OLD FOREST
STATE NATURAL AREA
MANAGEMENT PLAN

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
NATURAL AREAS PROGRAM

NOVEMBER 2014

Prepared by:

Allan J. Trently
West Tennessee Stewardship Ecologist
Natural Areas Program
Division of Natural Areas
Tennessee Department of Environment and Conservation
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 2nd Floor
Nashville, TN 37243

TABLE OF CONTENTS

I INTRODUCTION

A. Guiding Principles

1. Preserve ecological and cultural values as a Tennessee Department of Environment & Conservation Class II Natural-Scientific Natural Area, in accordance with the Natural Areas Preservation Act of 1971 (Tennessee Code Annotated 11-14-101 et seq.) and in partnership with the Overton Park Conservancy (a nonprofit park management group acting on behalf of the City of Memphis).

2. Identify and implement management actions in partnership with the Overton Park Conservancy, in accordance with the Rules for Management of Tennessee Natural Resource Areas (Chapter 0400-2-8) and this management plan.

3. Provide and maintain reasonable, safe public access for passive day use recreation, scientific research, and public education in partnership with the Overton Park Conservancy in order to enhance awareness, gain public support, and increase protection of the natural area.

B. Significance

Old Forest State Natural Area (Old Forest SNA or simply the Old Forest) is a 126-acre forest tract located within the 342-acre Overton Park in Memphis (see map in Appendix I). According to the 1988 Overton Park Master Plan the primary purpose of the park is to provide, "a natural environment in which Memphis' expanding urban population can find respite amidst the city's hustle and bustle and refreshment through recreation in convenient, safe and scenic surrounding." A survey conducted in 1986 revealed that many park visitors listed "relaxation" or "enjoying scenery" as primary reasons for being in the park. The natural area is a significant because it provides park users with these services. There are very few areas within the Memphis metropolitan area that provide commensurate experiences or opportunities. The natural area's forest is truly a rare and highly demanded landscape in Memphis.

The Old Forest is significant due to its location near numerous colleges, the University of Memphis, Rhodes College and other schools involved in research. To date, research in the fields of urban forestry, botany, ecology and arachnology have been conducted in or near the natural area. There are numerous opportunities for study in the natural area.

The old forest contains a number of canopy trees estimated to be 200-years old or more and reaching heights of well over 100 feet and measure four to five feet or larger in diameter at breast height.

Two-hundred and forty-five native plant species including 60 species of trees have been located in the natural area. Dr. Heineke wrote in *Floristic Study of the Overton Park Forest*:

> "Considering the relatively small area occupied by the forest, the lack of significant topographic variation and the removal of wetland/stream-side habitat created when Lick Creek was channelized many years ago; this is an amazing number of plant species. It clearly points to the biological richness and age of the forest."

C. Management Authority

The City of Memphis owns the property and the Overton Park Conservancy (OPC) is the lead manager of the natural area. The Overton Park Conservancy manages the area on behalf of the City of Memphis, with the support and partnership of the Tennessee Department of Environment & Conservation (TDEC), Division of Natural Areas (DNA). All parties will ensure that the area is managed according to the Natural Areas Preservation Act of 1971 (Act; Tennessee Code Annotated 11-14-101 et seq.) and the Rules for Management of Tennessee Natural Resource Areas (Rules; Chapter 0400-2-8). All management must be within accordance with the Act and Rules with the exception of any deviations to the Act or Rules agreed upon by all managing parties and with the approval of the TDEC Commissioner. All approved deviations from the Act or Rules must be addressed in this management plan. Because the Old Forest is located within a City of Memphis park, all visitors are subject to the requirements of the City of Memphis Code of Ordinances, Park & Parkway Regulations, Section 12-84 et seq.

Contacts:

Overton Park Conservancy: 1914 Poplar Avenue #202, Memphis, TN 38104. Telephone: (901) 214-5450. Website: www.overtonpark.org.

City of Memphis: City Hall, 125 N. Main Street, Memphis, TN 38103. Telephone: (901) 576-6000. Website: www.cityofmemphis.org.

Tennessee Department of Environment and Conservation, Division of Natural Areas: William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 2nd Floor, Nashville, TN 37243; (615) 532-0431; Website: http://www.state.tn.us/environment/natural-areas/
Jackson Environmental Field Office: 1625 Hollywood Drive, Jackson TN 38305, phone (731) 512-1369.

