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Alabama Natural Heritage Program[SM]

Choctaw National Wildlife Refuge
Natural Community and Rare Plant Survey

A Report Prepared for

United States Fish and Wildlife Service
Choctaw National Wildlife Refuge
P. O. Box 808
Jackson, AL 36545

By the

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Date

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Introduction

Choctaw National Wildlife Refuge (CNWR) administers approximately 4,218 acres along the Tombigbee River in Choctaw County, Alabama (Figure 1). The Refuge contains a fragmented assemblage of managed and naturally occurring wetlands, interspersed with a mosaic of bottomland forests, pine hardwood uplands, successional fields, and wildlife food plots. Prior to the inception of this project, a detailed inventory of natural communities and rare plants did not exist. This report was designed to highlight the extent, location, and condition of CNWR's natural plant associations and rare plant species to provide land managers with the necessary information to establish and implement appropriate management strategies.

The primary purpose for developing and incorporating a plant community classification into this report is to provide information on plant communities useful for conservation planning and stewardship at Choctaw National Wildlife Refuge. Plant community classifications define groups of plants which share biotic similarities and abiotic, system process, and structural characteristics. This is done by grouping plants on the basis of species composition and community structure overlain on physical features and ecosystem parameters.

The natural communities in Choctaw National Wildlife Refuge are being classified in accordance with the system developed by The Nature Conservancy (TNC) in cooperation with state, federal, and academic partners. The Nature Conservancy classification is a modified version of the UNESCO vegetation classification system (UNESCO 1973). The national classification has been developed to present a consistent framework for conserving and stewarding biodiversity. An objective of The Nature Conservancy and many state-based natural heritage programs is to identify and conserve representative examples of all natural plant associations (TNC 1996). As such, communities become extremely important conservation targets in areas where species patterns and ecological processes are poorly understood. Plant communities can also be used as a coarse filter approach in planning the conservation of biological diversity. Descriptions of plant associations with ecosystem information can be useful in developing management regimes that maintain biodiversity across the landscape by incorporating relatively large-scale ecosystem process models during the planning process. Ecosystem transition models can be used in the restoration of degraded natural communities. The spatial arrangement of plant communities on the landscape can be used to interpret gaps in the landscape picture where plant communities are no longer extant. With this information it may be possible to conserve much of the natural diversity of an area through strategic conservation planning and stewardship.

The composition and distribution patterns of ecological communities within the greater Choctaw area have been significantly altered by the influence of humanity. Prior to the arrival of European immigrants, the Native Americans, like humans everywhere, had shaped and modified the land to suit their own purposes. Using simple but effective stone tools and controlled burning, the Creek Indians and other indigenous tribes had long since cleared parts of the eastern forest for agriculture. The resulting patchwork of garden plots, abandoned fields, and woodlands had, in turn, increased habitat diversity for wildlife, thus adding to the variety and quantity of

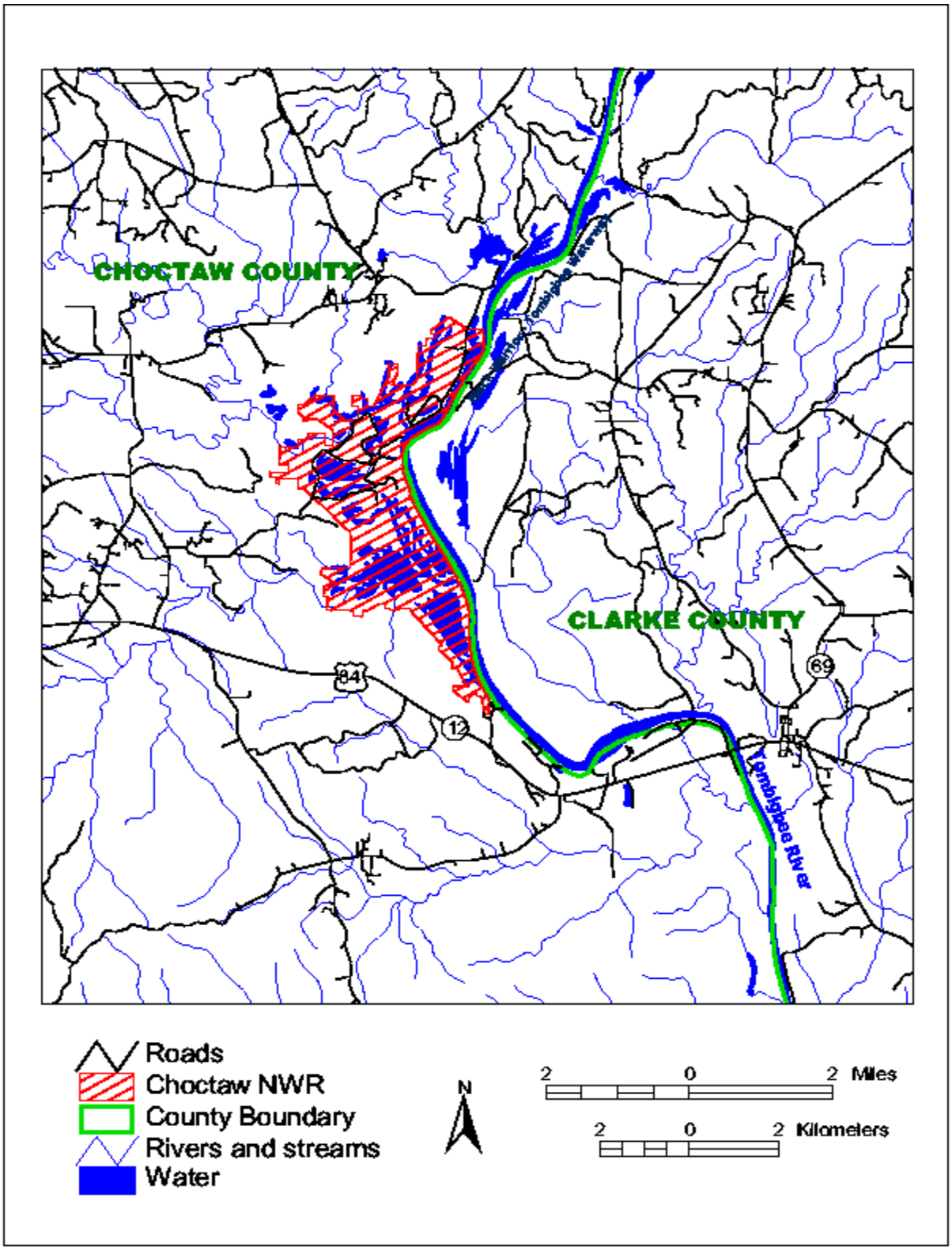

Figure 1. Generalized map of Choctaw National Wildlife Refuge

game available. Far from a virgin and primeval wilderness as many believed, North America was an already transformed landscape when Europeans first reached its shores. The effects of human occupation upon the natural vegetation of the region is readily apparent. To accommodate the progress of humanity, forests were cleared and wetlands drained, which was soon followed by a series of events that would forever alter the landscape.

Although habitat destruction and degradation emerges as the most pervasive threat to the viability of Alabama's vegetation resources, the influence of exotic species has proven to be equally as harmful to ecosystem integrity. The following discussion of natural communities illuminates threats potentially afflicting plant associations, as well as viable management solutions specifically designed for restoring and maintaining ecological processes.

Methodology

The following natural community descriptions were based on in-house heritage information, literary references, and a series of field inspections that were conducted from July 2002 to June 2003. Natural Community Survey Forms (Appendix 1) were used to randomly describe all plant associations representative of Choctaw National Wildlife Refuge. These forms provided a qualitative, but highly structured format for reporting information on vegetation composition and structure, evidence of disturbance, and an assessment of the management needs and the general quality of the natural community occurrence. This information ultimately serves as documentation in the Alabama Natural Heritage Program's (ALNHP) database.

The protocol for identifying and delineating natural communities began with cursory inspections to acquire an understanding of overall size, homogeneity, dominant vegetation, and any apparent disturbance. Descriptions of these features were recorded in the appropriate fields on the survey forms. The surveyor then chose a representative point and collected data on percent cover and height for all species in each vegetation stratum within a 20 x 50 meter plot.

High quality examples of all natural communities were recorded in the ALNHP database (Table 1), following Natural Heritage protocol for processing biological information. The basic unit of this protocol is the element. An element is any exemplary or rare component of the natural environment, such as a species, natural community, bird rookery, sinkhole, or other ecological feature. An Element Occurrence (EO) represents the location of an element and is the environment which sustains a species' population or an example of a natural community. The Element Occurrence Record (EOR) is the computerized record that contains the biological and locational information regarding a specific EO, as well as an assessment of the conservation value of that EO against other EOs of its kind. Element Occurrence Reports are maintained in ALNHP's Biological Conservation Database (BCD) in Montgomery. Element Occurrences documented from Choctaw NWR appear in Appendix 2. The Program uses the BCD to track information on elements, occurrences of those elements, important conservation sites, ecological monitoring programs, and other information relevant to conservation efforts in Alabama. The BCD also is part of a global heritage network where information is used interchangeably among the various heritage programs and field offices of TNC.

Nomenclature is in accordance with the classification framework designed by The Nature Conservancy to achieve range-wide consistency for naming and describing natural communities. Generic names (i. e., bottomland forest) and synonymies have been included to facilitate cross-walking with other in-use classifications. Scientific nomenclature for plants is primarily based on A Synonymized Checklist of Vascular Flora of the United States, Canada, and Greenland (Kartesz 1994), with the Flora of North America (Flora of North America Editorial Committee, 1993, 1997, 1999) serving as an additional reference.

All GIS products were created using ArcView 3.3 (Environmental Systems Research Institute; Redlands, California). Digital USGS topographic quadrangle maps were downloaded from the Geological Survey of Alabama's Geospatial Data web page (http://www.gsa.state.al.us/gsa/GIS/DATA.html) as georeferenced Universal Transverse Mercator North American Datum 1927 (UTM NAD27) digital raster graphic files (*.tif). The Choctaw National Wildlife Refuge boundary GIS layer was downloaded from the United States Fish & Wildlife Service Region 4 Refuge Boundary Files web page (http://www.fws.gov/data/r4gis/boundary.html) and converted from a geographic projection to UTM NAD27. Plant communities, exotic species infestations, and rare plant species occurrences delineated in the field on USGS topographic maps were digitized from a heads-up display of the corresponding digital topographic map and saved as shapefile. The maps generated for this report are included on the accompanying CD as *.tif files.

Results and Discussion

Natural history information, occurrence records, and floral accounts of natural communities associated with Choctaw National Wildlife Refuge were extracted from published literature, unpublished reports, anecdotal accounts, field data, aerial photography, and scientific collections. Two tables outlining the results of the project are included in this section. A brief summary of results is presented here; detailed discussions of natural communities and their management needs are provided under Natural Community Descriptions. A map highlighting the general configuration and arrangement of natural communities on the Refuge appears as Figure 2.

