MULTI-STATE**
- High hazard areas on Southern Pine Beetle Hazard Rating* **MULTI-STATE**
- Longleaf pine historic distribution in East Central and South MS* **MULTI-STATE**

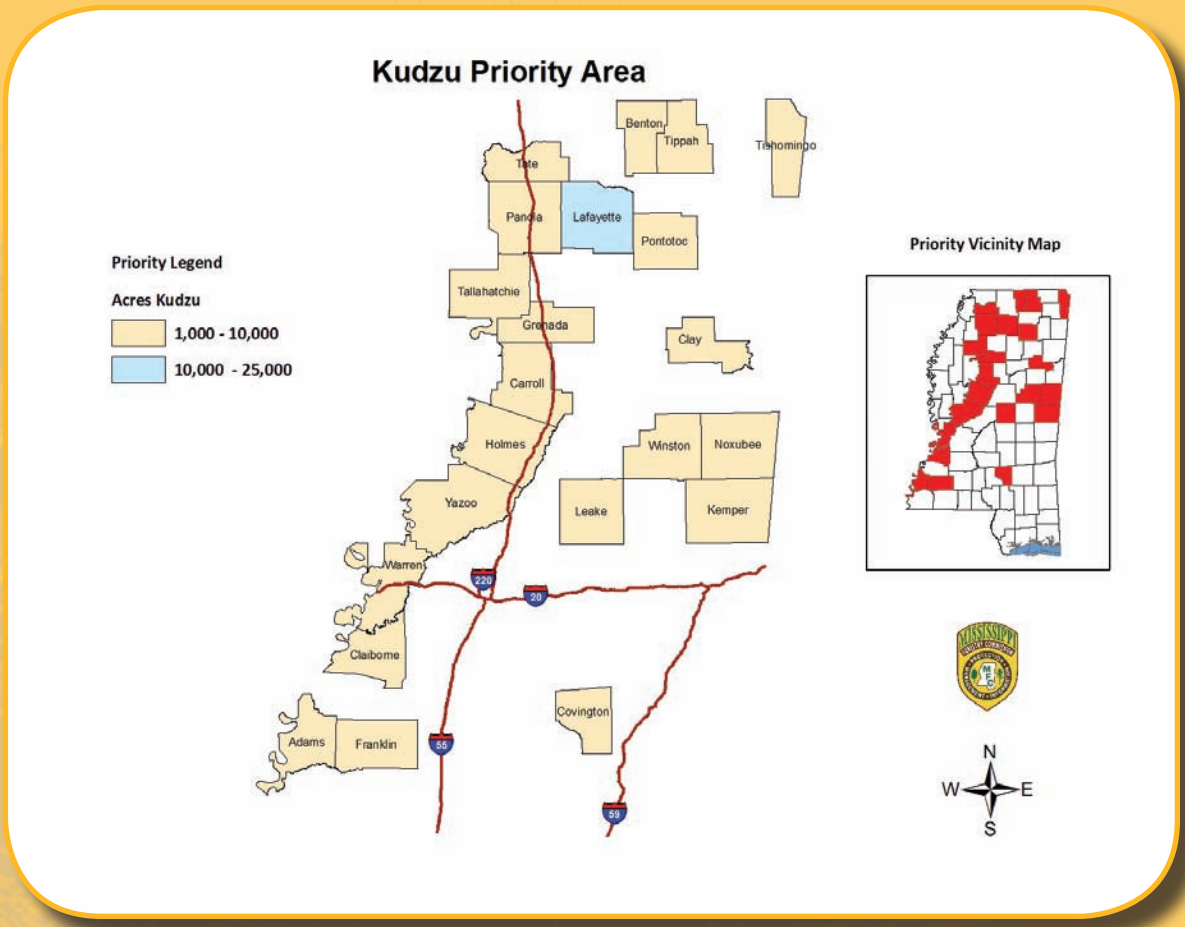


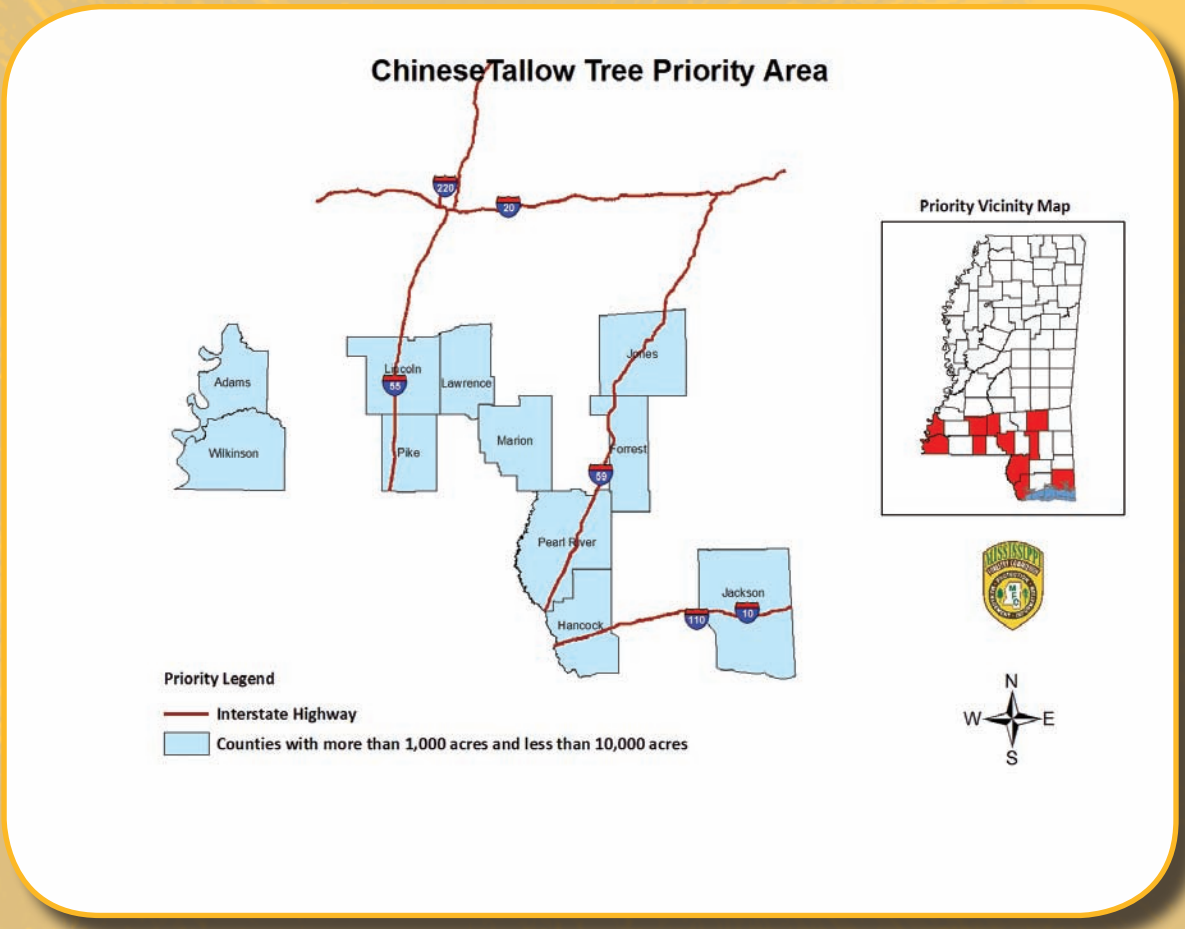
High priority areas for forest health outreach.

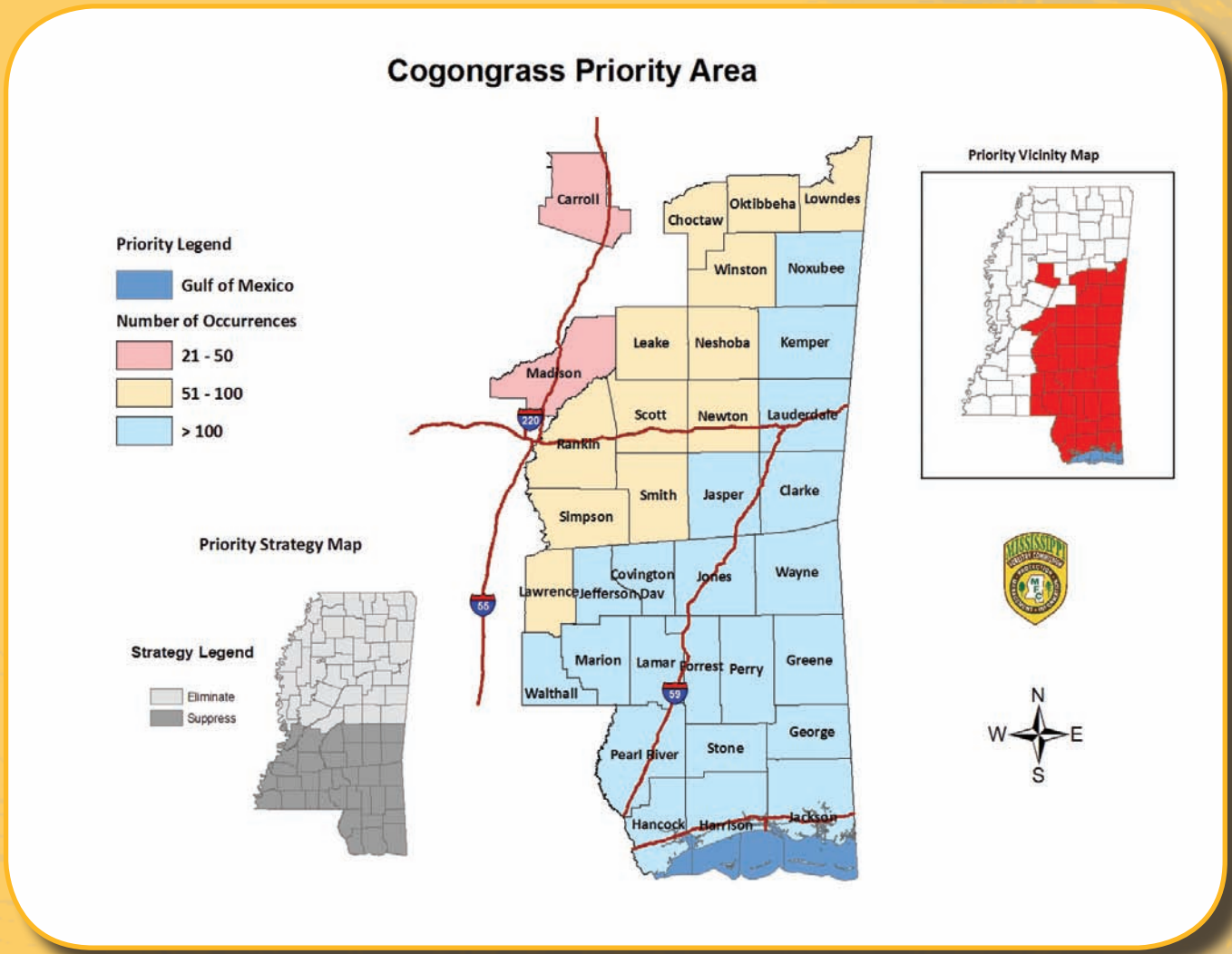
Plants

- Elimination of cogongrass north of Interstate 20 and suppression of cogongrass south of Interstate 20. * **MULTI-STATE**
- Using the latest USFS Southern Research Station maps, emphasis will be placed on the counties with the highest percentage of infestation in the fight against kudzu, Japanese and Chinese privet and Japanese climbing fern. Also, by using the Southern Wildfire Risk Assessment, areas of high priority which have a very high percentage of NNIP will take priority in funding for control projects. * **MULTI-STATE**



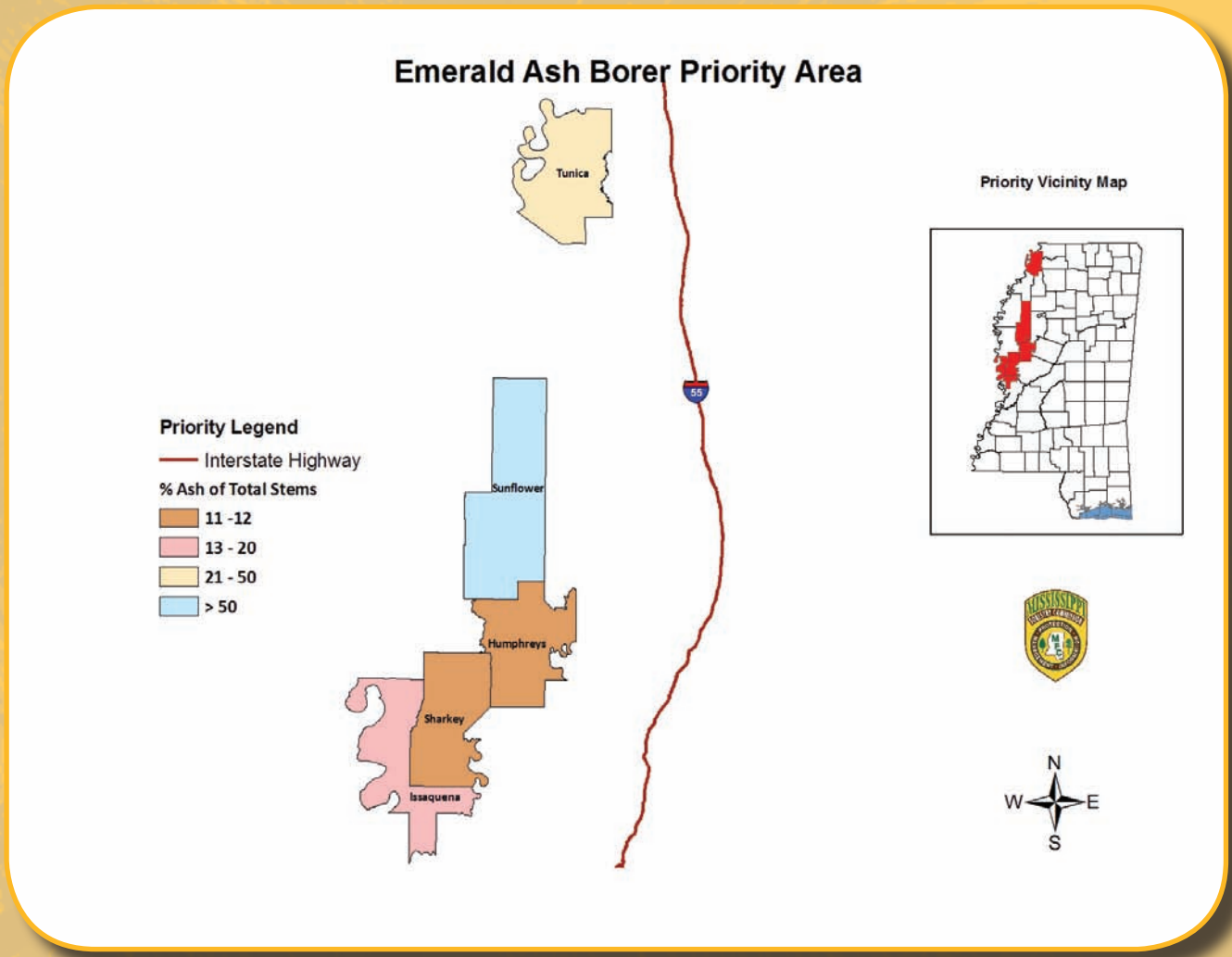

Kudzu Priority Area
Benton
Tippah
Tishomingo
Tate
Panola
Lafayette
Pontotoc
Tallahatchie
Grenada
Clay
Carroll
Holmes
Winston
Noxubee
Yazoo
Leake
Kemper
Warren
Claiborne
Covington
Adams
Franklin
Priority Legend
Acres Kudzu
1,000 - 10,000
10,000 - 25,000
Priority Vicinity Map
N
W
E
S


Chinese Tallow Tree Priority Area
Adams
Wilkinson
Lincoln
Lawrence
Pike
Marion
Jones
Forrest
Pearl River
Hancock
Jackson
Priority Vicinity Map
Priority Legend
Interstate Highway
Counties with more than 1,000 acres and less than 10,000 acres
N
W
E
S


Cogongrass Priority Area
Priority Legend
Gulf of Mexico
Number of Occurrences
21 - 50
51 - 100
> 100
Priority Strategy Map
Strategy Legend
Eliminate
Suppress
Priority Vicinity Map
Carroll
Choctaw
Oktibbeha
Lowndes
Winston
Noxubee
Leake
Neshoba
Kemper
Madison
Scott
Newton
Lauderdale
Rankin
Smith
Jasper
Clarke
Simpson
Lawrence
Jefferson Dav
Covington
Jones
Wayne
Marion
Lamar
Forrest
Perry
Greene
Walthall
Pearl River
Stone
George
Hancock
Harrison
Jackson
220
55
59
N
W
E
S

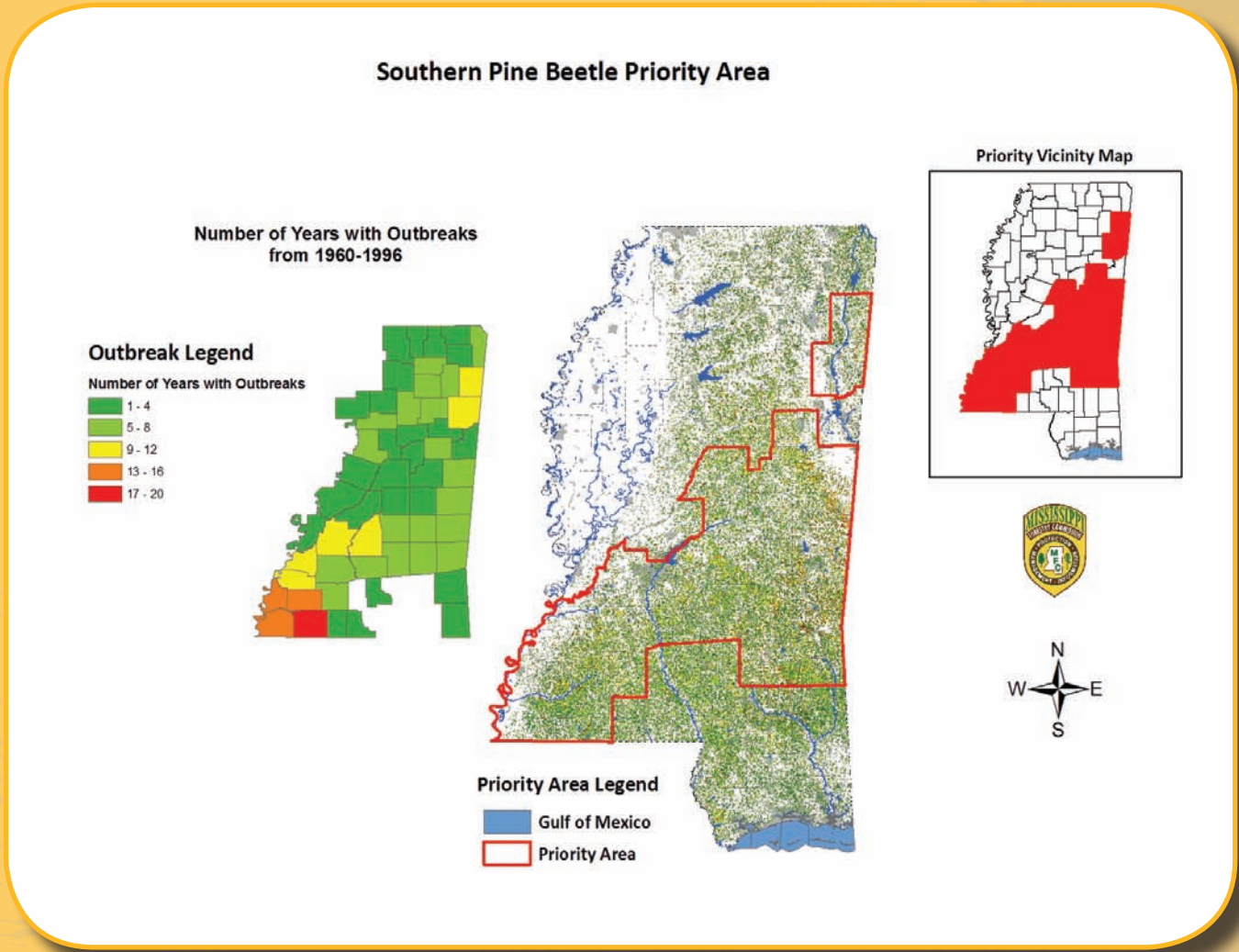
Non-Native Insects and Disease

- Redbay Ambrosia Beetle - Southeast portion of Mississippi, with special emphasis on Jackson County and the Interstate 10 corridor, where the problem presently exists. Based on inventory data, plans will also address other areas of concern where species are present and/or relatively abundant, particularly areas where threatened or endangered plant species that may be affected occur * **MULTI-STATE**
- The initial focus area for the Emerald Ash Borer (EAB) will be in Tunica, Sunflower, Humphreys, Sharkey and Issaquena Counties. These counties have a minimum of 10 percent Ash species in their timber inventories across the county according to the latest MIFI data. Municipalities with large inventories of ash trees in their cities will also be a priority focus area.* **MULTI-STATE**
- Geospatial examination of inventory data will be utilized to target at risk areas containing abundant or valuable black walnut (for thousand canker disease or TCD), maple (for Asian longhorned beetle or ALB), and oak (for sudden oak death or SOD).
- The statewide SPB hazard rating map will be utilized to identify areas of pine resources particularly at risk for Sirex woodwasp. As part of identifying and prioritizing landscapes and focus areas for program delivery for all of these non-native, invasive pests, higher risk introduction pathways such as ports, transportation corridors, distribution centers, campgrounds, nurseries, etc., will be considered and reflected in action plans or response plans.* **MULTI-STATE**



Southern Pine Beetle

- Historical data available from 1960 – 1996. Southwest MS will be a target area to focus on for further emphasis of SPB prevention programs.
- SPB hazard rating maps, many areas in southeast MS and east Central MS show up as a high hazard area. These maps will be used to determine priority areas where we will focus prevention work such as thinning programs and workshops. * **MULTI-STATE**
- The native range maps of longleaf pine will be used to determine the priority landscape areas for the longleaf pine restoration projects.* **MULTI-STATE**



Diversity

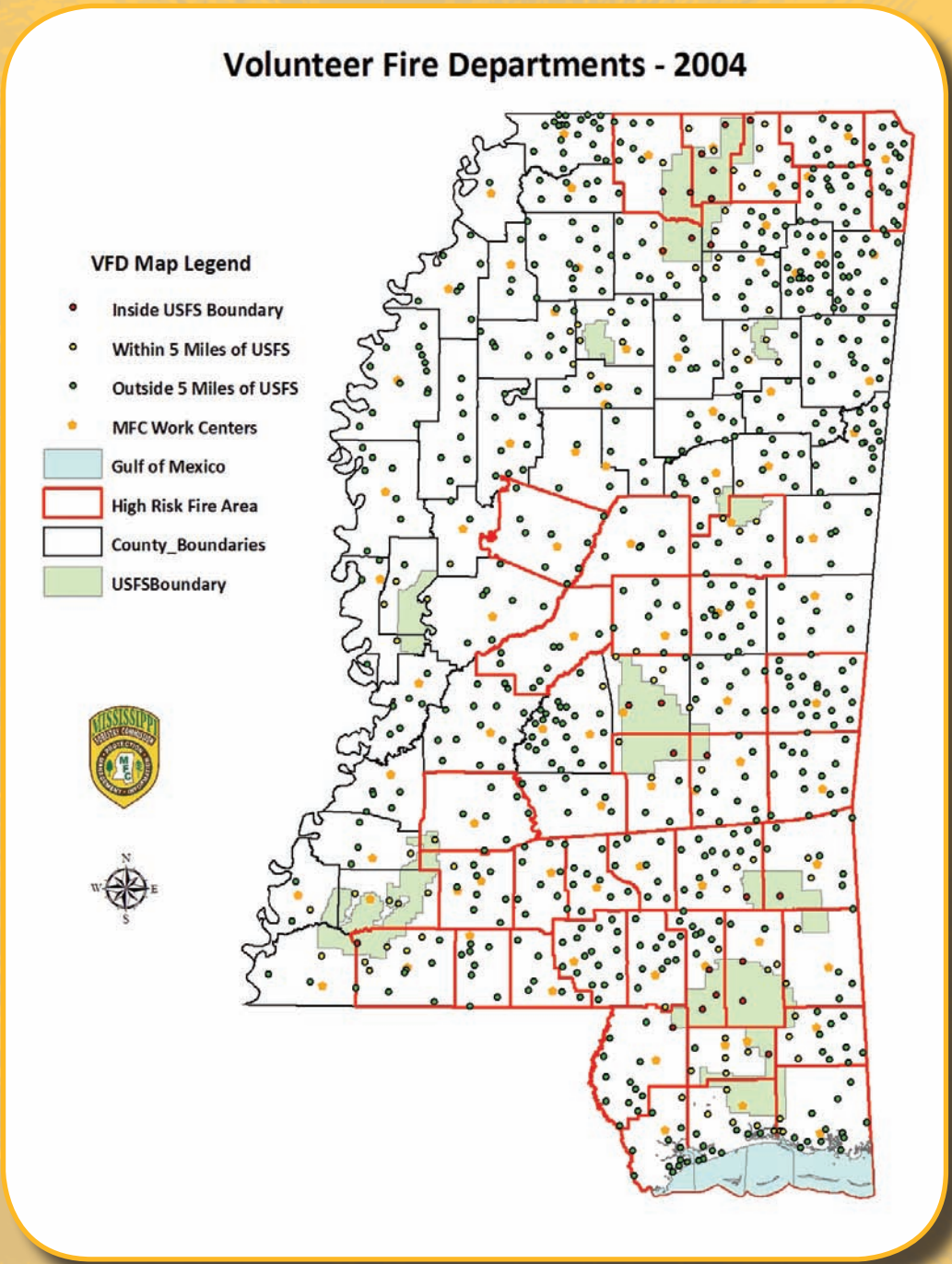
- Native range for Longleaf pine restoration project. ***MULTI-STATE**

Issue 5: Stewardship Education

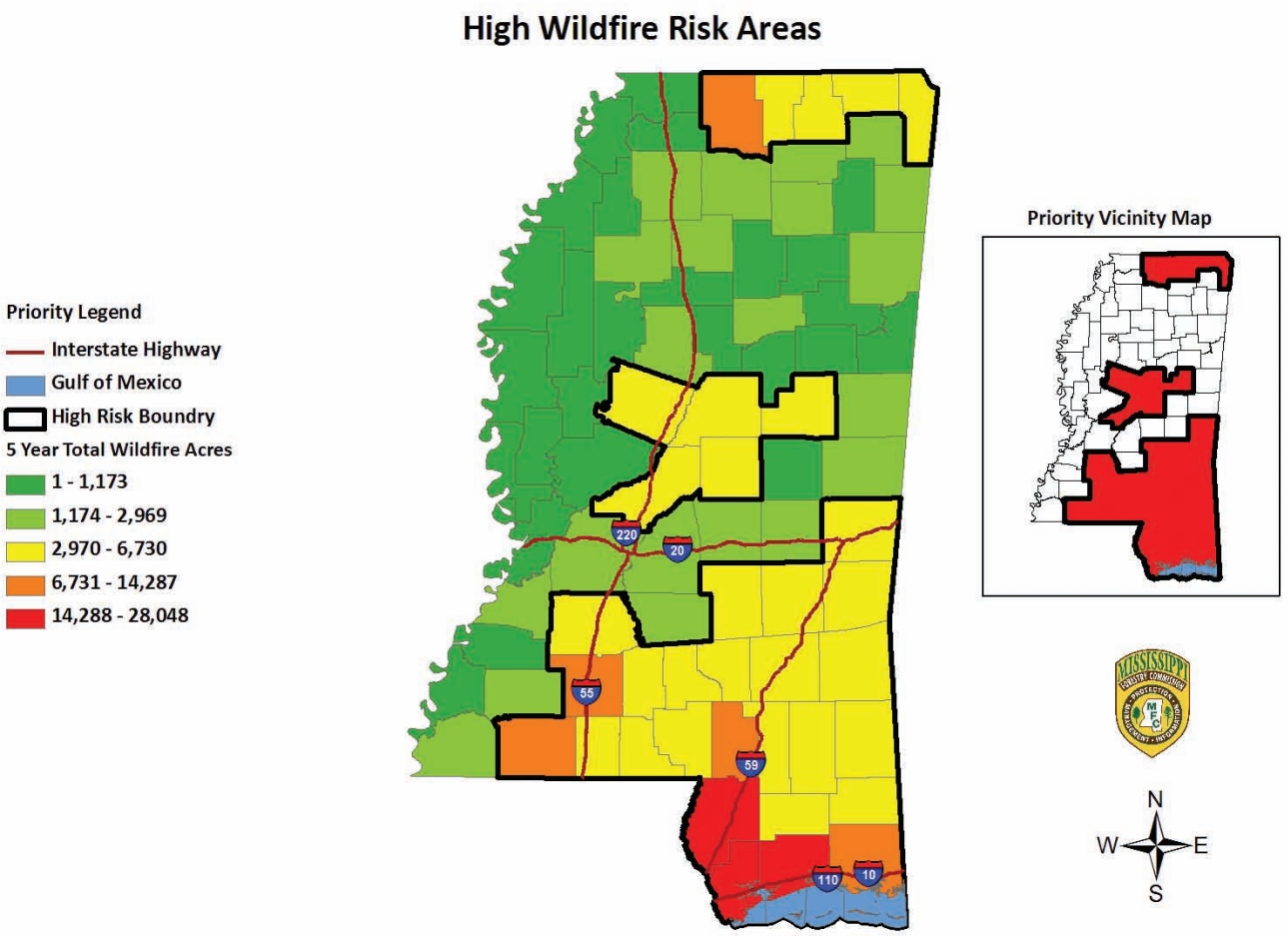
- Statewide for general stewardship education
- Underserved populations by county – to be identified
- Priority areas of Mississippi identified in other key issue areas and S & PF programs
- Health Education Priority Area
- Urban expansion areas within Forest Legacy Areas

Issue 6: Wildfire Fuel Reduction

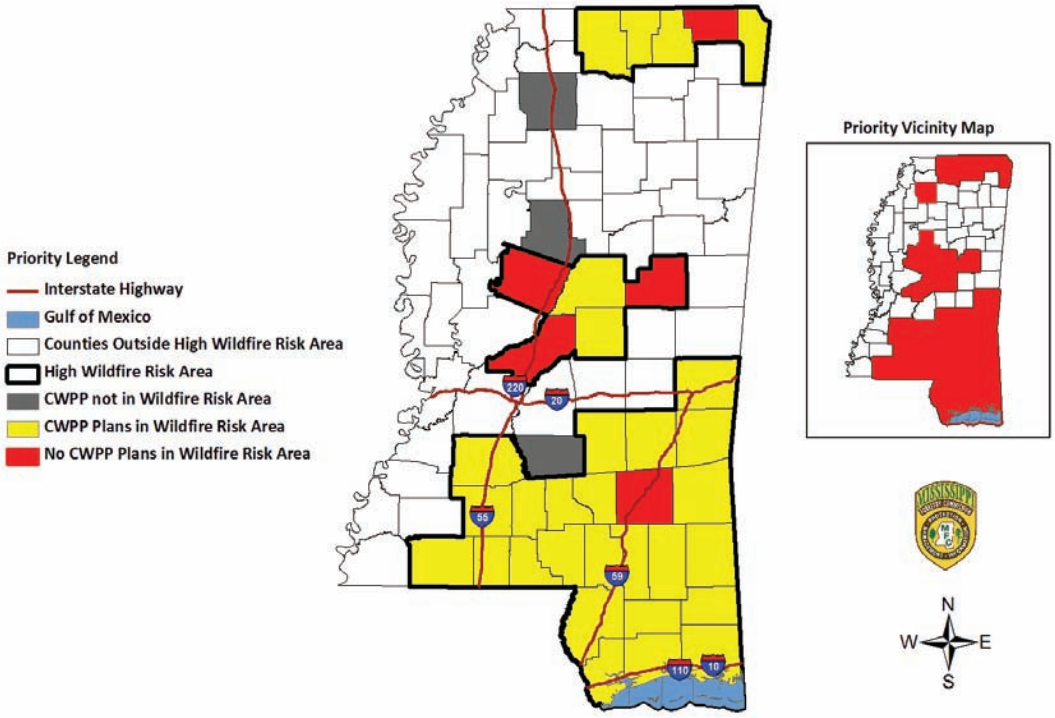
- Southern Wildfire Risk Assessment (SWRA) – Community at Risk (CAR), high fire occurrence areas, location of MFC tractor/plow units and VFDs.