II DESCRIPTION

A. Statutes, Rules, and Regulations

Old Forest SNA is designated by law as a Class II Natural Area under the Natural Areas Preservation Act of 1971 (T.C.A. 11-14-101; Appendix III). This classification is defined as "natural-scientific. . . .which are areas associated with and containing floral assemblages, forest types, fossil assemblages, geological phenomena, hydrological phenomena, swamplands and other similar features or phenomena which are unique in natural or scientific value and are worthy of perpetual preservation" (T.C.A. 11-14-105). The area is managed in accordance with the Rules for Management of Tennessee Natural Resource Areas (Chapter 0400-2-8; Appendix IV).

B. Project History Summary

Landscape architect George E. Kessler designed the 342-acre Overton Park, which was created in 1901. When Overton Park was created, it contained 200 acres of mature forest that was widely recognized as a civic treasure.

Most of the old forest was given protection from developement in the design. On June 8, 2011, 126 acres of the old forest were designated as a Tennessee state natural area by an act of the Tennessee General Assembly.

C. Natural Resource Assessment

1. Description of the Area

Old Forest SNA (see Appendix I for a map of the natural area) is a 126-acre natural area located in the mid-town region of Memphis, Tennessee. It is a part of the 342-acre Overton Park. The park and natural area are surrounded by urban and residential areas.

The natural area contains a network of unpaved trails and is circled by a 1.4-mile gravel path and more than two miles of paved roads that are closed to motorized traffic. The public use these trails and roads for activities such as walking, running, bicycling, birding, pet walking, photography, and nature study. There are no structures within the natural area.

The natural area resides within the Loess Plains ecoregion. The Loess Plains are characterized by flat rolling plains, 250-500 feet in elevation, with loess deposits up to 50-feet thick. The dominant communities are oak-hickory and oak-hickory-pine forests.

Memphis silt loam makes up a majority of the soil profile. The Memphis series consists of very deep, moderately permeable, well drained soils that formed in loess deposits more than 48 inches in thickness.

The natural area is entirely forested. Southern red oak, tulip poplar, white oak, bitternut hickory, black cherry and sassafras dominate high ground while cherrybark oak, Shumard's oak and sweetgum dominate the lower slopes. The most commonly observed understory trees are hop hornbeam, red maple, redbud, pawpaw and flowering dogwood. Vines include eight species of grape, four cat-briers or green-briers, rattan vine and poison ivy. Commonly occurring ground cover species in the spring are toothwort, wake-robin, smooth yellow violet, celandine poppy, mayapple, wild ginger, and woodland bluegrass. Commonly observed species in summer and fall include asters, white avens, Virginia knotweed, American bellflower and cut-leaf coneflower.

Old Forest SNA is an important remnant of an old growth ecosystem that has largely vanished from west Tennessee. By the late 1800s, much of the forest that once covered the Chickasaw Bluffs was cleared for timber and farmland. The natural area contains trees estimated to be over 200 years old. Other old growth characteristics found in the natural area include the presence of large snags (standing dead trees) and large fallen trees. Large canopy gaps exist where large trees have fallen. A rich understory of woody and herbaceous plants grows in these gaps.

Because of its history and location within an urban area, the natural area contains a large number of exotic species. Some commonly observed species include Chinese privet, creeping euonymus, English ivy, Japanese honeysuckle, periwinkle, and kudzu.

2. Description of Threats

Old Forest SNA experiences many of the same problems typical of parks in large urban areas. Past illegal activities include prostitution, assault, drug peddling and robbery. The Overton Park Conservancy and the city of Memphis have made numerous improvements to the park to address these problems. Improvements include better lighting, increased police patrol and park staff presence, and the addition of cameras.

To date, the trail system contains many dead-end trails and numerous spur or cross trails that run closely to other trails in a seemingly pointless fashion. The convoluted and redundant trail system creates visitor confusion. It is easy to get temporarily lost on these trails. It also creates an environment where it is easy to avoid being seen by others. This in turn discourages positive use by natural area visitors and creates a welcoming atmosphere for illicit and criminal behavior. The numerous trails also cause an undue burden on maintenance staff and volunteers to maintain these trails. Finally, each trail contributes to the fragmentation of the

forest and contributes to the spread of invasive, exotic plants by providing a conduit for transfer and by providing disturbed areas for these plants to take root.