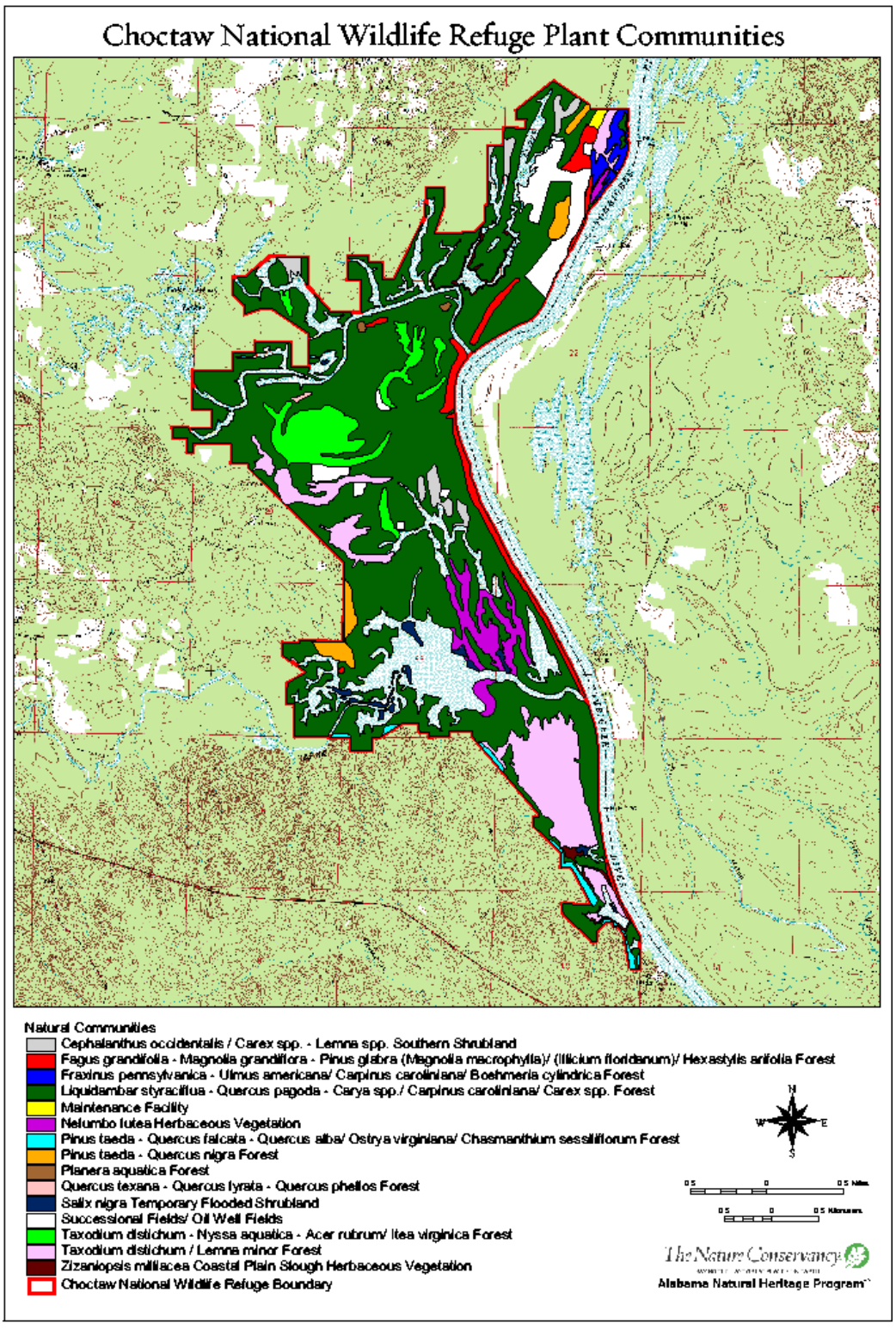

Figure 2. Vegetation Key to Natural Communities at Choctaw National Wildlife Refuge

Currently, a total of 14 natural plant associations have been recognized from Choctaw National Wildlife Refuge, three of which were processed into Element Occurrence Records for inclusion

into ALNHP's Biological Conservation Database (Table 1). The greatest proportion of the Refuge is characterized by a complex of vegetation contained within the *Liquidambar styraciflua*

Table 1. Natural communities identified from Choctaw National Wildlife Refuge, including four high quality occurrences documented as EORs in the ALNHP database (definitions of global and state ranks appear in Appendix 4).

Scientific Name	Common Name	Global Rank	State Rank	No. of EORs
Pinus taeda – Quercus falcata – Quercus alba / *Ostrya virginiana* / *Chasmanthium sessiliflorum* Forest	Upland Mixed Forest	G4G5	S2	0
Pinus taeda – Quercus nigra Forest	Successional Pine – Oak Forest	G5	S5	0
Fagus grandifolia – Magnolia grandiflora – Pinus glabra (*Magnolia macrophylla*) / (*Illicium floridanum*) / *Hexastylis arifolia* Forest	East Gulf Coastal Plain Acidic Loam Beech – Magnolia Forest	G3	S2	1
Liquidambar styraciflua – Quercus pagoda – Carya spp. / *Carpinus caroliniana* / *Carex* spp. Forest	Floodplain Forest	G3G4	S2	1
Quercus texana – Quercus lyrata – Quercus phellos Forest	Bottomland Oak Forest	G3G4	S1	0
Fraxinus pennsylvanica – Ulmus americana / *Carpinus caroliniana* / *Boehmeria cylindrica* Forest	Bottomland Hardwood Forest	G4?	S2	0
Successional Field / Oil Well Field	Successional Field	G5	S5	0
Taxodium distichum / *Lemna minor* Forest	Cypress Swamp	G4G5	S4	0
Taxodium distichum – Nyssa aquatica – Acer rubrum / *Itea virginica* Forest	Cypress – Gum Swamp	G4?	S2	2
Cephalanthus occidentalis / *Carex* spp. – *Lemna* spp. Southern Shrubland	Southern Buttonbush Pond	G4	S2	0
Planera aquatica Forest	Planertree Floodplain Swamp Forest	G4?	S2	0
Salix nigra Temporary Flooded Shrubland	Black Willow Swamp	G5	S3	0
Zizaniopsis milliacea Coastal Plain Slough Herbaceous Vegetation	Southern Wild Rice Slough Marsh	G4?	S2	0
Nelumbo lutea Herbaceous Vegetation	American Lotus Aquatic Wetland	G5	S5	0
Total Number of Natural Communities			**14**	
Total Number of EORs			**4**	

– *Quercus pagoda – Carya* spp. / *Carpinus caroliniana* / *Carex* spp. Forest type, while in contrast, the *Planera aquatica* Forest assumes the smallest dimensions, attaining less than 5.0 acres in size.

1. Natural Community Descriptions

Natural communities are assemblages of species that occur together in space and time. These groups of plants and animals are found in recurring patterns that can be classified and described by their dominant physical and biological features. As with most vegetation classifications, the lines between natural communities are often obscure in the field because of the overlap and intergradation among species, floral composition, and physical features. For these reasons, probably no single natural community description featured in this report will precisely match plant associations of adjacent areas.

A. Mesic Communities

1. Upland Mixed Forest – (synonyms: pine-oak-hickory forest, southern mixed hardwoods). Upland mixed forests are currently found throughout Alabama, but their composition varies across the state from a nearly subtropical forest in the South to a cool temperate flora in the North. In addition, the composition and abundances of species, as well as the structure and dynamics of these forests, are greatly affected by complex disturbance regimes that vary at different scales over space and time. Most recently, as well demonstrated at Choctaw, anthropogenic disturbance has complemented natural disturbance regimes, thus further modifying ecological processes. Hence, combinations of species and natural communities not present upon the Choctaw landscape during presettlement times are currently being formed. Given the above conditions, two associations are presently recognized from Choctaw National Wildlife Refuge.

- *Pinus taeda – Quercus falcata – Quercus alba* / *Ostrya virginiana* / *Chasmanthium sessiliflorum* Forest
  [Loblolly Pine – Southern Red Oak – White Oak / Hop Hornbeam / Longleaf Spikegrass Forest]

This association occupies well-drained sites throughout southern Alabama, typically occurring on upper to mid-slopes. Its distribution on Choctaw is essentially confined to a small series of slopes within the southernmost portion of the Refuge. The canopy is often characterized by a prominence of loblolly pine (*Pinus taeda*) and various hardwoods, most notably white oak (*Quercus alba*), southern red oak (*Quercus falcata*), sweetgum (*Liquidambar styraciflua*), mockernut hickory (*Carya alba*), and in lesser abundance, shortleaf pine (*Pinus echinata*), tuliptree (*Liriodendron tulipifera*), beech (*Fagus grandifolia*), and black gum (*Nyssa sylvatica*). Spruce pine (*Pinus glabra*) occasionally occurs along the lower slopes. The subcanopy and shrub layers generally assume a patchy distribution, with shrubs and low-growing trees attaining their greatest abundance on the steepest slopes, where the effects of naturally occurring fire is minimal. Dense thickets of mountain laurel (*Kalmia latifolia*) and a panoply of other fire intolerant species inhabit these areas. Where fire becomes more pervasive upon the landscape, the understory becomes more diminished in terms of spatial coverage and species diversity. Characteristic taxa of the understory include the foregoing canopy species, as well as sourwood

(*Oxydendrum arboreum*), flowering dogwood (*Cornus florida*), bigleaf magnolia (*Magnolia macrophylla*), red maple (*Acer rubrum*), hoary azalea (*Rhododendron canescens*), Elliott's blueberry (*Vaccinium elliottii*), tree sparkleberry (*Vaccinium arboreum*), red buckeye (*Aesculus*

Figure 3. *Pinus taeda – Quercus falcata – Quercus alba* / *Ostrya virginiana* / *Chasmanthium sessiliflorum* Forest

pavia), American holly (*Ilex opaca*), horse sugar (*Symplocos tinctoria*), and southern bayberry (*Morella cerifera*). The herbaceous component, following a vegetation pattern similar to the shrub layer, becomes more pronounced in fire sheltered areas, particularly in steep ravines and near the bases of slopes. Principal and diagnostic herbs include Christmas fern (*Polystichum acrostichoides*), bracken fern (*Pteridium aquilinum* var. *latiusculum*), longleaf spikegrass (*Chasmanthium sessiliflorum*), autumn bluegrass (*Poa autumnalis*), giant cane (*Arundinaria gigantea* var. *tecta*), various sedges (*Carex crebriflora*, *C. digitalis*, and *C. umbellata*), little-head nutrush (*Scleria oligantha*), heartleaf ginger (*Hexastylis arifolia* var. *arifolia*), dwarf iris (*Iris verna* ssp. *smalliana*), dwarf greenbrier (*Smilax pumila*), and partridgeberry (*Mitchella repens*). Vines are relatively frequent and include muscadine grape (*Vitis rotundifolia*), poison ivy (*Toxicodendron radicans*), yellow jessamine (*Gelsemium sempervirens*), and Virginia creeper (*Parthenocissus quinquefolia*).

- *Pinus taeda – Quercus nigra* Forest
  [Loblolly Pine – Water Oak Forest]

This is a broadly defined community type to accommodate upland forests strongly codominated by loblolly pine (*Pinus taeda*), water oak (*Quercus nigra*), and sweetgum (*Liquidambar styraciflua*), resulting from past disturbance (such as agricultural or other land clearing) followed by forest succession. The understory is highly variable, depending on age and history. The

example at Choctaw is characterized by a mature canopy of the above-mentioned tree species and a relatively open understory of red maple (*Acer rubrum*), deciduous holly (*Ilex decidua*), winged elm (*Ulmus alata*), water oak, and sweetgum. The herb layer is sparse, with Christmas fern (*Polystichum acrostichoides*), ebony spleenwort (*Asplenium platyneuron*), partridgeberry (*Mitchella repens*), and various sedges (*Carex* spp.) appearing most frequent. Muscadine grape (*Vitis rotundifolia*) and Japanese honeysuckle (*Lonicera japonica*) are common vines.

B. Hydric Communities

2. Bottomland and Floodplain Forests – (synonyms: bottomland hardwoods, river bottoms, seasonally flooded basins or flats, second bottom, levee forest, river terrace). Southern floodplain forests have undergone some of the most rapid reduction in size and changes in floral composition than nearly any other forest biome in the United States, and are therefore of critical conservation concern. Many have been and are continually being converted to farmland, industrial parks, or are modified by urban and suburban expansion. Other bottomlands are managed for timber production or as recreational areas in ways that reduce their viability as natural wetland habitats. Nonetheless, an understanding of the distribution, physical and biotic characteristics, and functional properties of these systems are critical toward establishing appropriate criteria for their use and long-term preservation.

Floodplain forests are found wherever streams or rivers flood at least occasionally beyond their channels. In the southeastern United States these forests are broadly classified into three general categories, bottomland forests, floodplain forests, and deepwater alluvial swamps, each being defined by the frequency and timing of annual flooding. Floodplain ecosystems are highly variable in size, ranging from broad alluvial valleys several miles wide to more narrow strips of streambank vegetation. On Choctaw, these forest associations, four of which are currently recognized, occupy a vast proportion of the Refuge landscape.