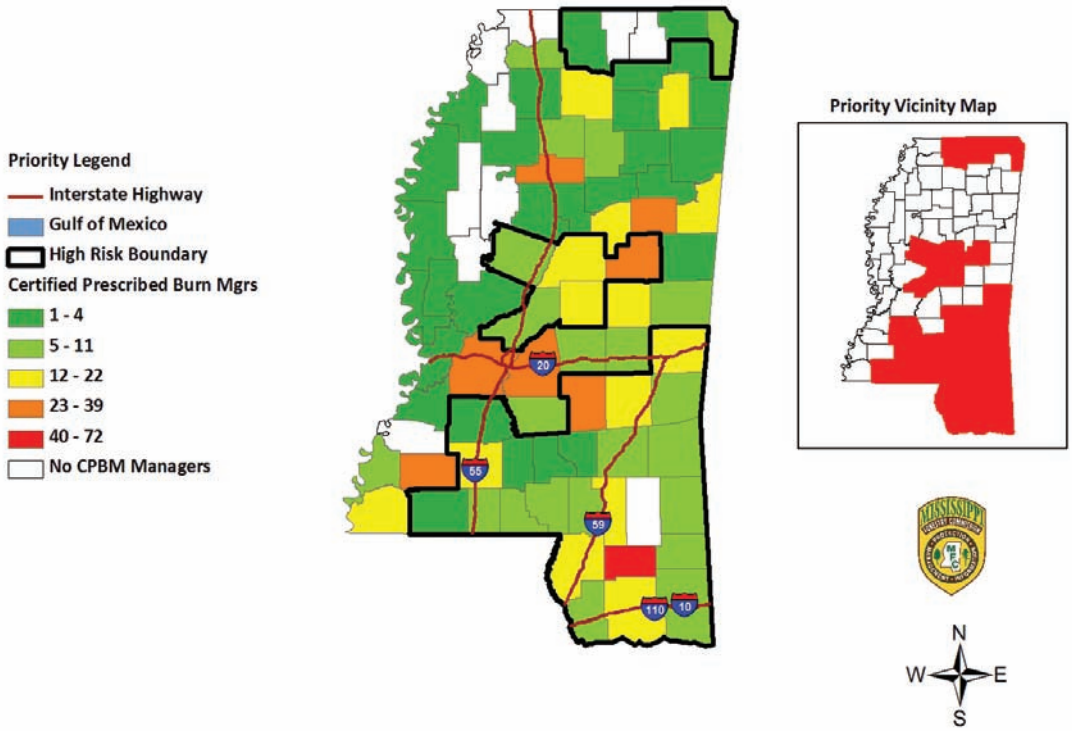
- County Wildfire Protection Plan (CWPP) – Currently 34 counties have these plans. The plans identify areas at risk to wildland fires. This includes public infrastructure and other important areas in the county. The remaining counties are priorities for plans.
- Location of Certified Prescribed Burn Managers – Priorities are counties where there are few or no CPBMs.
- Non-native invasive species priority areas for suppression/ eradication in forest health section



County Wildfire Protection Plan Priority Areas

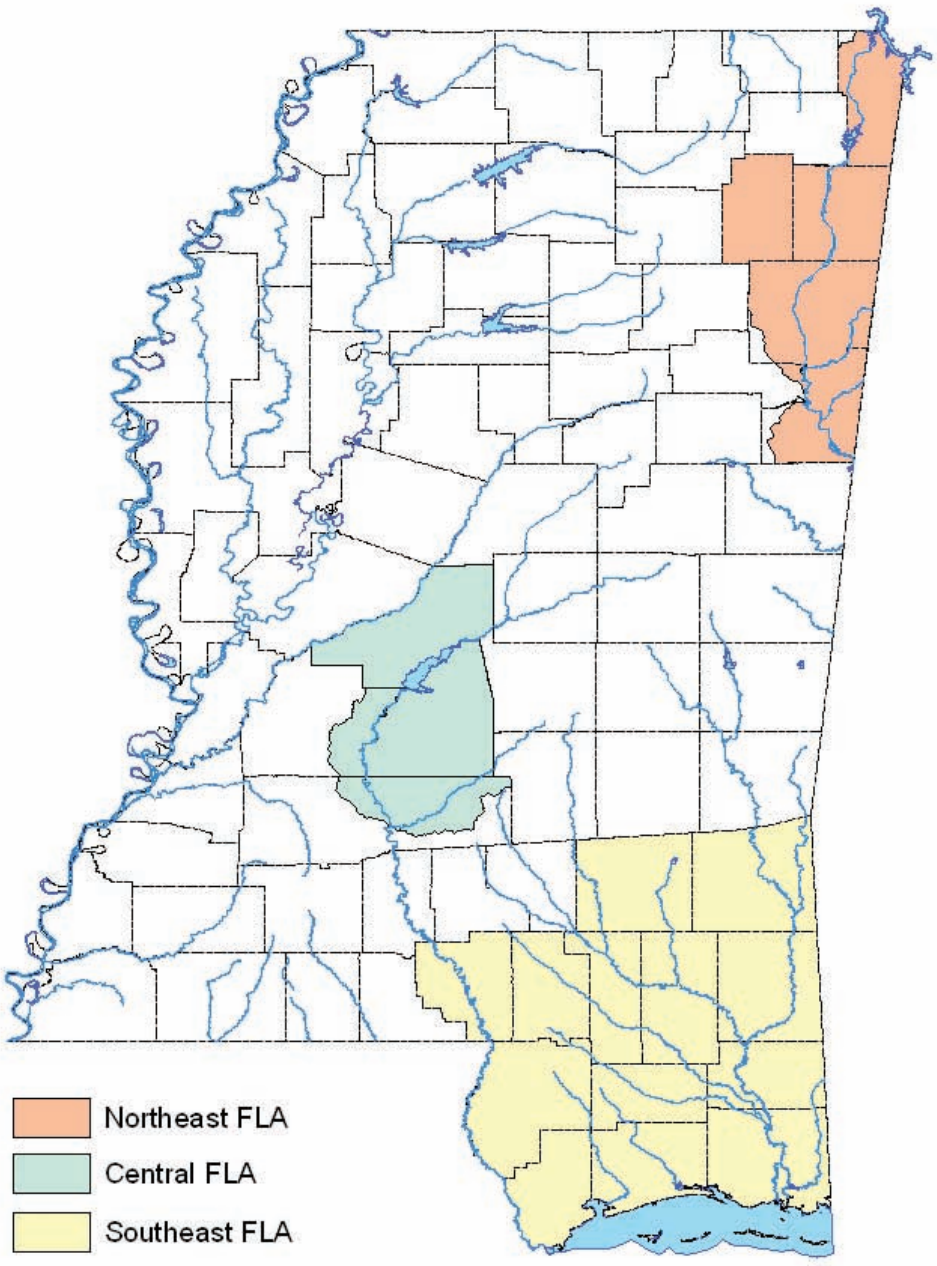


Certified Prescribed Burn Managers Priority Area



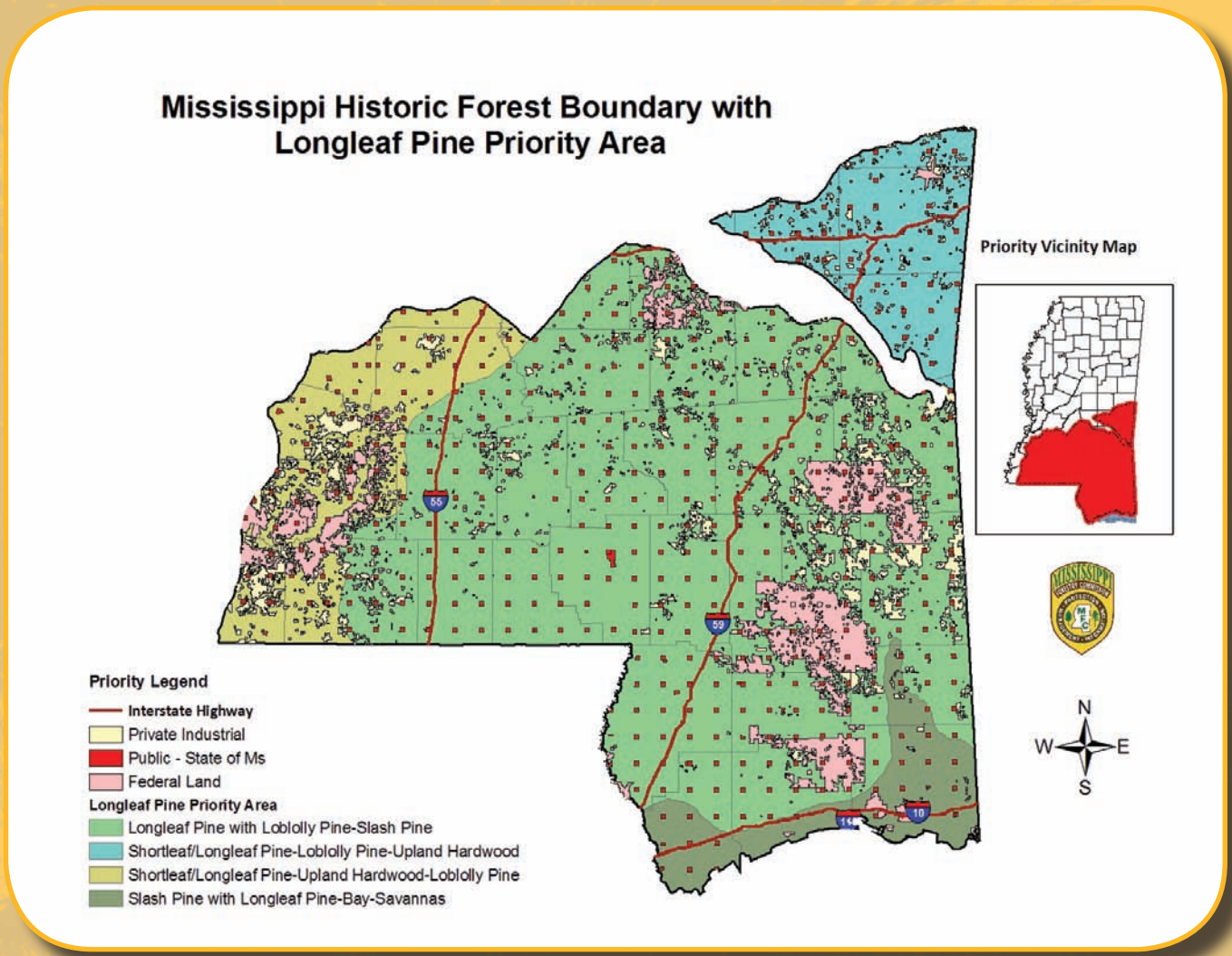
Issue 7: Climate Change

- Priority areas for WRP (MS River Alluvial Plain ecoregion) * **MULTI-STATE**
- Priority areas for CRP
- Open land (agriculture, pasture, open fields) adjacent to public lands
- Mature forests on public lands and adjacent private lands
- Forest Legacy Areas



Issue 8: Wildlife

- Conservation Priorities identified through the USDA State Technical Committee for Farm Bill programs such as CRP, WRP, Wildlife Habitat Incentives program (WHIP), Healthy Forest Reserve Program (HFRP) and others.
- Priority areas identified in the Partners for Fish and Wildlife (PFW) and Landowner Incentive Program (LIP).
- Priority areas identified in the Range-wide Conservation Plan for Longleaf Pine* **MULTI-STATE**
- High ranking natural forest communities identified in CWCS
- Forest Legacy Areas
- Natural Areas identified by MS Natural Heritage Program (forested)
- High priority drainages identified by CWCS (Tombigbee, Northeast Hills/ TN River, Pascagoula River, Lower Coastal Plain/Pearl River)
- Upper East Gulf Coastal Plain ecoregion
- East Gulf Coastal Plain ecoregion



V. Introduction to Forest Resource Strategies

The second part of this comprehensive forest assessment includes a broad set of recommended strategies that were developed to respond to the key issues identified by stakeholders described in Chapter III. These overarching strategies were developed in response to a mandate in the 2008 Farm Bill that requires each state to complete this *Statewide Forest Resource Assessment and Forest Resource Strategy* by June 2010 in order to receive funds under the Cooperative Forestry Assistance Act (CFAA). The Forest Resource Strategy describes broad, long-term strategies and plans for investing state, federal, and other resources to effectively stimulate or leverage desired action and engage multiple partners. This resource strategy incorporates existing statewide forest and resource management plans and creates the basis for future program, agency and partner coordination. Those resources and programs needed to implement these recommended strategies are described in Chapter VII – *State Forestry Programs and Resources*.

The following is a list of overall strategies identified for each of the eight key issues. These strategies are presented in a table (matrix) in Chapter VI – *Strategic Issues Matrix* as follows:

1. **Strategies** - statements of major approaches or methods for attaining goals and resolving specific issues
2. **Priority landscape areas** to be targeted (where relevant) - mentioned in Chapter IV-*Priority Landscapes*.
3. **Secondary key forest issues** that would also be addressed.
4. **Program areas** (S&PF and other forestry programs) that could contribute to

The Farm Bill requires resource strategies to include:

- *An outline of long-term strategies for addressing priority landscapes identified in the assessment and the national themes and associated management objectives.*
- *Description of how the state proposes to invest federal funding, along with other resources, to address state, regional, and national forest management priorities.*
- *A long-term timeline for project and program implementation.*
- *Identification of partner and stakeholder involvement.*
- *Strategies for monitoring outcomes within priority forest landscape areas and how action will be revised when needed.*
- *Description of how the state's proposed activities will accomplish national S&PF program objectives and respond to specified performance measures and indicators.*
- *How S&PF programs will be used to address priority landscape and management objectives.*
- *Existing statewide plans including wildlife action plans, community wildfire protection plans and address existing S&PF program planning requirements.*

implementing the strategy (described in Chapter VII – *State Forestry Programs*).

5. **Key stakeholders**

6. **Resources available or needed** to implement the strategy (see Chapter VII – State Forestry).

7. Existing or potential **partners** that can help implement each recommended strategy.

National Themes and Objectives:

1. Conserve Working Forest Landscapes
- 1.1. Identify and conserve high priority forest ecosystems and landscapes
- 1.2. Actively and sustainably manage forests

2. Protect Forests from Harm
- 2.1. Restore fire-adapted lands and reduce risk of wildfire impacts
- 2.2. Identify, manage, and reduce threats to forest and ecosystem health

3. Enhance Public Benefits from Trees and Forests
- 3.1. Protect and enhance water quality and quantity
- 3.2. Improve air quality and conserve energy
- 3.3. Assist communities in planning for and reducing wildfire risks
- 3.4. Maintain and enhance the economic benefits and values of trees and forests
- 3.5. Protect, conserve, and enhance wildlife and fish habitat
- 3.6. Connect people to trees and forests, and engage them in environmental stewardship activities
- 3.7. Manage and restore trees and forests to mitigate and adapt to global climate change

8. **Measures** of success

9. **National S&PF** themes and objectives that the strategy supports (referenced by numbers that correspond to the list below).

Chapter VII – *State Forestry Programs and Resources* includes a description of all major forest and land conservation programs in the state that may be used to implement recommended strategies and accomplish objectives. S&PF programs are emphasized, but other state, federal and non-government programs are described as well.

This statewide assessment and strategy, will serve as a guide and foundation for MFC and its partners to develop its detailed annual action plans including specific measurable goals, objectives and action steps to implement each strategy.

Summary of Strategies by Key Issue Areas

See Chapter VI for more detail on each recommended strategy.

1. Forest Sustainability

Strategy 1.1
Promote reforestation and afforestation of longleaf pine on appropriate sites within its natural range.

Strategy 1.2
Increase use of prescribed burning for timber stand improvement and wildlife habitat development.

Strategy 1.3 Create a natural resource and forest land management web-based information clearing house to include traditional landowners as well as underserved landowners. Include resources available through consulting foresters, State and Federal incentive programs and grants.

Strategy 1.4 Create a working group to study forest fragmentation and parcelization impacts on soil, water, wildlife, wildfire and to identify resources required to assist landowners (especially underserved landowners) not currently eligible for federal or state assistance.

Strategy 1.5 Increase stewardship management planning and technical assistance to assist landowners in implementing plan recommendations through the Tree Farm Program, certification programs, other state, federal and private forest conservation programs as well as consulting foresters.

Strategy 1.6 Encourage and improve agriculture/forestry/watershed land-use planning and BMPs to address nonpoint pollution, erosion and water quality issues.

2. Resource Markets

Strategy 2.1 Develop and maintain wood using directory of timber products outputs and consumption and trends.

Strategy 2.2 Develop and publish guidelines for harvesting biomass products and the impact on managing forests land.

Strategy 2.3 Evaluate potential opportunities to utilize the state's abundant forest resources including traditional wood product markets and non-traditional markets such as carbon and biomass markets, recreation and ecosystem services.

Strategy 2.4 Establish and maintain a statewide integrated transportation system specifically to facilitate movement of forest and wood products.

Strategy 2.5 Conduct comprehensive forest resource and market study to identify traditional markets and potential non-traditional markets and to identify forest assets and current utilization levels.

3. Land Ownership Policies

Strategy 3.1 Create public policy designed to maintain, improve and protect favorable tax policies in regard to forestry and land ownership (including capital gains, inheritance tax, severance tax, etc.

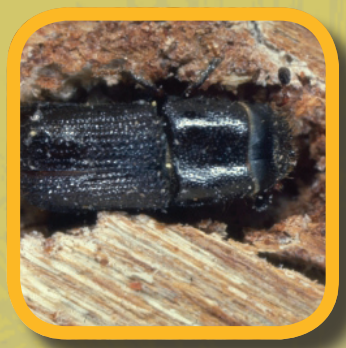
Strategy 3.2 Establish policy/law that facilitates the improvement of roads and bridges (remove impacts to traditional logging).

Strategy 3.3 Establish policy/law at the state level that standardizes county road use, removing restrictive barriers to logging.

Strategy 3.4 Protect the "right to practice forestry" law and private property rights.

Strategy 3.5 Establish law/policy that creates new programs or modifies existing programs to enable assistance to ecosystem goods/services and/or non-traditional management objectives.

4. Forest Health



Strategy 4.1 Protect and conserve natural forest communities/ecosystems from non-native, invasive plants through elimination/suppression of invasive (plants).

Strategy 4.2 Collaboratively develop statewide action plans with partners and stakeholders for non-native, invasive pests already established and spreading elsewhere in the US, and which pose a threat to Mississippi's forest and shade tree resources (pests).

Strategy 4.3 Promote thinning and other forest management practices that encourage sustainable and healthy forest conditions so that high hazard stands are less than five percent of the total susceptible host type acreage in the state; Encourage removal of off-site pine whenever possible and restoration of longleaf pines on sites where appropriate, such that longleaf pine is restored to at least 25 percent of its historical range in the state.

Strategy 4.4 Educate landowners on the benefits of maintaining diverse, healthy, and vigorous forest resources using sound forestry, wildlife, and water quality practices.

Strategy 4.5 Emphasize establishing and managing longleaf on soils that are appropriate for the species.

5. Stewardship Education

Strategy 5.1 Coordinate with partners to continue the delivery of current stewardship education efforts with emphasis on the delivery of issue specific information in priority areas for key issues.

Strategy 5.2 Secure S&PF redesign or other additional grant funding to focus stewardship education and outreach efforts in priority issue areas of the state of Mississippi and multi-state areas where these priority areas are shared. This additional grant funding would contribute to increasing efforts for priority issue areas.

Strategy 5.3 Improve methods and delivery of stewardship education and assistance to underserved landowners.

Strategy 5.4 Secure additional grant funding to improve delivery and outsourcing of Forest Stewardship Management planning for landowners in these priority issue areas including underserved ownerships. These plans would focus on specific recommendations and practices that would directly address the landowner's objectives and trends and threats associated with these priority issue areas. Depending on funding levels, plan development would be incentivized and outsourced to forestry consultants and other natural resource professionals in these priority issue areas.

Strategy 5.5 Seek additional funding to improve web-based social media efforts in Forest Stewardship education. Improving the interactivity of natural resource education websites would provide a more appealing, and informative experience. Emphasis should be placed on integrating and organizing web based information to meet the needs of the priority issue areas.

Strategy 5.6 Develop with partners, informational materials and displays promoting the conditions and management needs of these specific issue priority areas.

6. Wildfire Fuel Reduction

Strategy 6.1 Increase the Number of Certified Prescribed Burn Managers (CPBM).

Strategy 6.2 Increase the acres prescribed burned annually in high risk areas.

Strategy 6.3 Increase the use of prescribed burning using current land owner assistance programs to reduce fuel loading from native plants and non-native invasive species plants.

Strategy 6.4 Identify high fire risk areas throughout the state.

Strategy 6.5 Promote the implementation of mitigation burning in high risk areas identified in the 34 County Wildfire Protection Plans. Continue to provide funding to insure plans are completed in remaining counties.

Strategy 6.6 Provide equipment to VFD for the use in controlling non-forest fires both within the WUI and outside the WUI.

7. Climate Change

Strategy 7.1 Encourage afforestation of agriculture, pasture and open fields.

Strategy 7.2 Support education outreach and awareness efforts in state on how landowners can participate in carbon market programs.

Strategy 7.3 Encourage participation in forestry certification programs.

Strategy 7.4 Conserve/protect existing forests with highest carbon stores (moist, mature forestlands) in large blocks on public lands and adjacent private lands.

8. Wildlife

Strategy 8.1 Encourage and improve management of forested habitat by controlled burning at necessary frequencies and seasons.

Strategy 8.2 Encourage restoration and improved management of altered/degraded habitat when possible.

Strategy 8.3 Discourage incompatible forestry practices such as bedding as a method of site preparation and planting extremely high stocking densities.

Strategy 8.4 Encourage buffers and improve land use practices adjacent to streams (Streamside Management Zones) and other aquatic/wetland habitats.

Strategy 8.5 Provide public education and conservation of Species of Greatest Conservation Need (SGCN) and/or their habitats.

Strategy 8.6 Promote and develop landowner incentive and assistance programs for conservation of SGCN and their habitats.

Strategy 8.7 Encourage retention, preservation, and conservation of remaining natural habitat and habitat corridors between protected forested blocks through purchase, conservation easements and MOAs.

Strategy 8.8 Develop wildlife manual/guide for incorporating species-specific wildlife recommendations into Stewardship Management Plans developed by MFC foresters. Update Plan writer and SIMS Map to include those recommendations and practices.

VI. Strategic Issues Matrix

Mississippi Key Issue 1: Forest Sustainability				
Long-term Strategy	**Priority Areas**	**Secondary Issues Addressed**	**Program Areas that Contribute**	
1.1 Promote reforestation and afforestation of longleaf pine on appropriate sites within its natural range.	Natural range of longleaf pine	Stewardship Ed, Resource Markets, Forest Health, Wildlife, Wildfire Fuel Reduction	FRDP, EFCRP, ECP, State and Private USFS grants, Other non-USFS Programs	
1.2 Increase use of prescribed burning for timber stand improvement and wildlife habitat development.	Wildfire ruel reduction priority areas	Stewardship Ed, Resource Markets, Forest Health, Wildlife, Wildfire Fuel Reduction, Policy	FRDP, Stewardship Grant, Mitigation Grants, Proximity Grants, WHIP	
1.3 Create a natural resource and forest land management web-based information clearing house to include traditional landowners as well as underserved landowners. Include resources available through consultant foresters, State and Federal incentive programs and grants.	Not applicable	Stewardship Ed, Resource Markets, Forest Health, Wildlife, Wildfire Fuel Reduction, Climate Change	Stewardship Grant, Forest Health	
1.4 Create a working group to study forest fragmentation and parcelization impacts on soil, water, wildlife, wildfire, to identify resources required to assist landowners (especially underserved landowners not currently eligible for federal or state assistance).	FLAs, WUIs around Meridian, Desoto/Tate Counties, Working group would identify other priority areas upon completion	Stewardship Ed, Resource Markets, Forest Health, Wildlife, Landownership Policies.	None available at this time	
1.5 Increase stewardship management planning and technical assistance to assist landowners in implementing plan recommendations through utilization of the Tree Farm Program, certification programs, other state, federal and private programs as well as consulting foresters.	SFLA High Priority areas.	Stewardship Ed, Resource Markets, Forest Health, Wildlife, Wildfire Fuel Reduction,Wildlife, Resource Markets	FRDP, Tree, Farms, Consolidated Stewardship Grant, Redesign, Federal Cost-Assistance Programs	
1.6 Encourage and improve agriculture/forestry/ watershed land-use planning and BMPs to address nonpoint pollution, erosion and water quality issues.	Priority watersheds DEQ	Landowner Policies, Stewardship Education, Wildlife	Forest Stewardship	

	Key Stakeholders	Resources Available/ Required to Implement	Key Partners and Potential Partners	Measure of Success	Supports National Objective
	Landowners, Forestry Vendors, Consultants, Public/ Private entities which provide funds for implementing reforestation.	Vendors, Reliable Seedling Sources, Educational Services and Promotional materials, Consultant Foresters, CFA, NRCS, FSA, Longleaf Alliance.	FSA, NRCS, MFC, USFS, Longleaf Alliance, MSU, Pole Industry, DOD, TNC, MFC	Acres planted. Acres managed, Acres burned	1.1, 1.2, 2.1, 3.4, 3.5, 3.6, 3.7
	Communities at risk, landowners, hunters,	Vendors, consultant foresters, National Forests, State Agencies with Forest Land Holdings, Natural Resource Mgrs	Mississippi Prescribed Fire Council, MFC, USFS, Tree Farmers, Forest Stewards, MDWFP, DEQ	Increase number of private vendors, increase no. acres prescribed burn,	1.1, 1.2, 2.1, 2.2, 3.3, 3.4, 3.5, 3.6, 3.7
	Land Owners, Natural Resource Managers, Non-Profit Entities, Federal and State Agencies, Universities, Alcorn/ MSU Extension Service	Website, Host, Data, spatial and non-spatial, publications, guides, technical support	USFS-State and Private MFC, MSU/Alcorn Cooperative Extension, MFA, MIFI, MDWFP,	Website development	1.2, 3.6 1.2,2.2,3.4, 3.6
	Communities, Underserved landowners, Consultants, Vendors	USFS redesign, Funds to print results as well as educational materials, FIA	MFC, MSU/Alcorn Extension Service, USFS, landowner groups representing underserved landowners, MFA, MDEQ	Publication and educational materials, Programs to assist underserved landowners with property below current program requirements	1.1, 1.2, 3.1, 3.4, 3.5, 3.6 and 3.7
	Land Owners, Wood-using facilities, Forestry Vendors	NRCS, FSA, MFC, State and Private Forestry - USFS, Consulting Foresters MDWFP	NRCS, FSA, MFC, MFA, Tree Farm of America, Private Consultants	Certified Forest Stewardship. Certified Tree Farms. Increase the number by 20%	1.1, 1.2, 3.4, 3.5 and 3.6
	MDEQ, MFC, MDWFP, MDAC, SWCD, Professional loggers association, MFA	Forest stewardship, MSU and ASUES	MDEQ, MFC, MDWFP, MDAC, SWCD, Professional loggers association, MFA	Longterm improvements in water quality.	1.2, 3.1, 3.5

Mississippi Key Issue 2: Resource Markets				
Long-term Strategy	**Priority Areas**	**Secondary Issues Addressed**	**Program Areas that Contribute**	
2.1 Develop and maintain wood using directory of timber products outputs and consumption and trends.	Applicable Statewide	Forest Sustainability, Forest Health, Wildfire Fuel Reduction, Wildlife	Redesign Competitive Grant,	
2.2 Develop guidelines and publish for harvesting biomass products and the impact on managing forests land.	Applicable Statewide	Stewardship Ed, Sustainability, Forest Health	BCAP	
2.3 Evaluate potential opportunities to utilize state's abundant forest resources including traditional wood product markets and non-traditional markets such as carbon and biomass markets, recreation and ecosystem services.	Evaluation would identify priority areas upon completion	Resource Sustainability, Forest Education	None available at this time	
2.4 Establish and maintain a statewide integrated transportation system specifically to facilitate movement of forest and wood products.	Applicable Statewide	Stewardship Ed, Forest Sustainability, Forest Health	None available at this time	
2.5 Conduct comprehensive forest resource and market study to identify traditional markets and potential non-traditional markets and to identify forest assets and current utilization levels	Market study would identify priority areas upon completion by ecoregion	Forest Sustainability, Forest Health, Wildfire Fuel Reduction, Wildlife	None available at this time	

	Key Stakeholders	Resources Available/ Required to Implement	Key Partners/ Potential Partners	Measure of Success	Supports National Objective
	Landowners, Industry, Economic Developers, Loggers, Entities involved with buying or selling in domestic markets or internationally.	SUM Task Force, SRS - TPO Studies, Economic Development	MFC, SUM Task Force, FIA, Economic Development, Industry, MFC	Directory and annual update.	1.2, 2.2, 3.4 , 3.7
	Loggers, Landowners, Biofuels industry	Stewardship Grants, Health Grants, Energy Grants, Funds	MSU, USFS, MFC, FSA, Land Owners, Wood Fuel Industry, MDA	Harvesting guidelines, impact statement, identify biomass availability	1.1, 2.2, 3.5
	MDA, MSU, ASU , MFA, MFC	Economic Development	MIFI, MDA, MEC, Electric Power Associations, MFA , MFC	Publication of findings.	1.2, 3.4, 3.5, 3.6, 3.7
	Landowners, Industry, Economic Developers, Loggers, Entities involved with buying or selling in domestic markets or internationally.	GIS Application and Data Development, Financial Assistance	MLA, MDOT, Mississippi Association of County Supervisors, MLA, MFA, CFA, MSU, ASU, MARIS, MSU, MFC	Transportation model development, road use policy, other restrictions, federal/state/local	1.2, 3.4 – Statewide 1.2, 3.4, 3.6, 3.7 - Gulf Coast 1.2, 3.4
	Landowners, Wood Using Industries, Forest Product Industries, Natural Resource Managers, Entities involved with buying or selling in domestic markets or internationally markets	Support and participation of stakeholders, Funding for study and publication	MDA, MFA, MIFI, MFC, SRS-FIA, MFC, MSU	Market Study and Annual Action Plan.	1.2, 2.2, 3.3, 3.4, 3.5, 3.6, 3.7 – Statewide 1.2, 2.2, 3.3, 3.4, 3.5, 3.6, 3.7

Mississippi Key Issue 3: Landownership Policies					
Long-term Strategy	**Priority Areas**	**Secondary Issues Addressed**	**Program Areas that Contribute**	**Key Stakeholders**	
3.1 Create public policy designed to maintain, improve and protect favorable tax policies in regard to forestry and land ownership (including capital gains, inheritance tax, severance tax, etc)	Statewide	Forest Sustainability Resource Markets	N/A	Active landowner with economic and traditional forest management objectives, Loggers, Consultant foresters	
3.2 Establish policy/law that facilitates the improvement of roads and bridges (remove impacts to traditional logging)	Rural forested areas of the state where bridge/road improvements needed; priorities to be determined.	Forest Sustainability Resource Markets	N/A	Active landowner with economic and traditional forest management objectives, Loggers - specifically MS Loggers Association, Consultant foresters, County Boards of Supervisors	
3.3 Establish policy/law at the state level that standardizes county road use, removing restrictive barriers to logging	Rural forested areas of the state; priorities to be determined county by county.	Forest Sustainability Resource Markets	N/A	Active landowner with economic and traditional forest management objectives, Loggers, Consultant foresters, County Boards of Supervisors	
3.4 Protect the "right to practice forestry" law and private property rights	Statewide	Forest Sustainability Resource Markets Forest Health Wildfire Fuel Reduction Climate Change Wildlife	N/A	Active landowner with economic and traditional forest management objectives	
3.5 Establish law/policy that creates new programs or modifies existing programs to enable assistance to ecosystem goods/services and/or non-traditional management objectives	Statewide	Resource Markets Forest Health Stewardship Education Wildfire Fuel Reduction Wildlife	Forest Stewardship Water Quality MSU Natural Resource Enterprises, NGO programs (TNC, Wildlife Mississippi) FSA and NRCS programs	Active landowner with ecosystem goods/ services and/or non-traditional management objectives	