To rectify the trail situation the following actions are either proposed or obligatory:

- All proposed new trails will be approved by the Overton Park Conservancy and the DNA before construction. Due to the small size of the Old Forest SNA and to the extensive trail system already in place new trails are not recommended
- A program or set of programs to educate natural area users and volunteers on the reasons why some trails should be closed or recommended for closure should be enacted by the Overton Park Conservancy.
- The Overton Park Conservancy and the DNA will reduce the number of trails in the natural area based on the following criteria:
    - All dead-end trails will be closed. Closure of these trails is of the highest priority.
    - All other trails that are consistently used for illegal activities will be closed.
    - Redundant trails that add to the confusion and to safety concerns should be highly considered for closure.
    - Trails next to old-growth trees may be considered for closure or relocation if it can be demonstrated that damage to the tree is occurring because of the trail location and it is feasible to close or relocate the trail. However, the old-growth trees are an attraction and therefore trail closure or relocation must only be considered in extreme circumstances.
    - Trails that are causing resource damage may be recommended for closure. Resource damage may include, but is not limited to, the following:
        - creating avenues for the spread of invasive species
        - compacting of soil within the rooting space of old growth trees
        - creating erosion problems

As of August 2014, 94 exotic plant species have been identified at Old Forest SNA. Nineteen exotic plant species ranked as either a “severe threat” or a “significant threat” by the Tennessee Exotic Pest Plant Council (TNEPPC) occur in Old Forest SNA (Table 1 below).

Table 1. Invasive Exotic Plants Identified in Old Forest SNA that are Ranked as Severe or Significant Threats by TNEPPC.

Species Name	**Common Name**	**TN EPPC Threat Rank**	**Population Size in Natural Area**
Allium vineale	Wild Garlic	Significant	Infrequent. Limited to small patches in sunlit areas especially along forest edges
Ailanthus altissima	Tree of Heaven	Severe	Common. Primarily along forest edges and gaps.
Albizia julibrissin	Silktree	Severe	Infrequent. Primarily along forest edges.
Broussonetia papyrifera	Paper Mulberry	Significant	Common. Particularly in the northeast corner.
Celastrus orbiculatis	Oriental Bittersweet	Severe	Infrequent.
Elaeagnus pungens	Thorny Olive	Significant	Infrequent.
Glechoma hederacea	Ground Ivy	Significant	Infrequent.
Ligustrum sinense	Chinese Privet	Severe	Common. Widely spread throughout the forest.
Lonicera japonica	Japanese honeysuckle	Severe	Common. Widely spread throughout the forest.
Maclura pomifera	Osage Orange	Significant	Infrequent.
Melia azedarach	Chinaberry	Significant	Rare
Microstegium vimineum	Japanese stiltgrass	Severe	Common. Widely spread throughout the forest.
Paulownia tomentosa	Princess Tree	Severe	Infrequent. Limited to small patches in sunlit areas along forest edges and gaps.
Persicaria longiseta	Bristly Lady's-thumb	Significant	Infrequent. Occurs along trails.
Pueraria montana	Kudzu	Severe	Common. Dense patches scattered through the natural area
Rosa multiflora	Multiflora Rose	Severe	Infrequent
Setaria faberi	Chinese Foxtail	Significant	Infrequent. Occurs along forest edges
Sorghum halepense	Johnson Grass	Severe	Infrequent. Occurs along forest edges
Vinca major	Greater Periwinkle	Significant	Common. Small to large populations scattered throughout the forest.

Though all exotics listed in Table 1 will be considered for control/eradication, not all are abundant in the natural area and therefore may not pose a severe threat at this time. Other non-native plants may be considered for management if it can be demonstrated that they are causing significant or severe ecological damage. These plants may include English ivy, winter creeper, sacred-bamboo and Beale's barberry. The Overton Park Conservancy and DNA will prioritize exotics for control or eradication based on their degree of threat to native plants, plant communities and where applicable to public health and wildlife health.