- *Fagus grandifolia – Magnolia grandiflora – Pinus glabra* – (*Magnolia macrophylla*) / (*Illicium floridanum*) / *Hexastylis arifolia* Forest
  [Beech – Southern Magnolia – Spruce Pine – (Bigleaf Magnolia) / (Florida Anise) / Heartleaf Ginger Forest]

The occurrence of this natural community on Choctaw NWR is primarily restricted to the natural levee that parallels the west side of the Tombigbee River. Elevated no more than five feet above adjacent wetland areas, the vegetation marks a striking contrast in relation to the hardwood dominated associations of more hydric systems. Undoubtedly, the most pervasive trademark of the levee forest assemblage is the presence of loblolly and spruce pines (*Pinus taeda* and *P. glabra*, respectively). Although both pines are well distinguished in the canopy, several hardwood species of similar height dimensions are also worth noting, in decreasing order of abundance, including cherrybark oak (*Quercus pagoda*), water oak (*Quercus nigra*), sweetgum *(Liquidambar styraciflua*), tuliptree (*Liriodendron tulipifera*), southern magnolia (*Magnolia grandiflora*), beech (*Fagus grandifolia*), and pignut hickory (*Carya glabra*). The understory contains not only smaller specimens of the foregoing canopy species, but also an assortment of low growing trees and shrubs such as flowering dogwood (*Cornus florida*), American hornbeam (*Carpinus caroliniana*), two-wing silverbell (*Halesia diptera*), sassafras

(*Sassafras albidum*), American holly (*Ilex opaca*), youpon (*Ilex vomitoria*), deciduous holly (*Ilex decidua*), winged elm (*Ulmus alata*), beautyberry (*Callicarpa americana*), and Elliott's blueberry (*Vaccinium elliottii*). The herbaceous component is generally sparse and of low diversity, with the following serving as representative species: longleaf spanglegrass (*Chasmanthium sessiliflorum*), panic-grass (*Dichanthelium commutatum*), Cherokee sedge (*Carex cherokeensis*), partridgeberry (*Mitchella repens*), heartleaf ginger (*Hexastylis arifolia* var. *arifolia*), blue violet (*Viola affinis*), late-flowering thoroughwort (*Eupatorium serotinum*), Christmas fern (*Polystichum acrostichoides*), and Virginia grapefern (*Botrychium virginianum*). Llanas are frequent, often climbing into the tops of the tallest trees; characteristic species include muscadine grape (*Vitis rotundifolia*), poison ivy (*Toxicodendron radicans*), Virginia creeper (*Parthenocissus quinquefolia*), cross-vine (*Bignonia capreolata*), and various briers (*Smilax glauca*, *S. rotundifolia*). Draperies of Spanish moss and resurrection fern (*Pleopeltis polypodioides* var. *michauxiana*) are epiphytic upon many of the trees and shrubs. This association generally occurs on slopes and in ravines, and only rarely in bottomland situations such as at Choctaw NWR. Frequent throughout the region, most examples occupy transitional areas between longleaf pine uplands and forested stream bottoms.

- *Liquidambar styraciflua – Quercus pagoda – Carya* spp. / *Carpinus caroliniana* / *Carex* spp. Forest
  [Sweetgum – Cherrybark Oak – Hickory species / American Hornbeam / Sedge species Forest]

Figure 4. *Liquidambar styraciflua – Quercus pagoda – Carya* spp. / *Carpinus caroliniana* / *Carex* spp. Forest

Occupying a significant proportion of Choctaw NWR, this association is represented by a codominance of cherrybark oak (*Quercus pagoda*), willow oak (*Quercus phellos*), green ash (*Fraxinus pennsylvanica*), and sweetgum (*Liquidambar styraciflua*) in the canopy. More widely distributed, but seldom absent from the canopy, is a suite of secondary species, including bitternut hickory (*Carya cordiformis*), water oak (*Quercus nigra*), swamp chestnut oak (*Quercus*

michauxii), American elm (*Ulmus americana*), and sugarberry (*Celtis laevigata*). Of particular interest is the presence of shellbark hickory (*Carya laciniosa*), pecan (*Carya illinoensis*), and Nuttall's oak (*Quercus texana*), whose distribution in Alabama is sparse and sporadic, with only occasional specimens having been observed at Choctaw. The understory is open and park-like containing a representation of the foregoing canopy associates, in addition to a variety of small trees and shrubs such as American hornbeam (*Carpinus caroliniana*), deciduous holly (*Ilex decidua*), green haw (*Crataegus viridis*), red mulberry (*Morus rubra*), and dwarf palmetto (*Sabal minor*). The herbaceous component is characterized by a mosaic of sparsely vegetated areas interspersed with patches of graminoids and forbs dominated by catchfly grass (*Leersia lenticularis*) and various sedges (*Carex lupulina*, *C. digitalis*, *C. frankii*, *C. typhina*). Vines are relatively frequent and include muscadine grape (*Vitis rotundifolia*), rattan-vine (*Berchemia scandens*), and trumpet creeper (*Campsis radicans*). The epiphytic resurrection fern (*Pleopeltis polypodioides* var. *michauxiana*) often forms dense patches upon several of the larger tree limbs.

- *Quercus texana – Quercus lyrata – Quercus phellos* Forest

This association typically occurs as shallow, narrowly defined depressions that are scattered throughout the forested bottomlands along the Tombigbee River. A closed canopy forest, this community is represented by a prominence of Nuttall's oak (*Quercus texana*), overcup oak (*Quercus lyrata*), and willow oak (*Quercus phellos*), with green ash (*Fraxinus pennsylvanica*) and sugarberry (*Celtis laevigata*) occurring less frequently and are therefore of secondary importance. The shrub and herb layers are relatively sparse, often characterized by a low diversity of plant life. Principal species include American hornbeam (*Carpinus caroliniana*), dwarf palmetto (*Sabal minor*), catchfly grass (*Leersia lenticularis*), hop sedge (*Carex lupulina*), lizard's-tail (*Saururus cernuus*), broad-leaved water willow (*Justicia ovata* var. *ovata*), and winged monkeyflower (*Mimulus alatus*). The finest occurrence of this association can be found on the south side of Okatuppa Creek in the southeastern portion of Section 20.

- *Fraxinus pennsylvanica – Ulmus americana* / *Carpinus caroliniana* / *Boehmeria cylindrica* Forest
  [Green Ash – American Elm / American Hornbeam / False Nettle Forest]

The extent of this association on Choctaw NWR is restricted to the low peninsular region at the junction of Hackberry Lake and the Tombigbee River. This is a temporarily flooded forest association dominated by green ash (*Fraxinus pennsylvanica*) in the canopy. Although occurring less frequently, other canopy associates include, in decreasing order of abundance, silver maple (*Acer saccharinum*), box-elder (*Acer negundo*), American elm (*Ulmus americana*), sycamore (*Platanus occidentalis*), black willow (*Salix nigra*), and sugarberry (*Celtis laevigata*). The subcanopy and shrub layers are generally well developed and contain representatives of the foregoing canopy layer, as well as deciduous holly (*Ilex decidua*), American hornbeam (*Carpinus caroliniana*), red maple (*Acer rubrum*), sweetgum (*Liquidambar styraciflua*), and stiff dogwood (*Cornus foemina*). The greatest floral diversity is found in the ground cover, which is dominated by poison ivy (*Toxicodendron radicans*) and southern dewberry (*Rubus trivialis*). A suite of herb species is also characteristic, with some of the more noteworthy being cutgrass (*Leersia virginica*), Virginia dayflower (*Commelina virginica*), blue violet (*Viola sororia*), broad-leaved water willow (*Justicia ovata* var. *ovata*), Carolina elephant's-foot (*Elephantopus*

carolinianus), and various sedges (namely *Carex intumescens* and *C. lupulina*). Resurrection fern (*Pleopeltis polypodioides* var. *michauxiana*) and Spanish moss (*Tillandsia usneoides*) are epiphytic on the branches of some trees. An assortment of vines is also in evidence, appearing to be equally distributed along the forest floor as well as in the canopy. Characteristic taxa include poison ivy, eardrop-vine (*Brunnichia ovata*), raccoon-grape (*Ampelopsis cordata*), pepper-vine (*Ampelopsis arborea*), and trumpet creeper (*Campsis radicans*).

3. Successional Field – (synonyms: fallow field, successional old field). Successional fields are the result of former land use practices in which the forest was eliminated, and then allowed to become re-established. Fields represent the initial phase in the progression of vegetational succession following the cessation of land use where, through the course of time will gradually transform into climax forest. On Choctaw, this vegetation type is represented by the earliest levels of succession: herb-dominated fields occasionally accented by a series of low growing trees and shrubs.

- Successional Field

This is a relatively short-lived association that will likely succeed to a *Liquidambar styraciflua – Quercus pagoda – Carya* spp. / *Carpinus caroliniana* / *Carex* spp. Forest, a community type that prevails throughout much of the surrounding area. Examples at Choctaw appear to be partially maintained through periodic mowing, thus retarding the growth of woody vegetation. The vegetation is characterized by a prominence of weedy herbaceous species such as bahia grass (*Paspalum notatum*), vasey grass (*Paspalum urvillei*), tall fescue (*Festuca elatior*), Brazilian vervain (*Verbena brasiliensis*), dog fennel (*Eupatorium capillifolium*), and horseweed (*Conyza canadensis*), among others.

Roadsides are similar floristically and structurally to successional fields, but typically support a greater plant diversity. In fact, roadsides are among the most interesting plant communities in Choctaw NWR, as they represent a conglomerate of floristic elements of diverse origins. Because roads are frequently associated with human habitation, both past and present, roadside plant communities often feature species that have escaped from or persist after cultivation. Examples at Choctaw include Chinese wisteria (*Wisteria sinensis*) and *mimosa (Albizia julibrissin*) . The high disturbance associated with roadsides also provides suitable habitat for a diverse array of native and exotic weeds. New introductions are likely to be seen first along roads, which can provide far-reaching connections between seed source and suitable dispersal habitat. Examples of common native roadside weeds include bitterweed (*Helenium amarum*), blackberries (*Rubus* spp.), dog fennel (*Eupatorium capillifolium*), horseweed (*Conyza canadensis*), and Venus looking-glass (*Triodanus perfoliata* var. *biflora*). Exotics frequently encountered include wild carrot (*Daucus carota*), dead nettles (*Lamium* spp.), bahia grass (*Paspalum notatum*), Brazilian vervain (*Verbena brasiliensis*), white clover (*Trifolium repens*), Japanese honeysuckle (*Lonicera japonica*), and beefsteak plant (*Perilla frutescens*). Whereas the species mentioned so far can be found along roads throughout the Refuge, roadside communities, to a large degree, also reflect the plant communities that immediately surround them. Thus roadsides associated with bottomland forests often feature such species as Carolina elephant's-foot (*Elephantopus carolinianus*), butterweed (*Packera glabella*), Virginia dayflower (*Commelina virginica*), and leather-flower (*Clematis crispa*).

4. River Floodplain Lake and Swamp Lake – (synonyms: cypress pond, oxbow lake, backwater lake). This lake complex is generally characterized by zones of open shallow water, with or without floating and submerged aquatic vegetation, that is situated within bottomland and floodplain forests. Water levels are highly variable being strongly correlated to seasonal precipitation, with the lowest levels typically occurring during autumn. The origin of these wetlands is correlated to three primary geological processes: 1.) dissolving and the subsequent collapse of the underlying substrate (namely limestone) to form a depression; 2.) lowering of sea levels to isolate ancient coastal features, such as lagoons or dune swales; and 3.) isolation of ancient stream channels within relatively confined basins (FNAI and FDNR 1990). The presence of swamp lakes on Choctaw originated along former stream channels that became isolated as new channels developed, from which meander loops were severed to form "oxbow lakes." Although several plant associations are known to inhabit these systems, only one is currently recognized from the refuge.

- *Taxodium distichum* / *Lemna minor* Forest
  [Bald Cypress / Lesser Duckweed Forest]

A prominence of bald cypress (*Taxodium distichum*) is the trademark that distinguishes this association from any other to be found on Choctaw NWR. The presence of this species among the swamp lakes at the Refuge is highly variable, with a range of canopy coverage extending from near 100% in the majority of examples to less than 30% in some deep water occurrences. Examples with a sparse canopy cover may be attributed to previous logging operations. Water tupelo (*Nyssa aquatica*), black willow (*Salix nigra*), buttonbush (*Cephalanthus occidentalis*), red maple (*Acer rubrum* var. *drummondii*), and Virginia willow (*Itea virginica*) occur as understory associates, but are generally widely scattered often constituting less than 15% of woody vegetation. The herbaceous component is represented by a rich diversity of shallow water emergents, floating-leaved aquatics, and an assortment of other wetland species, often attaining the greatest development where canopy cover is sparse. The most open-canopied examples contain large colonies of American lotus (*Nelumbo lutea*), which, along with bur-marigold (*Bidens laevis*), commonly serves as the dominant herb. Other important herb species include water lily (*Nymphaea odorata*), water pod (*Hydrolea quadrivalvis*), marsh St. John's-wort (*Triadenum walteri*), mermaid-weed (*Proserpinaca pectinata*), water pennywort (*Hydrocotyle* sp.), savanna grass (*Phanopyrum gymnocarpum*), and various sedges (namely *Carex lurida* and *Carex lupulina*). Adding a classical southern look are draperies of Spanish moss (*Tillandsia usneoides*).

- *Taxodium distichum – Nyssa aquatica – Acer rubrum* / *Itea virginica* Forest
  [Bald Cypress – Water Tupelo – Red Maple / Virginia Willow Forest]

Similar to the foregoing association but is easily distinguished by the codominance of water tupelo (*Nyssa aquatica*), with bald cypress (*Taxodium distichum*), in the canopy. The subcanopy and shrub layers are sparse to moderate containing a low diversity of species. In addition to the abovementioned canopy components, red maple (*Acer rubrum* var, *drummondii*), black willow (*Salix nigra*), buttonbush (*Cephalanthus occidentalis*), and Virginia willow (*Itea virginica*) are also distributed in the understory but are typically widely scattered comprising no more than

20% of arborescent growth. An impressive array of herbs inhabit the shallow water and mucky soils of the encompassing shoreline in which the following species appear most characteristic: American lotus (*Nelumbo lutea*), bur-marigold (*Bidens laevis*), lizard's-tail (*Saururus cernuus*), water pepper (*Polygonum hydropiperoides*), savanna grass (*Phanopyrum gymnocarpum*), broad-leaved arrowhead (*Sagittaria latifolia*), and alligator-weed (*Alternanthera philoxeroides*), an invasive aquatic species from South America.