	Resources Available/ Required to Implement	Key Partners and Potential Partners	Measure of Success	Supports National Objective
	Legislative support Constituent groups are engaged (e.g., MFA Govt. Affairs Committee, MS Farm Bureau, CFA members, etc.)	MFC, MSU Forestry Extension, Alcorn State University Extension, MFA, MDWFP, MDA, MDEQ, MSWCC, Mississippi Association of Cooperatives, Mississippi Department of Education, NRCS, RC&D, USDA Forest Service	New policy developed Landowner awareness campaign developed No negative setbacks to good policy measures are experienced	1.2, 3.1, 3.4, 3.5
	Legislative support Constituent groups are engaged (e.g., MFA Govt. Affairs Committee, MS Farm Bureau, CFA members, etc.) MDOT State and federal funding acquired for making improvements	MFC, MSU Forestry Extension, Alcorn State University Extension, MFA, MDWFP, MDA, MDEQ, MSWCC, Mississippi Association of Cooperatives, Mississippi Department of Education, NRCS, RC&D, USDA Forest Service, County Boards of Supervisors, MS Loggers Association	New policy developed Improvements to roads and bridges are made Legislation enacted to improve roads and bridges	1.2, 2.2, 3.4
	Legislative support Constituent groups are engaged (e.g., MFA Govt. Affairs Committee, MS Farm Bureau, CFA members, etc.) MDOT	MFC, MSU Forestry Extension, Alcorn State University Extension, MFA, MDWFP, MDA, MDEQ, MSWCC, Mississippi Association of Cooperatives, Mississippi Department of Education, NRCS, RC&D, USDA Forest Service, County Boards of Supervisors, MS Loggers Association	A standardized statewide policy/law is established that addresses road use at the county level	1.2, 3.4
	Legislative support Constituent groups are engaged (e.g., MFA Govt. Affairs Committee, MS Farm Bureau, CFA members, etc.)	MFC, MSU Forestry Extension, Alcorn State University Extension, MFA, MDWFP, MDA, MDEQ, MSWCC, Mississippi Association of Cooperatives, Mississippi Department of Education, NRCS, RC&D, USDA Forest Service	Effective monitoring of potential threats to abolish or change current law	1.2, 3.4, 3.5, 3.6, 3.7
	Legislative support Constituent groups Strong lobbying efforts Support from NGOs with aligned focus on management objectives	MFC, MSU Forestry Extension, Alcorn State University Extension, MFA, MDWFP, MDA, MDEQ, MSWCC, Mississippi Association of Cooperatives, Mississippi Department of Education, NRCS, RC&D, USDA Forest Service	New law or policy is established Significant grassroots support is evident	1.1, 1.2, 2.1, 2.2, 3.1, 3.2, 3.4, 3.5, 3.7

Mississippi Key Issue 4: Forest Health					
Long-term Strategy	**Priority Areas**	**Secondary Issues Addressed**	**Program Areas that Contribute**	**Key Stakeholders**	
4.1. Protect and conserve natural forest communities/ecosystems from non-native, invasive plants through elimination/suppression of invasives (plants)	North of Interstate 20 eliminate and South of Interstate suppress (species specific)	Wildfire Fuel Reduction, Wildlife, Forest Sustainability, Resource Markets	ARRA stimulus funds and USFS Cooperative Forestry Assistance Program	Landowners, Communities, Wood Using Industry, State Governments	
4.2 Collaboratively develop statewide action plans with partners and stakeholders for non-native, invasive pests already established and spreading elsewhere in the US, and which pose a threat to Mississippi's forest and shade tree resources (pests)	Southeast Mississippi, with special emphasis on Jackson County and the Interstate 10 corridor	Wildfire Fuel Reduction, Wildlife, Forest Sustainability, Resource Markets, Stewardship Ed	USFS Cooperative Forestry Assistance Program, APHIS, MDA and Commerce – Bureaus of Plant Industry	All landowners, Tree Farmers, Forest Stewards, Loggers, Vendors	
4.3 Promote thinning and other forest management practices that encourage sustainable and healthy forest conditions so that high hazard stands are less than 5% of the total susceptible host type acreage in the state; Encourage removal of off-site pine whenever possible and restoration of longleaf pines on sites where appropriate, such that longleaf pine is restored to at least 25% of its historical range in the state. (SPB)	Priority areas based on high hazard areas based on Southern Pine Beetle Hazard Rating	Wildfire Fuel Reduction, Wildlife, Forest Sustainability, Resource Markets, Stewardship Ed	Southern Pine Beetle Prevention Program, funded thru the USFS; Cooperative Forestry Assistance Program, Forest Health Monitoring Program, funded by the USFS; ARRA federal stimulus funding. Regional longleaf restoration funding will need to be obtained to develop a program for longleaf restoration in MS.	All landowners, Tree Farmers, Forest Stewards, Loggers, Vendors	
4.4 Educate landowners on the benefits of maintaining diverse, healthy, and vigorous forest resources using sound forestry, wildlife, and water quality practices	Southwest MS emphasis; develop target areas for education outreach and align with species-specific target areas.	Stewardship Ed, Forest Sustainability, Resource Markets, Wildlife, Wildfire Fuel Reduction	Cooperative Forestry Assistance Program, funded thru the USFS, also regional longleaf restoration funding from the USFS.	All landowners, Tree Farmers, Forest Stewards, Loggers, Vendors, wood using industry, Forest product markets both domestic and foreign,	
4.5. Emphasize establishing and managing longleaf on soils that are appropriate for the species.	Historic range of Longleaf Pine	Stewardship Ed, Forest Sustainability, Resource Markets, Wildlife, Wildfire Fuel Reduction	Cooperative Forestry Assistance Program, funded thru the USFS, regional longleaf restoration funds thru the USFS; America's longleaf.	Pole and Piling industry, Tree Farmers, Forest Stewards, All landowners, Other wood using industry, forest product markets both domestic and foreign	

	Resources Available/ Required to Implement	Partners/ Potential Partners	Measure of Success	Supports National Objective
	To continue the fight against nonnative invasive plants, there will need to be special emphasis put forth from Congress. Funding will need to flow through either existing programs from the USFS or new ones with APHIS, FSA or NRCS.	USFS, local FSA and NRCS offices, regional RC&D offices, MDOT, MDWFP, Wild Turkey Federation, USFWS, Alabama Forestry Commission, Georgia Forestry Commission, Louisiana Department of Agriculture & Forestry, local CFA, MFA, MLA, MSU, MSUES, MS Cooperative Weed Management Area, MDA and Commerce – Bureau of Plant Industry.	Acres treated per county and statewide, and costs per unit treatment ($$/acre) will provide annual performance measures to monitor accomplishments. Over time, a reduction in acres infested and percent change will also reflect accomplishments and provide a useful performance measure.	1.1, 1.2, 2.1, 2.2, 3.3, 3.5
	Currently, annual funding amounts are around $100,000 for the current projects. This base amount will need to be increased to around $200,000 to achieve the long-term strategies.	USFS, local FSA and NRCS offices, APHIS, Regional RC &D offices, MDOT, MDWFP, Wild Turkey Federation, USFWS, local CFA, MFA, MLA, MSU, MS Cooperative Extension Service, Mississippi Urban Forestry Council, Georgia Forestry Commission, Alabama Forestry Commission, MDA and Commerce – Bureau of Plant Industry.	Annually report the number of educational outreach programs, printed brochures distributed, advertisements in papers, radio and TV spots/programs. performance will also be measured by the area (e.g., acres, miles, etc) surveyed and impacted as detected from aerial, and ground observations, as well as trapping or other survey methods. Spots, trees or acres treated, the unit costs associated with such, and the success or failure of treatments will also reflect accomplishments and performance.	1.1, 1.2, 2.2, 3.2, 3.4, 3.5, 3.6, 3.7
	Currently, annual funding for the SPB prevention program is $650,000 annually, ARRA funding is $897,000 for two years and the Cooperative Forestry Assistance program funding is $220,000 annually. These funding amounts need to be doubled to vigorously pursue the strategic goals. Funding is needed to start MS longleaf restoration project.	USFS, local FSA and NRCS offices, Regional RC &D offices, MDOT, MDWFP, Wild Turkey Federation, USFWS, local CFA, MFA, MLA, MSU, MSUES	Number of annual beetle flights, acreage flown, spots detected, number ground checked, insects detected, number of SPB detected in traps, number of acres of pine plantations thinned, number of landowners assisted, acres assisted, and number of workshops hosted, number of acres converted back to native longleaf pine	1.1, 1.2, 2.2, 3.2, 3.3, 3.4, 3.5, 3.7
	Funding through the USFS Forest Stewardship program will need to continue to implement this strategy.	USFS, local FSA and NRCS offices, Regional RC &D offices, MDOT, MDWFP, Wild Turkey Federation, USFWS, local CFA, MFA, MLA, MSU, MS Cooperative Extension Service, MDA, MFC	Number of educational programs presented to different organizations; promotional items delivered; number of TV, newspaper and/or radio spots; number of landowners contacted; number of stewardship plans written statewide. Acres thinned or regenerated after a landowner contact by the MFC. Acres converted back to native longleaf pine	1.2, 2.2, 3.4
	Funding trough the USFS stewardship program will need to continue to implement this strategy.	USFS, local FSA and NRCS offices, Regional RC &D offices, MDOT, MDWFP, Wild Turkey Federation, USFWS, local CFA, MFA, MLA, MSU, MDA, MSUES	Number of programs presented to different organizations; promotional items delivered; number of TV, newspaper and/or radio spots; number of landowners contacted; number of stewardship plans written statewide. Acres restored to native longleaf pines.	1.2, 2.2, 3.4

Mississippi Key Issue 5: Stewardship Education				
Long-term Strategy	**Priority Areas**	**Secondary Issues Addressed**	**Program Areas that Contribute**	
5.1 Coordinate with partners to continue the delivery of current stewardship education efforts with emphasis on the delivery of issue specific information in priority areas for key issues.	Would address all priority issue areas (landscapes) in the State.	Forest Sustainability, Resource Markets, Landowner Policies, Forest Health, Wildfire Fuel Reduction, Wildlife, Climate Change	MFC Outreach Program, Stewardship and Rural Forestry Assistance, Forest Legacy, Forest Health, Forest Protection, Fire Wise, Project Learning Tree, Underserved Outreach Programs, Urban and Community Forestry, Extension Education Programs, 4-H, FFA, Wood Magic, Teach Conservation Workshop, CFA, Tree Farm Program, FRDP, RTC, DWFP Landowner Assistance Programs, Museum of Natural Science work shops, BMP workshops and other DEQ grants, Conservation Districts Conservation Carnivals, Envirothons, Small Farmer's Conference, CRP, Wetland Reserve Program, Wildlife Habitat Improvement Program, EQIP	
5.2 Secure redesign or other additional grant funding to focus stewardship education and outreach efforts in priority issue areas of the state of Mississippi and multi-state areas where these priority areas are shared. This additional grant funding would contribute to increasing efforts for priority issue areas.	Would address all priority issue areas (landscapes) in the State.	Forest Sustainability, Resource Markets, Landowner Policies, Forest Health, Wildfire Fuel Reduction, Wildlife, Climate Change	MFC Outreach Program, Stewardship and Rural Forestry Assistance, Forest Legacy, Forest Health, Forest Protection, Fire Wise, Project Learning Tree, Underserved Outreach Programs, Urban and Community Forestry, Extension Education Programs, 4-H, FFA, Wood Magic, Teach Conservation Workshop, CFA, Tree Farm Program, FRDP, RTC, DWFP Landowner Assistance Programs, Museum of Natural Science work shops, BMP workshops and other DEQ grants, Conservation Districts Conservation Carnivals, Envirothons, Small Farmer's Conference, CRP, Wetland Reserve Program, Wildlife Habitat Improvement Program, EQIP	
5.3 Improve methods and delivery of stewardship education and assistance to underserved landowners.	Would address all priority issue areas (landscapes) in the State.	Forest Sustainability, Resource Markets, Landowner Policies, Forest Health, Wildfire Fuel Reduction, Wildlife, Climate Change	MFC Outreach Program, Stewardship and Rural Forestry Assistance, Forest Legacy, Forest Health, Forest Protection, Fire Wise, Project Learning Tree, Underserved Outreach Programs, Urban and Community Forestry, Extension Education Programs, 4-H, FFA, Wood Magic, Teach Conservation Workshop, CFA, Tree Farm Program, FRDP, RTC, DWFP Landowner Assistance Programs, Museum of Natural Science work shops, BMP workshops and other DEQ grants, Conservation Districts Conservation Carnivals, Envirothons, Small Farmer's Conference, CRP, Wetland Reserve Program, Wildlife Habitat Improvement Program, EQIP	
5.4 Secure additional grant funding to improve delivery and outsourcing of Forest Stewardship Management planning for landowners in these priority issue areas including underserved ownerships. These plans would focus on specific recommendations and practices that would directly address the landowner's objectives and trends and threats associated with these priority issue areas. Depending on funding levels, plan development would be incentivized and outsourced to forestry consultants and other natural resource professionals in these priority issue areas.	Would address all priority issue areas (landscapes) in the State.	Forest Sustainability, Resource Markets, Landowner Policies, Forest Health, Wildfire Fuel Reduction, Wildlife, Climate Change	MFC Outreach Program, Stewardship and Rural Forestry Assistance, Forest Legacy, Forest Health, Forest Protection, CRP, Wetland Reserve Program, Wildlife Habitat Improvement Program, EQIP	
5.5 Seek additional funding to improve web-based social media efforts in Forest Stewardship education. Improving the interactivity of natural resource education websites would provide a more appealing, and informative experience. Emphasis should be placed on integrating and organizing web based information to meet the needs of the priority issue areas.	Would address all priority issue areas (landscapes) in the State.	Forest Sustainability, Resource Markets, Landowner Policies, Forest Health, Wildfire Fuel Reduction, Wildlife, Climate Change	MFC Outreach Program, Stewardship and Rural Forestry Assistance, Forest Legacy, Forest Health, Forest Protection, Fire Wise, Project Learning Tree, Underserved Outreach Programs, Urban and Community Forestry, Extension Education Programs, 4-H, FFA, Wood Magic, Teach Conservation Workshop, CFA, Tree Farm Program, FRDP, RTC, MDWFP Landowner Assistance Programs, Museum of Natural Science work shops, BMP workshops and other DEQ grants, Conservation Districts Conservation Carnivals, Envirothons, Small Farmer's Conference, CRP, Wetland Reserve Program, Wildlife Habitat Improvement Program, EQIP	
5.6 Develop with partners, informational materials and displays promoting the conditions and management needs of these specific issue priority areas.	Would address all priority issue areas (landscapes) in the State.	Forest Sustainability, Resource Markets, Landowner Policies, Forest Health, Wildfire Fuel Reduction, Wildlife, Climate Change	MFC Outreach Program, Stewardship and Rural Forestry Assistance, Forest Legacy, Forest Health, Forest Protection, Fire Wise, Project Learning Tree, Underserved Outreach Programs, Urban and Community Forestry, Extension Education Programs, 4-H, FFA, Wood Magic, Teach Conservation Workshop, CFA, Tree Farm Program, FRDP, RTC, DWFP Landowner Assistance Programs, Museum of Natural Science work shops, BMP workshops and other DEQ grants, Conservation Districts Conservation Carnivals, Envirothons, Small Farmer's Conference, CRP, Wetland Reserve Program, Wildlife Habitat Improvement Program, EQIP	

	Key Stakeholders	Resources Available/ Required to Implement	Key Partners and Potential Partners	Measure of Success	Supports National Objective
	Private forest landowners statewide.	Current funding and personnel levels are needed to continue this strategy	MFC, MSU Forestry Extension, ASU Extension, MFA, MDWFP, MDA, MDEQ, Mississippi Soil and Water Conservation Commission, Mississippi Association of Cooperatives, Mississippi Department of Education, NRCS, Resource RC&D, USDA Forest Service	A combined accounting from all partners of individuals reached with current stewardship education efforts with emphasis on individuals reached in issue priority areas. This effort could be made with current funding and personnel levels.	All objectives; particularly 3.6
	Private landowners in priority areas for other key issues.	Additional grant funding will be needed to implement this strategy	MFC, MSU Forestry Extension, ASU Extension, Private Natural Resource Professionals (Forestry Consultants), MFA, MDWFP, MDA, MDEQ, Mississippi Soil and Water Conservation Commission, Mississippi Association of Cooperatives, Mississippi Department of Education, NRCS, RC&D, USDA Forest Service	Success would depend on level of additional grant funding received and resulting individuals and landowners reached in issue priority areas.	All objectives; particularly 3.6
	Underserved landowners.	Additional funding and working with partners is needed to implement this strategy.	MFC, MSU Forestry Extension, ASU Extension, Private Natural Resource Professionals (Forestry Consultants), MFA, MDWFP, MDA, MDEQ, Mississippi Soil and Water Conservation Commission, Mississippi Association of Cooperatives, Mississippi Department of Education, NRCS, RC&D, USDA Forest Service	Number of underserved landowners assisted. Number and acres of written Forest Stewardship plans with periodic monitoring for practice implementation in issue priority areas.	All objectives; particularly 3.6
	Underserved landowners.	Additional grant funding will be needed to improve delivery and outsourcing and incentivizing of Forest Stewardship Management planning for landowners in these priority issue areas including underserved ownerships of less than ten acres.	MFC, MSU Forestry Extension, ASU Extension, Private Natural Resource Professionals (Forestry Consultants), MFA, MDWFP, MDA, MDEQ, Mississippi Soil and Water Conservation Commission, Mississippi Association of Cooperatives, Mississippi Department of Education, NRCS, RC&D, USDA Forest Service	Success would depend on level of additional grant funding received and resulting landowners reached in issue priority areas. Number and acres of written Forest Stewardship plans with periodic monitoring for practice implementation in issue priority areas.	All objectives; particularly 3.6
	Students; private forest landowners in priority areas.	Current budgets and additional grant funding would be needed to improve and enhance existing web sites.	MFC, MSU Forestry Extension, ASU Extension, Private Natural Resource Professionals (Forestry Consultants), MFA, MDWFP, MDA, MDEQ, Mississippi Soil and Water Conservation Commission, Mississippi Association of Cooperatives, Mississippi Department of Education, NRCS, RC&D, USDA Forest Service	Success would depend on level of additional grant funding received	All objectives; particularly 3.6
	Education/Outreach partners (agencies and organizations).	Current and additional grant funding to develop and purchase informational materials and displays.	MFC, MSU Forestry Extension, ASU Extension, Private Natural Resource Professionals (Forestry Consultants), MFA, MDWFP, MDA, MDEQ, Mississippi Soil and Water Conservation Commission, Mississippi Association of Cooperatives, Mississippi Department of Education, NRCS, RC&D, USDA Forest Service , MS Museum of Natural Science	Develop, produce and distribute informational materials and set up displays at museums and other events promoting the conditions and management needs of these specific issue priority areas. Success may be determined from the depletion of materials and use of displays	All objectives; particularly 3.6

Mississippi Key Issue 6: Wildfire Fuel Reduction					
Long-term Strategy	**Priority Areas**	**Secondary Issues Addressed**	**Program Areas that Contribute**	**Key Stakeholders**	
6.1 Increase the Number of Certified Prescribed Burn Managers (CPBM)	Set Priority Areas based on location of CPB Managers	Stewardship Ed, Wildlife, Forest Health, Forest Sustainability	NA	Communities at risk, landowners forest and non-forest, property owners in WUI, TIMOS	
6.2 Increase the acres prescribed burned annually in high risk areas	Priority landscape determined by number of annual wildfires by county	Stewardship Ed, Wildlife, Forest Health, Forest Sustainability	FRDP, Consolidated Stewardship Grants, Hazard Mitigation and Community Protection Grants	Communities at risk, landowners forest and non-forest, property owners in WUI, TIMOS, USFS National Forests, other Federal landowners, non-profits, state agencies and wildlife agencies	
6.3 Increase the use of prescribe burning using current landowners assistance programs reduce fuel loading from native plants and non-native invasive species plants	SPB using counties with high wildfire occurance ratings and high fuels.	Stewardship Ed, Wildlife, Forest Health, Forest Sustainability	FRDP, USFS Stewardship Grant, Forest Health Grant, Preparedness Grants, Hazard Mitigation and Community Protection Grants	Communities at risk, landowners forest and non-forest, property owners in WUI, TIMOS, USFS National Forests, other federal landowners, non-profits, state agencies and wildlife agencies	
6.4 Identify high fire risk areas throughout the state.	High risk areas based on fire occurrence.	Stewardship Ed, Wildlife, Forest Health, Forest Sustainability	Consolidated Grant - USFS	Property owners located in communities at risk and the WUI, state and federal agencies, counties	
6.5 Promote the implementation of mitigation burning in high risk areas identified in the 34 County Wildfire Protection Plans. Continue to provide funding to insure plans are completed in remaining counties.	34 Counties with CWPPs for mitigation burning	Stewardship Ed, Wildlife, Forest Health, Forest Sustainability	Hazard Mitigation Program	Property owners located in communities at risk and the WUI, state and federal agencies, counties	
6.6 Provide equipment to VFD for the use in controlling non-forest fires both within the WUI and outside the WUI	vide map in high risk fire areas	Stewardship Ed, Wildlife, Forest Health, Forest Sustainability	FEPP, FFP, VFA Grants, NFP/PFA Grant	Property owners located in communities at risk and the WUI, state and federal agencies, non-profit ownership, TIMOs.	

	Resources Available/ Required to Implement	Key Partners and Potential Partners	Measure of Success	Supports National Objective
	MFC, MSU Extension, USFS National Forests	USFS National Forests in Mississippi, USFWS, MDWFP , TNC, MS Insurance Department State Fire Marshall , Consulting Foresters, All Miss. Agencies with land holdings, MS Wildland Fire Advisory Council, Prescribed Burn Council, MFC	Increase by 28 annually	1.2, 2.1, 3.3
	One Message Many Voices Campaign, Consultant Foresters, Vendors, National Forest Crews	USFS National Forests in Mississippi, USFWS, MDWFP , TNC, MS Insurance Department State Fire Marshall , Consulting Foresters, All Miss. Agencies with forest land holdings, Ms Department of Environmental Quality, ASU, MSU, MS Wildland Fire Advisory Council, Prescribed Burn Council, MFC	Increase by 10,000 plus annually	1.2, 2.1, 3.3
	MFC, USFS, MDWFP	USFS National Forests in Mississippi, USFWS, MDWFP , TNC, MS Insurance Department State Fire Marshall, MS Wildland Fire Advisory Council, Prescribed Burn Council, MFC	As funding is available to increase the number of acres treated each year by 5%.	1.2, 2.1, 3.3
	Southern Wildfire Risk Assessment, FIRES 9.3.	USFS National Forests in Mississippi, USFWS, MDWFP , TNC, MS Insurance Department State Fire Marshall, MS Wildland Fire Advisory Council, Prescribed Burn Council, MFC	Annual Assessment and Update	1.2, 2.1, 3.3
	Counties, Vendors	USFS National Forests in Mississippi, USFWS, MDWFP , TNC, MS Insurance Department State Fire Marshall, MS Wildland Fire Advisory Council, Prescribed Burn Council, MFC	Perform Mitigation Burns on high risk areas in 5 counties per year. Complete CWPP in remaining counties.	1.2, 2.1, 3.3
	MFC, USFS, Volunteer Fire Departments	USFS National Forests in Mississippi, USFWS, MDWFP , TNC, MS Insurance Department State Fire Marshall, MS Wildland Fire Advisory Council, Prescribed Burn Council, MFC	Goals are to obtain approximately 200 pieces of equipment/year (which includes both vehicles and other equipment), and fund 60 VFD's through the grant program.	1.2, 2.1, 3.3

Mississippi Key Issue 7: Climate Change					
Long-term Strategy	**Priority Areas**	**Secondary Issues Addressed**	**Program Areas that Contribute**	**Key Stakeholders**	
7.1 Encourage afforestation of agriculture, pasture and open fields.	Target areas for WRP and CRP programs, open land (agriculture, pasture, open fields) adjacent to public lands.	Forest Sustainability, Wildlife	FRDP, Forest Stewardship	Landowners with large potential afforestation areas (in row crops, pasture, open fields)	
7.2 Support education outreach and awareness efforts in state on how landowners can participate in carbon market programs.	Target areas for WRP and CRP programs.	Forest Sustainability, Resource Markets, Wildlife	FRDP, Forest Stewardship	Landowners with large potential afforestation areas (in row crops, pasture, open fields)	
7.3 Encourage participation in forestry certification programs.	Statewide on private lands	Forest Sustainability, Resource Markets, Landowner Policy Changes, Wildlife	FRDP, Forest Stewardship	Private non-industrial forest landowners with young forests.	
7.4 Conserve/protect existing forests with highest carbon stores (moist, mature forestlands) in large blocks on public lands and adjacent private lands.	Mature forests in protected public areas and adjacent private lands. Forest Legacy Areas	Forest health, Forest Sustainability, Wildlife	Forest Legacy, other private land easement and acquisition programs.	Public land managers, private landowners adjacent to public or protected forested areas.	

	Resources Available/ Required to Implement	**Key Partners and Potential Partners**	**Measure of Success**	**Supports National Objective**
	WRP, CRP, HFRP	MFC, NRCS, FSA, MFC, ASU, MSU, MDWFP, MFA, DOD	Acres enrolled and planted.	1.1, 3.2. 3.7
	WRP, CRP	MFC, NRCS, FSA, MFC, ASU, MSU, SFI, MFA, Carbon Fund	Number of new education programs; participation in education/ outreach efforts.	1.1, 3.2. 3.7
	SFI, FSC, other certification programs	SFI, MFC, FSC, MSU, ASU, MFA, MFC	Number of participants, acres enrolled.	1.1, 3.2. 3.7
	Conservation easements and land protection programs on private and public lands	MDWFP, USFS, USFWS, MDMR, MFC, land trusts, NPS, DOD, MFC	Acres protected through easements, conservation programs.	1.1, 1.2, 3.2. 3.5, 3.7,

Mississippi Key Issue 8: Wildlife				
Long-term Strategy	**Priority Areas**	**Secondary Issues Addressed**	**Program Areas that Contribute**	
8.1 Encourage and improve management of forested habitat by controlled burning at necessary frequencies and seasons.	FLAs, East Gulf Coastal Plain	Stewardship Ed., Climate change	Forest Health, Forest Protection	
8.2 Encourage restoration and improved management of altered/degraded forest habitat when possible.	FLAs, Statewide	Forest Sustainability, Stewardship Ed., Climate change	Forest Stewardship	
8.3 Discourage incompatible forestry practices such as bedding as a method of site preparation and planting extremely high stocking densities.	Upper East Gulf Coastal Plain, East Gulf Coastal Plain	Forest Sustainability, Stewardship Ed.		
8.4 Encourage buffers and improve land use practices adjacent to streams (Streamside Management Zones) and other aquatic/ wetland habitats.	High priority drainages identified by CWCS-Tombigbee, Northeast Hills/ TN River, Ephemeral Ponds, Pascagoula River, Lower Coastal Plain/Pearl River.	Forest Sustainability, Stewardship Ed.	Forest Stewardship	
8.5 Provide public education and conservation of Species of Greatest Conservation Need (SGCN) and/or their habitats.	Statewide	Stewardship Ed.	Forest Stewardship	
8.6 Promote and develop landowner incentive and assistance programs for conservation of SGCN and their habitats.	Conservation Priority areas identified through WRP, CRP, WHIP, PFW, HFRP, FLP and LIP.	Land Ownership Policies, Stewardship Ed.	Forest Legacy	
8.7 Encourage retention, preservation, and conservation of remaining natural habitat and habitat corridors between protected forested blocks through purchase, conservation easements and MOAs.	FLAs, Areas adjacent to public lands, priority areas for WRP, CRP, WHIP, HFRP, Partners for Fish and Wildlife, WHIP, LIP, Coastal Preserves, Riparian corridors between large forested blocks (public lands)	Forest Sustainability, Land Ownership Poilicies	Forest Legacy, Forest Health	
8.8 Develop wildlife manual/guide for incorporating species-specific wildlife recommendations into Stewardship Management Plans developed by MFC foresters. Update Plan writer and SIMS Map to include those recommendations and practices.	Applicable to all Stewardship plans in state.	Stewardship Ed, Resource Markets, Forest Health, Wildlife, Wildfire Fuel Reduction	Tree, Farms, Consolidated Stewardship Grant, Redesign, Federal Cost-Assistance Programs	

	Key Stakeholders	Resources Available/ Required to Implement	Key Partners and Potential Partners	Measure of Success	Supports National Objective
	Private landowners,	MFC, Fire programs, MSUES	MFC, MS Prescribed Burn Council, TNC, USFS, private landowners, MSU, ASU, DOD, Community Colleges	Acres burned.	1.1, 1.2, 2.1, 2.2, 3.5, 3.7
	MFC, MDWFP, MMNS, Conservation Organizations, NRCS, FSA	America's longleaf, NRCS and FSA, MFC	MFC, MDWFP, MMNS, Conservation Organizations, NRCS, FSA, DOD, Community Colleges	Acres improved/ restored/enhanced.	1.1, 1.2, 2.2, 3.5, 3.7
	Loggers, non-industrial and industrial landowners, consultant forster	MSUES	MFC, MFA, MSU CES, ASU CES, MDEQ, TNC,MDWFP, consultant foresters		1.2, 2.2,3.5
	Landowners adjacent to aquatic areas (streams, lakes, reservoirs)	MDEQ	MFC, MFA, MSU CES, ASU CES, MDEQ, TNC,MDWFP, DOD, Community Colleges	Increase in SMZs, water quality changes in streams, increase in forested riparian areas.	1.1, 2.2, 3.1,3.5,3.7
	MFC, MMNS, MDWFP, USFWS, USFS, Conservation Organizations	MMNS, State wildlife grants	MFC, MMNS, MDWFP, USFWS, USFS, Conservation Organizations	Number of outreach programs provided; number of participants; new programs.	3.6
	NRCS, FSA, State Technical Committee, MDWFP, MFC,	CWCS	NRCS, FSA, State Technical Committee, MDWFP, MFC, MMNS	Number of participants in programs; number of new programs.	1.1,3.5,3.6
	Private landowners adjacent to public lands and waterways.	Conservation organizations, Conservation easements, Forest Legacy, ACUB, MSU Foundation	Land trusts, conservation organizations, Sportsmen's organizations, MFC, USFS, NRCS, FSA, USFWS, MDWFP, MDMR, SOSDOD	Acres protected through CEs, MOAs, land acqusitions within identifed forested blocks.	1.1, 3.4, 3.5, 3.6, 3.7
	Hunters, Outdoor Sportsman, Landowners, Wildlife agencies, Landowners, MFC Private Land Foresters	MSU and ASU Extension Services, USFWS, MDWFP, Longleaf Alliance, CFA, USFS-State and Private, USFS-National Forests	MSU Wildlife Dept, MDWFP, Longleaf Alliance, USFS, MFC	Complete Guide/ Manual and update Planwriter and SIMS Map to incorporate recommendations contained within the Manual	1.1, 1.2, 3.4, 3.5 and 3.6

VII. State Forestry Programs and Resources

The 2008 Farm Bill provides funding for landowner assistance to qualifying owners of forested property or woodlands if future plans or goals for their property include:

- Conserving soil and water resources
- Establishing wildlife habitat
- Sustaining woodlands
- Implementing a forest management plan
- Restoring wetlands

The Farm Bill also establishes the USDA's authority over financial incentive programs administered by various agencies. MFC partners with the USDA's State and Private Forestry (S&PF) division to deliver forest management assistance and expertise to a diverse group of landowners, including small woodlot, tribal, state, and federal, through a cost-effective, non-regulatory partnership. S&PF is the federal leader in providing technical and financial assistance to landowners and resource managers to help sustain the nation's forests and protect communities and the environment from wildland fires. State S&PF funding is allocated to the state in both non-competitive and competitive methods based on program regulations and regional priorities. These S&PF cooperative programs are administered and implemented through a partnership between the State of Mississippi (through MFC), the USFS and many other private and government entities. These programs promote the health and productivity of forestlands and rural economies and are the primary, but not sole, delivery mechanism for implementing major strategies recommended in this document.

Emphasis for S&PF programs focuses on forest sustainability and the production of commodity and amenity values such as wildlife, water quality and environmental services. The goal is to maintain and improve the health of urban and rural forests and related economies. These programs increase cost effectiveness through the use of partnerships in delivery; increase values through sustained productivity of forests, are voluntary, and use non-regulatory approaches.