Old-growth trees are one of the most important characters of the natural area. In recent years many of these trees have died due presumably to old age or because they have fallen. It is predicted that all the old trees will be lost in the next 50 years. Though it is impossible to save these trees, it is important that managers identify and manage all health stressors to the best of our abilities. Stressors may include soil compaction and diseases. It is hoped that the life of these trees can be prolonged with appropriate management. Managers should also identify the rate of regeneration of desired trees such as oaks and hickories and if necessary take measures to promote their regeneration. Since invasive exotic plants are a major factor in their regeneration, further steps to eradicate or control these plants should be enacted.

Forest health issues related to exotic insects and diseases are on the rise in Tennessee and pose serious risks to forest ecosystems. For example emerald ash borer, thousand cankers disease are known to occur in Tennessee. Managers should be aware of their presence and take appropriate actions to prepare for their arrival in West Tennessee.

D. Cultural Assessment

Numerous pottery shards and projectile points have been found on a floodplain terrace in Overton Park near Lick Creek, just outside the boundary of the Old Forest SNA, but no formal archaeological study of the park has occurred to date.

E. Target Elements:

Inventory work is ongoing under the guidance of the Overton Park Conservancy and TDEC, Division of Natural Area and has been bolstered by visiting biologists. A floristic study of the plants of the Old Forest was conducted by Dr. Thomas E. Heineke and is included in Appendix II. Tennessee Ornithological Society, Memphis Chapter members have provided an inventory of birds (Appendix V)

1. Communities

To determine ecological systems within Old Forest SNA, Lower Mississippi Valley Gap Landuse/Landcover data from the United States Geological Service (USGS), Biological Resources Division, National Wetlands Research Center were referenced. Community names and descriptions are based on ecological systems described by NatureServe. The CES numbers provided are from the NatureServe databases.

a) East Gulf Coastal Plain Small Stream and River Floodplain (CES202.898) - This is a predominantly forested system of the East Gulf Coastal Plain associated with small brownwater rivers and creeks.

In contrast to East Gulf Coastal Plain Large River Floodplain Forest (CES203.489), it has fewer major geomorphic floodplain features typically associated with large river floodplains. Those features that are present tend to be smaller and more closely intermixed with one another, resulting in less obvious vegetational zonation. Bottomland hardwood tree species are typically important and diagnostic, although mesic hardwood species are also present in areas with less inundation, such as upper terraces and possibly second bottoms. As a whole, flooding occurs annually, but the water table usually is well below the soil surface throughout most of the growing season. Areas impacted by beaver impoundments are also included in this system.

b) East Gulf Coastal Plain Northern Loess Plain Oak-Hickory Uplands (CES202.887) – This is the former matrix hardwood system flanking the loess bluffs of the most northern portions of the Upper East Gulf Coastal Plain of western Tennessee, western Kentucky, possibly southern Illinois, and northern Mississippi. Extensive forests once covered this broad area of generally flat to rolling uplands. Most have been cleared for agriculture due to the rich, productive soils derived from relatively thick loess deposits. The areal extent of this forested system has been so heavily reduced that the component community types remain undocumented and speculative at best. Typical stands would contain oaks and other hardwoods. Some typical canopy dominants include southern red oak, white oak, mockernut hickory, post oak, and black oak. Scattered successional stands would be dominated by eastern red cedar. In addition, sweet gum and tulip poplar may be present.

2. State and Federally Listed Animals and Plants

There is one listed species for the Old Forest SNA, the Mississippi kite (Deemed in Need of Management). While the Mississippi kites preferred nesting habitat is often described as extensive, mature wooded areas especially within bottomland forests, many recent kite observations have been from urban areas. Kites have nested on the grounds of the Memphis Zoo and the Dixon Art Museum. The kite is likely to nest in the natural area and thus it is important to survey the area for nests.

Five plants threatened primarily by commercial harvest in Tennessee are listed as commercially exploited. These are American ginseng (*Panax quinquefolius*), goldenseal (*Hydrastis canadensis*), pink lady's-slipper (*Cypripedium acaule*), ramps (*Allium tricoccum),* and narrowleaf ramps (*Allium burdickii).* The DNA does not recommend they be included in the normal environmental review process. Landowners and land managers should be aware that harvest of these plants, in many cases, is not sustainable.