Figure 5. *Taxodium distichum – Nyssa aquatica – Acer rubrum* / *Itea virginica* Forest

- *Cephalanthus occidentalis* / *Carex* spp. – *Lemna* spp. Southern Shrubland
  [Buttonbush / Sedge species – Duckweed species Southern Shrubland]

Widespread throughout the southeastern United States, this shrubland assemblage commonly occupies oxbow lakes, backwater sloughs, beaver ponds, and shallow depressions associated with bottomlands and floodplains. Although the hydroperiod exhibits a high incidence of variability in relation to precipitation levels, examples on Choctaw are usually inundated for most of the year, becoming dry only during occasions of prolonged drought. Floristic characteristics are strongly correlated with water depth, but most occurrences, including those on the refuge, contain a prominence of buttonbush (*Cephalanthus occidentalis*), often to the exclusion of other woody species. Black willow (*Salix nigra*) has been noted in some examples, but is generally represented by less than 5% of the total canopy cover. Principal herb species include spotted water pepper (*Polygonum punctatum*), bur-marigold (*Bidens laevis*), lizard's-tail (*Saururus cernuus*), maidencane (*Panicum hemitomum*), halberd-leaved rose-mallow (*Hibiscus*

militaris), broad-leaved arrowhead (*Sagittaria latifolia*), Cuban sedge (*Scirpus cubensis*), and various duckweeds (*Lemna* spp.)

- *Planera aquatica* Forest
  [Planertree Swamp Forest]

On Choctaw this association is represented by two small circular-shaped occurrences on the south side of Okatuppa Creek, in the north half of Section 21. Both examples are dominated by nearly monospecific stands of planertree (*Planera aquatica*) that are accented with a scattering of green ash (*Fraxinus pennsylvanica*), sweetgum (*Liquidambar styraciflua*), and buttonbush (*Cephalanthus occidentalis*). Herbs are relatively sparse and of low diversity, with lizard's-tail (*Saururus cernuus*) serving as the principal species.

5. Floodplain Marsh – (synonym: river marsh). Floodplain marshes are wetlands characterized by a prominence of herbaceous and/or woody vegetation that occurs in river floodplains, particularly in the Gulf Coastal Plain. Water and, to a minor extent, fire is the driving force responsible for maintaining the viability of naturally occurring systems and a corresponding diversity of wildlife. In fact, fire plays a crucial role in the ecology of some of Alabama's marshlands by limiting the invasion of woody vegetation, affecting the composition of the herbaceous component, and retarding, or occasionally reversing peat accumulation. The presence of floodplain marshes on Choctaw originated from a combination of increased water levels resulting from the damming of the Tombigbee River and the installation of dikes to artificially manipulate water levels for the benefit of waterfowl.

- *Salix nigra* Temporary Flooded Shrubland
  [Black Willow Temporary Flooded Shrubland]

This community type is composed of young or frequently disturbed thickets of black willow (*Salix nigra*) that inhabit shallow water associated with backwaters of the Tombigbee River. Occurrences are moderately vegetated in the understory with an assortment of shrubs, vines, and herbs. Characteristic species include buttonbush (*Cephalanthus occidentalis*), eardrop-vine (*Brunnichia ovata*), sugarcane plumegrass (*Saccharum giganteum*), broad-leaved arrowhead (*Sagittaria latifolia*), helberd-leaved rose-mallow (*Hibiscus militaris*), water pepper (*Polygonum hydropiperoides*), wool grass (*Scirpus cyperinus*), sallow sedge (*Carex lurida*), and southern wild rice (*Zizaniopsis milliacea*).

- *Zizaniopsis milliacea* Coastal Plain Slough Herbaceous Vegetation
  [Southern Wild Rice Coastal Plain Slough Herbaceous Vegetation]

This is a broadly distributed association that occurs along the margins of backwater sloughs associated with the Tombigbee River. Characterized by a prominence of southern wild rice (*Zizaniopsis milliacea*), this vegetation type is nearly monospecific, containing only a small number of affiliated herbs, including broad-leaved arrowhead (*Sagittaria latifolia*), catchfly grass (*Leersia lenticularis*), beakrush (*Rhynchospora corniculata*), and water pepper (*Polygonum hydropiperoides*). Alligator-weed (*Alternanthera philoxeroides*), an adventive weedy species from South America has also invaded some areas.

- *Nelumbo lutea* Herbaceous Vegetation
  [American Lotus Aquatic Wetland]

The distribution of the American lotus association on the Choctaw National Wildlife Refuge is primarily restricted to the backwaters of the Tombigbee River, specifically Hackberry Lake. Stands are essentially monospecific and often cover large areas. Other floating-leaved aquatics such as yellow pond lily (*Nuphur lutea* ssp. *advena*), duckweed (*Lemna* sp.), mosquito fern (*Azolla caroliniana*), and the exotic water hyacinth (*Eichhornia crassipes*) and hydrilla (*Hydrilla verticillata*) are also present, as are various emergent species including pickerel-weed (*Pontederia cordata*), broad-leaved arrowhead (*Sagittaria latifolia*), and water pepper (*Polygonum hydropiperoides*).

Figure 6. *Nelumbo lutea* Herbaceous Vegetation

2. Natural Community Diversity at Choctaw

From a casual observation, the *Liquidambar styraciflua – Quercus pagoda – Carya* spp. / *Carpinus caroliniana* / *Carex* spp. Forest association is the most notable feature of the Choctaw landscape, a complex of highly variable successional phases that have resulted following the cessation of timber harvesting and agricultural use.

Flooding is the primary ecological force that maintains the majority of the Choctaw landscape. Prior to damming the Tombigbee River, floods were a common event and the floodplain forest

plants and the soils were subjected to the forces of the water and the alluvium and/or scouring. However, in the current timeframe, flood events only occur during periods of extreme precipitation. The return intervals for these events are three to five years for minor floods and 20 – 50 years for major floods. Floods influence species composition and selection in the floodplain communities that in the long term creates an uneven-aged forest association. Recreating flood events that took place prior to dam construction is not practical, therefore the habitats should be managed and maintained to mimic the floods and hopefully, major flooding will continue to occur.

3. Invasive Exotic Species

Invasive exotic species have demonstrably caused irreparable damage to various natural communities throughout the Southeast. Japanese climbing-fern (*Lygodium japonicum*), mimosa (*Albizia julibrissin*), Japanese honeysuckle (*Lonicera japonica*), water hyacinth (*Eichhornia crassipes*), and alligator-weed (*Alternanthera philoxeroides*) are five invasive plant species that have become well established in several locations on Choctaw. Major infestations of exotic plant species on the refuge are illustrated in Figure 8. These species are capable of colonizing large areas, generally in full sun, throughout warmer regions of the world. Japanese honeysuckle was first introduced into the New World at Long Island, New York, to embellish the gardens of Colonial America. Since then, the popularity of this species as a garden plant has enabled it to quickly spread throughout much of the eastern United States, displacing desirable native vegetation. Also firmly established in waterways of the refuge is water hyacinth, a species first introduced from South America, at the New Orleans Exhibition, in 1884. Since then, this floating herb has become widely naturalized in the Southeast, often monopolizing large areas. The widespread dispersal of the above-mentioned and other exotic species have been primarily attributed to highway maintenance and construction, horticultural purposes, and the enhancement of wildlife habitat. The illegal disposal of yard trash has also aided the spread of these and other exotic species. Although these taxa were not commonly observed within high quality natural areas, they should be considered a threat to the ecological integrity of natural communities in Choctaw NWR. Some of the exotic plant species observed in Choctaw during the course of this project appear in Table 2.

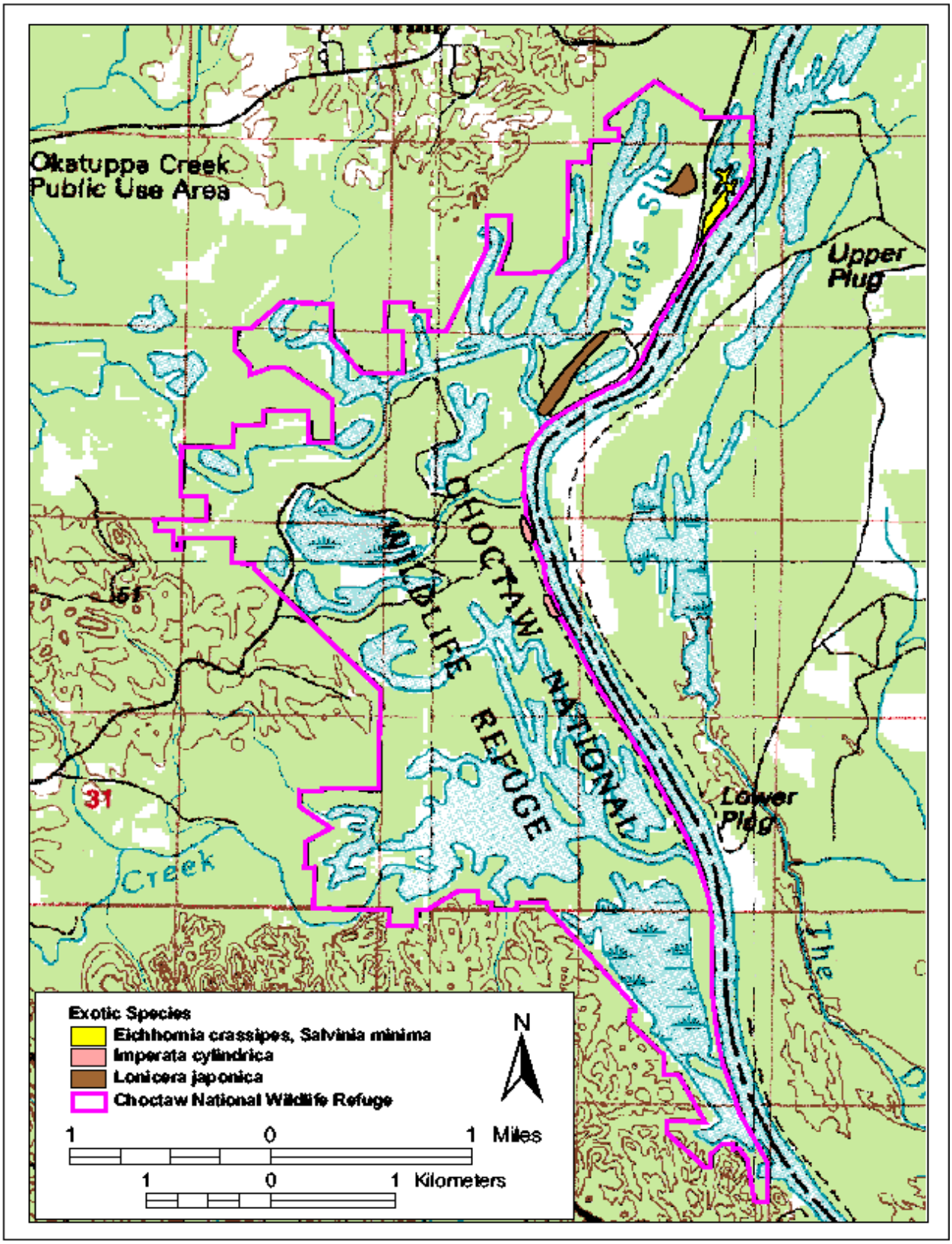

Figure 7. Major Infestations of Exotic Plant Species on Choctaw National Wildlife Refuge

Table 2. Exotic plant species observed in Choctaw National Wildlife Refuge

Scientific Name	Common Name	Degree of Severity*
Albizia julibrissin	Mimosa	2
Alternanthera philoxeroides	Alligator-weed	1
Daucus carota	Wild carrot	3
Eichhornia crassipes	Water hyacinth	1
Hydrilla verticillata	Hydrilla	2
Imperata cylindrica	Cogon grass	1
Lamium amplexicaule	Purple dead-nettle	3
Lonicera japonica	Japanese honeysuckle	1
Lygodium japonicum	Japanese climbing fern	2
Microstegium vimineum	Nepal grass	3
Paspalum notatum	Bahia grass	2
Paspalum urvillei	Vasey grass	3
Perilla frutescens	Beefsteak plant	3
Quercus acutissima	Sawtooth oak	3
Salvinia minima	Water spangles	2
Tradiaca sebifera	Chinese tallow	2

* Category 1 = Species that have invaded and disrupted native plant communities in Choctaw NWR.
Category 2 = Species that have shown a potential to invade and disrupt native plant communities, but pose no immediate threats in Choctaw NWR.
Category 3 = Species that have persisted around old homesites and have no or minimal potential to invade native plant communities.