The following is a description of all major forestry programs in the state, and is organized as follows:

A. MFC Programs

A. 1. State and Private Forestry Programs
- A.1.1 Forest Protection - Fire
- A.1.2 Forest Health
- A.1.3 Forest Legacy
- A.1.4 Forest Stewardship
- A.1.5 Urban and Community Forestry

A. 2. Other MFC Programs
- A.2.1 Forest Management
- A.2.2. Forest Protection
- A.2.3. Forest Information
- A.2.4. Resources Analysis/ Economic Development
- A.2.5. Underserved Landowner Outreach
- A.2.6. Urban and Community Forestry
- A.2.7. Forest Inventory and Analysis
- A.2.8. Mississippi Statewide Forestry Water Quality Program

B. Other Programs

B.1. State and Federal Forest Land Conservation Programs

B.2. Non-Government Programs

S&PF programs includes five current S&PF programs (Forest Protection, Forest Health, Forest Legacy, Forest Stewardship and Urban and Community Forestry) and each program's goals and objectives. Other agency programs that MFC coordinates are described in detail followed by a description of other federal, state and non-government forest conservation programs which represent current potential partners and resources that can be leveraged to implement proposed forest resource strategies described Chapters V and VI. Agencies and programs are also referenced in the strategic issues matrix in Chapter VI.

Note that this is not an exhaustive list of all forestry programs in the state, but rather an overview of the major programs.

A. MFC PROGRAMS

A.1. MFC State and Private Forestry Programs (S&PF)

Each S&PF program is described and includes the program justification, scope of work and methodology for implementation, current geographic area of focus, projected accomplishments and timeline taken from each programs annual grant narrative.

A.1.1 Forest Protection – Fire

Fire Management Programs – S&PF fire management programs support fire preparedness, suppression/support, equipment, training, community mitigation, prescribed burns and hazardous fuels reduction. MFC partners with S&PF and delivers a variety of fire management programs such as State Fire Assistance, National State Fire Plan – State Fire Assistance and Program Preparedness, Volunteer Fire Assistance, National Fire Plan – Volunteer Fire Assistance Program and Community Fire Protection.

State Fire Assistance Program

The State Fire Assistance Program (SFA) provides financial and technical support directly to the states to enhance firefighting capacity, support community-based hazard mitigation, and expand outreach and education to homeowners and communities concerning fire prevention. The program requires a 50-50 match by the state and is delivered by MFC.

As a result of the National Fire Plan and the Healthy Forest Restoration Act, the hazardous fuels reduction component is a major part of the State Fire Assistance Program. The hazardous fuels application and selection process is managed by the Western States Fire Managers. This component, along with most other fuels mitigation funds provided by federal agencies and the state, is coordinated through a collaborative inter-agency effort. Some benefits include:

- Complements federal firefighting forces to optimize fire protection across ownerships.
- Complements hazardous mitigation efforts across ownership to reduce risk to communities.
- Enhances local fire protection entities capability and capacity (training, equipment, preparedness, and education).
- Engages of communities and homeowners to be able to recognize interface fire hazards and provide them with opportunities to develop local solutions.
- Provides a fire protection training link to volunteer fire departments.

The SFA Program is a component of the Cooperative Fire Protection Program (CFPP) and is authorized by Congress through the CFAA of 1978, (PL 95-313 as amended). Funds are distributed to state foresters based on recognition of the minimum need for all states to

maintain and enhance coordination and communication with federal agencies. Funds provide financial assistance; technical training and equipment to ensure federal, state and local fire agencies can deliver a coordinated response to wildfire.

The goal of the SFA Program in Mississippi is to allow the continuing emphasis on advanced fire training to make the best use of dwindling resources, other training to increase the efficiency of remaining personnel and maintaining the capability to assist other compact states and support national fire emergencies. The end result will be more efficient protection for the citizens of Mississippi.

Justification:

The State of Mississippi contains 18.6 million acres of timbered and non-cultivatable land for which MFC is responsible by statute to suppress wildland fires. Annually, an average of more than 3,200 fires will burn 56,000 acres. Also according to the Southern Wildfire Risk Assessment (SWRA) there are 1755 communities at risk (CAR) to wildland fire. Currently the MFC has 120 tractor/plow units and 35 Type 6 Engines statewide to suppress wildland fires. These resources are available for compact dispatches in the Southeastern and South Central Fire Compacts. Depending on the number of personnel available, one 19-member handtool crew qualified as Type 1 and 2 firefighters will be maintained for crew dispatch or individual squads for interagency crew details. Training is essential to improve firefighters' ability and safety.

Scope of Work:

MFC will continue to improve the effectiveness of its fire suppression forces through training in basic level, intermediate and advanced courses. Agency plans are to continue to develop individuals for positions on Incident Management Teams for use in and out of state and to provide personnel for the compacts. Qualified personnel will participate in upper level courses to strengthen overall fire management capabilities.

Methodology:

Selected MFC personnel should attend the following training, as circumstances allow. SFA program funds will be utilized to supplement state travel funds for fire personnel to travel to selected meetings and participate as part of training cadres.

D-310 Expanded Dispatch Support Dispatcher
D-311 Initial Attack Dispatcher
FI-210 Fire Cause and Determination
I-100 Introduction to the Incident Command System – Conducted at the District level, as dictated by employee turnover
I-200 Basic ICS
I-300 Intermediate ICS
I-400 Advanced ICS
L-180 Human Factors on the Fireline – Conducted at the District level, as dictated by turnover
L-280 Followership to Leadership
M-410 Facilitative Instructor
Rx-410 Smoke Management Techniques
RT-130 Fire Refresher Training
S-110 Basic Fire Suppression Orientation – Conducted at the District level, as dictated by employee turnover
S-130 Basic Firefighter – Conducted at the District level, as dictated by employee turnover
S-131 Advanced Firefighter
S-190 Basic Fire Behavior – Conducted at the District level, as dictated by employee turnover
S-200 Initial Attack Incident Commander
S-211 Portable Pumps and Water Use
S-212 Wildfire Power saws
S-215 Fire Operations in the Urban Interface
S-230 Single Resource Crew Boss
S-231 Single Resource Engine Boss
S-232 Single Resource Dozer Boss
S-233 Single Resource Tractor/Plow Boss

S-260 Fire Business Management
S-271 Helicopter Crew Member
S-290 Intermediate Fire Behavior
S-378 Air Tactical Group Supervisor
S-445 Incident Training Specialist
S-491 Intermediate National Fire Danger Rating System (NFDRS)

Weather Information Management System (WIMS)

RAWS Maintenance

Fire Fitness Program

GIS Specialist

Training in related or supportive subject matter areas:

Cultural Diversity/Civil Rights Awareness – Conducted at the district level as dictated by employee turnover or currency requirements

Title VI & VII Training – Conducted statewide as dictated by employee turnover or currency requirements (currently 3 years)

First Aid/CPR – Conducted at the District level, as dictated by employee turnover and currency requirements

Defensive Driving – Conducted at the District level, as dictated by employee turnover or currency requirements

Dispatch Procedures – Dispatch and other

Basic Emergency Telecommunicator – Dispatch and other

FIRES 9.3 Dispatch Program – Dispatch and other

Fire Shelter Training/Refresher – All fire personnel will attend

Prescribed Burning Short course

GPS For Fire Management

RTI/SIMS Mapping Training

Workforce Violence Awareness/ Prevention – Conducted at the District level, as dictated by employee turnover

Basic Supervisor Course

Garmin Training

Location: Statewide

Accomplishment Reporting:

SFA reported accomplishments must show measurable results and the cost/ benefit or value added to communities and resources involved, i.e., did the project benefit people, communities and/or the landscape. It should include estimates on the number of people who benefitted from the project; community wildfire protection plans, fuel reduction, acres treated, etc. In accordance with the Administrative Regulations (7 CFR 3016) accomplishment reports are due on annual basis for the period ending September 30, of each year, and are due no later than December 31.

MFC is also responsible for updating all items included in the National Fire Plan Operations and Reporting System (NFPORS) database, Community Assistance module by October 31 of each year. States are also asked to update the Annual Wildfire Summary Report (AWSR) by January 31 of each year. The region's Cooperative Fire Program Manager is available to assist in these reporting requirements. States are responsible for the accomplishment of all listed activities described with the support of total funds allotted for the fiscal year. Adjustments in planned activities/tasks during the year must be negotiated with the Fire and Aviation Unit.

National Fire Plan, State Fire Assistance Program

The National Fire Plan, State Fire Assistance (NFP-SFA) Program is a component of the Cooperative Fire Protection Program and is authorized by Congress through the

Department of Interior and Related Agencies Appropriation. Funds are distributed to State Foresters based on recognition of the minimum need for all states to maintain and enhance coordination and communication with federal agencies. Fifty percent of these funds are to provide financial assistance, technical training and equipment to ensure federal, state and local fire agencies can deliver a coordinated response to wildfire. The remaining 50 percent of these funds provide financial assistance to administer and implement wildfire hazard mitigation activities. Mitigation activities fall within the three categories of:

Fire prevention and education

Community fire protection planning

Wildfire hazard reduction treatments

The goal of the NFP-SFA Program in Mississippi is to protect the state's communities and timberland from significant loss of economic, ecological, or aesthetic value due to wildfire and to reduce the threat to communities from the impacts of wildland fire. The emphasis is on improving fire prevention, community wildfire planning, and reducing wildfire risk through hazard reduction treatments.

Justification:

Mississippi's five-year average wildfire occurrence is approximately 3,200 wildfires with 56,000 acres lost. Volunteer Fire departments (VFDs) also suppress many wildland grass and brush fires. The majority of the state's population and homes are outside of major metropolitan areas, large towns or cities. Most are still inrural areas, small towns or communities or developments. These are areas where the MFC and rural VFDs have fire suppression responsibilities.

The areas in which wildland fires occur in Mississippi are, like the rest of the country, suffering from a heavy buildup of forest fuels caused by years of active fire suppression. This and a lack of personnel, time and the limiting effects of air quality issues has restricted how much prescribed burning can be done to mitigate hazardous fuel buildups. In many instances these fuels are located within reach of homes, municipalities, developments and communities. Homeowners are not always aware of the risks that are present or the mitigation actions to reduce it.

This program is intended to reduce fuel loadings around CARs by prescribed burning, creation of fuel breaks, mechanical mulching and educating the public on the effectiveness of these treatments. It addresses and reduces hazardous fuels threatening critical infrastructure identified in the CWPPs prepared by various planning and development districts across the state. This program will also increase public awareness on wildfire prevention and WUIs.

Education geared to target audiences on how to increase homeowner and community safety through the application of Firewise principals and wildfire prevention strategies is a major component. MFC hosts a variety of events in various locations to showcase WUI hazard mitigation options and wildfire prevention strategies. Threat of wildfire damage will be reduced due to increased wildland firefighting training provided to select VFDs.

Scope of Work:

Hazardous Fuel Reduction

- To reduce fuel loadings by prescribed burning 4500 – 5500 acres. Weather conditions, smoke management issues, fire occurrence and personnel availability could restrict the amount of burning days, adversely affecting the amount of burning that can be carried out.
- To establish permanent firebreaks in areas of wildland urban interface and areas to restrictive for prescribed burning.
- To contract with available vendors

to perform mechanical mulching in those areas that is to hazardous to perform prescribed burns.

- To promote and educate the public on the benefits of reducing fuel loading around communities.
- Replace the Hazard Mitigation Technicians truck, ATV and other equipment. This vehicle has close to 200,000 miles and the ATV is 5 years old and showing signs of wear. This equipment is strictly used on Hazard Mitigation projects and wildfire suppression.

Current timeline:

Select sites and secure permission - Aug. 2010 – Oct. 2010

Map sites and prepare burning plans - Sept. 2010 – Nov. 2010

Conduct burns and construct firebreaks - Dec. 2010 – Sept. 2011

Purchase equipment and promotional items - Oct. 2010 – Aug. 2011

Wildfire Prevention/WUI (including Firewise)

- Recruit Firewise Community USA (FC/USA) communities. Contract with a qualified vendor(s) to facilitate the FC/USA program in the existing FC/USA communities and recruit FC/USA communities in selected target counties. This process will be facilitated by the MFC Firewise Coordinator. Provide sub-grants for FC/USA fuel mitigation equipment and annual meetings.
- Maintain the RC&D Council partnership to recruit and coordinate the *Living on the Edge, How to Have a Firewise Home* and Firewise Awareness Field Days meetings in selected target counties.
- Promote Firewise and wildfire prevention by attending and exhibiting at regional, state and local meetings.
- Promote Firewise and wildfire prevention by using mass media outlets.
- Support the above events with Firewise and wildfire prevention promotional items to be distributed at the above events.
- Update the Teacher's Wildfire Prevention DVD correlation documents, purchase the updated Teacher's Wildfire Prevention DVDs and fund the Teacher's Wildfire Prevention CD ROM on-line conversion.
- Translate the MFC Firewise Handbook into Spanish.
- Convert the Living on the Edge/ How to Have a Firewise Home formats to full screen option.

CWPP Fuel Reduction Projects

MFC has contracted with the Mississippi Association of Planning and Development Districts (MAPDD) to prepare CWPPs for high fire occurrence counties in Mississippi. The County Risk Assessment section identifies critical infrastructure in each county and assigned a hazard rating of High, Medium-high, Medium and Low.

The MFC plans to identify critical targets as rated by the following priority level identified in the CWPPs:

Priority 1 – Hazard Risk Rating of High

Priority 2 – Hazard Risk Rating of Medium – High

Priority 3 – Hazard Risk Rating of Medium

MFC will develop a challenge grant package, for counties with a CWPP, to apply for funding for fuel reduction projects identified in their CWPP. The MFC and/or county officials will conduct a site visit to determine needs based on the Hazard Risk Rating and determine what type of fuel reduction is needed. The fuel reduction options are as follows:

- WUI Fire Breaks
- Mechanical Mulching/Fuel Reduction
- Prescribed Burning
- Herbicide Vegetation Control

MFC will also work with local officials to determine the most appropriate fuel reduction method or combination of methods that best fit the site. In addition, the MFC will help increase wildland firefighting capacity by using county fire coordinators to implement a wildland firefighting training program for selected VFDs using the online training program *Fire in the Field*.

Current timeline:

Select high risk, medium high risk, and medium risk critical infrastructure targets for fuel reduction treatments that have been identified in the CWPPs -May 2010 – September 2011

Implement projects with contract and/or county vendors May 2010 – September 2011

Identify VFDs to participate in the *Fire in the Field* on-line training program, establish training guidelines and procedures with respective county fire coordinators, and implement training program -May 2010 – September 2011

One Message, Many Voices

The MFC also proposes to adopt the goals and objectives of the campaign: *One Message, Many Voices*.

Methodology:

Hazardous Fuel Reduction

- Select those sites meeting criteria for the number of homes protected and secure permission to burn or construct firebreaks.
- Prepare burning plans or map out firebreak locations.
- Purchase vehicle and ATV
- Conduct burns or construct firebreaks.
- Acquire supplies and materials to promote the Hazard Mitigation Grant Program.

CWPP Fuel Reduction Projects

MFC will select high risk, medium high risk, and medium risk critical infrastructure targets for fuel reduction treatments that have been identified in the CWPP's and will conduct site evaluations to determine needs with County Fire Coordinators. The county will submit a project proposal and budget to MFC. Challenge grants will be evaluated and awarded. The MFC will review the VFDs that have received wildland personal protection gear funded by the Volunteer Fire Assistance (VFA) and NFP-VFA grants. Wildland firefighting training using the online *Fire in the Field* program will be conducted by county fire coordinators according to program guidelines. Hazard Mitigation funds will not be used for *Fire in the Field* training.

Firewise and Wildfire Prevention

- Establish a personal service contract for FCUSA program.
- Continue partnership with RC&D Councils.
- Register for and attend regional, state & local meetings.
- Work with media outlets for radio, TV, Billboards and appropriate media messages.
- Purchase promotional materials. Provide *Firewise* sub-grants to entities pursuing FCUSA status.

One Message, Many Voices

Apply the strategies of the campaign *One Message, Many Voices*

Location: Statewide

National Fire Plan, State Fire Assistance Program Preparedness

The National Fire Plan, State Fire Assistance (NFP-SFA) Program for Preparedness is also a component of the CFPP and has the NFP same goal as state above. Funds are distributed to state foresters based on recognition of the minimum need for all states to maintain and enhance

coordination and communication with federal agencies. Fifty percent of these funds are to provide financial assistance; technical training and equipment to ensure Federal, State and local fire agencies can deliver a coordinated response to wildfire. The remaining 50 percent of these funds are to provide financial assistance to administer and implement wildfire hazard mitigation activities.

Justification:

According to the SWRA there are 1755 communities at risk (CAR) to wildland fire. In order to perform these duties effectively and safely replacement of equipment, maintenance of equipment, replacing of personal protection equipment (PPEs) and other upgrades are needed.

Scope of Work:

Grant funds enable MFC to increase its effectiveness and safety when responding to wildland fires around the state. Below are lists of objectives that will be completed to meet this goal.

- Continue needed upgrades of the equipment at dispatch offices and the replacement of the radios, communication system equipment and accessory items needed to program, maintain and enhance the use or capability of the system. If needed changes, upgrades and additional features will be incorporated into the software utilized for dispatch, reporting, mapping or analysis of fire and/or weather data. Along with this is upgrading and continued development of the MFC's fire spatial information management system.
- There is also a need for additional PPEs. As needed, Nomex clothing, fire shelters, neck shrouds, hardhats, boots, gloves and items such as packs to carry the gear or other accessory items will be acquired.
- To continue upgrading MFC firefighting equipment this includes Type 6 engines, tractor/plow units, transportation vehicles and tools. This entails replacement and maintenance supplies.
- To ensure accuracy of data from the MFC's RAWS network, a maintenance contract will be continued with the contractor designated to handle that task.
- Maintain the agency's aerial fire detection program. This includes maintenance on aircraft, fuel and contracting for pilot service.
- Updgrade equipment and train the MFC's Wildland Fire Investigators. These investigators are a major fire prevention tool for the MFC.

If funding is not sufficient to address all of the projects above, priorities will be set based on the most pressing needs of the agency.

Current timeline

- Identify equipment needed and begin purchase process - Sept. 2010 – Jan. 2011.
- Determine needs, acquire personnel sizes and place order Sept. 2010 – Nov. 2010.
- Identify equipment needed and begin purchase process Jan. 2011 – April 2011.
- Enter into a new maintenance agreement with designated contractor March 2011.
- Identify equipment needs and training and begin process Sept. 2010 – June 2011.

Methodology:

Since wildland fires occur in all parts of the state, grant funds will be used to enhance the capabilities of wildland firefighters by purchasing equipment and supplies and maintaining existing equipment to meet the MFC's statutory responsibilities.

Location: Statewide

Volunteer Fire Assistance Program

The Volunteer Fire Assistance Program (VFA), formerly known as the Rural Community Fire Protection (RCFP) Program, can provide federal financial, technical, and other assistance to State Foresters and other appropriate officials to organize, train and equip fire departments in rural areas and rural communities to suppress fires. A rural community is defined as having 10,000 or less population. This 10,000 population limit for participation in the VFA Program facilitates distribution of available VFA funding to needy fire departments. Mississippi distributes available VFA funding through a competitive grant process. VFA also funds National Fire Plan (NFP) development.

VFA Program is a component of the CFPP. Funds provide financial assistance, technical training and equipment to ensure federal, state and local fire agencies can deliver a coordinated response to wildfire. The VFA Program is aimed at assisting rural communities with populations of 10,000 or less to establish new fire departments and to upgrade fire suppression capabilities of existing departments. VFA funding is awarded through the state foresters almost entirely to volunteer fire departments in rural areas and communities. These departments are often the first line of defense in meeting expanded protection needs for WUI fires and emergencies.

The goal of the VFA Program in Mississippi is to provide technical and/or financial assistance to rural volunteer fire departments to establish or enhance their fire protection services to promote improvements in the capability and effectiveness of more than 750 rural Volunteer Fire Departments (VFDs). VFDs provide fire protection and protect lives and other rural investments in more than 1750 towns, communities and large developments that are high risk from wildfire.

Justification:

Grant funding enables local Volunteer Fire Departments to increase their capability to suppress woods and grass fires, which will offer better protection to homeowners in the state. An additional benefit of this program is to help departments provide a level of protection that could result in lower ISO ratings which could also result in more affordable fire insurance rates for homeowners. Through the Federal Excess Personal Property (FEPP) program, MFC is acquiring trucks in which the VFDs fabricates into brush trucks. These trucks help support the agency in wildland fire suppression. This affords the VFD a funding source to purchase the needed equipment to continue fabricating these trucks into brush trucks. It also allows VFDs to purchase PPE, communication and other needed equipment and to provide firefighter training for wildland fires.

Scope of Work:

Funds are awarded to approved VFDs through a sub-granting process. Funds up to $3,000 are made available for PPE, training, communications and firefighting equipment that will improve fire protection in rural areas. Depending on the number of applicants, VFDs in areas that had higher fire occurrence, significantly larger fires, and more damaging fires or have other justified needs may qualify for up to 25 percent in additional funds. With matching funds being a concern for the VFDs, MFC will use the SFA overmatch as matching for this grant, if sufficient state funds are available. If sufficient funds are not available, the departments will be responsible for the match. These funds will currently allow assistance to approximately 31 departments.

Due to reduced staffing and budgets, it will be necessary to assess 20 percent of funding for overhead and administrative costs.

Current Timeline:

- Advertise program and accept applications June, 2010 and July, 2010
- Review, prioritize and approve applications. Notify approved applicants. July, 2010 and August, 2010
- Receive and review invoices, canceled checks, etc. for payment of funds to VFD's. August, 2010 – May, 2011
- Reallocate unused funds. Complete project records. Report accomplishments to USFS June, 2011 – September, 2011

Methodology:

The program targets VFDs in areas of the state impacted by high fire numbers, loss of homes or that provide protection in areas that are in the vicinity of high risk communities in the WUI as identified in the SWRA. Grant funds provide technical and financial assistance to rural communities to establish or enhance their fire protection services.

Location: Statewide

Accomplishment Reporting:

Accomplishments should to show measurable results and the cost/benefit or value added to communities and resources involved and should include number of departments assisted, estimates on the number of firefighters and other people who benefited from the project. Accomplishments should also include other benefits such as increased safety from training, PPE, increased water capability handling, etc. MFC is also responsible for updating all items included in the NFPORS database, Community Assistance module by October 31 of each year. The region's Cooperative Fire Program Manager is available to assist in these reporting requirements.

Accomplishment Reports will be due on annual basis for the period ending September 30, of each year, and are due no later than December 31.

National Fire Plan, Volunteer Fire Assistance Program

The NFP-VFA Program is also directed at assisting rural communities with populations of 10,000 or less to establish new fire departments and to upgrade fire suppression capabilities of existing departments and is awarded through the state foresters almost entirely to volunteer fire departments in rural areas and communities. The goal of the National Fire Plan, Volunteer Fire Assistance Program in Mississippi is to provide technical and/or financial assistance to rural volunteer fire departments to establish or enhance their fire protection services.

Justification:

This grant will enable local VFDs to increase their capability to suppress woods and grass fires, which will provide better protection to homeowners in the state.

Scope of Work:

Funds will be awarded to the VFDs through a sub-granting process. Funds up to $3,000 will be made available for PPE, training, communications and firefighting equipment that will improve fire protection in rural areas. Depending on the number of applicants, departments in areas that had higher fire occurrence, significantly larger fires, and more damaging fires or have other justified needs may qualify for up to 25 percent in additional funds.

With matching funds being a concern for the VFDs, MFC will use the SFA 2010 state overmatch as matching for this grant, if sufficient state funds are available. If sufficient funds are not available, the departments will be responsible for the match. These funds will allow assistance to approximately 35 departments.

Due to reduced staffing and budgets, it will be necessary to assess 20 percent of funding for overhead and administrative costs.

Current Timeline:

Advertise program and accept applications June, 2010 and July, 2010.

Review, prioritize and approve applications. Notify approved applicants. July, 2010 and August, 2010

Receive and review invoices, canceled checks, etc. for payment of funds to VFD's. August, 2010 – May, 2011

Reallocate unused funds. Complete project records. Report accomplishments to USFS June, 2011 – September, 2011

Methodology: The program targets VFDs in areas of the state impacted by high fire numbers, loss of homes or that provide protection in areas that are in the vicinity of high risk communities in the WUI as identified in the SWRA. The grant will provide technical and financial assistance to rural communities to establish or enhance their fire protection services.

Location: Statewide

Accomplishment Reporting:

States will be responsible for reporting accomplishments under the VFAP. Accomplishments need to show measurable results and the cost/benefit or value added to communities and resources involved and should number of departments assisted, estimates on the number of firefighters and other people who benefited from the project. Accomplishments should also describe other benefits such as increased safety from training, PPE, increased water capability handling, etc. MFC is responsible for updating all items included in the NFPORS database, Community Assistance module by October 31 of each year. The region's Cooperative Fire Program Manager is available to assist in these reporting requirements. Hazard Mitigation Program, Cooperative Fire Protection Program (SFA) and FEPP reviews by the Forest Service will be coordinated and scheduled with the states.

Community Fire Protection – Wildland Fire and Hazardous Fuels (WFHF)

Community Fire Protection (CFP) funds, formerly known as Stevens funds, are National Forest System, wildland fire and hazardous fuels (WFHF) funds that are distributed to states by a competitive grant process. Applications are received by the Cooperative Fire Manager through the Southern Group of State Foresters (SGSF) Competitive Grant Selection Team to address fuels treatment activities adjacent to National Forest lands. The activities are coordinated with the local forest and carried out to compliment the fuels treatment efforts of the forest. No match is required for this funding.

The CFP Program is authorized by the National Forest Management Act (16 USC 1600 et seq). The goal of the Community Fire Protection Program in Mississippi is to protect the state's communities and timberland adjacent to National Forest lands from significant loss of economic, ecological, or aesthetic value due to wildfire and to reduce the threat to communities from the impacts of wildland fire. The emphasis is on reducing wildfire risk through hazard reduction treatments that supplement the hazardous fuel reduction program on the National Forest.

Justification:

While the National Forests are able to maintain a periodic burning schedule for the lands under their control, there is a great deal of state and private nonindustrial holdings inside the proclamation boundaries and adjacent to the boundary that are burned only infrequently or rarely. These areas suffer from heavy buildup of forest fuels. State and private holdings experience many more fires than National Forest lands. Fires on state and private lands in or adjacent to the National Forest could easily spread onto federal lands.

Scope of Work:

This project uses prescribed fire to reduce fuel loads and firebreak construction to contain the spread of wildfires on approximately 5,000 acres of state and private nonindustrial lands within and near the proclamation boundary of the National Forests.

When practical and feasible, MFC district personnel will plan burns on sites within or adjacent to burns planned by Forest Service personnel. If circumstances permit burns on adjacent properties may be conducted jointly.

Methodology:

- Contact USFS on burns planned for 2011.
- Contact landowners to secure permission to burn or construct firebreaks on their property.
- Prepare burning plans and map out firebreaks.
- Coordinate with USFS on burning schedule.
- Conduct burns and construct firebreaks.

Location:

Areas surrounding Bienville, DeSoto, Holly Springs, Homochitto and Tombigbee Ranger Districts

Accomplishment Reporting:

The National Forest will be responsible for data input into the FACTS database. Forest Fire Management Officers will be the local contact as projects are undertaken and completed since this is a multi-year funding grant.

A.1.2 Forest Health

The Cooperative Forest Health Protection (CFHP) program provides federal financial and technical assistance to states to facilitate their survey and monitoring of forest conditions and for the protection of forests and trees on state and private lands from insects, disease causing agents, and invasive plants. The CFHP is authorized by the CFAA. States participation is voluntary and requires annual application for funding through the consolidated grant process. The USFS qualifies states to participate if they have a program that:

- has at least one full-time professional entomologist or pathologist on staff (the Regional Forester may waive this requirement if the state can justify the waiver in writing)
- provides state and private land managers with technical assistance; to monitor the effects of insects, disease causing agents, and invasive plants
- evaluates the need for protecting forest and tree resources from insects, disease causing agents, and invasive plants, and
- provides an annual report to Regional Forester on the effects of forest insects and disease causing agents within the state

In 2007 the Washington Office in consultation with the National Association of State Foresters (NASF) implemented a revised allocation formula for funding the CFHP. The formula is based in part on the number of forested acres within the state. A full allocation level of funding has annually been maintained under the new allocation protocol ever since.

Cooperative Pest Prevention and Suppression

The Cooperative Forestry Assistance Act of 1978, Section 8(b)(3), describes the authority for Forest Health Protection (FHP) to “plan, organize, direct and perform measures to prevent, retard, control or suppress incipient, potential, threatening, or emergency insect infestations and disease conditions affecting trees.” These activities are performed in cooperation with state regulatory officials and state foresters on state & private lands. The objective of pest prevention and suppression projects

is to reduce the damage to forest and tree resources from outbreaks of insect and disease-causing pests. In recent years emphasis has broadened to include management and control of established non-native invasive forest and tree pests. Pest prevention and suppression priorities are established by the Washington Office and reflect national issues as well as input from the Regions. The current priorities are:

1. Protect threatened and endangered species habitat
2. Eradicate new exotic insect and disease infestations
3. Protect developed recreation sites or high valued trees
4. Protect adjacent private land
5. Protect native vegetation (forests & trees)

The overall objective is to provide a comprehensive program of pest prevention and suppression management, including developing effective organizational structures, contracting assistance, compliance with the National Environmental Policy Act (NEPA), the Endangered Species Act (ESA), and relevant Executive Orders, aircraft calibration, and pilot testing of new methods or materials (technology development) among other activities. Some examples of cooperative projects involving or of interest to Mississippi are:

- Survey Assistance
  - Sudden oak death (SOD) surveys in forested areas
  - Early Detection & Rapid Response (EDRR) surveys for non-native bark beetles
  - Sirex surveys
  - Redbay ambrosia beetle & laurel wilt surveys
- Treatment evaluation
  - Development and evaluation of invasive plant control methods
- Technology Development
  - Fungicide injection development for laurel wilt

Funding for pest prevention and suppression projects on state and private lands is allocated from the Cooperative Lands Forest Health Management budget line item. In Mississippi, the southern pine beetle (SPB) and non-native invasive species (including plants) have been and will continue to be the focus of cooperative prevention and suppression projects.

SPB Prevention and Restoration Program

This program is a cornerstone component of cooperative efforts to institute a comprehensive and integrated approach to managing SPB in Mississippi and elsewhere throughout the South. Since its inception in 2003, this program has enabled a long overdue shift in the management of this most notable pest, from predominantly reactive (direct suppression during outbreaks) to a proactive approach (prevention). The basic tenants of the program support development and utilization of straight forward and time-tested techniques proven to be effective at preventing or mitigating the impacts of SPB, such as: landowner education, hazard mapping, planting appropriate species on the right site, prescribed burning, and most notably thinning of overly dense stands. Such treatments are widely recognized for delivering added forest health benefits, such as improving fire condition class, enhancing wildlife habitat, and increasing recreational opportunities. These same strategies promoting forest health also may potentially provide protection of pine forests against the threat posed by the non-native invasive *Sirex* woodwasp, that is established and spreading in the northeastern U.S. and Canada. In collaboration with MSU, a comprehensive SPB prevention program for the entire state was initiated in 2006 and has annually progressed to providing cost-share assistance to landowners for eligible thinning practices on a state-wide basis. Since 2006 the program has delivered more than 84 education programs for more than 3,000 landowners, foresters

and loggers. In addition, more than 140 landowners owning more than 7,000 acres have benefited from the cost share incentive thinning program over the last two years.

Invasive Species Management

The goal of the USFS invasive species program is to reduce, minimize, or eliminate the potential for introduction, establishment, spread, and impact of invasive species across all landscapes and ownerships. The National Strategy encompasses four program elements.

- Prevention
- Early detection and rapid response
- Control and Management
- Rehabilitation and restoration

Cooperative Non-Native Invasive Plant (NNIP) Program

The current infestations and growing threat of non-native invasive (NNI) species can displace diversity and habitats, disrupt vital ecosystem functions, and degrade productivity and recreational benefits. NNI plants have increased in their range and severity, while others await entry through global commerce. This program was initiated in 2003 with development of *Strategy for NNI Plant Management* and the first year of federal funding support. The focus of the program is on early detection and rapid response, prevention, control and management, rehabilitation and restoration, and information and education. Mississippi has partnered with FHP and others to address all of the above concerns and aspects of the NNIP problem in the state, including establishment of a state-wide Cooperative Weed Management Area (CWMA). The CWMA plays a significant role in supporting and coordinating efforts against non-native invasive on behalf of the entire state, including forestlands.

Forest Health Monitoring Program (FHM)

The FHM is a national program designed to determine the status, changes, and trends in indicators of forest condition on an annual basis. FHM program uses data from ground plots and surveys, aerial surveys, and other biotic and abiotic data sources and develops analytical approaches to address forest health issues that affect the sustainability of forest ecosystems. FHM covers all forested lands through a partnership involving USFS, state foresters and other state and federal agencies and academic groups.