Three state-listed birds have been observed in Overton Park. These birds include sharp-shinned hawk, Swainson's warbler and barn owl none of which are known to nest in the natural area. Sharp-shinned hawks are typically associated with coniferous and mixed woodlands and prefer to nest in pines but will also use red cedar. There is a lack of pines and cedars in the Old Forest SNA and therefore it is not likely that sharp-shinned hawks breed in the natural area. There is a single historic record of Swainson's warbler from the natural area. Swainson's warblers nest in thick understory cover in bottomland forests. This habitat does exist in the natural area though in a highly fragmented condition. Surveys for territorial birds and nests are recommended. Barn owls are known to use urban habitats especially in and around parks with large open space. Since these conditions exist in and around the Old Forest SNA, it is likely that barn owls nest in the area but since there are no nesting records, the barn owl will remain provisional.

The DNA, Natural Heritage Program previously listed goldenseal as a plant of Special Concern. Goldenseal was first reported from Overton Park in 1973. It is found in a number of places within the natural area. The plant is commercially exploited throughout its range due to its medicinal values. Due to the possibility illegal harvesting, goldenseal should be monitored. To date, there is no evidence that goldenseal has been harvested from the natural area.

III MANAGEMENT OF OLD FOREST STATE NATURAL AREA

The Overton Park Conservancy and the City of Memphis are the primary managers of the property. The Overton Park Conservancy is in charge of carrying out the day to day management of the natural area. All management and policy decisions must adhere to the tenets outlined in the Natural Areas Preservation Act of 1971 and the Rules for Management of Tennessee Natural Resource Areas. The DNA will provide assistance in planning and management and will provide consultation to the Overton Park Conservancy especially on management issues dealing with ecology and rare species protection. The DNA is responsible for developing and updating the management plan. The management plan is developed and updated in cooperation with the Overton Park Conservancy and the City of Memphis. All partners will work together to achieve the goals set forth in this management plan.

Management goals encompass administrative oversight, maintenance, public relations and ecological issues. These management goals are all addressed below in general terms. More specific and detailed action plans designed to achieve these goals may be written as needed and attached to the completed Old Forest SNA Management Plan.

Natural Areas Goals and Objectives:

1. **Provide Administrative Oversight Responsibilities**
    a. Develop an annual report addressing the accomplishments and the future needs of the natural area. A completed annual report should be filed within the DNA database by the end of February of each year.
    b. Update management plan as needed.
2. **Address Maintenance and Operational Needs**
    a. The OPC will conduct regular site visits throughout the year to check on conditions.
    b. The OPC and the DNA will conduct site visits to the natural area when deemed necessary in response to reports of illegal activities, resource issues and other public concerns.
        i. The DNA and OPC will create reports for each site visit and the DNA will enter reports into the DNA database.
    c. The boundary will be marked within a reasonable timeframe. Once marked, the boundary must be periodically inspected to ensure the boundary is clearly marked and there have not been any illegal encroachments onto the property.
        i. The OPC will respond, subsequent to or with the approval of the City of Memphis, to illegal encroachments (such as vehicles entering the property or unapproved trails) on the property soon after the violation is noticed or reported by blocking the illegal entrance, putting up boundary signs and signs stating the penalty for illegal ingress or by reporting the incident to the proper authorities.
    d. The OPC will, subsequent to or with the approval of the City of Memphis, provide gates and fencing when appropriate in order to stop illegal ingress.
    e. Trail System
        i. Address all issues as stated in the *Description of Threats* section of this management plan
        ii. Maintain the trail system so that it is well marked with signs and/or blazes, and free of obstructions.
    f. The OPC will conduct routine trash removal.

3. **Provide and maintain opportunities for public use of the natural area and provide opportunities for education and research addressing the natural area and its values.**
    a. The DNA will provide information regarding the history, location, and the values of the natural area on their website.
        i. The DNA website will provide a link to the Overton Park Conservancy and the City of Memphis.
    b. The Overton Park Conservancy and City of Memphis will undertake initiatives to increase public safety

c. OPC may undertake initiatives to increase public awareness and knowledge of the natural area such as conductiing hikes and/or other special events to increase public awareness, enjoyment, and knowledge of the natural area.
d. The DNA and OPC will develop opportunities for research in the natural area.
    i. Develop a relationship with research institutions and promote research opportunities to these institutions.
    ii. Ensure all researchers get the appropriate research permits from the Division of Natural Areas and other necessary departments. The West Tennessee Stewardship Ecologist should approve the conditions of the permit before issuance. These measures are necessary to avoid research methods that could be destructive to native species or communities.
    iii. Stay informed of research and keep a research history of all past and future research conducted in the natural area.