Monitoring and treatment of existing infestations, and preventing the encroachment of new populations should remain an important component of land management throughout Choctaw National Wildlife Refuge. Education of land managers about problems associated with exotic pests coupled with the use of native species for improving wildlife habitat may be beneficial in this effort. If non-native cultivars must be used, then invasive species should be avoided. Many invasive exotic species are sold in nurseries, despite their known destructive impacts on native vegetation. Element Stewardship Abstracts (ESA) have been prepared by The Nature Conservancy to provide guidance to land managers regarding the control of specific exotic and weedy species. The Conservancy continuously prepares new publications and updates on existing ESAs. To receive the latest revisions, it is recommended that the program's internet website (http://tncweeds.ucdavis.edu) be accessed at least twice yearly. Additional websites devoted to non-native invasive plant control and ecological restoration are www.ser.org and www.bugwood.org, both of which are regularly updated. Currently, the website has information on over 180 invasive weed species, as well as management plan templates, weed control methods, tool reviews, and other sources pertinent to invasive species control. Element Stewardship Abstracts relevant to Choctaw are presented in Appendix 3.

PART II: BOTANY

Introduction

A rich mosaic of habitats and natural communities characterize the landscape across the greater Choctaw area along the Tombigbee River. Collectively, the region's upland forests, forested

bottomlands, open marshlands, and backwater sloughs form a broad spectrum of floral assemblages that, in turn, support an exceptional diversity of plant life.

The vegetation found in this area can be broadly defined into two categories: generalists (those species occurring across various habitats) and specialists (species having narrow ecological requirements and are restricted to particular habitats). The mixed pine – hardwood forests of the uplands, for example, contain a suite of species entirely restricted to the deep, sandy soils indicative of this natural community. Yet, another group of plant species inhabit only saturated soils that occur further downslope. Wetland associations on the other hand, such as impounded areas and backwater sloughs, support assemblages that are unique to each of these widely varying environments. And within this complex of habitat extremes are generalists that typically occur throughout this diverse region. This array of plant life includes rare and/or declining species as well as those that are common and abundant in the region.

Following the arrival of Europeans and their descendants, broad scale alterations to the landscape of Choctaw have completely removed or seriously impeded the ecological processes that once maintained a complex of functional ecosystems. The matrix of bottomland forests has nearly disappeared from surrounding areas of Choctaw to serve the interests of agriculture and forestry. Today, only a few viable remnants remain. Many of the lowland, hydric communities were completely drained or were hydrologically altered through channelization and sedimentation.

Fortunately, localized extinctions and extirpations of species intimately associated with the Choctaw landscape are avoidable and potentially reversable provided that lands are protected from large-scale development and ecological processes restored. The following discussion and tables are intended to provide baseline knowledge of vascular plants that are currently found on the Refuge. Hopefully, this information will help direct and propel a holistic view of this diverse matrix that will ultimately lead to an active preservation and ecological restoration program at Choctaw National Wildlife Refuge.

Methodology

Natural history information, occurrence records, and species accounts of vascular plants potentially associated with Choctaw NWR were extracted from published literature, unpublished reports, anecdotal accounts, and museum collections. This list was prepared to facilitate survey efforts for species having the greatest likelihood of occurring on the Refuge. Surveys for rare plants were generally conducted in conjunction with natural community surveys, being specifically arranged to coincide with the optimum season for identification. A vast majority of field work was conducted on foot, with some areas having been accessed by canoe. When an occurrence of a rare plant species was located, field data pertinent to population specifics (size, status, vulnerability), habitat conditions, and management needs were gathered and entered onto an Element Occurrence form. This information was then processed and computerized in ALNHP's Biological Conservation Database in Montgomery.

Botanical nomenclature is in accordance with *A Synonymized Checklist of Vascular Flora of the United States, Canada, and Greenland* (Kartesz, 1994), with the Flora of North America (Flora of North America Editorial Committee, 1993, 1997, 1999) serving as an additional reference.

Results and Discussion

Currently, five populations of two rare plants, as recognized by the Alabama Natural Heritage Program as conservation concern, occur within Choctaw National Wildlife Refuge. Two plants formerly monitored by ALNHP as rare species are also noted. Two tables outlining the results of botanical surveys follow this section. Both southern twayblade (*Listera australis*) and spring coralroot (*Corallorhiza wisteriana*) are monitored as species of conservation concern by the Heritage Program due to the small number of occurrences presently reported from the state (Figures 8 and 9, respectively). Although relatively widespread throughout the Southeast, each taxon is represented by a small number of plants in Alabama, making them vulnerable to extirpation statewide. According to information available through ALNHP, occurrences presently contained within Choctaw NWR support the greatest concentration of plants. Occurrences of both species are essentially confined to the forested river terraces in the northern one-third of the Refuge (Figures 10 and 11). The associated natural community is classified as a bottomland association characterized by a filtered canopy of loblolly pine (*Pinus*

Figure 8. Spring Coralroot (*Corallorhiza wisteriana*)

Figure 9. Southern Twayblade (*Listera australis*)

taeda), spruce pine (*Pinus glabra*), cherrybark oak (*Quercus pagoda*), water oak (*Quercus nigra*), sweetgum (*Liquidambar styraciflua*), tuliptree (*Liriodendron tulipifera*), pignut hickory (*Carya glabra*), and in lesser abundance, southern magnolia (*Magnolia grandiflora*) and beech (*Fagus grandifolia*).

Table 3. Statewide significance of rare plants in Choctaw National Wildlife Refuge

Scientific Name	Common Name	Number of Element Occurrences (EOs) in Choctaw NWR	Number of Eos in Alabama	% of state EOs in Choctaw NWR	Number of protected EOs in Alabama
Corallorhiza wisteriana	spring coralroot	2	8	25%	4
Listera australis	southern twayblade	3	11	27%	10

Table 4. Plants formerly monitored by ALNHP as rare species that occur on Choctaw NWR.

Scientific Name	Common Name	Number of populations in Choctaw NWR
Amelanchier arborea	Downy serviceberry	1
Monotropa hypopithys	Pinesap	1

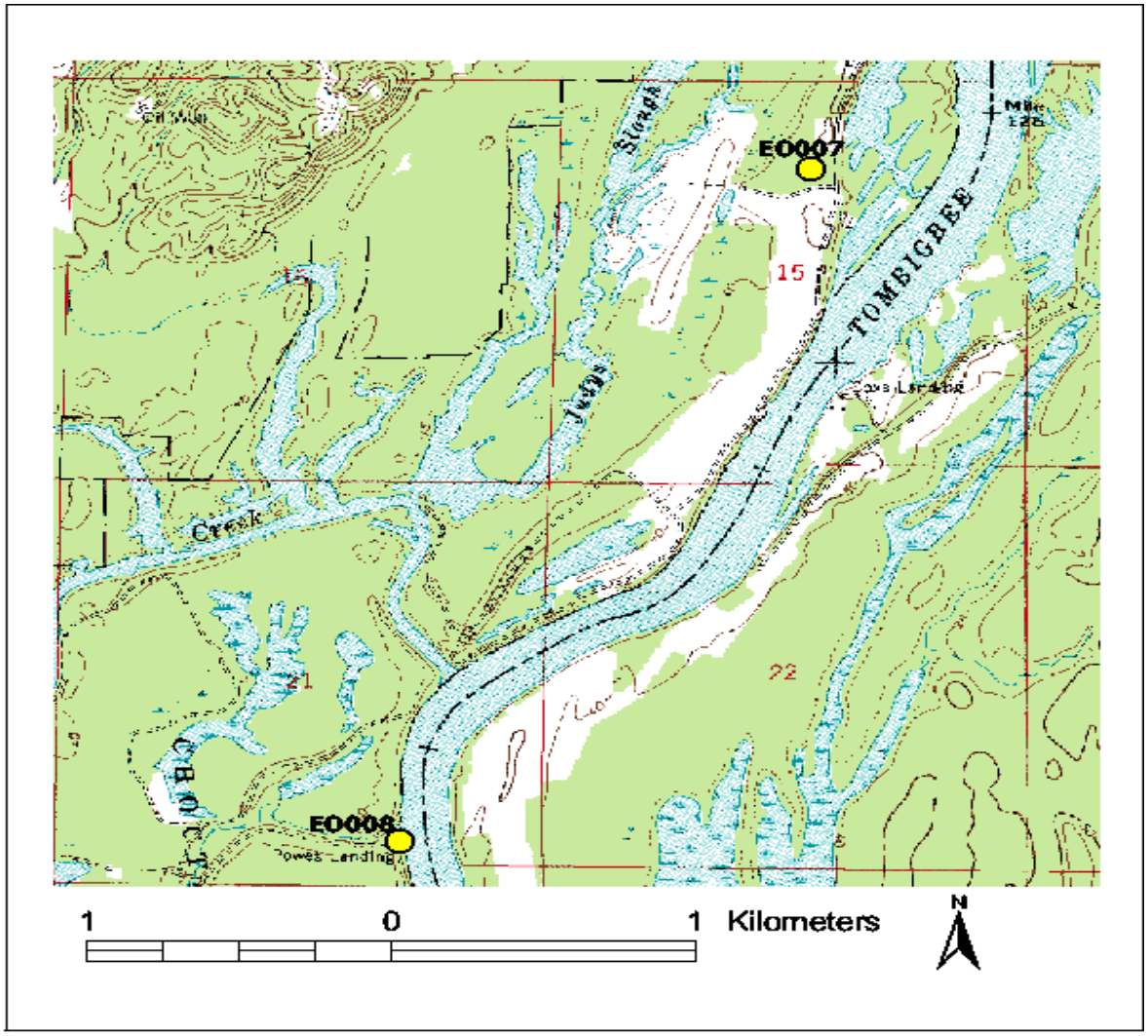

Figure10. Locations of spring coralroot (*Corallorhiza wisteriana*) on Choctaw National Wildlife Refuge

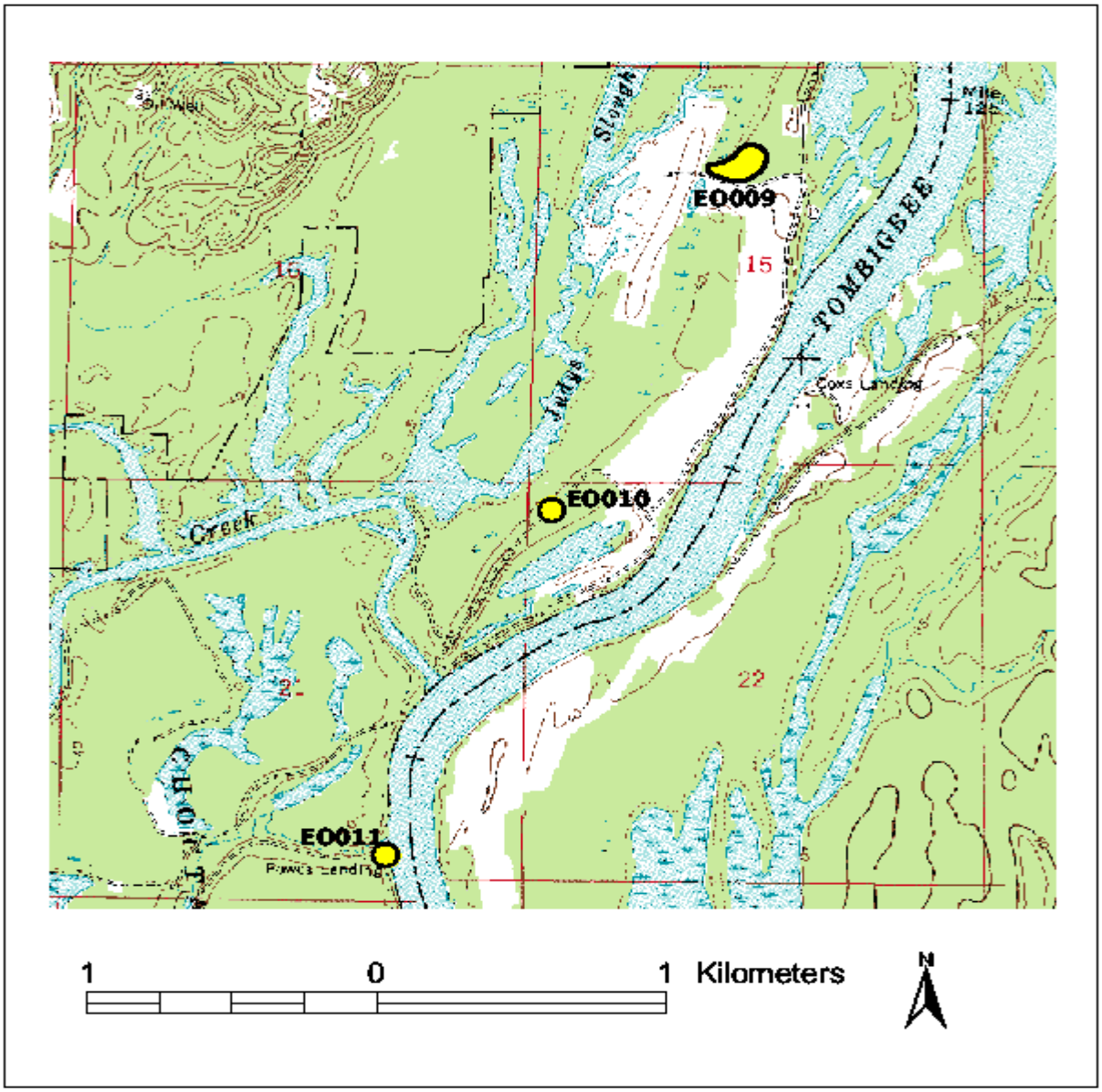

Figure 11. Locations of southern twayblade (*Listera australis*) on Choctaw National Wildlife Refuge