Major FHM activities include:

- Detection Monitoring – nationally standardized aerial and ground surveys to evaluate status and change in condition of forest ecosystems.
- Evaluation Monitoring - projects to determine extent, severity, and causes of undesirable changes in forest health identified through Detection Monitoring.
- Intensive Site Monitoring – to enhance understanding of cause-effect relationships by linking Detection Monitoring to ecosystem process studies and assess specific issues, such as calcium depletion and carbon sequestration, at multiple spatial scales.
- Research on Monitoring Techniques – to develop or improve indicators, monitoring systems, and analytical techniques, such as, urban and riparian forest health monitoring, early detection of invasive species, multivariate analyses of forest health indicators, and spatial scan statistics.
- Analysis and Reporting - synthesis of information from various data sources within and external to the Forest Service to produce issue-driven reports on status and change in forest health at national, regional and state levels.

- **Justification:**

The goal of the CFH Program and all of it's various components in Mississippi is to protect the state's forest and tree resources from significant loss of economic, ecological, or social value due to insects, diseases, non-native invasive plants, other stressors, and unknown causes, and to restore and enhance healthy forest conditions throughout the state.

Scope of Work/Methodology:

Prevention

- Administer the comprehensive statewide SPB prevention program for Mississippi
- Provide technical assistance to local service foresters in identification of unknown insects or diseases found in the forest or urban environment.
- Participate in North Mississippi Kudzu Coalition meetings discussing strategies for combating Kudzu.
- Present forest health programs upon request to local County Forestry Association (CFA) meetings, civic groups and garden clubs.
- Prepare and present new releases to television stations or newspapers as needed in reporting local or area-wide insect or disease problems.
- Participate in the Mississippi Cooperative Weed Management Area meetings to discuss and keep informed on new and existing forest health issues.
- Post forest health articles on the MFC web site for use by the general public along with MFC employees.
- Attend the annual National Forest Health Monitoring Program Managers Meeting
- Educate landowners on cogongrass effects on our state through several avenues such as radio spots, newspaper articles, CFA meetings, promotional items and posters
- Increase public awareness on the dangers of the Emerald Ash Borer (EAB) to the state through cooperation with other state agencies such as the Mississippi Department of Agriculture and Commerce (MDAC), Division of Plant Industry. Funding is available for public education.
- Update Forest Health links on the MFC's website

Detection

- Conduct two Southern Pine Beetle flights, Spring and Fall, covering the entire State of Mississippi, with the exception of the Delta. Additional objectives include 100 percent ground check of all SPB activity during low occurrence times and more detection flights scheduled as necessary during times of high occurrence.
- Conduct additional aerial detection flights over areas of forestland that may have been damaged by other factors than SPB. Damages may include tornados, floods, wildfires and hurricanes.
- Map detected damages using the digital Sketchmapper and record using the FHM aerial survey standards.
- Deploy 46 SPB traps across all MFC districts for one month. The trapping will begin in April in south Mississippi. Traps will be checked weekly and all insects found will be collected and sent to the staff entomologist for evaluation.
- Newly detected cogongrass infestations will be identified and georeferenced throughout the state. This effort on non-federal lands that the MFC manages will increase with the goal of elimination of this pest on non-federal lands in the state.
- Continue contacts with professionals in entomology, pathology and other related fields to keep abreast of recent developments in applied research and pest conditions in other areas of the South.

Evaluation

- Evaluate the number of insects found in SPB trapping across the state and turn

in report to USFS to be incorporated into the National SPB prediction model.

- Any ground checked SPB spots will be evaluated and losses determined and reported using the FHM standards.

Control

- Implement control and eradication spraying of NNIs on 300 acres of non - federal lands.
- Purchase and maintenance of existing equipment to increase the agency's ability to combat invasive species.
- Continue cogongrass and other non-native invasive eradication and control efforts on the Kurtz State Forest.
- Partner with a district RC&D council in funding an invasive species eradication project for several target counties in Mississippi.

Technical Assistance

- Provide technical assistance and /or information on urban and rural forest pests to Mississippi landowners upon request.
- Provide technical assistance on SPB suppression projects as needed.
- Provide technical assistance to landowners and the general public on controlling forest pests on a regular basis.
- Utilizing our contract entomologist, any insect and/or disease samples submitted by state forestry personnel or private individuals will be identified.

Forest Health Monitoring

- As part of the Annual Insect and Disease Conditions Reporting process, the MFC will submit to the FHP Field Office survey maps/reports in accordance with standardized survey procedures as agreed to by the joint USFS/state agency FHM survey standards committee.
- Cooperate with the USFS in EDRR state or regional projects.
- Provide professional input and advice to the FHM. As a consortium of state and federal pest management specialists, this input is necessary to maintain a viable program at the state, regional and federal level. This input includes attendance at FHM meetings, keeping abreast of FHM developments and making recommendations that will benefit the program.
- Special funding has been made available for Redbay Ambrosia Beetle and Laurel wilt disease confirmation in MS, along with identification of the means of introduction, extent and severity of the Laurel Wilt disease in Mississippi, southwest Alabama and southeast Louisiana.

Location: Statewide

Accomplishment Reporting:

Forest Health Protection (FHP) requires an annual report on Mississippi's accomplishments for the CFHP and FHM programs. The report is due to the Regional Office on November 1 and it should be coordinated with the FHP Field Office. It should respond to each of the tasks listed in the narrative and it should also document any other associated accomplishments. Mississippi is also required to report accomplishments for any insect or disease prevention or suppression projects funded. These reports are separate from the CFHP/ FHM accomplishment report and should include data related to the project activities.

A.1.3 Forest Legacy Program

The Forest Legacy Program (FLP) was created to identify and protect environmentally sensitive forest lands threatened with conversion to non-forest uses. FLP is a USFS program in partnership with Mississippi that supports local efforts to protect environmentally sensitive, privately owned forest lands threatened by

conversion to non-forest use through land acquisition and conservation easements.

Development of the nation's forested areas poses an increasing threat to maintaining the integrity of our country's valuable forest lands. Intact forest lands supply timber products, wildlife habitat, soil and watershed protection, aesthetics, and recreational opportunities. However, as these areas are fragmented and disappear, so do the benefits they provide. While local governments commonly guide development away from the most sensitive areas through traditional land use controls (like zoning and performance standards), sometimes these measures are not sufficient to fully protect the forested component of our natural resource base.

Designed to encourage the protection of privately owned forest lands, FLP is an entirely voluntary program. To maximize the public benefits it achieves, the program focuses on the acquisition of partial interests in privately-owned forest lands. FLP helps the states develop and carry out their forest conservation plans. It encourages and supports acquisition of conservation easements, legally binding agreements transferring a negotiated set of property rights from one party to another, without removing the property from private ownership. Most FLP conservation easements restrict development, require sustainable forestry practices, and protect other values. Forest lands that contain important fish and wildlife habitats, scenic, cultural, recreational and/or water resources or other ecological values and that will support continuation of traditional forest uses receive priority in FLP.

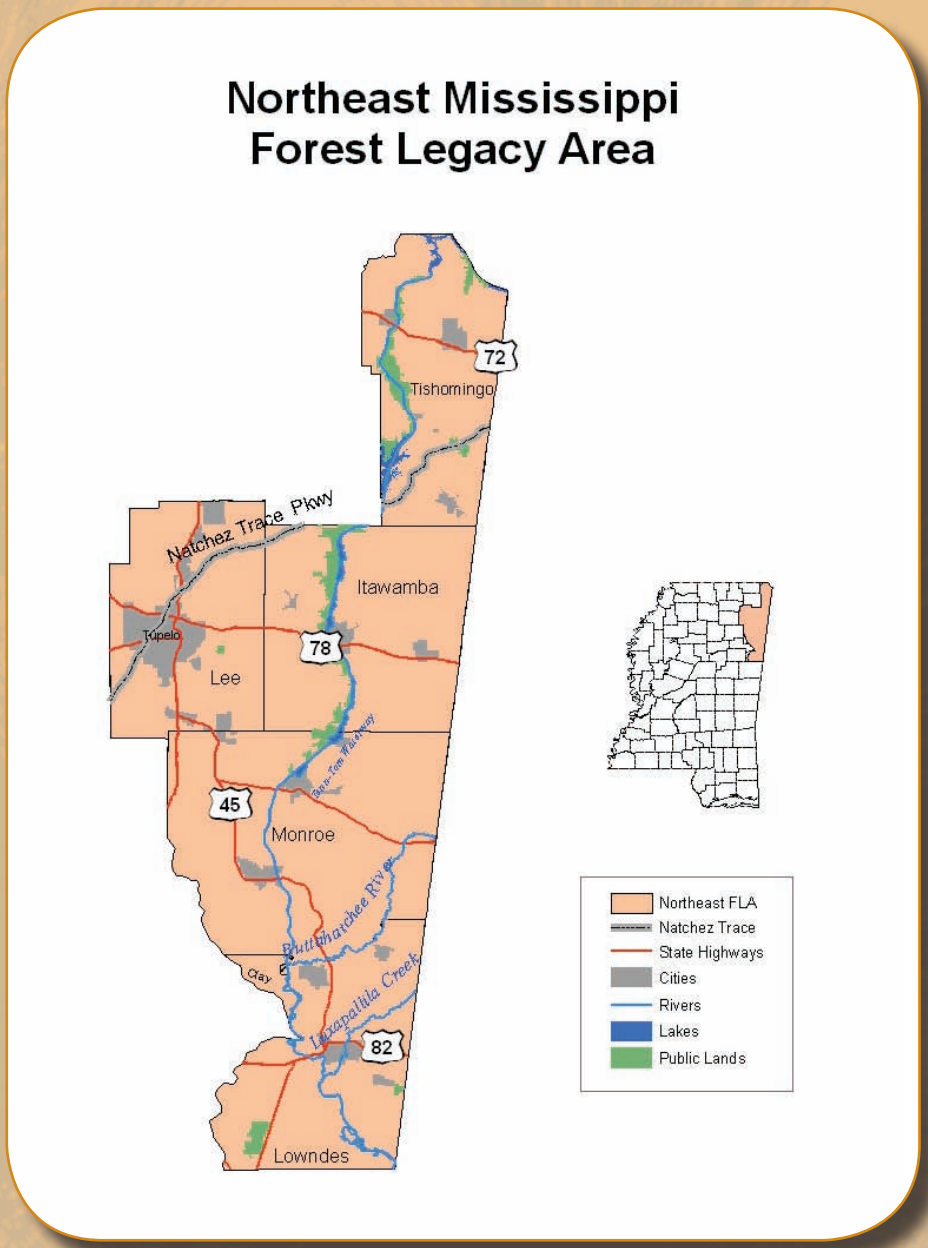
FLP complements other private, federal and state forestland conservation programs focusing on conservation in two ways. First, FLP directly supports property acquisition. Additionally, FLP supports efforts to acquire donated conservation easements. FLP funded acquisitions serve public purposes identified by participating states and agreed to by the landowner. Participation in Forest Legacy is limited to private forest landowners. To qualify, landowners are required to prepare a multiple resource management plan as part of the conservation easement acquisition.

Federal funds may fund up to 75 percent of project costs, with at least 25 percent coming from private, state or local sources. In addition to gains associated with the sale or donation of property rights, many landowners also benefit from reduced taxes associated with limits placed on land use.

The MFC has identified three Forest Legacy Areas (FLAs) based on input from the public and under the guidance of the State Forest Stewardship Coordinating Committee (FSCC) in the *FLP Assessment of Need (AON)*, an active five year plan that was approved in 2007. Funds are now available to MFC to coordinate the purchase of the forestland outright or the purchase of development rights (through conservation easements) on approved FLP tracts nominated in Mississippi. Lands purchased in fee title with funds will remain in ownership by a local, state or federal agency for conservation. The AON identifies areas of Mississippi where important natural forest communities exist on private lands that are potentially threatened by conversion from urban and suburban growth or other threats. The AON recommends these areas of the state be designated as Forest Legacy Areas so that willing landowners may nominate their property as a possible Forest Legacy tract.

The three FLAs in Mississippi are called the Southeast, Central and Northeast Forest Legacy Areas. Applicants must own property that falls into one of these three areas to be considered for the program, and the forested tracts must meet the state and national program objectives. The following is a map of each FLA and a list of the conservation priorities, important public lands and threats

to forests in each area. FLAs were identified based on many factors including the habitat diversity, types of natural forest communities in each area, significant past and projected increases in human population and recent conversion of forestland to other uses.



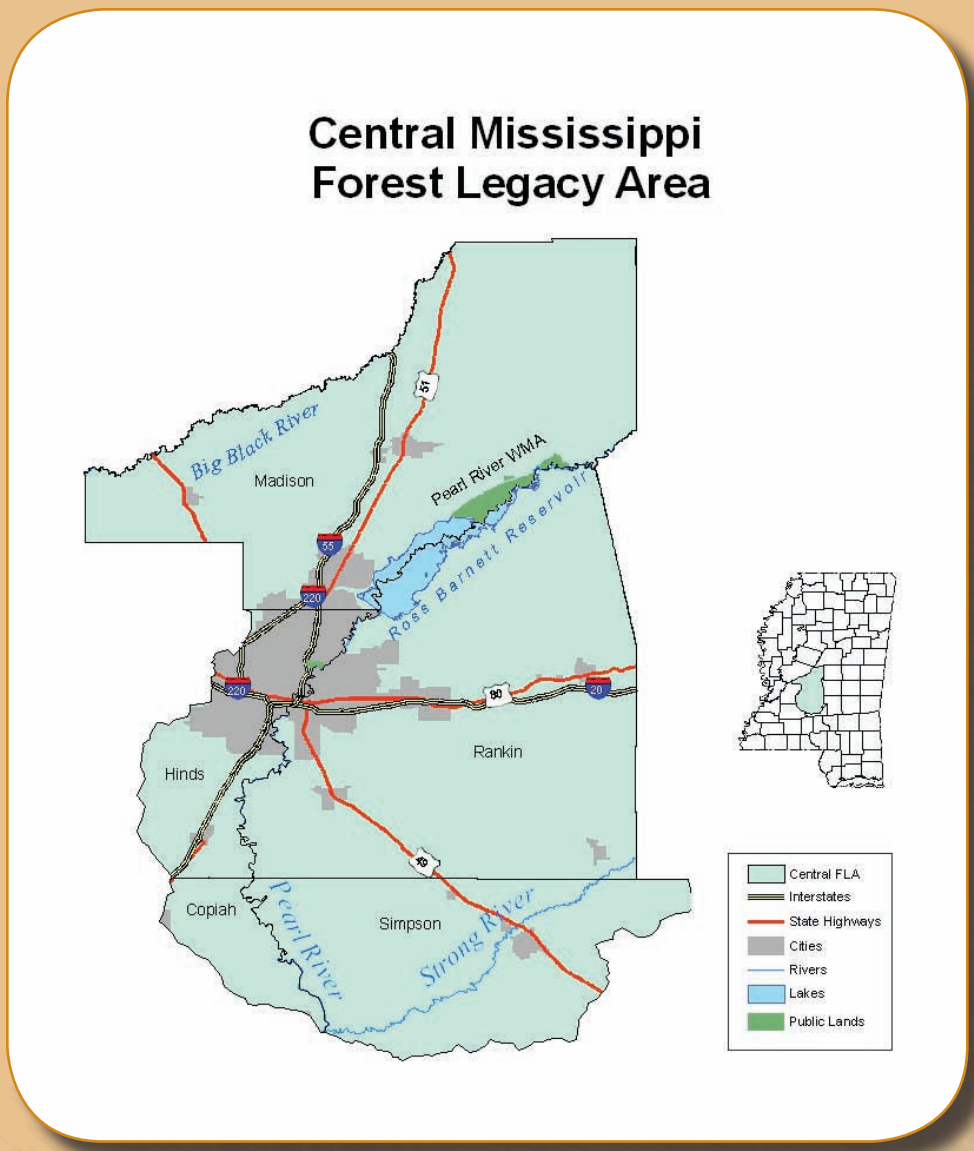
Northeast MS Forest Legacy Area includes parts of 6 Counties - Clay, Itawamba, Lee, Lowndes, Monroe, Tishomingo.

Important Forest Types in the Northeast FLA: Bottomland hardwoods, lower slope/high terrace hardwood forests, dry hardwood forests, dry to mesic hardwood forests.

Other Conservation Values and Priorities in the Northeast FLA: Tombigbee drainage, Northeast Hills/ Tennessee River drainage, Buttahatchie River, Tennessee-Tombigbee River, Natchez Trace corridor, scenic streams, riparian corridors and forested wetlands along ecoregional priority river/ stream reaches, areas adjacent to public lands managed for conservation and mitigation banks, scenic roads, existing private conservation lands, 16th Section lands and military installations.

Important Public Lands in the Northeast FLA: Tennessee Tombigbee Waterway, Divide Section WMA, John Bell Williams WMA, Canal Section WMA, Black Prairie WMA, J.P. Coleman State Park, Tishomingo State Park, Tombigbee State Park, Lake Lowndes State Park, Columbus AFB, Sixteenth Section Lands, Lake Monroe, Elvis Presley Lake, Lake Lamar Bruce.

Threats to natural forest communities in the Northeast FLA: Urban sprawl, fragmentation/ subparcelization, invasive species, second home/ vacation home development, conversion of natural stands to pine plantations, channel modification, sand and gravel mining.



Important Public Lands in the Central FLA: Natchez Trace National Park, Ross Barnett Reservoir, Pearl River WMA, Copiah County WMA, LeFleurs Bluff State Park, Sixteenth Section lands, Simpson County Lake, Calling Panther Lake.

Threats to natural forest communities in the Central FLA: Metro area sprawl, significant suburban and exurban development, fragmentation/ subparcelization, flood control/channel modification, road construction, sand and gravel mining.

Central MS Forest Legacy Area includes parts of 5 counties - Copiah, Hinds, Madison, Rankin, and Simpson.

Important Forest Types in the Central FLA: Bottomland hardwoods, bald- cypress/gum swamp forests, lower slope/high terrace hardwood forests.

Other Conservation Values and Priorities in the Central FLA: Big Black River drainage, Upper and Lower Pearl River drainage, Ross Barnett Reservoir, Natchez Trace corridor, riparian corridors and forested wetlands along ecoregional priority river/stream reaches, areas adjacent to public lands managed for conservation and mitigation, existing private conservation lands and 16th Section lands.

Southeast Forest Legacy Area includes all of 13 counties - Forrest, George, Greene, Hancock, Harrison, Jackson, Jones, Lamar, Marion, Pearl River, Perry, Stone, Wayne.

Important Forest Types in the Southeast FLA: Wet pine savannas/ slash pine flatwoods, mesic longleaf pine forests, dry longleaf pine forests, bottomland hardwoods, small stream swamp forests, maritime forests, beech/ magnolia forests, pine seeps.

Values and Priorities for Southeast FLA: Pascagoula River drainage, Lower Pearl River drainage, Black Creek, Leaf River, Okatoma Creek, Ragland hills, Leaf River, scenic streams, fallout habitat for neotropical migratory songbirds,

Black bear, gopher tortoise, gopher frog, pitcher plant habitat, riparian corridors and forested wetlands along ecoregional priority river/stream reaches, areas adjacent to public lands managed for conservation and mitigation banks, existing private conservation lands, 16th Section lands and military installations.

Important Public Lands in the Southeast FLA: DeSoto National Forest, Chickasawhay Ranger District, Stennis Space Center, Camp Shelby, Red Creek WMA, Pascagoula River WMA, Wolf River WMA, Leaf River WMA, Old River WMA, Little Biloxi WMA, Red Creek WMA, Ward Bayou WMA, Chickasawhay WMA, Mississippi Sandhill Crane NWR, Grand Bay NWR, Coastal Preserves, Paul B. Johnson State Park, Buccaneer State Park, Shepard State Park, Sixteenth Section Lands.

Threats to natural forest communities the Southeast FLA: Significant urban and exurban sprawl from coastal development and Hattiesburg, recent population shifts within the region generated by Hurricane Katrina, significant recent timber losses from Hurricane Katrina, second home/ vacation home development, decades of fire exclusion, sale of industry lands to individuals, invasive species, road construction, conversion of natural stands to pine plantations and sand and gravel mining.

FLP is strictly voluntary. Landowners with an interest in protecting and conserving their natural forest land may make application to the MFC FLP Coordinator to have their property considered for nomination. The application helps determine the extent of threat to the forestland for land use change and establishes a rating procedure to ensure that only the most environmentally important forests are considered. Applications will be reviewed and ranked by MFC and then submitted to the USFS for consideration. All tracts must have a Forest Stewardship Plan to be considered and they must fall within a FLA. Tracts that meet the national and state guidelines have the best chance of being nominated and funded.

National Guidelines – Tracts shall have significant environmental values or shall be threatened by present or future conversion to non-forest use. National priority will be given to land that can be effectively protected and managed and that have important scenic or recreational values, riparian areas, fish and wildlife values, or other ecological values. There are four national criteria that will used to score and rank projects:

Importance – What are the environmental, social and economic benefits gained from protecting the tract?
Threatened -- What are threats to conversion?
Strategic – Does the property fit in a larger conservation plan, strategy or initiative by a government agency or organizations? Is it strategically linked to enhance already protected lands?
Readiness – Is there local support? Can the project be completed? Is there a completed appraisal, easement conditions, cost share commitment, signed option or purchase agreement, title search, forest stewardship plan?

State Guidelines – In addition to the national criteria, to be eligible for inclusion, tracts must be located in a Mississippi FLA, threatened by conversion, must be owned by a willing seller and must also possess environmental values that can be protected and managed effectively. Projects must also meet one or more of the Mississippi FLP objectives:

- *Sustain native or rate and unique forest communities.*
- *Protect water quality.*
- *Protect forests from development along lakes, rivers and buffer protected lands.*
- *Protect wildlife habitat.*
- *Maintain traditional forest uses, including hunting and fishing.*
- *Sustain productive forests.*
- *Provide public recreation opportunities.*

The non-federal cost share of at least 25 percent must be documented and may consist of 1) the value of land, or interest in land, dedicated to FLP that is not paid for by the federal government; 2) nonfederal costs associated with program implementation; and 3) other non-federal costs associated with a grant or other agreement that meets FLP purpose. Cost share can be contributed by the landowner, other partners such as land trusts or other organizations, other state or local agencies or other project partners.

Federal funds from FLP may be used to cover transaction costs including appraisals and appraisal review, land surveys, closing costs, baseline documentation reports, title work, purchase of title insurance, conservation easement drafting or other real estate transaction expenses for fee title land acquisition. Federal funds may also be used to facilitate donations of land or interests in lands to a qualified donee, by paying expenses directly related to the donation, including land surveys, easement drafting, title work and establishing baseline information.

For an outright donation of a conservation easement, program funds may not be used to pay for an appraisal. In the case of a partial donation, an appraisal meeting federal standards is required to determine the value of the property. FLP funds may be used for appraisals on a partial donation. Limited funding on the federal level and competition between 50 states actively participating in Forest Legacy focus the selection process on the most unique forest properties that best meet national criteria. Only a one or two properties will likely be protected each year in Mississippi depending upon tract size, development value and landowner interest.

Justification:

Priority for Forest Legacy acquisitions shall be given to lands that enhance federal lands, federal, investments, or past federal assistance efforts; lands which can be effectively managed; lands which have important scenic or recreational values, riparian areas, timber, fish and wildlife values (including threatened and endangered species), or other ecological values.

Scope of Work:

MFC, with involvement of the FSCC, shall cooperatively review landowner applications and establish state acquisition priorities and consult with interested landowners. They will submit proposals to the USFS for consideriaton.

MFC will enter nominations into the Forest Legacy Information System (FLIS) each year. This information should be updated periodically to maintain an accurate description of each Legacy project in FLIS.

Geographic Information System (GIS) shapefiles of proposed FLP project tracts and match properties that closed during the fiscal year, will be submitted in FLIS.

Methodology:

A separate grant will be made to MFC for projects, which are approved for FLP. MFC is responsible for implementation and monitoring of conservation easements at least annually. Lands and interest in lands will be held in perpetuity. Though FLP is included in this statewide Assessment of Forest Resources and Forest Resource Strategy, MFC proposes to continue implementing the 2007-2012 AON and using it as the current management and guidance plan for this program. The first update of the AON will be incorporated into the next update of the assessment and strategy.

Location: Three designated FLAs in Mississippi

A.1.4 Forest Stewardship Program

Program Description and Purpose

The purpose of the Forest Stewardship Program (FSP) is to encourage the long-term stewardship of nonindustrial private forestlands, by assisting the owners to more actively manage their forest and related resources. FSP provides assistance to owners of forestland and other lands where good stewardship, including agroforestry applications, will enhance and sustain the long-term productivity of multiple forest resources. Special attention is given to landowners in important forest resource areas and those new to, or in the early stages of, managing their land in a way that embodies multi-resource stewardship principles. The program provides landowners with the professional planning and technical assistance they need to keep their land in a productive and healthy condition. Planning assistance offered through the FSP may also provide landowners with enhanced access to other USDA conservation programs and/or forest certification programs.

State Forest Stewardship Coordinating Committees

Each State Forester or equivalent State official must establish a State FSCC, administered by the State Forester or designee thereof (16 U.S.C. 2113(b)). The Committee shall include, to the extent possible, individuals representing the following:

- The Forest Service, Natural Resources Conservation Service (NRCS), Farm Service Agency (FSA), and the Cooperative Extension Service
- NRCS State Technical Committee
- Local Government
- Soil and water conservation districts
- Consulting foresters
- Environmental organizations

- Forest products industry
- Forest landowners
- Land trust organizations
- Conservation organizations
- State fish and wildlife agency
- Tribal representatives
- Other relevant interests as deemed appropriate

The FSCC must be ongoing to address stewardship planning and implementation concerns and overall program coordination, and not convened on a temporary basis. The FSCC's primary functions are:

- To provide advice and recommendations to the State Forester concerning implementation of the FSP, and other associated landowner assistance and cost-share programs.
- To provide assistance and recommendations concerning the development, implementation, and updating of the statewide assessment and resource strategy.

State Foresters are encouraged to actively pursue partnerships with Committee and non-committee agencies, organizations and institutions interested in forest resource management and conservation. The statewide assessment and resource strategy, as authorized in the 2008 Farm Bill (sec. 8002), replaces the State Forest Stewardship Plan and other planning requirements under the Cooperative Forestry Assistance Act (CFAA).

For purposes of this program, nonindustrial private forest (NIPF) acreage includes lands owned by any private individual, group, association, corporation, Indian tribe or other private legal entity is eligible. It also includes rural lands with existing tree cover, or suitable for growing trees. NIPFs that are managed under existing federal, state, or private sector financial and technical assistance programs are eligible for assistance under the FSP. Forest resource management activities on such forestlands must meet, or be expanded or enhanced to meet the requirements of the FSP.

Participation in the FSP is voluntary. To enter the program, landowners agree to manage their property according to an approved Forest Stewardship Management Plan (FSMP). Landowners also understand that they may be asked to participate in future management outcome monitoring activities.

Award of FSP funds requires a non-federal 50 percent funding match, which may be met through consolidation of proposals and matching funds across S&PF programs.

Justification:

Forest Stewardship funds are available for grants to states under the legislative authority of the Cooperative Forestry Assistance Act of 1978 (as amended) and various appropriation acts.

Rural Forestry Assistance establishes a cooperative program between USDA and states to provide technical information, advice, and related assistance to private landowners and other entities within the forest management community to encourage conservation and management of non-federal forests. The FSP focuses specifically on nonindustrial private forestlands by assisting owners of these lands to more actively manage their forests for multiple uses and values based on a FSP and using available expertise and assistance.

Scope of Work:

Activities funded under this program may include:

- Preparing multiple-use Forest Stewardship plans for nonindustrial private landowners,
- Assisting landowners to implement forest management activities, including use of existing cost-share programs where appropriate,
- Providing seedlings for reforestation and restoration activities,

- Developing genetically-improved tree seeds and seedlings,
- Educating landowners about forest management practices and issues,
- Coordinating with partners to improve program delivery, including regularly convening a State Forest Stewardship Coordinating Committee,
- Providing recognition to exemplary Forest Stewardship landowners,
- Training state and partner staffs on topics relevant to program delivery,
- Practicing sustainable forestry on state-owned lands, and
- Monitoring and reporting program implementation and effectiveness.

Methodology and Program Targets:

National FSP Performance Measures: Grant funds are expected to provide for accomplishment of the following targets for national performance measures:

National Performance Measure	Target
Number of landowners provided with technical assistance	15,000
Number of landowners participating in educational programs	10,000
Acres of approved new or revised Forest Stewardship plans	175,000
Acres from 3. that are in High Priority Areas	67,600
Number of approved new or revised Forest Stewardship plans	800
Cumulative acres of current Forest Stewardship plans being implemented within High Priority Areas (may be based on sample)	250,000

Regional FSP Performance Measures: Grant funds are expected to provide for accomplishment of the following regional performance measures:

Regional Performance Measure	Target
Number of Forest Management or Practice Plans approved	1,400
Acres of Forest Management or Practice Plans approved	42,000
Number of landowners recognized as Certified Forest Stewards or equivalent	80
Pounds of pine seed produced	NA
Pounds of hardwood seed produced	NA
Numbers of pine seedlings produced	NA
Numbers of hardwood seedlings produced	NA
Acres of state-owned forest improved	45,000

Other Standard Program Activities:

MFC foresters will continue to prepare quality multiple-use FSP for nonindustrial private landowners in Mississippi during the grant period each year. Several outreach activities and projects are planned and explained in further detail in the State Program Priorities section. MFC will host State FSCC meetings during the grant period too.

National Program Priorities:

Grant funds will be used to address national program priorities through the following projects, initiatives, emphasis areas, or actions:

1. Climate Change Mitigation and Adaptation

Forest Stewardship plans will be developed to include information and/or practices, where feasible and consistent to the landowner's objectives that will mitigate or adapt the adverse effects of planned practices that contribute to climate change.

2. Water Quality and Supply

Forest Stewardship plans will be developed to include information and/or practices, where feasible and consistent to the landowner's objectives that will address water quality and supply concerns on the property.

3. Landscape-scale Forest Stewardship Planning

Forest Stewardship plans will be developed to include information and/or practices, where feasible and consistent to the landowner's objectives that will address landscape-scale issue priority areas of the state.

4. Landowner Opportunities for Participation in Biomass Energy Markets, Certification, USDA Cost-share Programs, and Ecosystem Service Markets

Forest Stewardship plans will be developed to include information and/or practices, where feasible and consistent to the landowner's objectives that will contribute to the development of practices associated with the production of biomass for use by local energy facilities and markets.

5. Spatial Accomplishment Tracking

MFC will continue to enhance and modify the SIMS data base application to improve the functionality for analysis and reporting of national and regional performance standards. MFC will also develop a web-based *Enterprise* system of data entry. The goal is to spatially capture all current Forest Stewardship plans in order to monitor plan implementation.

Regional Program Priorities:

Grant funds will be used to address regional program priorities through the following projects, initiatives, emphasis areas, or actions:

Integrating Rural Forestry Issues in Statewide Assessments and Strategies

- Wherever feasible, Stewardship funds will be utilized to increase or improve activities in high priority issue areas as identified from the state assessment and resulting strategies.

Monitoring Forest Stewardship Plan Implementation

- Stewardship Plan monitoring was implemented in FY09. MFC will monitor future FY plans according to national and regional standards and report plan implementation.

Coordinate with NRCS on delivery of Farm Bill forestry programs.

- The MFC will participate in dialog through Mississippi State Technical Committee and the Stewardship Committee to coordinate of activities with NRCS that will improve delivery of the 2008 Farm Bill.
- Review Outreach Performance Measures and Effectiveness Monitoring
- Appropriate state staff members will engage with staffs from the Regional Office and other states to review existing outreach performance measures and options for improving them.

State Program Priorities:

Grant funds will be used to address State priorities through the following projects, initiatives, emphasis areas, or actions:

The MFC will continue to enhance and modify its *SIMS Map* and *Plan Writer* applications to improve the functionality for analysis and reporting of national and regional performance standards. MFC will also develop a web-based *Enterprise* system to streamline data entry and plan delivery.

The MFC is looking at various ways to partner with and incorporate the expertise of other resource professionals in the development of Forest Stewardship Plans and with the promotion of the FSP. These grant funds will used to develop a web-based *Enterprise* system. This system will enable MFC foresters and other resource professionals to create and generate quality Forest Stewardship plans on MFC web site and will enhance MFC's ability to capture this data spatially for future reporting.

The public outreach efforts for recognizing and promoting the FSP and Certified Forest Stewards will be engaged by the MFC Public Outreach Department. Opportunities to partner with other agencies and organizations such as the County Forestry Associations and the Tree Farm Program to promote the FSP continue to be implemented.