4. Manage the ecological and natural resources of the natural area in order to restore, maintain or improve these resources.

a. Create an inventory of plants, animals and ecological communities within the natural area in order to foster a more inclusive management of natural and ecological resources.
b. Develop and implement a management strategy to manage or eradicate invasive exotic pest plants.
c. Work with the appropriate experts to identify threats to natural resources and to develop and conduct the appropriate management needed to restore, maintain or improve these resources.
d. Identify all other ecological and biological resource management issues within the natural area (these could include erosion, toxic substances, and others). Work with the appropriate experts when necessary to eradicate or lessen these threats if eradication is not possible.
e. Monitor the results of all management actions conducted. Management that does not provide the intended results or is deemed too destructive to natural resources should be modified or stopped if necessary. A new management action should be adopted.
f. Identify potential threats to ecological or natural resources within and outside the natural area.
    i. Outside threats should be addressed by building a relationship with adjacent landowners.
    ii. The DNA, the Overton Park Conservancy and the City of Memphis should provide assistance to landowners who are responsive to these threats.

iii. If landowner assistance is not obtainable, the potential threats should be monitored and dealt with when they encroach upon the natural area.

IV PUBLIC USE

Overton Park allows day-use only. Visitors may park at any designated parking area, which are all located outside of the Old Forest boundary. Because the Old Forest is located within a City of Memphis park, all visitors are subject to the requirements of the City of Memphis Code of Ordinances, Park & Parkway Regulations, Section 12-84 et seq.

Recreation activities should be encouraged on developed foot trails. Off-trail activities should be limited and discouraged unless necessary to conduct management. Research activities are encouraged, but must be coordinated through the DNA to obtain a required permit.

A. Permitted Uses

1. Biking in Tennessee state natural areas is typically not permitted. The Rules for Management of Tennessee Natural Resource Areas Chapter and rule number 0400-02-08-.13 says the following about biking in a natural area:

   "Trail development in designated natural areas is limited to foot trails and foot bridges. Only low impact recreation associated with hiking is permitted on foot trails. An exception may be granted for county or municipal-owned natural areas where biking activities were expressly permitted prior to designation, provided that it is mentioned as a deviation in the management plan as provided in Rules 0400-02-08-.5 and 0400-02-08-.30."

   Overton Park which includes the old forest is a municipal-owned park where biking has been expressly permitted in the park prior to the old forest's designation. Therefore, the Old Forest SNA meets the criteria for permitted biking granted in the Rules. The state will grant an exception for biking in the Old Forest SNA for the following reasons:

   i. The criteria for exception have been met
   ii. There is a demand by park users to continue biking in the Old Forest
   iii. The OPC has expressed a clear interest in continuing biking in the old forest
   iv. Past biking has not shown to cause any detrimental effects to soils or other natural resources

The DNA and the OPC may limit biking in the natural area if biking is found to have any detrimental effects.

2. Pedestrian and wheelchair use is permitted on all roads and trails.

3. Birding, photography, and other forms of nature observation are permitted on all roads and trails.

4. Pet walking is permitted on all roads and trails, provided that pets are leashed and cleaned up after as required by the City of Memphis Code of Ordinances, Section 8-16-6 and Section 8-16-9.

5. Off-trail access is only permitted with special permission from the OPC, with the exception that TDEC and OPC employees or volunteers may walk off-trail as needed to perform ecological assessments and inventories.