PART III: LITERATURE

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Appendix 1

Natural Community Survey Forms for Choctaw National Wildlife Refuge

Appendix 2

Element Occurrence Records for Choctaw National Wildlife Refuge

MAP INDEX: 640

Element Occurrence Record

LIQUIDAMBAR STYRACIFLUA - QUERCUS PAGODA - CARYA SPP./ CARPINUS CAROLINIANA/ CARAEX SPP. FOREST

Identifiers:

	Elcode	EO#	State:		
EOCODE:	CEGL007353	*001	*AL	FONUM:	IDENT: Y

SNAME: LIQUIDAMBAR STYRACIFLUA - QUERCUS PAGODA - CARYA SPP./ CARPI
SCOMNAME:
ELEMENT RANKS: GRANK: G3G4 NRANK: SRANK:

Locators:
NATION: US SITECODE:
SITENAME:
SURVEYSITE:

PRECISION: S

COUNTYCODE:	COUNTYNAME	LOCALJURIS:
ALCHOC	Choctaw	

QUADNAME:	QUADCODE:	MARGNUM:	DOTNUM:	TENTEN:
COFFEEVILLE LOCK AND	3108872		012	05,05

LAT: 314843N S:
LONG: 0881117W N:
E:
W:

TOWNRANGE:	SECTION:	MERIDIAN:	TRSNOTE:
010N002W	SEVER	SS	
	AL		

DIRECTIONS: Choctaw National Wildlife Refuge: Centroid of natural community is roughly 1.0 miles south of Okatuppa Creek and ca. 0.5 miles west of the Tombigbee River.

PHYSPROV:	WATERSHED:
RH	03160201.220

Status:
SURVEYDATE: 2002-08-16 LASTOBS: 2002-08-16 FIRSTOBS: 2002-08-16
EORANK: B EORANKDATE: 2003-06-29
EORANKCOM: Although a good quality mature occurrence, much of the site was logged ca. 60-70 years ago. The occurrence has recovered well. Protected by the U.S. Fish & Wildlife Service.

EODATA: Canopy and subcanopy are characterized by QUERCUS PAGODA, QUERCUS PHELLOS, LIQUIDAMBAR STYRACIFLUA, FRAXINUS PENNSYLVANICA, and CARYA CORDIFORMIS. The shrub layer is relatively sparse with CARPINUS CAROLINIANA, ILEX DECIDUA, and CRATAEGUS VIRIDIS serving as principal species. The herbaceous component is characterized by various sedges (CAREX DIGITALIS most numerous), as well as LEERSIA LENTICULARIS, BOEHMERIA CYLINDRICA, and COMMELINA VIRGINICA, among others.

CONTACTID: CONTACT.NAME:
CONTACT.NOTE:
Description:
EOTYPE:
GENDESC: Bottomland hardwood forest.

MINELEV: 35 MAXELEV: 35 SIZE:

Protection:
MACODE: MANAME: MATYPE:
CONTAINED:
M.USALHP*49 CHOCTAW NATIONAL WILDLIFE REFUGE FFWWR Y

MORELAND: MOREPROT: MOREMGMT: TNCINVOLVE:

MGMTCOM: No active management is needed.

PROTCOM:

Ownership:
OWNER: U.S. FISH & WILDLIFE, CHOCTAW NATIONAL WILDLIFE REFUGE
SERVICE

OWNERINFO: Y
OWNERCOM: P.O. BOX 808, JACKSON, AL 36545

General Comments:
COMMENTS:

Additional Topics:
ADDTL.TOPICS:

TOPIC.KEYWORDS:

Documentation:
DATASENS: N BOUNDARIES: PHOTOS: Y
BESTSOURCE: SCHOTZ, ALFRED R.

SOURCECODE: CITATION:
PNDSCH01ALUS Schotz, Alfred R. Community Ecologist. Alabama Natural Heritage
Program. Huntingdon College, Massey Hall, 1500 East Fairview
Avenue, Montgomery, AL 36106-2148

SPECIMENS:

TRANSCRIBR: 03-06-29 ARS CDREV:
MAPPER: 03-06-29 ARS QC: Y

Record Maintenance:
LEADRESP: USALHP

MAP INDEX: 640

Element Occurrence Record

TAXODIUM DISTICHUM - NYSSA AQUATICA - ACER RUBRUM/ ITEA VIRGINICA FOREST

Identifiers:

	Elcode	EO#	State:		
EOCODE:	CEGL007422	*001	*AL	FONUM:	IDENT: Y

SNAME: TAXODIUM DISTICHUM - NYSSA AQUATICA - ACER RUBRUM/ ITEA VIRG

SCOMNAME: BALD CYPRESS - WATER TUPELO - RED MAPLE/ VIRGINIA WILLOW FOREST

ELEMENT RANKS: GRANK: G4? NRANK: SRANK:

Locators:

NATION: SITECODE:

SITENAME:

SURVEYSITE:

PRECISION: S

COUNTYCODE:	COUNTYNAME	LOCALJURIS:
ALCHOC	Choctaw	

QUADNAME:	QUADCODE:	MARGNUM:	DOTNUM:	TENTEN:
COFFEEVILLE LOCK AND	3108872		010	05,04

LAT: 314920N S:

LONG: 0881109W N:

E:

W:

TOWNRANGE:	SECTION:	MERIDIAN:	TRSNOTE:
010N002W	21	SS	W2

DIRECTIONS: Choctaw National Wildlife Refuge: Centroid of natural community polygon is roughly 0.5 miles south of Okatuppa Creek and ca. 0.5 miles west of the Tombigbee River.

PHYSPROV:	WATERSHED:
RH	03160201.220

Status:

SURVEYDATE: 2002-08-29 LASTOBS: 2002-08-29 FIRSTOBS: 2002-08-29

EORANK: A EORANKDATE: 2003-03-28

EORANKCOM: High quality occurrence with very minimal amount of disturbance. The surrounding area also is forested with mature bottomland hardwoods. Protected by the U.S. Fish & Wildlife Service.

EODATA: Occurrence is characterized by a prominence of TAXODIUM DISTICHUM and NYSSA AQUATICA in the canopy. The subcanopy is represented by the foregoing canopy species in addition to ACER RUBRUM and FRAXINUS PENNSYLVANICA. The shrub layer is generally sparse with ACER RUBRUM, CEPHALANTHUS OCCIDENTALIS, and ITEA VIRGINICA serving as principal species.

CONTACTID: CONTACT.NAME:
CONTACT.NOTE:

Description:
EOTYPE:
GENDESC: Irregularly shaped depression imbedded within a bottomland hardwood forest along the Tombigbee River.

MINELEV: 35 MAXELEV: 35 SIZE:

Protection:

MACODE:	MANAME:	MATYPE:	CONTAINED:
M.USALHP*49	CHOCTAW NATIONAL WILDLIFE REFUGE	FFWWR	Y

MORELAND: MOREPROT: MOREMGMT: TNCINVOLVE:

MGMTCOM: No active management is needed.

PROTCOM:

Ownership:
OWNER: U.S. FISH & WILDLIFE SERVICE, CHOCTAW NATIONAL WILDLIFE REFUGE

OWNERINFO: Y
OWNERCOM: P.O. BOX 808, JACKSON, AL 36545

General Comments:
COMMENTS:

Additional Topics:
ADDTL.TOPICS:

TOPIC.KEYWORDS:

Documentation:
DATASENS: N BOUNDARIES: PHOTOS: Y
BESTSOURCE: SCHOTZ, ALFRED R.

SOURCECODE:	CITATION:
PNDSCH01ALUS	Schotz, Alfred R. Community Ecologist. Alabama Natural Heritage Program. Huntingdon College, Massey Hall, 1500 East Fairview Avenue, Montgomery, AL 36106-2148

SPECIMENS:

TRANSCRIBR: 03-03-28 ARS CDREV:
MAPPER: 03-03-28 ARS QC: Y

Record Maintenance:
LEADRESP: USALHP

MAP INDEX: 640

Element Occurrence Record

TAXODIUM DISTICHUM - NYSSA AQUATICA - ACER RUBRUM/ ITEA VIRGINICA FOREST

Identifiers:

	Elcode	EO#	State:		
EOCODE:	CEGL007422	*002	*AL	FONUM:	IDENT: Y

SNAME: TAXODIUM DISTICHUM - NYSSA AQUATICA - ACER RUBRUM/ ITEA VIRG

SCOMNAME: BALD CYPRESS - WATER TUPELO - RED MAPLE/ VIRGINIA WILLOW FOREST

ELEMENT RANKS: GRANK: G4? NRANK: SRANK:

Locators:

NATION: US SITECODE:

SITENAME:

SURVEYSITE:

PRECISION: S

COUNTYCODE:	COUNTYNAME	LOCALJURIS:
ALCHOC	Choctaw	

QUADNAME:	QUADCODE:	MARGNUM:	DOTNUM:	TENTEN:
COFFEEVILLE LOCK AND	3108872		011	04,05

LAT: 314850N S:

LONG: 0881148W N:

E:

W:

TOWNRANGE:	SECTION:	MERIDIAN:	TRSNOTE:
010N002W	20	SS	SE4
010N002W	29	SS	NE4
010N002W	28	SS	NW4

DIRECTIONS: Choctaw National WIldlife Refuge: Centroid of natural community polygon is roughly 0.5 miles south of Okatuppa Creek and ca. 1.0 mile west of the Tombigbee River.

PHYSPROV:	WATERSHED:
RH	03160201.220

Status:

SURVEYDATE: 2002-08-29 LASTOBS: 2002-08-29 FIRSTOBS: 2002-08-29

EORANK: A EORANKDATE: 2003-03-28

EORANKCOM: High quality occurrence with very minimal amount of disturbance. The surrounding area is also forested with mature bottomland hardwoods. Protected by the U.S. Fish & Wildlife Service.

EODATA: Association is characterized by a prominence of TAXODIUM DISTICHUM and NYSSA AQUATICA in the canopy. The subcanopy is represented by the foregoing canopy species in addition to ACER RUBRUM, FRAXINUS PENNSYLVANICA, and SALIX NIGRA. The shrub component is somewhat patchy with ACER RUBRUM, ITEA VIRGINICA, ILEX VERTICILLATA, and CEPHALANTHUS OCCIDENTALIS appearing most representative. Although generally sparse,

the herb layer can become well developed, particularly where the canopy is open. Characteristic herbs include NELUMBO LUTEA, HYDROLEA QUADRIVALVIS, TRIADENUM WALTERI, PHANOPYRUM GYMNOCARPON, and PROSERPINACA PECTINATA.

CONTACTID: CONTACT.NAME:
CONTACT.NOTE:

Description:
EOTYPE:
GENDESC: Irregularly shaped depression imbedded in a bottomland hardwood forest along the Tombigbee River.

MINELEV: 35 MAXELEV: 35 SIZE:

Protection:

MACODE:	MANAME:	MATYPE:	CONTAINED:
M.USALHP*49	CHOCTAW NATIONAL WILDLIFE REFUGE	FFWWR	Y

MORELAND: MOREPROT: MOREMGMT: TNCINVOLVE:

MGMTCOM: No active management is needed.