MFC will continue to support CFA forestry field days, workshops and other events that promote Forest Stewardship.

MFC will work with and support the Underserved Landowner Outreach Program to provide displays and other promotional items promoting efforts for the underserved landowners of Mississippi.

The MFC will help sponsor three events to promote the FSP - The *Small Farmer's Conference*; the Joint *Forestry and Smokey Night* at the Mississippi Braves baseball game; and the Great Delta Bear Affair. MFC will continue to support and participate in a *Youth Education Day* during the Great Delta Bear Affair. This event is centered in the traditionally underserved lower Mississippi Delta. This youth education day provides hands-on experience for students as they learn about forests, wildlife, habitats, safety, conservation, and environmental stewardship.

An array of promotional materials, media ads and activities will be produced to ensure the FSP is sufficiently promoted in Mississippi during this grant period.

Location:

Statewide, but with outreach focus in priority areas as defined by this assessment.

Accomplishment Reporting:

MFC will enter annual program accomplishments for national performance measures into PMAS (Performance Management Accountability System) and complete and submit annual accomplishment reports using a format provided by the USFS. These reports will link financial expenditures with program accomplishments, and compare accomplishments with targets provided in grant narratives.

A.1.5 Urban and Community Forestry

The Urban and Community Forestry Assistance Program was authorized by the Cooperative Forestry Assistance Act of 1978 (PL 95-313), Section 9, and amended by the 1990 Farm Bill (PL 101-624). The program is intended to provide technical and financial assistance to state forestry agencies for the purpose of encouraging states to provide technical and financial assistance to local governments and others to plan urban forestry programs, and to plant, protect, improve urban forests and associated natural resources.

Urban and Community Forestry (UCF) is a cooperative program of the USFS that focuses on the stewardship of urban natural resources. With 50 percent of Mississippi's

population in urban areas, there are strong environmental, social, and economic cases to be made for the conservation of green spaces to guide growth and revitalize urban areas and communities. The goal of the UCF Assistance Program in Mississippi is to build local capacity to actively manage urban forests to maximize their ability to clean air and water, conserve energy, reduce the impacts of urbanization, mitigate climate change and reduce the risks of catastrophic events.

Justification:

These programs are important to educate the population on the benefits of urban forestry and to preserve, promote and improve urban forest benefits. UCF projects enhance economic development in communities and urban areas and also provide environmental and economic benefits along interstate transportation routes and expanding urban areas of adjacent states.

S&PF UCF funds are awarded to the state through a competitive grant process. These grant funds are subsequently distributed, through a competitive grant process, to partners, to leverage funding and support sustainable UCF projects that meet state and national UCF objectives. Funding for the Urban and Community Forestry Program also supports salary and administrative costs for administration of other programs that benefit Mississippi's urban forest communities. The MFC partners with the Mississippi Department of Transportation (MDOT) to deliver the Transportation Enhancement Tree Planting grant program.

Primary emphasis is on providing technical assistance through the state forestry organizations in support of UCF planning, training and continuing education, demonstration projects, and assisting local and state governments and non-profit organizations in developing viable and continuing UCF programs.

All federally funded projects shall meet the Congressional authority established in the Urban and Community Forestry Assistance subtitle of the 1990 Farm Bill, and which accomplish the national UCF program goals, and specific objectives identified in state UCF strategic plans.

National U&CF program goals include:

- Minimize the impact of land use change and urbanization on forests.
- Minimize the risk and impact of catastrophic events.
- Protect and improve air and water quality.
- Mitigate climate change.
- Conserve energy.

Funds are provided on a 50:50 federal/non-federal matching basis. This program incorporates the UCF Assistance program, which emphasizes volunteerism and participation by non-profit organizations. Funds are provided for states to sub-grant to participating organizations, for statewide program development, and for state program institutional capacity. Priority is given to projects that maximize leveraging of federal funds, target the national UCF program goals, stimulate UCF activity and program development and create involvement of volunteers.

National program direction requires each state to meet the following criteria in order to receive funding:

- A full-time Urban and Community Forestry coordinator;
- A full-time partnership coordinator or equivalent capability (grants administration, organizations, etc.);
- Support for an operating state UCF Council; and,
- Completion of an active comprehensive state UCF strategic plan. (Under redesign of S&PF, state forest resource assessments and response plans, with urban forestry components will be accepted in lieu

of state UCF strategic plans. Expired plans may be extended pending development of state forest resource assessments and response plans).

Scope of Work:

MFC's UCF Program will provide statewide technical assistance and will utilize traditional and non-traditional partners to accomplish national program goals using current partnerships, such as the Mississippi Urban Forest Council (MUFC) and new partnerships developed throughout the state. State objectives identified in the MFC's Urban and Community Forestry Strategic Plan and/or strategies established by this statewide assessment and strategy document support the National Urban and Community Forestry program goals. Current program objectives are:

Increase awareness of the importance of trees and urban forest management in the urban environment.

- Through Public Outreach and MUFC training and promotional programs
- School, Club and Community appearances by MFC and MUFC promoting Urban Forestry concepts

Work to ensure a healthy urban environment and livable cities in Mississippi through urban forest management.

- Promoting and supporting the National Arbor Day Foundation's Tree City USA, Tree Campus USA, Tree Line USA and other programs.

Increase technical expertise in urban and community forestry practices and provide education and training opportunities to urban forest managers, tree care providers, consultants, foresters, and volunteers on urban and community forest management and proper tree care.

- Fund and support MUFC's Master Urban Forestry Training workshops
- School, Club and Community appearances by MFC and MUFC promoting Urban Forestry concepts and proper tree care.
- Fund urban forest inventory training.

Develop self-sustaining urban and community forestry programs at the local and state levels.

- Grant funds to facilitate urban forest management in a community, i.e., establishing a tree ordinance, a tree board, urban forester and an Urban Management plan.

Encourage partnerships in support of urban and community forestry in Mississippi.

- Utilize the Mississippi Forest Resource Assessment to evaluate and create strategic plans, including urban forest concerns, with a variety of government and private partners.
- Grant funding to projects that leverage funding and partner with non-traditional partners.

Seek funding opportunities for implementing urban and community forestry programs in Mississippi.

- Leverage UCF grant funds with other agency (MDOT and SBA) funds.
- Continue to award grant funding to creative and sustainable urban and community forestry projects on a competitive basis.

The federal UFC Assistance Grant will be used for salary and administration support of MFC's Urban and Community staff. The MFC staff will then be able to provide technical and financial assistance to communities, non-profits and educational institutes on urban forestry related topics to manage their resources.

This salary support also supports the administration of Mississippi Department of Transportation Enhancement Tree

Planting grants, as well as other urban forestry programs offered by various partners. Federal Urban and Community Forestry Assistance funding supports various MUFC activities, such as the Annual Conference, Arbor Day Poster Contest, and Tree City USA activities. Remaining funds will be distributed as cost-share grants to encourage leveraging of federal funds to promote urban forestry and increase the benefits of urban forestry.

Emphasis will be on establishing and educating urban forestry organizations, inventory and enhancement of Mississippi's urban forest resources, with focus on priority urban forest areas around the state. No more than 15 percent of grant funds will be used to fund tree planting projects. Under-spent or turned-back grant allocations will be reutilized for projects based on the above objectives.

Methodology:

Mississippi's UCF objectives will be accomplished through existing and newly developed partnerships with a wide variety of organizations across the state. MFC will seek new sources of funding for urban forestry activities as traditional sources of funding are shrinking. Program success will be measured using the objectives in Mississippi's Urban and Community Strategic Plan. In addition, the number of participants in the following programs will be used to measure success: Tree City USA, national Arbor Day poster contest and urban forestry technical training.

Location: Statewide, with emphasis on established and developing cities and communities with urban forestry needs. Special emphasis will be focused on areas of rapid urban expansion, including DeSoto/Tate Counties, the Jackson metro counties, and the Mississippi Gulf Coast.

Accomplishment Reporting:

The end-of-year accomplishment reports must reflect accomplishments as compared to objectives. The Community Accomplishment Reporting System is used to track program results.

A. 2. Other MFC Programs

In addition to S&PF programs, MFC provides several other programs and services that can be used to implement recommended strategies such as the Forest Management, The following is an overview of eight other major program areas (Forest Management, Forest Protection, Forest Information, Resources Analysis/Economic Development, Underserved Landowner Outreach, Forest Inventory and Analysis and Mississippi Statewide Forestry Water Quality Program).

A.2.1 Forest Management

MFC is charged in MS Code Section 49-19-3 to "promote sound forest management practices which maintain the integrity of the environment and provide for our state's future natural resource needs." The agency offers a variety of forest management services to private nonindustrial owners of relatively small acreages. Landowners with large forest ownerships are referred to private consulting foresters.

MFC offers the following Forest Management programs:

Forest Resource Development Program (FRDP)

FRDP was established in 1974 by the Mississippi Legislature for developing the state's forest economy. MFC is responsible for coordinating the technical assistance components and financial elements of this program.

This program provides cost-share funding for tree planting and forest improvement practices for the purpose of long-term timber production. This program helps offset a landowner's expense by sharing the cost

of implementing specific forestry practices designed to produce timber and enhance wildlife development. Cost-share payments cover approximately 50 to 75 percent (depending on the practice) of the total cost of implementing one or more forestry practices, at a flat rate established for each individual practices. Eligible landowners can receive up to $7,000 of FRDP assistance a year. In turn, a landowner agrees to protect the area receiving FRDP assistance from fire and grazing and to properly manage the area for a minimum of ten years.

Since inception, FRDP has played a significant role in providing landowners the financial support needed to turn idle and unproductive lands into well-stocked, responsibly managed forestland that also provides excellent wildlife habitat in many cases. FRDP is funded by the Timber Severance Tax - a state tax collected when timber is harvested. The MFC administers the program and provides technical assistance to FRDP participants.

A landowner applies for FRDP assistance at a MFC local office. The landowner has a forest management prescription prepared for each area where FRDP assistance will be applied. The prescription lists the forestry practices needed to establish or improve a crop of trees. It can be prepared by the service forester, private forestry consultant, or other registered forester. The landowner submits the prescription to the service forester for approval. Once approved, the landowner is responsible for making the necessary arrangements to implement each practice (e.g., contract with vendor, order seedlings, etc.). As each practice is applied, the landowner makes periodic inspections to ensure that the work meets quality standards required by FRDP. The service forester will explain what to look for when making an inspection.

As each practice is completed, the landowner notifies the service forester, who then makes a final inspection of the work to ensure that the practice has been applied in compliance with FRDP standards. The cost-share payment is made to the landowner after all recommended practices have been completed according to specifications and the landowner has paid all costs related to each practice. Cost-share rates and practices are subject to change. Practices are allowed that support the following objectives:

Tree Planting Objective: To establish a crop of trees by hand and/or machine planting pine or hardwood seedlings. This practice includes the cost of seedlings, planting, and if needed, site preparation. Each site to be planted is placed into one of the following categories: Open Land (for tree planting only; no site prep is needed); Light Site Prep (when tree planting is combined with light site preparation - e.g., chemical, bushhogging, disking, subsoiling, burning, etc.); Heavy Site Prep (when tree planting is combined with heavy site preparation - e.g., chemical, chopping, shearing/raking, burning, etc.)

Mixed-Stand Regeneration Objective: To establish a mixed-crop of pine and hardwood trees by planting and/or direct seeding. This practice includes the cost of seedlings, seed/acorns, planting, seeding, and if needed, light or heavy site preparation.

Direct Seeding Objective: To establish a crop of pine or oak trees by directly applying seed/acorns to the site. This practice includes the cost of seed/acorns, seeding and if needed, light or heavy site preparation.

Post-Planting Site Preparation Objective: To reduce or control undesirable competition within the first growing season of an established crop of trees. This practice includes the cost of site preparation.

Firebreaks Objective: To construct a permanent firebreak, including the establishment of a vegetative cover. This practice includes the cost of firebreak

construction, vegetative seed, fertilizer, and application of seed and fertilizer.

Release of Desirable Trees Objective: To release an existing crop of desirable trees from undesirable, woody vegetation. This practice includes the application and cost of chemical.

Special Case Practice Objective: To apply a series of forest management practices over a defined period of time in order to reach the desired management objective(s). A special case practice must be confined to a specific area where traditional forestry practices will not meet desired forest management objectives (e.g., kudzu control).

FRDP assistance is available to landowners in all Mississippi counties who own at least 10 acres of manageable land. Landowners eligible for assistance include:

- Private nonindustrial landowners, groups, or associations
- Landowning state agencies
- Political subdivision of Mississippi

Applications for FRDP assistance are accepted on a first-come, first-served basis. Landowners failing to receive immediate cost-share assistance will be notified as soon as funds become available.

Landowners receiving FRDP assistance are responsible for meeting these requirements:

- Provide a forest management prescription for each area where cost-share assistance will be applied.
- Implement all practices approved in the forest management prescription.
- Carry out each practice as soon as possible following approval. (All forestry practices must be completed during the fiscal year for which they are approved - a period from July 1 of one year to June 30 of the next.)
- Pay the total cost of implementing each approved practice. (FRDP payment will be forwarded to landowner only after costs have been paid.)
- Protect trees established with FRDP assistance from destructive fire and grazing.
- Use the area improved for the long-term purpose of growing timber.
- Ensure that property lines are correct and clearly marked.

FRDP assistance will not be repeated for any practice except when failure is caused by natural disaster and cannot be applied on any acreage already receiving federally funded assistance.

Approximately three million dollars each year is distributed to private forest landowners in Mississippi. At the end of fiscal year 2008, in excess of $78 million dollars has been distributed to landowners. The funding for this program is generated through a timber severance tax.

Private Lands Program

The MFC provides technical and financial assistance to private nonindustrial forest landowners (NIPF) in Mississippi. Of the state's 19 million acres of forestlands, 77 percent, or more than 13 million acres, belongs to an estimated 350,000 NIPF owners with parcels of 10 acres or greater.

Most technical assistance and forestry advice is free to the landowner. Direct services available for a fee include survival checks, southern pine beetle suppression activities, BMP audit team participation and training, prescribed burning, Streamside Management Zone (SMZ) establishment, compliance checks, GIS/GPS mapping and acreage verification, firelane/firebreak establishment and/or maintenance, road/skid trail/loading dock maintenance, vegetation management. A list of professional forestry consultants as well as private forestry vendors, timber buyers and loggers is available from local MFC offices.

Public Lands Program

Through the Public Lands program, the MFC provides management assistance to boards, agencies, and other entities having jurisdiction over the public forestlands in Mississippi. The MFC responsibilities included the management of two State Forests (Kurtz State Forest and Camden State Forest); providing technical direction on the management of school trust lands under the administration of the local school boards; and rendering assistance to the various agencies, boards, departments and other entities having jurisdiction over state and other non-federal public lands in Mississippi.

School Trust Lands (Sixteenth Section Lands)

In accordance with Mississippi Code, Section 29-3-45, the MFC is charged with the responsibility of assisting school boards with the management of forestlands on school trust property in Mississippi. There are over 430,000 forested Public School Trust Land acres in sixty-seven counties that are under management and marketing agreement with the MFC.

It is the aim of the MFC to maximize timber production on a sustained yield basis on School Trust Lands classified as "Forest Land" by the local school boards. In addition to timber production, management considerations also include wildlife, soil and water quality, aesthetics and other appropriate benefits of forestlands.

A.2.2 Forest Protection

In 1926 Mississippi legislature mandated that the MFC protect the state's forestland from wildfire. At that time, wildfires were consuming more than five million acres of timberland each year. Since 1926, great strides in wildfire prevention, detection, and suppression have been taken. However, wildfires still continue to plague Mississippi. As an average, there are about 3,400 wildfires each year in Mississippi burning over 58,000 acres. Providing assistance to the state's volunteer fire departments has had a great impact on improving wildfire protection in Mississippi.

Under the umbrella of Forest Protection, the MFC offers the following services to the residents of Mississippi

Wildfire Control:

The MFC is charged by law to suppress wildfires occurring day or night on approximately timbered and uncultivated lands. Wildfire detection is provided by airplane surveillance coupled with the public's reporting of wildfires using toll-free numbers provided by the MFC. County fire suppression crews are dispatched from a central dispatching center located at a district office.

> MS Code Section 49-19-3 mandates the MFC "*Take such action and provide and maintain such organized means as may seem necessary and expedient to prevent, control, and extinguish forest fires, including the enforcement of any and all laws pertaining to the protection of forests and woodlands.*"
>
> MS Code Section 49-19-25 authorizes the MFC *to enter any and all lands for the purpose of suppressing and controlling any fires declared a public nuisance by reason of its menace to life and property.* This law also authorizes the MFC to *charge for all costs associated with suppressing the fire. Any open cistern or well, which has been abandoned or is not longer used for the purpose of cistern or well is hereby declared to be public nuisance by reason of its menace to life and property, and the MFC is authorized to seal such cistern or well for a reasonable fee.*

MS Code Section 97-17-13 establishes the penalty and fines for wood arson (willfully or negligently firing woods, marsh, meadows, etc). MS Code Section 95-5-25 establishes the penalty and fine for wantonly negligently or carelessly allowing any fire to get onto the lands of another.

Burning Permits:

In conjunction with the Mississippi Department of Environmental Quality (MDEQ), the MFC issues burning permits based on the daily fire weather forecast. Permits are required for any fire set for a recognized agricultural and/or forestry purpose. Landowners can call the local Central Dispatch Center (see map of districts below) to inquire about a burning permit and answer the following questions: Type of burning (agriculture or forestry); Number of acres; Forestry purpose (hazard reduction, control undesirable species, control disease, site prep, wildlife mgt or other); Landowner name, Person responsible for fire; Address, Telephone number; Location of property (40, section, township and range); Beginning and end date and time of fire.

Burn Bans:

Burn Bans are requested by the County Board of Supervisors and approved by the MFC. *Any person who knowingly and willfully violates a burning ban is guilty of a misdemeanor and may be fined not less than $100 and not more than $500. Section 49-19-351 of MS Code of 1972, as amended.*

Fire Law Enforcement:

The MFC Fire Law Enforcement Officers have the authority to bear arms, investigate and make arrests in woods arson cases. Under section 49-19-3 of the Mississippi Code of 1972 "*... the fact than any person is found to have a brush or debris pile or other material which is or was being burned and reasonable and prudent effects were not taken to prevent the spread of the fire onto the lands of another shall be evidence that such person recklessly or with gross negligence caused the land to burn.*" A Woods Arson Citation maybe issued for any of Mississippi fire statutes.

Section 97-17-13. *Arson - willfully or negligently firing woods, marsh, meadow, etc.*

If any person willfully, maliciously, and feloniously sets on fire any woods, meadows, marsh, field or prairie, not his own, he shall be guilty of a felony and shall, upon conviction, be sentenced to the state penitentiary for not more than two years nor less than one year, or fined not less than $200 nor more than $1,000, or both, in the discretion of the court. Provided, however, if any person recklessly or with gross negligence causes fire to be communicated to any woods, meadow, marsh, field or prairie, not his own, he shall be guilty of a misdemeanor and shall, on conviction, be fined not less than $20 nor more than $500, or imprisoned in the county jail not more than three 3 months, or both, in the discretion of the court. Section 97-17-13 of the Mississippi Code if 1972, as amended.

Section 95-5-15. By firing woods.

If any person shall set on fire any lands of another, or shall wantonly, negligently, or carelessly allow any fire to get into the lands of another, he shall be liable to the person injured thereby, not only for the injury to or destruction of buildings, fences, and the like, but for the burning and injury of trees, timber, and grass, and damage to the range as well; and shall moreover be liable to a penalty of $150 in favor of the owner.

Other Fire Programs

The **Federal Excess Personal Property Program (FEPP)** refers to USFS-owned property that is on loan to State Foresters for the purpose of

wild land and rural firefighting. Most of the property originally belonged to the Department of Defense (DoD). Once acquired by the USFS, it is loaned to State Cooperators for firefighting purposes. It is technically no longer excess at that point. The State Forester makes the initial decision that a FEPP item is appropriate for use, and the USDA Forest Service must concur. The property is then loaned to the State Forester, who may then place it with local departments to improve local fire programs. Approximately 70 percent of the property involved in the Forest Service FEPP program is sub-loaned to local fire departments.

Unlike the VFA which is for the benefit of communities with a population at or below 10,000, recipients of FEPP need only have a wildland or rural fire responsibility that satisfies the State Forester.

The national *Firewise* Communities Program is a multi-agency effort designed to reach beyond the fire service by involving homeowners, community leaders, planners, developers, and others in the effort to protect people, property, and natural resources from the risk of wildland fire - before a fire starts. The *Firewise* Communities approach emphasizes community responsibility for planning in the design of a safe community as well as effective emergency response, and individual responsibility for safer home construction and design, landscaping and maintenance. This program is intended to serve as a resource for agencies, tribes, organizations, fire departments, and communities across the U.S. who are working toward a common goal: reduce loss of lives, property, and resources to wildland fire by building and maintaining communities in a way that is compatible with natural surroundings.

Firewise Communities is part of the *National Wildland/Urban Interface Fire Program*, which is directed and sponsored by the Wildland/Urban Interface Working Team (WUIWT) of the National Wildfire Coordinating Group, a consortium of wildland fire organizations and federal agencies responsible for wildland fire management in the United States. The WUIWT includes: USDA Forest Service, USDI Bureau of Indian Affairs, USDI Bureau of Land Management, USDI Fish and Wildlife Service, USDI National Park Service, Federal Emergency Management Agency, US Fire Administration, International Association of Fire Chiefs, National Association of State Fire Marshals, National Association of State Foresters, National Emergency Management Association, National Fire Protection Association.

Roscommon Equipment Center is a cooperative program between the National Association of State Foresters and the Michigan Department of Natural Resources, develops and tests equipment for wildland fire control. It is located at the Forest Fire Experiment Station, Roscommon, Michigan. Founded in 1972, REC specializes in the conversion of U.S. Military vehicles to wildland fire suppression units. It also focuses on the equipment development needs of state and local wildfire forces.

Department of Defense **Firefighter Program (FFP)** - Under the authority of the USFS, MFC obtains equipment that is excess to the needs of the federal government. MFC transfers this equipment, through Cooperative Agreements to Volunteer Fire Departments or authorized entity. Any community, organized fire district or department with an assigned or assumed fire suppression responsibility over any portion of the state is eligible to receive FFP property.

- Fire department or authorized entities receiving FFP property must follow these provisions:
- Recipients of DoD Firefighter Property must sign a “Cooperative Equipment Agreement” with the MFC at the time they accept the property.

- Request for transfer of DoD Firefighter property can only be made on equipment that can effectively be made usable and put into service for firefighting and/or emergency use.
- VFD or Authorized Entity accepts title of said property in the VFD or Entity name (not an individual member of the VFD or Entity).
- Maintains property records for a minimum of six years after acquisition of said property.
- Cooperators must secure and maintain liability insurance on vehicles in their use.
- Cooperators are responsible for painting and placing the equipment in operation within six months of receipt.
- Cooperators must maintain equipment in operable condition, and make it available for inspection at the request of the MFC, USDA Forest Service, DoD Office of Inspector General and the Comptroller General of the United States or his authorized representative.
- Owners of Firefighter Program property will cooperate with federal and state parties to ensure compliance in federal and state regulations and programs and property management requirements.

GSA Wildland Fire Program - U. S. General Services Administration (GSA) furnishes wildland fire protection equipment and supplies to VFD's and authorized entities through cooperative agreements. GSA's objectives of the program are to facilitate advance procurement and assist in the standardization of wildland fire equipment and supplies.

A.2.3 Forest Information

The Office of Forest Information supports all MFC program areas by providing information, program promotional activities, and program publicity. The Office of Forest Information utilizes mass media outlets (e.g., radio, television, and newspaper) to release forestry and agency information to the public at large. A variety of delivery methods are used in order to reach the public in the most effective manner.

Objectives of the Office of Forest Information are:

- To share/disseminate forestry and related information to appropriate publics.
- To educate youth and adults about forestry and related issues and MFC services and programs.
- To inform the citizens of Mississippi of the threat to forest health (fire, insects, disease, severe storm damage, etc.).
- To support the MFC's programs in the form of publicity, and public awareness.
- To be a liaison with other organizations and agencies in order to present forestry and related programs and information.

The Office of Forest Information includes the following program areas:

- Champion Tree Program
- Forestry Facts & Wildfire Data
- MFC News(Agency Newsletter)
- Underserved Landowner Outreach Program
- Press Releases and Public Information
- Public Outreach
- Urban/ Community Forestry
- Wildfire Prevention

Public Outreach:

The MFC maintains an active public outreach program designed to heighten the public's awareness of the agency's mission, services, and the importance of the forest resources. The outreach program utilizes mass media outlets (e.g., radio, television, and newspaper) to broadcast public service announcements and general forestry information to the public at large. Public outreach activities are carried out locally to reach individuals at the community level.

Mississippi Project Learning Tree:

The MFC helps sponsor of the MS PLT program. PLT is an Environmental Education Program that trains teachers to bring the environment into the classroom.

Canon Envirothon:

The MFC helps provide environmental education to high school students through the State Envirothon program. High School teams complete in environmental subject areas of forestry, wildlife, aquatics, soils, and other topics.

Natural Resource Summer Camp:

The MFC and the MSU College of Forest Resources (CFR) partner to provide high school students the opportunity to learn about careers in natural resources. This week-long camp is held on the campus of MSU in June of each year. Students learn from and get one on one instruction from many natural resources professionals. Students learn about forestry, urban forestry, GIS and GPS, fire management, wildlife and fisheries management, forest products and more. There are classroom activities, field trips, lab exercises, hands on activities and more.

Conservation Education:

The MFC is actively involved and has many partners to bring environmental education to students and adult audiences. Classroom visits and landowner field days are a regular part of MFC's outreach activities.

A.2.4 Resources Analysis/ Economic Development

The MFC's Resource Analysis program oversees the development, implementation, and management of the agency's geographic information system. This is a statewide system utilized by fire, public lands, private lands, and urban and community forestry programs, and in support of economic development.

In an effort to promote economic development in regard to the state's forest resources, MFC provides forest resource information and maps for economic development. A statewide assessment of forest resources is maintained utilizing satellite imagery to estimate forest removals, regeneration and developmental stages. The MFC works jointly with the Mississippi Institute for Forest Inventory (MIFI) to inventory the state's forest resources. The MFC works in conjunction with the Mississippi Development Authority (MDA) to provide forest-based economic development in the state.

A. 2.5 Underserved Landowner Outreach Program

The Underserved Landowner Outreach program provides assistance to underserved landowners in Mississippi. This program has three primary goals: provide outreach support and technical assistance to underserved landowners, encourage young people to seek careers in forestry, and to work with Alcorn State University (ASU) to develop and/ or enhance projects of mutual forestry interest. The Underserved Landowner Outreach program is a joint project between the MFC, ASU and the USFS.

A. 2.6 Urban and Community Forestry

MFC provides assistance and training to urban areas (cities and counties) that are developing community forestry programs. This includes assistance with tree ordinances, street tree inventories and urban forest management plans. The MFC also assists builders in the form of technical advice on tree preservation

during construction and helps homeowners with advice on insect diseases and other tree care problems. Many urban residents owning forestland are reached with information about improving the condition of their rural timberland through the MFC's Urban Forestry Program.

MFC's Urban and Community Forestry Program oversees planting and grant management of urban tree planting for various agencies. The Transportation Enhancement Tree Planting Program is administered by the MFC's Urban and Community Forestry Program with financial support from the Mississippi Department of Transportation and advisory support from the MUFC, Inc.

A.2.7 Forest Inventory and Analysis (FIA)

FIA reports on status and trends in forest area and location; in the species, size, and health of trees; in total tree growth, mortality, and removals by harvest; in wood production and utilization rates by various products; and in forestland ownership. FIA is managed by the Research and Development organization within the USDA Forest Service in cooperation with S&PF and National Forest systems. FIA has been in operation under various names (Forest Survey, Forest Inventory and Analysis) for 70 years.

In 2008, MFC assumed the responsibility of data collection for the continuous forest inventory for the state of Mississippi. A complete inventory consists of a 7-year-cycle of yearly panels measuring approximately 5,200 plots in Mississippi.

A.2.8 Mississippi Statewide Forestry Water Quality Protection Program

The following organizations are partners in carrying out a statewide program aimed at ensuring that water quality is protected during the implementation of forestry practices in Mississippi: MDEQ, Mississippi Forestry Association (MFA), Mississippi Automated Resource Information System (MARIS), Southern Group of State Foresters (SGSF), MIFI and MSU Extension Service.

Current program activities include:

- Statewide Best Management Practices (BMP) Implementation Monitoring on a three-year cycle.
- Coordination of a statewide Water Quality Team within the MFC that will be trained and equipped to provide leadership in water quality protection efforts. Members of this team will serve on the various basin teams and river teams throughout the state and address forestry issues affecting water quality.
- Exchange of information with logger groups, landowners, industry and urban audiences through a web site, presentations and workshops.
- Assistance to DEQ in investigating forestry-related water quality complaints.
- Serve on water quality committees that are related to forestry Best Management Practices.
- Produce two videos on BMPs: one for general awareness about BMPs and water quality and the other a technical video for training purposes on BMPs. Provide Mississippi DEQ 100 copies of each video.
- Develop water quality displays for educational purposes for a variety of audiences.
- Publish the results of BMP monitoring at the end of the three-year cycle on MFC web site, DEQ web site, as well as other appropriate distribution methods.
- Reprint BMP handbook, if needed. Create a CD version of the BMP handbook.

The MFC serves as the lead organization on this project. The objective of this project is to evaluate the implementation and use of voluntary BMPs throughout the state of Mississippi. By monitoring voluntary BMPs on a continuous cycle and widely distributing the results, BMP implementation rates will increase. Through this program, the MFC will work with other forestry-related groups in promoting water quality within the state and will conduct monitoring of the

Best Management Practices Implementation Monitoring on a three-year cycle:

The MFC will evaluate the implementation of Forestry Best Management Practices for all nine major river basins in the state of Mississippi. The guidelines set forth in *Silviculture Best Management Practices Implementation Monitoring: A Framework for State Forestry Agencies* will be used to develop the survey.

In 2007, the MFC conducted a statewide assessment of the use of voluntary BMPs in forestry. The assessment showed that BMPs are being utilized on 89 percent of locations where BMPs are applicable.

This BMP project is a continuation of an ongoing statewide base program funded through Section 319(h) Grant funds. This project will monitor silvicultural measures to mitigate nonpoint source pollution; it will evaluate practices in the areas of SMZs, Woodlands Trails and Roads, Forest Harvesting, Site Preparation, Tree Planting, Landings, Wetlands, Fireline Construction and Revegetation of Disturbed Forest Sites. According to the Forest Resource Assessment, some type of forest activity occurs on nearly 850,000 acres annually in Mississippi. This represents approximately five percent of the state's forestland. If BMPs are not followed on these acres, the sites will be prone to increased sediment, increased water temperature, and nutrient loading.

This proposal calls for an assessment of forest harvesting activities across the state that will be conducted in order to determine how many sites to evaluate in each basin. The basis for this assessment will be the 2007 Forest Resource Assessment conducted by the MFC in cooperation with MARIS Technical Center and MIFI.

- *Statistical Sample*

  The number of sites to be evaluated will be determined by a random stratified sample of forest removals identified in the 2007 MFC Resource Assessment. The Forest Resource Assessment identified the forest removals and other cover changes in each county by classifying TM satellite imagery for the periods of 2000 and 2003.

  To maximize the validity and credibility of the sample plot selection, the number of sites evaluated for Best Management Practices implementation will be calculated to provide minimum error (± 5 percent) and high confidence level of 95 percent.

- *Selecting Sites*

  Once the number of sites to be evaluated per county is determined, an aerial reconnaissance will be used to identify the specific sites to be evaluated on the ground. The following criteria will be used in identifying sites to be evaluated on the ground.

  ✓ Forest harvesting activity must have occurred within last 24 months.

  ✓ Sites must be ten acres or greater.

  ✓ Sites will be selected for monitoring without regard to ownership.

- *Collecting Data*

  1. Data will be collected by members of the MFC Water Quality Team. This will help to ensure consistency and credibility. Applicable BMPs will

be evaluated on each site. Each member of the Water Quality Team is trained specifically on BMPs and water quality monitoring. Water Quality Team members are local specialist for their area.

2. Statewide Mississippi Forestry Water Quality Team

   The MFC Water Quality Coordinator and District Water Quality Coordinators will continue to represent the forestry community on each MDEQ Basin Management Team addressing forestry issues.

3. Exchange of Information with logger groups, landowners, industry and urban audiences through a web site, presentations and workshops.