PROTCOM:

Ownership:
OWNER: U.S. FISH & WILDLIFE SERVICE, CHOCTAW NATIONAL WILDLIFE REFUGE

OWNERINFO: Y
OWNERCOM: P.O. BOX 808, JACKSON, AL 36545

General Comments:
COMMENTS:

Additional Topics:
ADDTL.TOPICS:

TOPIC.KEYWORDS:

Documentation:
DATASENS: N BOUNDARIES: PHOTOS: Y
BESTSOURCE: SCHOTZ, ALFRED R.

SOURCECODE: CITATION:
PNDSCH01ALUS Schotz, Alfred R. Community Ecologist. Alabama Natural Heritage Program. Huntingdon College, Massey Hall, 1500 East Fairview Avenue, Montgomery, AL 36106-2148

SPECIMENS:

TRANSCRIBR: 03-03-28 ARS CDREV:
MAPPER: 03-03-28 ARS QC: Y

Record Maintenance:
LEADRESP: USALHP

MAP INDEX: 640

Element Occurrence Record

FAGUS GRANDIFOLIA - MAGNOLIA GRANDIFLORA - PINUS GLABRA - (MAGNOLIA MACROPHYLLA) / ILLICIUM FLORIDANUM / HEXASTYLIS ARIFOLIA

Identifiers:

	Elcode	EO#	State:
EOCODE:	CEGL007460*006*AL	FONUM:	IDENT: Y
SNAME:	FAGUS GRANDIFOLIA - MAGNOLIA GRANDIFLORA - PINUS GLABRA - (M		
SCOMNAME:	SPRUCE PINE - MIXED HARDWOODS FOREST		
ELEMENT RANKS:	GRANK: G3G4	NRANK:	SRANK: S2S3

Locators:

NATION: US SITECODE:
SITENAME:
SURVEYSITE:

PRECISION: S

COUNTYCODE:	COUNTYNAME	LOCALJURIS:
ALCHOC	Choctaw	

QUADNAME:	QUADCODE:	MARGNUM:	DOTNUM:	TENTEN:
COFFEEVILLE LOCK AND	3108872		009	06,06

LAT: 314811N S:
LONG: 0881032W N:
E:
W:

TOWNRANGE:	SECTION:	MERIDIAN:	TRSNOTE:
010N002W	27	SS	SW4
010N002W	28	SS	E2
010N002W	34	SS	ENTIRE SECTION

DIRECTIONS: Choctaw National Wildlife Refuge: Along west side of the Tombigbee River.

PHYSPROV:	WATERSHED:
RH	03160201.220

Status:

SURVEYDATE: 2002-08-29 LASTOBS: 2002-08-29 FIRSTOBS: 2002-08-29
EORANK: B EORANKDATE: 2003-03-28
EORANKCOM: Good quality occurrence - minimal disturbance (some exotics present). Larger, more diverse occurrences known elsewhere in the region.

EODATA: Canopy is primarily characterized by PINUS GLABRA, PINUS TAEDA, QUERCUS PAGODA, QUERCUS NIGRA, and LIQUIDAMBAR STYRACIFLUA, with LIRIODENDRON TULIPIFERA occurring as a minor component. The subcanopy and the shrub layer are relatively open, being partially comprised of the foregoing canopy species in addition to ILEX VOMITORIA, HALESIA DIPTERA, CORNUS FLORIDA, and CARPINUS CAROLINIANA. The herbaceous component is sparse, containing a low diversity of species. Principal herbs include CHASMANTHIUM

SESSILIFLORUM and MITCHELLA REPENS.

CONTACTID: CONTACT.NAME:
CONTACT.NOTE:

Description:
EOTYPE:
GENDESC: An allulvial ridge along the west side of the Tombigbee River. A swamp forest comprised of various hardwoods bounds the west side of the ridge.

MINELEV: 40 MAXELEV: 50 SIZE:

Protection:

MACODE:	MANAME:	MATYPE:	CONTAINED:
M.USALHP*49	CHOCTAW NATIONAL WILDLIFE REFUGE	FFWWR	Y

MORELAND: MOREPROT: MOREMGMT: TNCINVOLVE:

MGMTCOM: Cogongrass is scattered in a few places - should be eradicated. Otherwise, no active management is needed.

PROTCOM:

Ownership:
OWNER: U.S. FISH & WILDLIFE SERVICE, CHOCTAW NATIONAL WILDLIFE REFUGE

OWNERINFO: Y
OWNERCOM: P.O. BOX 808, JACKSON, AL 36545

General Comments:
COMMENTS:

Additional Topics:
ADDTL.TOPICS:

TOPIC.KEYWORDS:

Documentation:
DATASENS: N BOUNDARIES: PHOTOS: Y
BESTSOURCE: SCHOTZ, ALFRED R.

SOURCECODE: CITATION:
PNDSCH01ALUS Schotz, Alfred R. Community Ecologist. Alabama Natural Heritage Program. Huntingdon College, Massey Hall, 1500 East Fairview Avenue, Montgomery, AL 36106-2148

SPECIMENS:

TRANSCRIBR: 03-03-28 ARS CDREV:
MAPPER: 03-03-28 ARS QC: Y

Record Maintenance:
LEADRESP: USALHP

MAP INDEX: 640

Element Occurrence Record
CORALLORHIZA WISTERIANA

Identifiers:
Elcode EO# State:
EOCODE: PMORC0M060*007*AL FONUM: IDENT: Y
SNAME: CORALLORHIZA WISTERIANA
SCOMNAME: SPRING CORALROOT
ELEMENT RANKS: GRANK: G5 NRANK: N5 SRANK: S2

Locators:
NATION: US SITECODE:
SITENAME:
SURVEYSITE:

PRECISION: S

COUNTYCODE:	COUNTYNAME	LOCALJURIS:
ALCHOC	Choctaw	

QUADNAME:	QUADCODE:	MARGNUM:	DOTNUM:	TENTEN:
COFFEEVILLE LOCK AND	3108872		006	06,03

LAT: 315026N S:
LONG: 0881002W N:
E:
W:

TOWNRANGE:	SECTION:	MERIDIAN:	TRSNOTE:
010N002W	15	SS	NE4,NW4
010N002W	15	SS	NW4,NE4

DIRECTIONS: At the entrance to Choctaw National Wildlife Refuge, proceed into the Refuge, past maintenance area, 0.5 miles to a small secondary road veering due west (road traverses edge of forest/field). Proceed west along secondary road ca. 400 feet then due north ca. 400 feet to population.

PHYSPROV:	WATERSHED:
RH	03160201.220

Status:
SURVEYDATE: 2003-03-08 LASTOBS: 2003-03-08 FIRSTOBS: 2003-03-08
EORANK: A EORANKDATE: 2003-03-14
EORANKCOM: Vigorous population in good quality habitat. Site is officially protected under federal jurisdiction. Minimal disturbance - some LONICERA JAPONICA present nearby.

EODATA: Roughly 150 plants observed, some in full anthesis while others having just emerged from the ground.

CONTACTID: CONTACT.NAME:
CONTACT.NOTE:

Description:
EOTYPE:

GENDESC: Upper terrace of bottomland forest under a mature canopy of PINUS TAEDA, QUERCUS NIGRA, LIQUIDAMBAR STYRACIFLUA, AND CARYA CORDIFORMIS.

MINELEV: 40 MAXELEV: 40 SIZE:

Protection:

MACODE:	MANAME:	MATYPE:	CONTAINED:
M.USALHP*49	CHOCTAW NATIONAL WILDLIFE REFUGE	FFWWR	Y

MORELAND: MOREPROT: MOREMGMT: TNCINVOLVE:

MGMTCOM: LONICERA JAPONICA is in close proximity to occurrence and should be eradicated.

PROTCOM:

Ownership:
OWNER: U.S. FISH AND WILDLIFE SERVICE, CHOCTAW NATIONAL WILDLIFE REFUGE

OWNERINFO: Y
OWNERCOM: P.O. BOX 808, JACKSON, AL 36545

General Comments:
COMMENTS:

Additional Topics:
ADDTL.TOPICS:

TOPIC.KEYWORDS:

Documentation:
DATASENS: N BOUNDARIES: PHOTOS: N
BESTSOURCE: SCHOTZ, ALFRED R.

SOURCECODE:	CITATION:
PNDSCH01ALUS	Schotz, Alfred R. Community Ecologist. Alabama Natural Heritage Program. Huntingdon College, Massey Hall, 1500 East Fairview Avenue, Montgomery, AL 36106-2148

SPECIMENS:

TRANSCRIBR: 03-03-14 ARS CDREV:
MAPPER: 03-14-03 ARS QC: Y
MAP INDEX: 640

Element Occurrence Record
CORALLORHIZA WISTERIANA

Identifiers:
Elcode EO# State:
EOCODE: PMORC0M060*008*AL FONUM: IDENT: Y
SNAME: CORALLORHIZA WISTERIANA
SCOMNAME: SPRING CORALROOT
ELEMENT RANKS: GRANK: G5 NRANK: N5 SRANK: S2

Locators:
NATION: US SITECODE:
SITENAME:
SURVEYSITE:

PRECISION: S

COUNTYCODE:	COUNTYNAME	LOCALJURIS:
ALCHOC	Choctaw	

QUADNAME:	QUADCODE:	MARGNUM:	DOTNUM:	TENTEN:
COFFEEVILLE LOCK AND	3108872		008	05,05

LAT: 314858N S:
LONG: 0881055W N:
E:
W:

TOWNRANGE:	SECTION:	MERIDIAN:	TRSNOTE:
010N002W	21	SS	SW4,SE4

DIRECTIONS: Choctaw National Wildlife Refuge: at Powes Landing at a point ca. 60 feet west of river bluff and ca. 40 feet north of landing access road.

PHYSPROV:	WATERSHED:
RH	03160201.220

Status:
SURVEYDATE: 2003-03-26 LASTOBS: 2003-03-26 FIRSTOBS: 2003-03-26
EORANK: C EORANKDATE: 2003-04-29
EORANKCOM: High quality habitat but small number of plants. Site is protected under federal jurisdiction.

EODATA: 14 plants were observed.

CONTACTID: CONTACT.NAME:
CONTACT.NOTE:

Description:
EOTYPE:
GENDESC: Elevated river terrace near the Tombigbee River under a filtered canopy of PINUS TAEDA, QUERCUS PAGODA, QUERCUS NIGRA, and LIQUIDAMBAR STYRACIFLUA, among others.

MINELEV: 40 MAXELEV: 40 SIZE:

Protection:

MACODE:	MANAME:	MATYPE:	CONTAINED:
M.USALHP*49	CHOCTAW NATIONAL WILDLIFE REFUGE	FFWWR	Y

MORELAND: MOREPROT: MOREMGMT: TNCINVOLVE:

MGMTCOM:

PROTCOM:

Ownership:
OWNER: U.S. FISH AND WILDLIFE SERVICE, CHOCTAW NATIONAL WILDLIFE REFUGE

OWNERINFO: Y
OWNERCOM: P.O. BOX 808, JACKSON, AL 36545

General Comments:
COMMENTS:

Additional Topics:
ADDTL.TOPICS:

TOPIC.KEYWORDS:

Documentation:
DATASENS: N BOUNDARIES: PHOTOS: N
BESTSOURCE: SCHOTZ, ALFRED R.

SOURCECODE: CITATION:
PNDSCH01ALUS Schotz, Alfred R. Community Ecologist. Alabama Natural Heritage Program. Huntingdon College, Massey Hall, 1500 East Fairview Avenue, Montgomery, AL 36106-2148

SPECIMENS:

TRANSCRIBR: 03-04-29 ARS CDREV:
MAPPER: 03-04-29 ARS QC: Y

Record Maintenance:
LEADRESP: USALHP

MAP INDEX: 640

Element Occurrence Record
LISTERA AUSTRALIS

Identifiers:
Elcode EO# State:
EOCODE: PMORC1N020*009*AL FONUM: IDENT: Y
SNAME: LISTERA AUSTRALIS
SCOMNAME: SOUTHERN TWAYBLADE
ELEMENT RANKS: GRANK: G4 NRANK: N? SRANK: S2

Locators:
NATION: US SITECODE:
SITENAME:
SURVEYSITE:

PRECISION: S

COUNTYCODE: COUNTYNAME LOCALJURIS:
ALCHOC Choctaw

QUADNAME: QUADCODE: MARGNUM: DOTNUM: TENTEN:
COFFEEVILLE LOCK AND 3108872 005 06,03

LAT: 315025N S:
LONG: 0881008W N:
E:
W:

TOWNRANGE: SECTION: MERIDIAN: TRSNOTE:
010N002W 15 SS NE4,NW4

DIRECTIONS: At the entrance to Choctaw National Wildlife Refuge, proceed into Refuge, past maintenance area, 0.5 miles to small secondary road veering due west (road traverses edge of forest/field). Proceed down secondary road ca. 0.2 miles then proceed due north 250-300 feet to population.