The MFC will work with cooperative partners to provide between 12 to 18 educational presentations to landowners, loggers, industry, and other relative audiences.

The MFC will maintain a web page designed to inform landowners and the forest community of Best Management Practices in Mississippi.

Urban Forestry for Water Quality and Quantity Management – Management must be conducted throughout a watershed to be effective. One vital portion of the management efforts is in and adjacent to urban areas. Many diffuse sources of pollution emanate from urban streets, parking lots, lawns, and buildings. Many of the pollutants can be absorbed and treated through the use of urban trees and forests. These forests also bring many other benefits, which are tangible and significant.

The Sustainable Urban Forests project created tools and publications that are useful for improving and protecting water quality on urban sites. Companion publications and a cost benefit model, a brochure and poster, and a series of PowerPoint presentations support the Mississippi Urban and Community Forestry Management Manual. This collection of information and resources needs to be presented to a broad audience group of people who impact decision-making and can take action.

The MFC will conduct one workshop in each off the nine major river basins to inform and instruct people on use of the Manual and companion resources. Workshops will target community groups, county groups, and developers who are interested. Particular emphasis will be given to those impacted by Phase II Stormwater regulations.

The MFC will provide advance notice of scheduled presentations and workshops to Mississippi DEQ.

4. Provide Assistance in Investigating Forestry-Related Water Quality Complaints

MFC District Water Quality Coordinators will respond to forestry complaints and participate in conflict resolution. For these cases, the MFC will provide the MDEQ with a report of findings. Since the MFC is not an enforcement agency, the MFC will notify the MDEQ of any water quality violations. Mississippi Department of Environmental Quality will provide appropriate enforcement measures.

5. The Water Quality Coordinator will serve on the following committees that are related to forestry water quality issues:

Mississippi Forestry Association State Implementation Committee

- Mississippi Forestry Association BMP Taskforce
- Southern Group of State Foresters Water Quality Taskforce

A Best Management Practices Implementation Monitoring Report summarizing the data collected will be

prepared. Once complete, the MFC will work with the MFA, MDEQ and other partners to evaluate and determine what issues, if any, should be addressed and develop strategies to address problem areas. If problems are detected, the MFC will work with the MSU Extension Service to provide education, training, and awareness in the problem areas to limit the impact on water quality in the state.

B. OTHER FORESTRY PROGRAMS

B.1 State and Federal Forest Conservation Programs for Private Landowners

Several state and federal programs have been developed to provide incentives and technical assistance to landowners to encourage reforestation, protection and management of existing forests and to discourage conversion of forestland to other uses. The following is a list of most state and federal programs that provide assistance to forest landowners. Many of these programs will complement, enhance or support the Forest Legacy Program in Mississippi.

The **Landowner Incentive Program (LIP)** is a recent initiative coordinated by the MDWFP in conjunction with the non-profit conservation organization, Wildlife Mississippi, using federal funds to enhance, restore and protect imperiled habitats and benefit at-risk wildlife on private lands. Priorities in Mississippi are longleaf pine ecosystems in the southeast part of the state, blackland prairie in the northeast and central sections and bottomland hardwoods in the delta. LIP confers funds to landowners in these priority areas to cost-share practices such as site preparation, prescribed burning, tree and native warm season grass plantings and herbicide applications. Biologists provide technical guidance to all interested landowners and projects are reviewed and ranked by a team to determine eligibility.

The **Mississippi Reforestation Tax Credit** provides a Mississippi income tax credit up to 50 percent of the cost of approved hardwood and pine reforestation practices. The tax credit promotes reforestation on private, nonindustrial lands. The credit applies only to individuals or groups of private, nonindustrial landowners. There is a lifetime limit of $75,000. Any unused tax credit may carry over into future years. Landowners must have a reforestation plan prepared by a graduate or registered forester. The cost of planting orchards, Christmas trees, or ornamental trees does not qualify.

The overall goal of the **Limited Resource Farmer Program** is to increase assistance to small or limited resource and minority producers and directly improve the farm income of these producers. The NRCS sponsors the Limited Resource Farmer Program.

The Mississippi Scenic Streams Stewardship Program (SSSP) was established in 1999 by the Mississippi Legislature to encourage voluntary private conservation efforts by riparian (streamside) landowners. Once a public waterway in Mississippi is designated by legislative action as scenic, MDWFP as the lead agency through its Mississippi Museum of Natural Science (MMNS) and its Advisory Council, develop a cooperative, voluntary stewardship plan for the stream. Individual landowner agreements can provide a connected patchwork of protected stream banks along the length of a stream. The goal is to maintain good water quality for recreation and fish and wildlife habitat. Achievement of the goal is through use of Forestry BMPs which are water quality improvement practices that will maintain the health of streams by keeping stream banks in good condition and preventing harmful sedimentation. In 2003, the Legislature enacted a law to allow a Mississippi income tax credit on 50 percent of allowable transaction costs

(appraisals, baseline surveys, engineering and surveying fees, legal fees, title review and insurance, etc) up to a limit of $10,000 for landowners placing lands adjacent to scenic streams in conservation easements.

The **State Wildlife Grants Program (SWG)** is another relatively new program established by Congress in 2001 and administered by the MDWFP through the MMNS to direct federal funding to the states for cost-effective conservation aimed at preventing wildlife from becoming endangered. Projects are aimed at protecting priority habitat for Species of Greatest Conservation Need (SGCN) identified through the state's Comprehensive Wildlife Conservation Strategy (CWCS) and can be used for an array of protection and restoration efforts on public and private lands. Funding, which is minimal at this time, was contingent on the approval of the state's CWCS by the US Fish and Wildlife Service (USFWS) which occurred in January 2006.

The **Mississippi Natural Heritage Program**, housed within the MMNS, has three major areas of activity:

- To conduct a comprehensive inventory of Mississippi's ecological resources in order to provide a continuous process for identifying significant natural areas and setting land protection priorities in the state. Information on the status and distribution of exemplary biotic communities, rare and endangered plants and animals, aquatic and marine habitats, geological and other natural features is collected, stored, and analyzed in an integrated data management system.
- To conduct field surveys to verify the continued existence of a reported occurrence of a rare plant, animal, or community type (an "element"), to collect sufficient information on the occurrence, distribution, and status of elements (status surveys) to allow decisions to be made concerning prioritization of management activities and to look for new element "occurrences" not previously documented during the inventory process.
- To conserve outstanding examples of our natural heritage by use of innovative management and protection strategies (working with landowners, developing management plans, monitoring elements of diversity on established natural areas). No funding is available at this time to acquire natural areas.

The **Conservation Reserve Program (CRP)**, established in the 1985 Farm Bill and administered by the USDA Farm Service Agency's (FSA), is a voluntary program available to agricultural producers to help them safeguard environmentally sensitive land. Producers enrolled in CRP plant long-term, resource-conserving covers such as trees and grasses to improve the quality of water, control soil erosion and enhance wildlife habitat. In return, FSA provides participants with rental payments and cost-share assistance.

Contract duration is between 10 and 15 years for eligible lands that are cropland (including field margins) that are planted or considered planted to an agricultural commodity during four of the previous six crop years, and which are physically and legally capable of being planted in a normal manner to an agricultural commodity or certain marginal pastureland that is enrolled in the Water Bank Program or suitable for use as a riparian buffer or for similar water quality purposes.

Preference is given to lands within Conservation Priority Areas (CPAs), selected by state and federal agencies and state technical committees as being particularly environmentally sensitive.

An offspring of CRP is the **Conservation Reserve Enhancement Program (CREP)** is a voluntary land retirement

program that helps agricultural producers protect environmentally sensitive land, decrease erosion, restore wildlife habitat and safeguard ground and surface water.

Environmental Quality Incentives Program (EQIP) was created in the 1996 Farm Bill. Fifty percent of the funding must be applied to livestock-related conservation practices. EQIP is targeted to areas where the most environmental benefit will be obtained by the designation of Conservation Priority Areas (CPAs). Each year, CPAs are established within watersheds by the State Conservationist based on recommendations of local work groups and the State Technical Committee. Technical assistance to landowners is provided with 5-10 year contracts. NRCS will work with landowners to prepare a complete conservation plan. Cost-sharing is available for actual costs incurred, up to 75 percent of the costs of conservation practices such as pest management and erosion control.

The **Healthy Forest Reserve Program (HFRP)** is a voluntary program established to restore and enhance forest ecosystems to promote the recovery of threatened and endangered species, improve biodiversity and enhance carbon sequestration. Signed into law as part of the Healthy Forest Restoration Act of 2003, the program is authorized to be carried out under the administration of the USDA NRCS. The program allows for three enrollment options:

1. A 10-year cost-share agreement for which the landowner may receive 50 percent of the cost of approved conservation practices;

2. A 30-year easement, for which the landowner may receive 75 percent of the market value of enrolled lands plus 75 percent of the cost of approved conservation practices; or

3. An easement of not more than 99 years, for which the landowner may receive 75 percent of the market value of the enrolled lands plus the cost of the approved conservation practices.

The **Wetlands Reserve Program (WRP)** was established to restore wetland functions and values to land altered for agriculture and contribute to the national goal of no net loss of wetlands. Previously converted or farmed wetlands are eligible if restoration to a functional wetland is possible. Forestland that was formerly wetland is eligible where the hydrology has been altered. Landowners sell a permanent easement or a 30-year easement to NRCS.

A new option is a 10-year Restoration Cost-Share Agreement that does not require an easement. Participating landowners agree to maintain or restore the wetland as directed by a WRP Plan of Operations (WRPO) prepared by the NRCS and approved by the USFWS. The landowner receives payment for the easement as well as cost-share assistance for approved projects. Forest management, including harvesting, can be allowed if specifically stated in the plan. The WRPO specifies the timing, amount, method, intensity and duration of any permitted use, including timber harvesting. NRCS reserves the right to modify a particular use if conditions of the easement area change, and considers the management plan a living document that can be updated over time.

No harvesting methods will be allowed that the NRCS feels are not consistent with long-term protection of the wetland functions and values.

The **Wildlife Habitat Incentives Program (WHIP)** also administered by NRCS provides technical advice and cost-share assistance for improvement of wildlife habitat on private lands that focus on national and state priorities such as longleaf pine ecosystems and aquatic habitat restoration. Landowners desiring to participate create a Wildlife Habitat Development Plan (WHDP) with the help

of the local conservation district and NRCS staff. Cooperating state wildlife agencies and private organizations may give technical assistance or additional funding for certain projects if the landowner agrees. Because WHIP is focused purely on wildlife benefits, it is applicable to any landowner, tenant, organization, club or business with land suitable for wildlife. The landowner must have a minimum of five acres with at least one acre to be managed under WHIP for wildlife habitat improvements. Agreement periods can be for five to ten years.

Mississippi Partners for Fish and Wildlife Program (MPFW) is a voluntary program administered by the USFWS with 20 federal, state, corporate and non-profit partners which provides technical and financial assistance to landowners who want to restore, improve and protect fish and wildlife habitats on their property. Priority habitats in Mississippi are wetlands, uplands, aquatics, native prairie and longleaf pine ecosystems, and the emphasis for this program is habitat restoration. Projects with private landowners must secure a 10-year cooperative agreement, and the maximum amount spent per landowner is $25,000. The overarching goal is to leverage resources of government agencies, organization, corporations and private individuals to restore, improve and protect fish and wildlife habitats on private lands in the state.

The USFWS also administers the S**afe Harbor** program for landowners with endangered species on their property. Under this program, landowners enter into a voluntary cooperative agreement with the Service or a state agency to improve or manage habitat for existing populations of endangered species. This participation relieves landowners of the responsibility to protect any additional individuals or species that may be attracted by the improved habitat. Landowners who participate in this plan agree to maintain and manage habitat for species such as red-cockaded woodpeckers (RCWs) or gopher tortoise. The theory behind the program is that original habitat will be protected, most of the new habitat will be maintained, and landowners will participate because they will be able to manage all but the original habitat without fear of being charged with violations of the Endangered Species Act.

The **Army Compatible Use Buffer Program (ACUB)** is a tool granted to the military to allow partners and willing landowners with similar goals to preserve land and prevent further development of critical open areas around military installations. An ACUB Program is in place for Camp Shelby in the pine belt of Mississippi and is being used as a method used by the Mississippi Army National Guard to protect the intersect between Camp Shelby from further restrictions that limit training activity due to an increase in residential growth near their facility. It will also provide a noise buffer to surrounding communities and residents and is designed to prioritize ecologically important areas.

The ACUB Program at Camp Shelby has identified priority sites within a compatible use buffer around the installation and conduct land acquisition from willing sellers or purchase of development rights to maintain priority areas on private lands in a non-developed or natural state. The military has identified partners such as land trusts and natural resource agencies in the state to assist in the location and acquisition of these lands or protection of them through outright fee acquisition or easements. Title or interest will not be held by the federal government.

B.2 Non-Government Forest Conservation Programs

Non-profit Land Trusts and Conservancies

Land trusts are non-profit organizations created and sustained to preserve green spaces and protect environmentally and/or historically significant areas through direct land protection. They use tools such as conservation easements, estate planning, donations of property and bargain sales. At least seven state and regional land trusts and conservancy organizations are active in protecting environmentally important lands in Mississippi with a focus on conservation easements and land acquisition.

There may be other regional and national land trusts that hold easements or own parcels in Mississippi that are not listed here because the state is not their primary area of focus. Land trusts and conservancies such as these are potential partners for forest land conservation.

The **Land Trust for the Mississippi Coastal Plain (LTMCP)** was founded in 2000 to conserve protect and promote open spaces and green spaces of ecological or cultural significance in the counties of the Mississippi Coastal Plain George, Hancock, Harrison, Jackson, Pearl River and Stone Counties. They protect lands that meet established criteria through fee simple ownership and conservation easements. They also promote grassroots conservation through education and community partnerships.

The **Mississippi Land Trust (MLT),** established in 1998, has a mission is to improve flora and fauna resources of Mississippi, to hold land conservation interests, to educate the public about conservation and to develop incentive-based conservation programs. Their focus areas are prairies, red clay hills, bottomlands and bayous, coastal savannas, longleaf pine forest and scenic rivers and streams. MLT's sister organization, the Mississippi River Trust (MRT), was created in 2002 to focus regionally. Their goals are to conserve the ecology and natural environment of the Mississippi River Valley through donation of easements, to collaborate with government and private agencies on conservation and planning problems as they relate to the MRV, to acquire and hold title to lands and conservation interests in the Mississippi River watershed to protect them from development and to educate the public about conservation. Their area of operation is the Mississippi River Valley from Minnesota to the Gulf of Mexico.

The Nature Conservancy (TNC) has operated in Mississippi since the 1960s and their chapter office was founded in 1989. Since inception they have protected land throughout the state through purchase, partnership or easements throughout the state. Their mission is to find, protect and maintain the best examples of natural communities, ecosystems and endangered species in Mississippi. Today, the Chapter operates statewide and has three field offices: Jackson, the Mississippi Gulf Coast and Camp Shelby. TNC uses their conservation area plans (CAPS) to prioritize the highest priority places that, if conserved, promise to ensure biodiversity over the long term.

The **Wolf River Conservancy (WRC)** works in Benton County, Mississippi and Fayette and Shelby Counties in Tennessee to conserve and enhance the Wolf River as a natural resource for public education and low impact recreation. Their goal is to establish a protected public greenway along the 90-mile Wolf River from its headwaters near Holly Springs, Mississippi, to its mouth at the Mississippi River in Memphis, Tennessee. They own property in Mississippi and Tennessee and hold easements in Tennessee and helped acquire land for public ownership.

The **Wolf River Conservation Society (WRCS)** was established in 1998 to conserve, manage and protect the Wolf River and its watershed from the headwaters to its termination at the Bay of St. Louis in south Mississippi. The Wolf River watershed is in parts of Hancock, Harrison, Lamar and Pearl River Counties. The WRCS currently holds easements almost all properties bordering the river in Harrison County.

Wetlands America Trust (WAT) is Ducks Unlimited's fiduciary arm that holds conservation easements. Their main focus is protection of bottomland hardwood forest and existing wetlands in the Lower Mississippi Valley. In Mississippi, they focus on the upper and lower Delta with emphasis on the batture lands of the Mississippi River and on areas like the Big Black River drainage – one of the least disturbed streams in the state.

Corporations

Forest products companies such as pulp and paper companies own and/or control management on significant amounts of forestland in Mississippi, many of which include unique resources and opportunities for public use and benefit. Resource protection programs consist of two types: those the industries initiate voluntarily by company policy and those that involve cooperative agreements with government agencies and conservation organizations. For instance, a portion of the Wolf River and Little Biloxi Wildlife Management Areas in southeast Mississippi are owned by Weyerhauser and managed by the MDWFP via a Memorandum of Agreement.

The **Sustainable Forestry Initiative (SFI)** program is a standard of environmental principles, objectives and performance measures that integrate the perpetual growing and harvesting of trees with the protection of wildlife, plants, soil and water quality with a wide range of other conservation goals. An independent Expert Review Panel consisting of representatives from the environmental, professional, conservation, academic and public sectors, reviews the program. Through SFI, of the American Forest & Paper Association are attempting to change the way that private forests are managed in the U.S.

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IX. Acronyms

ACUB . . . . . Army Compatible Use Buffer Program
AFPA. . . . . American Forest & Paper Association
AI&DCR . . . Annual Insect & Disease Conditions Reporting Process
ALB. . . . . Asian Longhorned Beetle
ANC . . . . . Alaska Native Corporations
AON . . . . . .Assessment of Need
ASU . . . . . Alcorn State University
ATFS. . . . . .American Tree Farm System®
AWSR . . . . . Annual Wildfire Summary Report
BMP . . . . . .Best Management Practice
BTU . . . . . British Thermal Unit
ccf. . . . . Hundred cubic feet
CARS . . . . . .Communities at Risk
CEA . . . . . Cooperative Equipment Agreement
CFA. . . . . .County Forestry Association
CFC . . . . . County Fire Coordinator
CFAA . . . . . Cooperative Forestry Assistance Act
CFHP . . . . . .Cooperative Forest Health Program
CFPF . . . . . Community Fire Protection Funds
CFPM . . . . . .Cooperative Fire Program Manager
CFPP . . . . . .Cooperative Fire Protection Program
CFS . . . . . .Certified Forest Stewards
CPA. . . . . Conservation Priority Area
CRP . . . . . Conservation Reserve Program
CREP . . . . Conservation Reserve Enhancement Program
CWM. . . . . Cooperative Weed Management Program
CWPP . . . . . Community Wildfire Protection Plan
CWCS . . . . Comprehensive Wildlife Conservation Strategy
DoD . . . . . .Department of Defense
EAB . . . . . Emerald Ash Borer
EDRR . . . . . .Early Detection and Rapid Response
EOY . . . . . End-of-Year Accomplishment Reports
ES. . . . . Extension Service
ESA. . . . . .Endangered Species Act
EQIP . . . . . .Environmental Quality Incentives Program
FACTA . . . . Food, Agriculture, Conservation and Trade Act
FACTS . . . . .Forest Activity Computerized Tracking System
FC/USA . . . . . .Firewise Community/USA Communities
FEMA . . . . . Federal Emergency Management Agency
FEPP . . . . . Federal Excess Personal Property
FFP. . . . . .Firefighter Program
FHM . . . . . .Forest Health Monitoring
FHP . . . . . Forest Health Protection
FIA . . . . . .Forest Inventory and Analysis . . . . . .
FLA. . . . . .Forest Legacy Area
FLIS . . . . . Forest Legacy Information System
FLP. . . . . .Forest Legacy Program
FSA. . . . . Farm Services Agency
FSC . . . . . Forest Stewardship Council
FSP. . . . . Forest Stewardship Program
FSCC . . . . . Forest Stewardship Coordinating Committee
FSMP . . . . . .Forest Stewardship Management Plan
FRDP . . . . . .Forest Resource Development Program
GIS . . . . . Geographic Information System
GSA . . . . . .General Services Administration
HFRP . . . . . Healthy Forest Reserve Program
HMGP . . . . . Hazard Mitigation Grant Program
HMT's . . . . . Hazard Mitigation Technicians
HWA . . . . . Hemlock Woolly Adelgid
HUC . . . . . Hydrologic Unit Code
IAFC . . . . . .International Association of Fire Chiefs
IMT . . . . . Incident Management Teams
ISM . . . . . .Invasive Species Management
LIP . . . . . Landowner Incentive Program
LRFP . . . . . .Limited Resource Farmer Program
LTMCP . . . . . Land Trust for the Mississippi Coastal Plain
MAPDD . . . . . Mississippi Association of Planning and Development Districts
MARIS . . . . . Mississippi Automated Resource Information System
MCF . . . . . .thousand cubic feet
MCWMA Mississippi Cooperative Weed Management Area
MDA . . . . . Mississippi Development Authority
MDAC Mississippi Department of Agriculture and Commerce
MDEQ . . .Mississippi Department of Environmental Quality
MDOT. . . . . .Mississippi Department of Transportation
MDWFP . .Mississippi Department of Wildlife, Fisheries and Parks
MFC . . . . . Mississippi Forestry Commission
MFSC . . . . . Mississippi Forest Stewardship Committee

MFSP . . . . . Mississippi Forest Stewardship Program

MGD . . . . . million gallons per day

MIFI . . . . . .Mississippi Institute for Forest Inventory

MLT. . . . . Mississippi Land Trust

MMNS . . . . . .Mississippi Museum of Natural Science

MNHP. . . . . Mississippi Natural Heritage Program

MPFW . Mississippi Partners for Fish and Wildlife Program

MRT . . . . . Mississippi River Trust

MRTC . . . . . .Mississippi Reforestation Tax Credit

MRV . . . . . Mississippi River Valley

MSDA . . . . . .Mississippi Department of Agriculture

MSPLT . . . . . .Mississippi Project Learning Tree

MSU . . . . . Mississippi State University

MSU CFR . . Mississippi State University College of Forest Resources

MSU FWRC Mississippi State University Forest and Wildlife Research Center

MUFC . . . . . Mississippi Urban Forest Council

NASF . . . . . National Association of State Foresters

NASFM . . . . . .National Association of State Fire Marshals

NEMA . . . . . National Emergency Management Association

NEPA . . . . . National Environmental Policy Act

NFHPM . . . . . .National Forest Health Program Managers . . . . . .

NFPA . . . . . .National Fire Protection Association

NFPORS . . . .National Fire Plan Operations and Reporting System

NFP-SFA National Fire Plan, State Fire Assistance Program

NFP-VFA . . . . National Fire Plan Volunteer Fire Assistance Grant

NGO . . . . . Non-governmental organization

NIPF . . . . . Nonindustrial Private Forest

NMKC. . . . . North Mississippi Kudzu Coalition

NNI . . . . . Non-native invasive

NNIP. . . . . Non-native invasive plants

NPS . . . . . .National Park Service

NRCS . . . . . .Natural Resources Conservation Service

NTFP . . . . . Non-timber forest products . . . . . .

PMAS . . . Performance Management Accountability System

PPE . . . . . Personal Protection Equipment

RAWS . . . . . Remote Automated Weather Station

RC&D . . . . . .Resource Conservation and Development

RCFP . . . . . .Rural Community Fire Protection Program

RCWs . . . . . .Red-Cockaded Woodpeckers

REC . . . . . Roscommon Equipment Center

RFA. . . . . .Rural Forestry Assistance

SBA. . . . . Small Business Administration

SGCN . . . . . Species of greatest conservation need

SGSF . . . . . .Southern Group of State Foresters

S&PF . . . . . State and Private Forestry

SFA. . . . . State Fire Assistance

SFI . . . . . Sustainable Forest Initiative®

SFM . . . . . .Sustainable forest management

SFSCC State Forest Stewardship Coordinating Committee

SFSP . . . . . .State Forest Stewardship Plan

SGCN . . . . . Species of Greatest Conservation Need

SOD . . . . . .Sudden oak death

SMZ . . . . . .Streamside Management Zones

SPB . . . . . Southern Pine Beetle

SSSP . . .Mississippi Scenic Streams Stewardship Program

SWG. . . . . State Wildlife Grants Program

SWRA . . . . . Southern Wildfire Risk Assessment

TCD . . . . . .Thousand canker disease

TFP. . . . . Tree Farm Program

TNC . . . . . The Nature Conservancy

UCF . . . . . .Urban anAd Community Forestry

ULP. . . . . Underserved Landowner Program

USDA . . . . . United States Department of Agriculture

USDOI . . . . . United States Department of the Interior

USEPA . . . United States Environmental Protection Agency

USFA . . . . . United States Fire Administration

USFS . . . . . United States Department of Agriculture Forest Service

USFWS . . . . . United States Fish and Wildlife Service

VFA. . . . . Volunteer Fire Assistance Program

VFD's . . . . . Volunteer Fire Departments

WAT . . . . . Wetlands America Trust

WFI. . . . . Wildland Fire Investigators

WFHF . . . . . Wildland Fire, Hazardous Fuels

WHDP . . . . . Wildlife Habitat Development Plan

WHIP . . . . . Wildlife Habitat Incentives Program

WMA. . . . . Wildlife Management Area

WRC. . . . . Wolf River Conservancy

WRCS . . . . . Wolf River Conservation Society

WRP . . . . . Wetlands Reserve Program

WRPO . . . . . Wetlands Reserve Plan of Operations

WSFM . . . . . .Western States Fire Managers

WUI. . . . . Wildland-Urban Interface

WUIWT . . . . . Wildland/Urban Interface Working Team

Appendix A

MS Forest Resource Assessment and Strategy Development Process

1. Process Overview

The State Forester and Mississippi Forest Stewardship Coordinating Committee (FSCC) started the assessment process by first adopting the recommendations of the Natural Resources Planning Conference Report entitled the Future of Mississippi's Natural Resources -- an issue-based guidance document developed by Mississippi State University's College of Forest Resources during a planning conference of major stakeholders convened in May 2006. This comprehensive report clearly identified, with the assistance of a diverse group of participants, the emerging and established challenges and opportunities for Mississippi's forest resources, several broad key issues that need to be addressed and a draft set of overarching response strategies. This conference and the resulting published report provided the framework for the development of Mississippi's Forest Resource Assessment and Forest Resource Strategy.

Two public surveys (an on-line survey and mail) survey were developed to solicit additional input on the draft set of issues defined in the Future of Mississippi's Natural Resources report. Survey results and highlights in Appendix C.

MFC staff in conjunction with the members of the FSCC identified potential stakeholders for each issue and assigned a staff leader to work with stakeholders in developing a narrative for each of the issues in the conference that would also meet the Farm Bill requirements for the statewide assessment. Two staff leaders, Patrick Glass (former MFC employee) and Tympel Blansett coordinated the overall effort with mapping assistance by Randal Romedy and editing assistance by Kent Grizzard. A contract writer, Elizabeth Barber, was enlisted to assist in the compilation of the reports. From the assessment, a set of overall statewide strategies was developed by the staff leaders, as the MFC Assessment and Strategy Working Group, in conjunction with several stakeholders.

2. Public and Partner Involvement

The FSCC provided oversight of the assessment and strategy development process and members actively participated in regular meetings held to discuss and draft components for each key issue area. In addition to FSCC members, other representatives of resource and economic development agencies, including USFS and USFWS personnel in Mississippi and organizations, businesses and educational institutions were invited by staff leaders to participate in several working sessions held throughout 2009 and 2010 on each issue area. Several members of the FSCC are also active members of the USDA State Technical Committee and were active participants in the development and review of this document, and participated in stakeholder groups for the key issues described herein.

The MFC also initiated the two public surveys in 2009 mentioned above to solicit opinions on priority resource issue and concerns, and used those results to further define forest resource concerns and areas of importance to Mississippians.

Drafts of the assessment and strategy documents were distributed to stakeholders for review in the spring of 2010 prior to submission to the US Forest Service and were posted on the MFC website with an invitation for review and comment via statewide press releases. Comments were received, reviewed and incorporated into the final documented, where appropriate. US Forest Service, Southern comments on the draft were incorporated into the final document prior to submission in June, 2010.

3. Primary Data Sources

National guidance for the development of Statewide Forest Assessments and Strategies encouraged states to draw from existing data sources and layers including those provided by the National Assessment or developed from other planning documents such as the 2006 Mississippi Comprehensive Wildlife Conservation Strategy (CWCS), the Mississippi Forest Legacy Assessment of Need (approved in 2007), the Southern Forestland Assessment and most recent Forest Inventory and Analysis (Mississippi Forests, 2006) as well as the Southern Wildfire Risk Assessment. Key stakeholder issues were initially identified using Future of Mississippi's Natural Resources report and were prioritized using data from two public surveys conducted by MFC in 2009 (discussed above).

A complete list of references used in the development of this document is included in the body of the report.

4. Integration of Other Plans and Assessments

MFC relied heavily on information from two recently approved federal conservation plans to develop this Statewide Assessment of Forest Resources and

Forest Resource Strategy. The 2005 Mississippi Comprehensive Wildlife Conservation Strategy (CWCS) developed by the Mississippi Department of Wildlife, Fisheries and Parks was used to help describe the condition of natural forest communities in the state. At the time of this report, the MDWFP was in the process of updating some elements of the CWCS such as the wildlife species of concern and threats to natural communities. Assessment writers met with the MDWFP staff in the Mississippi Natural Heritage Program in early 2010 to seek input and obtain draft updates of species and threats. Because MDWFP has not completed their updates, the draft information was consulted, but the approved 2005 report was used. A link to the current CWCS is in Appendix B.

The Mississippi CWCS provided the foundation for the development of new Mississippi Forest Legacy Program Assessment of Need (FLP AON) which was approved in 2007. This document also describes the condition of the state's forest resources and uses that information to derive three areas of Mississippi that are targets for the new Forest Legacy Program because of the threat of conversion to non-forest use. A link to the AON is also included in Appendix B.

MFC also enlisted the help of the writer, Elizabeth Rooks-Barber, who developed the approved CWCS and the FLP AON plans to also compile this assessment and strategy. The state coordinator for the FLP was also actively involved in writing the assessment and strategy, and served on the MFC Assessment and Strategy Working Group.

To date Community Wildfire Protection Plans that have been developed for 34 Mississippi counties. Recommendations from those plans were incorporated into the key issue discussion and draft strategies.

5. List of Preparers

This document was produced with contributions from many staff from the MFC Assessment and Strategy Working Group including Tympel Blansett, Randy Chapin, Dennis Dauterive, Sandra Ford, Bruce Frasier, Patrick Glass, Brant Godbold, Kent Grizzard, Mark Hamilton, Richard McInnis, Rick Olson, Randal Romedy, Blake Thomas and Wayne Tucker with oversight from the Mississippi Forest Stewardship Coordinating Committee and with input from many stakeholder organizations, institutions, businesses, agencies and individuals.

The following individuals and organizations provided assistance, information, comments, guidance and technical support in the development of the Assessment and Strategies.

Alan Holditch, NRCS
Amanda Gaskin, RC & D Council, MS Coastal Plains
Benny Graves, MDAC, Bureau of Plant Industry
Cathy Shropshire, MWF
Charles Knight, MDWFP, MS Museum of Natural Science
Charlie Cornish, Plum Creek
Chris Bryan, MDOT
Daryl Jones, MSU
Dave Thompson, MDOT
David Jones, MSU Forest Products Extension
Deborah Gaddis, MSU Extension Forestry
Don Bales, MSU Extension Forestry
Donna Yowell, MUFC
Evan Nebeker, retired entomologist
Frances Lewis, Weyerhaeuser Company
George Byrd, MFC
Gerry Farmer, MFC
Glenn Hughes, MSU Extension Forestry
Greg Shows, MS Farm Bureau Federation
Gwendolyn Boyd, Alcorn State University
Harold Anderson, MS PLT
Harry Fulton, MDAC, Bureau of Plant Industry
Henry Folmar, MDEQ
James Cummins, MFWF
James Henderson, MSU Extension Forestry
James Meeker, USDA Forest Service
James Shepard, MSU
Jeanne Jones, MSU
Jeff Clark, MDMR
John Gruchy, MDWFP
Jeff Hatten, MSU
Jeff Head, USDA APHIS
Jim Copeland, Meridian Naval Air Station
Joe Doss, MS RC&D SE Area
John Byrd, MSU
John Madsen, MSU
John Riggins, MSU
Kelly McMullen, MS Secretary of State
Kenneth Calcote, MDAC
Kit Hart, Plum Creek
Larry Barr, Mississippi Department of Insurance (State Fire Coordinator)
Mark Saucier, TNC
Melinda Lyman, TNC
Mike Beiser, MDEQ
Mike Dueitt, USFS
Patrick Lemoyne, MFA
Patty Rogers, RC & D Council
Randy Browning, USFWS
Robby Toombs, Resource Management Inc.
Ron Killebrew, MDEQ
Russ Walsh, MDWFP
Ruth Cook, Molpus Woodlands Group
Saul Petty, USFS
Scott Edwards, MDWFP
Scott Wright, MSU
Sherry Surrette, MDWFP, MS Museum of Natural Science
Steve Butler, Timber Corp.
Steve Grado, MSU
Tom Darden
Tom Monaghan, MSU
Tony Wilder, USFWS
USDA Forest Service, Southern Region
Victor Maddox, MSU

Appendix B

Detailed Program Guidance

The following are links to current guidance documents that include additional detail and recommendations on implementation of strategies for specific program and issue areas discussed in Mississippi's Assessment of Forest Resources and Forest Resource Strategy.