PHYSPROV: WATERSHED:
RH 03160201.220

Status:
SURVEYDATE: 2003-03-08 LASTOBS: 2003-03-08 FIRSTOBS: 2003-03-08
EORANK: A EORANKDATE: 2003-03-13
EORANKCOM: Large population in good quality habitat. Population is officially protected under federal jurisdiction.

EODATA: Greater than 80 plants observed assuming various stages of development - from early growth with tightly clustered flower buds to full anthesis.

CONTACTID: CONTACT.NAME:
CONTACT.NOTE:

Description:
EOTYPE:
GENDESC: Upper terrace of bottomland forest under a mature canopy of

PINUS TAEDA, QUERCUS NIGRA, CELTIS LAEVIGATA, ULMUS AMERICANA, and CARPINUS CAROLINIANA.

MINELEV: 40 MAXELEV: 40 SIZE: 4.0 ACRES

Protection:

MACODE:	MANAME:	MATYPE:	CONTAINED:
M.USALHP*49	CHOCTAW NATIONAL WILDLIFE REFUGE	FFWWR	Y

MORELAND: MOREPROT: MOREMGMT: TNCINVOLVE:

MGMTCOM: LONICERA JAPONICA is present in some areas - should be eradicated. Otherwise no active management is necessary.

PROTCOM:

Ownership:
OWNER: U.S. FISH AND WILDLIFE SERVICE, CHOCTAW NATIONAL WILDLIFE REFUGE

OWNERINFO: Y
OWNERCOM: P.O. BOX 808, JACKSON, AL 36545

General Comments:
COMMENTS:

Additional Topics:
ADDTL.TOPICS:

TOPIC.KEYWORDS:

Documentation:
DATASENS: N BOUNDARIES: PHOTOS: Y
BESTSOURCE: SCHOTZ, ALFRED R.

SOURCECODE:	CITATION:
PNDSCH01ALUS	Schotz, Alfred R. Community Ecologist. Alabama Natural Heritage Program. Huntingdon College, Massey Hall, 1500 East Fairview Avenue, Montgomery, AL 36106-2148

SPECIMENS:

TRANSCRIBR: 03-03-13 ARS CDREV:
MAPPER: 03-03-13 ARS QC: Y

Record Maintenance:
LEADRESP: USALHP

MAP INDEX: 640

Element Occurrence Record
LISTERA AUSTRALIS

Identifiers:
Elcode EO# State:
EOCODE: PMORC1N020*010*AL FONUM: IDENT: Y
SNAME: LISTERA AUSTRALIS
SCOMNAME: SOUTHERN TWAYBLADE
ELEMENT RANKS: GRANK: G4 NRANK: N? SRANK: S2

Locators:
NATION: US SITECODE:
SITENAME:
SURVEYSITE:

PRECISION: S

COUNTYCODE: COUNTYNAME LOCALJURIS:
ALCHOC Choctaw

QUADNAME: QUADCODE: MARGNUM: DOTNUM: TENTEN:
COFFEEVILLE LOCK AND 3108872 007 05,04

LAT: 314942N S:
LONG: 0881032W N:
E:
W:

TOWNRANGE: SECTION: MERIDIAN: TRSNOTE:
010N002W 22 SS NW4,NW4

DIRECTIONS: From the entrance to Choctaw National Wildlife Refuge, proceed south, past maintenance facility, along refuge road ca. 1.6 miles to population (road assumes two 90 degree turns); plants occur on either side of road.

PHYSPROV: WATERSHED:
RH 03160201.220

Status:
SURVEYDATE: 2003-03-08 LASTOBS: 2003-03-08 FIRSTOBS: 2003-03-08
EORANK: C EORANKDATE: 2003-03-18
EORANKCOM: Small number of plants - larger occurrences are known elsewhere in Alabama. Site is protected under federal jurisdiction. Japanese honeysuckle is encroaching upon population.

EODATA: Roughly 35-40 plants at various stage of maturity.

CONTACTID: CONTACT.NAME:
CONTACT.NOTE:

Description:
EOTYPE:
GENDESC: Upper terrace of bottomland forest under a filtered canopy of QUERCUS PAGODA, LIQUIDAMBAR STYRACIFLUA, QUERCUS NIGRA,

PINUS TAEDA, and CARPINUS CAROLINIANA. LONICERA JAPONICA is a frequent ground cover.

MINELEV: 40 MAXELEV: 40 SIZE:

Protection:

MACODE:	MANAME:	MATYPE:	CONTAINED:
M.USALHP*49	CHOCTAW NATIONAL WILDLIFE REFUGE	FFWWR	Y

MORELAND: MOREPROT: MOREMGMT: TNCINVOLVE:

MGMTCOM: Control Japanese honeysuckle.

PROTCOM:

Ownership:
OWNER: U.S. FISH AND WILDLIFE SERVICE, CHOCTAW NATIONAL WILDLIFE REFUGE

OWNERINFO: Y
OWNERCOM: P.O. BOX 808, JACKSON, AL 36545

General Comments:
COMMENTS:

Additional Topics:
ADDTL.TOPICS:

TOPIC.KEYWORDS:

Documentation:
DATASENS: N BOUNDARIES: PHOTOS: N
BESTSOURCE: SCHOTZ, ALFRED R.

SOURCECODE:	CITATION:
PNDSCH01ALUS	Schotz, Alfred R. Community Ecologist. Alabama Natural Heritage Program. Huntingdon College, Massey Hall, 1500 East Fairview Avenue, Montgomery, AL 36106-2148

SPECIMENS:

TRANSCRIBR: 03-03-18 ARS CDREV:
MAPPER: 03-03-18 ARS QC: Y

Record Maintenance:
LEADRESP: USALHP

MAP INDEX: 640

Element Occurrence Record
LISTERA AUSTRALIS

Identifiers:
Elcode EO# State:
EOCODE: PMORC1N020*011*AL FONUM: IDENT: Y
SNAME: LISTERA AUSTRALIS
SCOMNAME: SOUTHERN TWAYBLADE
ELEMENT RANKS: GRANK: G4 NRANK: N? SRANK: S2

Locators:
NATION: US SITECODE:
SITENAME:
SURVEYSITE:

PRECISION: S

COUNTYCODE: COUNTYNAME LOCALJURIS:
ALCHOC Choctaw

QUADNAME: QUADCODE: MARGNUM: DOTNUM: TENTEN:
COFFEEVILLE LOCK AND 3108872 008 05,05

LAT: 314828N S:
LONG: 0881055W N:
E:
W:

TOWNRANGE: SECTION: MERIDIAN: TRSNOTE:
010N002W 21 SS SW4,SE4

DIRECTIONS: Choctaw National Wildlife Refuge: at Powes Landing at a point ca. 60 feet west of river bluff and ca. 40 feet north of landing access road.

PHYSPROV: WATERSHED:
RH 03160201.220

Status:
SURVEYDATE: 2003-03-26 LASTOBS: 2003-03-26 FIRSTOBS: 2003-03-26
EORANK: C EORANKDATE: 2003-04-18
EORANKCOM: High quaility habitat, but small number of plants. Site is protected under federal jurisdiction.

EODATA: Approximately 25 plants were observed, nearly 75% of which were flowering.

CONTACTID: CONTACT.NAME:
CONTACT.NOTE:

Description:
EOTYPE:
GENDESC: Elevated river terrace near the Tombigbee River under a filtered canopy of PINUS TAEDA, QUERCUS PAGODA, QUERCUS NIGRA, and LIQUIDAMBAR STYRACIFLUA, among others.

MINELEV: 40 MAXELEV: 40 SIZE:

Protection:
MACODE: MANAME: MATYPE:
CONTAINED:
M.USALHP*49 CHOCTAW NATIONAL WILDLIFE REFUGE FFWWR Y

MORELAND: MOREPROT: MOREMGMT: TNCINVOLVE:

MGMTCOM:

PROTCOM:

Ownership:
OWNER: U.S. FISH AND WILDLIFE SERVICE, CHOCTAW NATIONAL WILDLIFE REFUGE

OWNERINFO: Y
OWNERCOM: P.O. BOX 808, JACKSON, AL 36545

General Comments:
COMMENTS:

Additional Topics:
ADDTL.TOPICS:

TOPIC.KEYWORDS:

Documentation:
DATASENS: Y BOUNDARIES: PHOTOS: N
BESTSOURCE: SCHOTZ, ALFRED R.

SOURCECODE: CITATION:
PNDSCH01ALUS Schotz, Alfred R. Community Ecologist. Alabama Natural Heritage Program. Huntingdon College, Massey Hall, 1500 East Fairview Avenue, Montgomery, AL 36106-2148

SPECIMENS:

TRANSCRIBR: 03-04-29 ARS CDREV:
MAPPER: 03-04-29 ARS QC: Y

Record Maintenance:
LEADRESP: USALHP

--Message-Boundary-2647--

Appendix 3

Element Stewardship Abstracts for Select Exotic Plant Species at Choctaw National Wildlife Refuge

Appendix 4

Definitions of Global and State Ranks

Definition of Heritage Ranks

The Alabama Natural Heritage Program uses the Heritage ranking system developed by The Nature Conservancy. Each species is assigned two ranks; one representing its rangewide or global status (G rank), and one representing its status in the state (S rank). Species with a rank of 1 are most critically imperiled; those with a rank of 5 are most secure.

Global Ranking System

G1 Critically imperiled globally (5 or fewer occurrences)

G2 Imperiled globally (6 to 20 occurrences).

G3 Either very rare and local throughout its range or found locally in a restricted range (21 to 100 occurrences).

G4 Apparently secure globally.

G5 Demonstrably secure globally.

GH Of historical occurrence throughout its range.

GU Possibly in peril range-wide but status uncertain.

GX Believed to be extinct throughout range.

G? Not ranked to date.

G#T# Rank for subspecies or varieties where # is equal to 1, 2, 3, 4, 5, H, U, X, or ?.

HYB Hybrid

Special state ranking for migrants:

SZ Not of conservation concern in Alabama because species in this category are so widely and unreliably distributed during migration or in winter that no small set of sites could be set aside with the hope of significantly furthering their conservation. A rank of SZN indicates the species does not breed in Alabama. Species that have resident breeding populations that are augmented in winter by non-breeding migrants may have dual ranks, one each for the breeding (B) and non-breeding (N) components.

SB Regularly occurring, migratory and present only during the breeding season. A rank of S3B indicates a species uncommon during the breeding season (spring/summer) in Alabama.

SN Regularly occurring, usually migratory and typically non-breeding species in Alabama; this category includes migratory birds, bats, sea turtles, and cetaceans which do not breed in Alabama but pass through twice a year or may remain in winter. A rank of S2B,S5N indicated a rare breeder but a common winter resident.

State Ranking System

S1 Critically imperiled in Alabama because of extreme rarity (5 or fewer occurrences of very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extirpation from Alabama.

S2 Imperiled in state because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extirpation from Alabama.

S3 Rare or uncommon in Alabama (on the order of 21 to 100 occurrences).

S4 Apparently secure in Alabama, with many occurrences.

S5 Demonstrably secure in Alabama and essentially "ineradicable" under present conditions.

SA Accidental in Alabama, including species (usually birds or butterflies) recorded once or twice or only at very great intervals, hundreds or even thousands of miles outside their usual range; a few of these species may even have bred on the one or two occasions they were recorded.

SE An exotic established in Alabama.

SH Of historical occurrence, perhaps not verified in the past 20 years, and suspected to be still extant.

SR Reported, but without persuasive documentation which would provide a basis for either accepting or rejecting the report (e.g. misidentified specimen). Some of these are very recent discoveries for which the program has not yet received first-hand information; others are old, obscure reports that are hard to dismiss because the habitat is now destroyed.

SRF Reported in error (falsely), but this error persisted in the literature.

SU Possibly in peril in Alabama but status uncertain; more information needed.

SX Apparently extirpated from Alabama.

S? Not ranked to date.

Definitions of Federal and State Listed Species Status

Federal - U.S. Fish and Wildlife Service

Endangered Species (LE) - in danger of extinction throughout all or a significant portion of their range.

Threatened Species (LT) - likely to become an endangered species within the foreseeable future throughout all or a significant portion of their range.

Proposed Endangered (PE) - the species is proposed to be listed as endangered.

Proposed Threatened (PT) - the species is proposed to be listed as threatened.

Partial Status (PS) - an infraspecific taxon or population has federal status but the entire species does not-- status is in only a poriton of the species range

Candidate (C) - Species for which the U.S. Fish and Wildlife Service has on file enough substantial information on biological vulnerability and threat(s) to support proposals to list them as endangered or threatened. Development and publication of proposed rules on Candidate taxa are anticipated, and USFWS encourages other agencies to give consideration to such taxa in environmental planning.