1. Forest Protection – Southern Wildfire Risk Assessment

www.southernwildfirerisk.com

2. Mississippi Forest Legacy Program – Assessment of Need 2007-2012

http://www.mfc.ms.gov/pdf/Mgt/FL/Forest%20Legacy%20AON-1.pdf

http://www.mfc.ms.gov/pdf/Mgt/FL/Forest%20Legacy%20AON-2.pdf

3. Mississippi Forest Stewardship Plan, 2008

http://www.mfc.ms.gov/pdf/Mgt/FS/State_Stewardship_Plan_Final_08.pdf

4. Urban and Community Forestry – Mississippi Urban and Community Forestry Management Manual

http://www.mfc.ms.gov/pdf/Urban/MS%20Urban%20Community%20Forestry%20Management%20Manual-07.pdf

5. Enabling Legislation, 2007 Cooperative Forestry Assistance Act Authority

http://agriculture.house.gov/inside/Legislation/110/Forestry_TitleVIII.pdf

http://www.fs.fed.us/spf/redesign/redesign-authorities.pdf

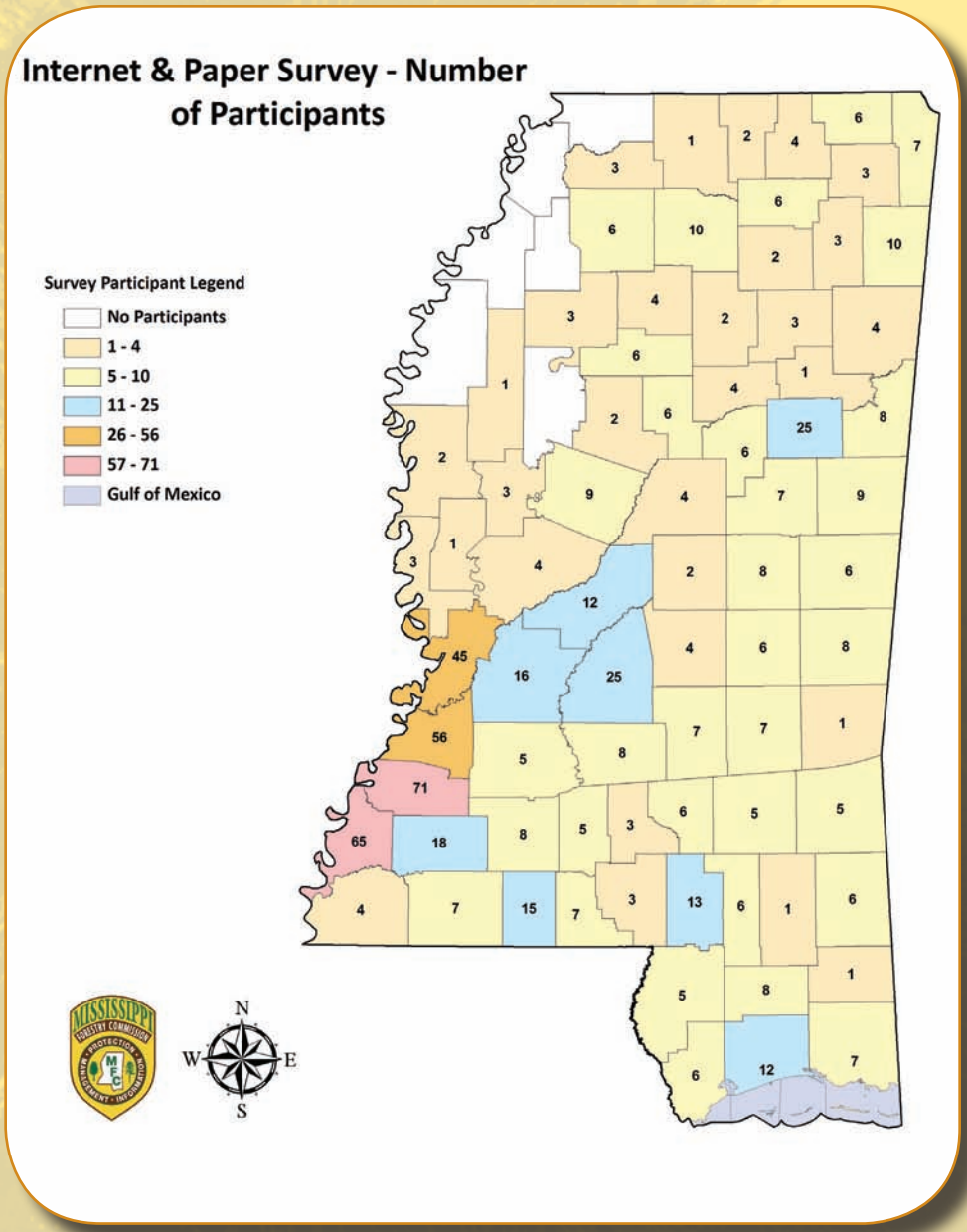
Appendix C

Mississippi Forest Assessment Public Survey Results

Two statewide public surveys (mail and online) were conducted for the *Mississippi Assessment of Forest Resources* effort to solicit additional input on the draft set of issues defined in the *Future of Mississippi's Natural Resources* report in early 2009. A copy of both surveys is included in this Appendix.

Participants of both surveys were ask to evaluate the importance of the key issues identified for possible inclusion in the Assessment Those issues evaluated in the surveys were: Sustainable Resources, Resource Utilization, Landownership Policies, Invasive Species, Renewable Energy and Stewardship Education. Participants were also given a list of Other Issues from which to choose which issue was important to them. Other Issues mentioned were: Stewardship of Resources, Wildfire, Prescribed Burning, Rural Health, Urban Health, Climate, Biodiversity, and Ecosystem Management.

In addition to importance of key issues, participants provided demographic information as well. Demographic data collected included annual income, ownership size, education, state/county location. A total of 837 people participated in both surveys. There were 528 participants in the online survey and 309 from the paper survey. Participants in both surveys were from seventy-six (76) counties.



Participants from each survey were summarized by three ownership classes, traditional, underserved, and those who owned no forestland. Traditional ownership class includes those participants whose income is greater than $40,000 annually and owns more than ten acres. This group has long been eligible and able to participate in State and Federal cost-share assistance. Underserved landowners are those whose incomes are less than $40,000 and/or own less than ten acres of forestland. This group has historically been ineligible due to size of ownership or unable due to lack of capital. The third group was made up of those who own no forestland. The data was summarized for each ownership class group by survey and expressed as a percent of number of responses.

Ninety-percent of the participants believe that each issue in the assessment was important or very important. The responses for the Other Issue category varied between surveys. In the web survey Prescribed Burning was the issue which had the highest percentage for each ownership class followed by Stewardship from traditional owners, and Wildfire by underserved and no ownership classes. Climate issue was very close in all ownership classes.

There were more variations in the paper survey. Wildfire and Stewardship received the highest percentage followed by underserved landowners. Traditional landowners viewed prescribed burning, wildfire and stewardship as priorities. The Climate Change issue received the same percentage by all ownership classes.

The following are copies of the survey results.

Mississippi Forestry Commission

301 North Lamar Street, Suite 300 · Jackson, Mississippi 39201

Phone: (601) 359-1386 · Fax: (601) 359-1349 · www.mfc.state.ms.us

March 16, 2009

Dear Friend of Forestry:

The forests of Mississippi provide many benefits that are enjoyed by all citizens of the Magnolia State.

Although Mississippi's forests are abundant and diverse, the health, productivity, and future of Mississippi's forests and related resources are being impacted by a wide variety of influences.

In order to ensure the future enjoyment of forest-based benefits, the Forestry Commission is seeking input from all stakeholders in regard to the issues affecting the state's forests and natural resources.

Please click on this link—**Mississippi's Forest Assessment Survey**—to participate in a short on-line survey about the issues affecting forestry in Mississippi. It only takes a few minutes. Your input is greatly appreciated and will be included as part of the Mississippi Forest Assessment and Resource Strategy—a statewide effort addressing the future of Mississippi's forests and related natural resources. The survey will be available through April 3.

Because of the importance of gathering input from as many stakeholders as possible, we have implemented a wide-spread distribution effort of the survey. It is possible that you might receive this email more than once. If this happens, I apologize for the inconvenience.

More information about Mississippi's Forest Assessment and Resource Strategy can be found on our Web site: www.mfc.state.ms.us. Again, thank you for your participation in this very important effort.

Sincerely,

Charlie Morgan

State Forester

Mississippi Forestry Commission

Caring for the Trees and Forests of Mississippi

Mississippi Forest Resource Assessment Survey

1. Issue 1: Sustainable Development Sustaining Mississippi's natural resources, while balancing economic development with quality of life, poses huge challenges to resource managers and economic developers. Critical resource decisions revolve around sustainability of forest products industries, water quality and quantity, urban development, landscape planning, and the desired states of Mississippi's forests and wildlife. How important to you is this issue in regard to Mississippi's forests and related natural resources?

	Response Percent	Response Count
Very Important	**70.7%**	**371**
Important	25.3%	133
Not Very Important	2.3%	12
Don't Know	1.7%	9
	answered question	**525**
	skipped question	**3**

2. Issue 2: Resource Utilization Fully utilizing Mississippi's abundant forest resource will require the development of new and diverse markets for forest products, in addition to expanding existing markets for wood fiber, wildlife and outdoor recreation, ecosystem services, carbon sequestration, and all other natural resource products. How important to you is this issue in regard to Mississippi's forests and related natural resources?

	Response Percent	Response Count
Very Important	**74.2%**	**386**
Important	23.1%	120
Not Very Important	2.3%	12
Don't Know	0.4%	2
	answered question	**520**
	skipped question	**8**

3. Issue 3: Land Ownership Policies Seventy-six percent of Mississippi's forestland is in private ownership. Maintaining a productive and sustainable future for Mississippi's forests and other natural resources may very well be dependant on the development of a natural resource policy structured to promote and maintain private ownership. How important to you is this issue in regard to Mississippi's forests and related natural resources?

	Response Percent	Response Count
Very Important	**67.6%**	**351**
Important	26.8%	139
Not Very Important	5.0%	26
Don't Know	0.6%	3
	answered question	**519**
	skipped question	**9**

4. Issue 4: Invasive Species The spread of non-native invasive species greatly impacts the productivity of the forest resource and creates significant challenges for the natural resource manager and landowner. Invasive species and tree damaging insects and pathogens pose a serious threat to the overall health of Mississippi's forest resource. How important to you is this issue in regard to Mississippi's forests and related natural resources?

	Response Percent	Response Count
Very Important	**71.0%**	**369**
Important	26.3%	137
Not Very Important	2.1%	11
Don't Know	0.6%	3
	answered question	**520**
	skipped question	**8**

5. Issue 5: Renewable Energy With an abundance of readily available biomass material, there is great potential for the development of energy from renewable natural resources in Mississippi. Effective utilization of the biomass resource and continued advancement in biofuel technology will help Mississippi address present and future energy challenges. How important to you is this issue in regard to Mississippi's forests and related natural resources?

	Response Percent	Response Count
Very Important	**56.4%**	**287**
Important	33.8%	172
Not Very Important	7.7%	39
Don't Know	2.2%	11
	answered question	**509**
	skipped question	**19**

6. Issue 6: Stewardship Education Providing effective natural resource education is vital to raising the level of environmental awareness in both youth and adults. At a young age, learning the importance of the forest and related natural resources can lead to the pursuit of a career in natural resources. Also, a better understanding of the wise use and stewardship of natural resources leads to policy makers and other individuals making sound, informed decisions in regard to natural resource public policy issues affecting the economic and ecological values of Mississippi's forest resource. How important to you is this issue in regard to Mississippi's forests and related natural resources?

	Response Percent	Response Count
Very Important	**64.4%**	**327**
Important	31.1%	158
Not Very Important	3.9%	20
Don't Know	0.6%	3
	answered question	**508**
	skipped question	**20**

7. Other Issues In addition to the issues presented in this survey, there may be other issues you believe are important to the forests and natural resources of Mississippi. Please review the additional issues listed below and identify any other issues you think should be addressed in the Mississippi Forest Assessment and Resource Strategy.

	Response Percent	Response Count
Land Stewardship	55.7%	262
Wildfire	49.8%	234
Prescribed Burning	**73.6%**	**346**
Rural Forest Health	41.1%	193
Urban Forest Health	24.9%	117
Climate Change	18.3%	86
Biodiversity	34.9%	164
Ecosystem Restoration/Rehabilitation	44.0%	207
Other (please specify)		80
answered question		**470**
skipped question		**58**

8. In which state do you currently live?

	Response Percent	Response Count
Alabama	6.0%	30
Alaska	0.0%	0
Arizona	0.0%	0
Arkansas	0.8%	4
California	0.0%	0
Colorado	0.0%	0
Connecticut	0.0%	0
Delaware	0.0%	0
Florida	0.4%	2
Georgia	0.6%	3
Hawaii	0.0%	0
Idaho	0.0%	0
Illinois	0.0%	0
Indiana	0.0%	0
Iowa	0.0%	0
Kansas	0.0%	0
Kentucky	0.2%	1
Louisiana	2.4%	12
Maine	0.0%	0
Maryland	0.2%	1
Massachusetts	0.0%	0
Michigan	0.0%	0
Minnesota	0.2%	1
Mississippi	**86.8%**	**434**
Missouri	0.0%	0

Montana		0.0%	0
Nebraska		0.0%	0
Nevada		0.0%	0
New Hampshire		0.0%	0
New Jersey		0.2%	1
New Mexico		0.0%	0
New York		0.0%	0
North Carolina		0.4%	2
North Dakota		0.0%	0
Ohio		0.0%	0
Oklahoma		0.2%	1
Oregon		0.0%	0
Pennsylvania		0.0%	0
Rhode Island		0.0%	0
South Carolina		0.2%	1
South Dakota		0.0%	0
Tennessee		1.0%	5
Texas		0.4%	2
Utah		0.0%	0
Vermont		0.0%	0
Virginia		0.0%	0
Washington		0.0%	0
West Virginia		0.0%	0
Wisconsin		0.0%	0
Wyoming		0.0%	0
		answered question	**500**
		skipped question	**28**

9. Do you own land in Mississippi?		Response Percent	Response Count
1-10 Acres		**29.7%**	**147**
11-20 Acres		5.3%	26
21-50 Acres		8.7%	43
51-100 Acres		10.5%	52
101-500 Acres		14.9%	74
More than 500 Acres		7.5%	37
No		23.4%	116
		answered question	**495**
		skipped question	**33**

10. The majority of your land ownership is in which county?		Response Percent	Response Count
Adams		1.0%	4
Alcorn		1.5%	6
Amite		1.0%	4
Attala		0.8%	3
Benton		0.5%	2
Bolivar		0.0%	0
Calhoun		0.5%	2
Carroll		0.5%	2
Chickasaw		0.8%	3
Choctaw		1.5%	6
Claiborne		1.8%	7
Clarke		0.3%	1
Clay		0.3%	1

Coahoma	0.0%	0
Copiah	1.3%	5
Covington	1.5%	6
DeSoto	0.0%	0
Forrest	1.3%	5
Franklin	0.8%	3
George	0.3%	1
Greene	1.5%	6
Grenada	1.5%	6
Hancock	1.5%	6
Harrison	3.1%	12
Hinds	0.8%	3
Holmes	0.5%	2
Humphreys	0.3%	1
Issaquena	0.8%	3
Itawamba	2.5%	10
Jackson	1.8%	7
Jasper	1.8%	7
Jefferson	0.8%	3
Jefferson Davis	0.8%	3
Jones	1.3%	5
Kemper	1.5%	6
Lafayette	2.5%	10
Lamar	3.3%	13
Lauderdale	1.8%	7
Lawrence	0.8%	3
Leake	0.5%	2
Lee	0.8%	3

Leflore		0.0%	0
Lincoln		2.0%	8
Lowndes		2.0%	8
Madison		2.8%	11
Marion		0.8%	3
Marshall		0.3%	1
Monroe		1.0%	4
Montgomery		1.5%	6
Neshoba		2.0%	8
Newton		1.5%	6
Noxubee		2.0%	8
Oktibbeha		**6.4%**	**25**
Panola		0.8%	3
Pearl River		1.3%	5
Perry		0.3%	1
Pike		1.0%	4
Pontotoc		0.5%	2
Prentiss		0.8%	3
Quitman		0.0%	0
Rankin		2.8%	11
Scott		1.0%	4
Sharkey		0.3%	1
Simpson		1.3%	5
Smith		1.5%	6
Stone		2.0%	8
Sunflower		0.3%	1
Tallahatchie		0.8%	3
Tate		0.8%	3

Tippah		0.0%	0
Tishomingo		0.0%	0
Tunica		0.0%	0
Union		0.0%	0
Walthall		0.3%	1
Warren		8.2%	24
Washington		0.7%	2
Wayne		0.0%	0
Webster		0.0%	0
Wilkinson		0.7%	2
Winston		0.0%	0
Yalobusha		0.0%	0
Yazoo		1.4%	4
		answered question	**291**
		skipped question	**18**

11. How much of your land is forested?

		Response Percent	Response Count
1-10 Acres		**58.3%**	**180**
11-20 Acres		20.7%	64
21-50 Acres		8.7%	27
51-100 Acres		2.9%	9
101-500 Acres		1.0%	3
More than 500 Acres		0.0%	0
None		8.4%	26
		answered question	**309**
		skipped question	**0**

12. Do you actively manage your forestland for any of the following? (Select all that apply)

	Response Percent	Response Count
Timber Production	68.6%	242
Water Quality	36.8%	130
Wildlife	**78.5%**	**277**
Air Quality	15.0%	53
Aesthetics	50.4%	178
Stewardship Education	9.3%	33
Recreation	57.2%	202
Habitat Restoration	23.5%	83
Other (please specify)		19
answered question		**353**
skipped question		**175**

13. What is your total annual household income, including all earners in your household?

	Response Percent	Response Count
Less than $10,000	19.3%	59
$10,000 to $19,999	**26.5%**	**81**
$20,000 to $29,999	19.0%	58
$30,000 to $39,999	6.5%	20
$40,000 to $49,999	10.5%	32
$50,000 to $59,999	8.5%	26
$60,000 to $69,999	2.9%	9
$70,000 to $79,999	1.3%	4
$80,000 to $89,999	1.0%	3
$90,000 to $99,999	2.6%	8
$100,000 to $149,999	1.0%	3
$150,000 or greater	1.0%	3
	answered question	**306**
	skipped question	**3**

14. What is the highest level of education you have completed?		Response Percent	Response Count
High School / GED		7.3%	36
2 – Year College Degree (Associates)		10.4%	51
4 – Year College Degree (Bachelors)		**53.9%**	**264**
Master's Degree		20.4%	100
Doctoral Degree		6.9%	34
Professional Degree (MD, JD, EdD)		1.0%	5
	answered question		**490**
	skipped question		**38**

15. Do you live in an Urban or Rural Area?		Response Percent	Response Count
Urban		27.3%	135
Rual		**56.5%**	**279**
Suburban		16.2%	80
	answered question		**494**
	skipped question		**34**

16. Which of the following best describes your primary area of employment?

	Response Percent	Response Count
Agriculture / Farming	2.0%	10
Forestry / Wildlife	**60.4%**	**296**
Education / Teaching	5.9%	29
Finance / Banking / Insurance	1.2%	6
Construction / Manufacturing	1.6%	8
Government / Public Administration	12.4%	61
Hotel / Restaurant / Tourism	0.4%	2
Legal Services	0.6%	3
Computer Technology / Information Management	0.6%	3
Real Estate / Marketing	0.8%	4
Telecommunications	0.4%	2
Transportation / Warehousing	0.8%	4
Scientific / Technical Services	2.0%	10
Medical / Healthcare	1.2%	6
Wholesale / Retail Sales	1.0%	5
Religion	0.4%	2
Military	0.0%	0
Retired	6.9%	34
Homemaker	0.6%	3
Student	0.4%	2
	answered question	**490**
	skipped question	**38**

17. What is your age?

	Response Percent	Response Count
Less than 18	0.0%	0
18-25	1.4%	7
26-30	5.3%	26
31-40	22.7%	111
41-50	21.8%	107
51-60	**34.5%**	**169**
61 or older	14.3%	70
	answered question	**490**
	skipped question	**38**

Entry 2 of Mississippi Forest Resource Assessment Survey

1. Issue 1: Sustainable Development Sustaining Mississippi's natural resources, while balancing economic development with quality of life, poses huge challenges to resource managers and economic developers. Critical resource decisions revolve around sustainability of forest products industries, water quality and quantity, urban development, landscape planning, and the desired states of Mississippi's forests and wildlife. How important to you is this issue in regard to Mississippi's forests and related natural resources?

	Response Percent	Response Count
Very Important	**68.9%**	**213**
Important	31.1%	96
Not Very Important	0.0%	0
Don't Know	0.0%	0
	answered question	**309**
	skipped question	**0**

2. Issue 2: Resource Utilization Fully utilizing Mississippi's abundant forest resource will require the development of new and diverse markets for forest products, in addition to expanding existing markets for wood fiber, wildlife and outdoor recreation, ecosystem services, carbon sequestration, and all other natural resource products. How important to you is this issue in regard to Mississippi's forests and related natural resources?

	Response Percent	Response Count
Very Important	**62.7%**	**193**
Important	36.0%	111
Not Very Important	0.6%	2
Don't Know	0.6%	2
	answered question	**308**
	skipped question	**1**

3. Issue 3: Land Ownership Policies Seventy-six percent of Mississippi's forestland is in private ownership. Maintaining a productive and sustainable future for Mississippi's forests and other natural resources may very well be dependant on the development of a natural resource policy structured to promote and maintain private ownership. How important to you is this issue in regard to Mississippi's forests and related natural resources?

	Response Percent	Response Count
Very Important	**62.5%**	**193**
Important	36.9%	114
Not Very Important	0.3%	1
Don't Know	0.3%	1
	answered question	**309**
	skipped question	**0**

4. Issue 4: Invasive Species The spread of non-native invasive species greatly impacts the productivity of the forest resource and creates significant challenges for the natural resource manager and landowner. Invasive species and tree damaging insects and pathogens pose a serious threat to the overall health of Mississippi's forest resource. How important to you is this issue in regard to Mississippi's forests and related natural resources?

	Response Percent	Response Count
Very Important	**61.4%**	**189**
Important	36.7%	113
Not Very Important	0.6%	2
Don't Know	1.3%	4
	answered question	**308**
	skipped question	**1**

5. Issue 5: Renewable Energy With an abundance of readily available biomass material, there is great potential for the development of energy from renewable natural resources in Mississippi. Effective utilization of the biomass resource and continued advancement in biofuel technology will help Mississippi address present and future energy challenges. How important to you is this issue in regard to Mississippi's forests and related natural resources?

	Response Percent	Response Count
Very Important	**79.3%**	**245**
Important	20.1%	62
Not Very Important	0.3%	1
Don't Know	0.3%	1
	answered question	**309**
	skipped question	**0**

6. Issue 6: Stewardship Education Providing effective natural resource education is vital to raising the level of environmental awareness in both youth and adults. At a young age, learning the importance of the forest and related natural resources can lead to the pursuit of a career in natural resources. Also, a better understanding of the wise use and stewardship of natural resources leads to policy makers and other individuals making sound, informed decisions in regard to natural resource public policy issues affecting the economic and ecological values of Mississippi's forest resource. How important to you is this issue in regard to Mississippi's forests and related natural resources?

	Response Percent	Response Count
Very Important	**78.7%**	**240**
Important	20.7%	63
Not Very Important	0.0%	0
Don't Know	0.7%	2
	answered question	**305**
	skipped question	**4**

7. Other Issues In addition to the issues presented in this survey, there may be other issues you believe are important to the forests and natural resources of Mississippi. Please review the additional issues listed below and identify any other issues you think should be addressed in the Mississippi Forest Assessment and Resource Strategy.

	Response Percent	Response Count
Land Stewardship	**87.1%**	**264**
Wildfire	86.1%	261
Prescribed Burning	72.6%	220
Rural Forest Health	57.8%	175
Urban Forest Health	11.6%	35
Climate Change	79.9%	242
Biodiversity	72.6%	220
Ecosystem Restoration/Rehabilitation	67.7%	205
Other (please specify)		5
	answered question	**303**
	skipped question	**6**

8. In which state do you currently live?

	Response Percent	Response Count
Alabama	0.0%	0
Alaska	0.0%	0
Arizona	0.0%	0
Arkansas	0.0%	0
California	0.0%	0
Colorado	0.0%	0
Connecticut	0.0%	0
Delaware	0.0%	0
Florida	0.0%	0
Georgia	0.0%	0
Hawaii	0.0%	0
Idaho	0.0%	0
Illinois	0.0%	0
Indiana	0.0%	0
Iowa	0.0%	0
Kansas	0.0%	0
Kentucky	0.0%	0
Louisiana	0.0%	0
Maine	0.0%	0
Maryland	0.0%	0
Massachusetts	0.0%	0
Michigan	0.0%	0
Minnesota	1.3%	4
Mississippi	**98.7%**	**305**
Missouri	0.0%	0

Montana		0.0%	0
Nebraska		0.0%	0
Nevada		0.0%	0
New Hampshire		0.0%	0
New Jersey		0.0%	0
New Mexico		0.0%	0
New York		0.0%	0
North Carolina		0.0%	0
North Dakota		0.0%	0
Ohio		0.0%	0
Oklahoma		0.0%	0
Oregon		0.0%	0
Pennsylvania		0.0%	0
Rhode Island		0.0%	0
South Carolina		0.0%	0
South Dakota		0.0%	0
Tennessee		0.0%	0
Texas		0.0%	0
Utah		0.0%	0
Vermont		0.0%	0
Virginia		0.0%	0
Washington		0.0%	0
West Virginia		0.0%	0
Wisconsin		0.0%	0
Wyoming		0.0%	0
	answered question		**309**
	skipped question		**0**

9. Do you own land in Mississippi?

	Response Percent	Response Count
1-10 Acres	**55.8%**	**172**
11-20 Acres	22.1%	68
21-50 Acres	10.4%	32
51-100 Acres	4.2%	13
101-500 Acres	1.9%	6
More than 500 Acres	0.0%	0
No	5.5%	17
	answered question	**308**
	skipped question	**1**

10. The majority of your land ownership is in which county?

	Response Percent	Response Count
Adams	21.3%	62
Alcorn	0.0%	0
Amite	1.0%	3
Attala	0.3%	1
Benton	0.0%	0
Bolivar	0.0%	0
Calhoun	0.0%	0
Carroll	0.0%	0
Chickasaw	0.0%	0
Choctaw	0.0%	0
Claiborne	16.8%	49
Clarke	0.0%	0
Clay	0.0%	0

Coahoma		0.0%	0
Copiah		0.0%	0
Covington		0.0%	0
DeSoto		0.0%	0
Forrest		0.3%	1
Franklin		5.2%	15
George		0.0%	0
Greene		0.0%	0
Grenada		0.0%	0
Hancock		0.0%	0
Harrison		0.0%	0
Hinds		4.5%	13
Holmes		2.4%	7
Humphreys		0.7%	2
Issaquena		0.0%	0
Itawamba		0.0%	0
Jackson		0.0%	0
Jasper		0.0%	0
Jefferson		**23.4%**	**68**
Jefferson Davis		0.0%	0
Jones		0.0%	0
Kemper		0.0%	0
Lafayette		0.0%	0
Lamar		0.0%	0
Lauderdale		0.3%	1
Lawrence		0.7%	2
Leake		0.0%	0
Lee		0.0%	0

Leflore		0.0%	0
Lincoln		0.0%	0
Lowndes		0.0%	0
Madison		0.3%	1
Marion		0.0%	0
Marshall		0.0%	0
Monroe		0.0%	0
Montgomery		0.0%	0
Neshoba		0.0%	0
Newton		0.0%	0
Noxubee		0.3%	1
Oktibbeha		0.0%	0
Panola		1.0%	3
Pearl River		0.0%	0
Perry		0.0%	0
Pike		3.8%	11
Pontotoc		0.0%	0
Prentiss		0.0%	0
Quitman		0.0%	0
Rankin		4.8%	14
Scott		0.0%	0
Sharkey		0.0%	0
Simpson		1.0%	3
Smith		0.3%	1
Stone		0.0%	0
Sunflower		0.0%	0
Tallahatchie		0.0%	0
Tate		0.0%	0

Tippah	0.0%	0
Tishomingo	0.0%	0
Tunica	0.0%	0
Union	0.0%	0
Walthall	0.3%	1
Warren	8.2%	24
Washington	0.7%	2
Wayne	0.0%	0
Webster	0.0%	0
Wilkinson	0.7%	2
Winston	0.0%	0
Yalobusha	0.0%	0
Yazoo	1.4%	4
	answered question	**291**
	skipped question	**18**

11. How much of your land is forested?

	Response Percent	Response Count
1-10 Acres	**58.3%**	**180**
11-20 Acres	20.7%	64
21-50 Acres	8.7%	27
51-100 Acres	2.9%	9
101-500 Acres	1.0%	3
More than 500 Acres	0.0%	0
None	8.4%	26
	answered question	**309**
	skipped question	**0**

12. Do you actively manage your forestland for any of the following? (Select all that apply)

	Response Percent	Response Count
Timber Production	17.3%	47
Water Quality	22.8%	62
Wildlife	**73.2%**	**199**
Air Quality	18.4%	50
Aesthetics	19.5%	53
Stewardship Education	4.4%	12
Recreation	58.8%	160
Habitat Restoration	6.6%	18
Other (please specify)		1
answered question		**272**
skipped question		**37**

13. What is your total annual household income, including all earners in your household?

	Response Percent	Response Count
Less than $10,000	19.3%	59
$10,000 to $19,999	**26.5%**	**81**
$20,000 to $29,999	19.0%	58
$30,000 to $39,999	6.5%	20
$40,000 to $49,999	10.5%	32
$50,000 to $59,999	8.5%	26
$60,000 to $69,999	2.9%	9
$70,000 to $79,999	1.3%	4
$80,000 to $89,999	1.0%	3
$90,000 to $99,999	2.6%	8
$100,000 to $149,999	1.0%	3
$150,000 or greater	1.0%	3
	answered question	**306**
	skipped question	**3**

14. What is the highest level of education you have completed?

	Response Percent	Response Count
High School / GED	**35.9%**	**110**
2 – Year College Degree (Associates)	25.8%	79
4 – Year College Degree (Bachelors)	13.4%	41
Master's Degree	19.6%	60
Doctoral Degree	3.9%	12
Professional Degree (MD, JD, EdD)	1.3%	4
	answered question	**306**
	skipped question	**3**

15. Do you live in an Urban or Rural Area?

	Response Percent	Response Count
Urban	3.8%	11
Rual	**95.2%**	**279**
Suburban	1.0%	3
	answered question	**293**
	skipped question	**16**

16. Which of the following best describes your primary area of employment?

	Response Percent	Response Count
Agriculture / Farming	8.9%	20
Forestry / Wildlife	0.4%	1
Education / Teaching	**30.7%**	**69**
Finance / Banking / Insurance	0.9%	2
Construction / Manufacturing	0.0%	0
Government / Public Administration	4.4%	10
Hotel / Restaurant / Tourism	0.0%	0
Legal Services	0.0%	0
Computer Technology / Information Management	0.0%	0
Real Estate / Marketing	0.9%	2
Telecommunications	0.0%	0
Transportation / Warehousing	0.4%	1
Scientific / Technical Services	0.4%	1
Medical / Healthcare	19.1%	43
Wholesale / Retail Sales	0.0%	0
Religion	0.9%	2
Military	2.7%	6
Retired	27.6%	62
Homemaker	0.9%	2
Student	1.8%	4
	answered question	**225**
	skipped question	**84**

17. What is your age?

	Response Percent	Response Count
Less than 18	0.0%	0
18-25	3.9%	12
26-30	5.8%	18
31-40	26.3%	81
41-50	12.7%	39
51-60	9.4%	29
61 or older	**41.9%**	**129**
	answered question	**308**
	skipped question	**1**

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