B. Prohibited Uses

1. The creation of new trails is not permitted unless under the permission of the Overton Park Conservancy and the DNA.
2. **Horseback riding** – Horseback riding is not permitted anywhere within the natural area. Horses can cause significant degradation of natural resources through dispersal of invasive exotic pest plants, increased soil erosion, trampling and loss of vegetation, soil compaction, alteration of wetland areas, and decreased water quality.
3. **Motorized vehicles** – Motorized vehicles are not allowed within the natural area other than OPC, DNA, and City approved service vehicles providing maintenance or management services, providing support for OPC and DNA approved events, or for emergencies. Authorized city employees, OPC staff and volunteers may use vehicles when necessary for providing maintenance. Motorized vehicle use can cause significant degradation of the natural resources through increased soil erosion, crushing and loss of vegetation, soil compaction, alteration of wetland areas, decreased water quality, the alteration of wildlife behavior, and disrupts passive recreation activities.
4. **Collection or destruction of plants, animals, minerals, or artifacts** – The collection or destruction of any natural feature is not permitted anywhere within the natural area unless approved in advance by a permit obtained from the DNA.
5. **Consumption or possession of alcoholic beverages and controlled substances** – The consumption or possession of alcoholic beverages, controlled substances, and other intoxicating drugs or chemicals is not permitted anywhere in the natural area.

6. **Camping and/or fires** – Neither of these activities are permitted in the natural area. Managers may use controlled burns in the natural area for the purpose of management.
7. **Hunting** –Hunting is not allowed anywhere on the property.

V DEVELOPMENT AND MAINTENANCE ISSUES

A. Parking

At this time, no additional parking is recommended to serve the visitors to the old forest.

B. Signage

Signage for the Old Forest is insufficient. Primary needs include boundary marking, "gateway" kiosks at trail entrances, interpretive brochures for park visitors, and guide markers and interpretive markers along the trails.

C. Trails

The Old Forest SNA contains a network of unpaved trails, and is circled by a 1.4-mile gravel trail and more than two miles of paved roads that are closed to motorized use (other than exceptions noted above). Maintenance of the paved roads is performed by the Overton Park Conservancy and City of Memphis. Maintenance of gravel and unpaved trails is performed by the Overton Park Conservancy, City of Memphis, and volunteer groups supervised by the OPC.

D. Buildings

There are no buildings inside the boundary of the Old Forest SNA.

E. Boundary / Site Patrol

The larger boundary of Overton Park is delineated by city streets: East Parkway, Poplar Avenue, Kenilworth, McLean, and North Parkway. The boundary of the Old Forest SNA has been surveyed by the Overton Park Conservancy and is marked with State Natural Area boundary signs.

F. Litter Removal

Litter removal is provided by the OPC and volunteers. To date, litter is not a significant problem in the Old Forest SNA. If litter problems become worse, managers should focus on education and continued volunteer cleanup events.

G. Adjacent Lands

The Old Forest SNA is surrounded by Overton Park, which in turn is surrounded by largely residential neighborhoods. A fire station and 12-acre city maintenance area are located inside Overton Park on the east side; the fenced maintenance area adjoins the southeast corner of the Old Forest SNA. A public golf course adjoins the southern boundary of the Old Forest SNA.

VI . EDUCATION AND RESEARCH

Since the Old Forest SNA is situated in a densely populated urban area, there are many opportunities for education and research. The OPC and volunteer groups provide free educational and interpretive programming to the public on a regular basis. These groups and the DNA should promote natural area values. These values include recreational, aesthetic, and ecological services provided by the conservation and preservation of natural areas.

The DNA will provide guidance and resources to the OPC to promote research of the Old Forest SNA. All research activities in the natural area shall be coordinated with the OPC and the DNA. As per state law, permits are required for the collection of any plants or animals.

A bibliography of some past research conducted at Old Forest SNA follows:

Cappellato, R., and K.A. Bohnert. 2006. Valuation of Ecosystem Services of Overton Park, Memphis, TN. Poster. Annual meeting of the Ecological Society of America. Memphis, TN.

Kouba, A., Davis, J., Falcone, J.F., Cassel, S., Covic, C., Lieb, L., Taylor, M. 2010. Tree diversity within a sub-section of the urban forest, Overton Park. A report to the Memphis Zoological Society. http://www.memphiszoo.org/assets/1478/memphis_zoo_tree_biodiversity_survey_december_2010.pdf.

Davis, J.R., S.A. Boyle, A.A. Khan, A.L.J. Gay, J.M. Grisham and L.E. Luque. 2012. Snake Parasitism in an Urban Old Forest Park. Journal of Urban Ecosystems 15:739-752

Reichling, S.B., C. Baker and C. Swatzell. 2011. Aggregations of Sphodros rufipes (Araneae: Atypidae) in an Urban Forest. Journal of Arachnology 39: 503-505

VII RESPONSIBILITIES OF PARTICIPANTS

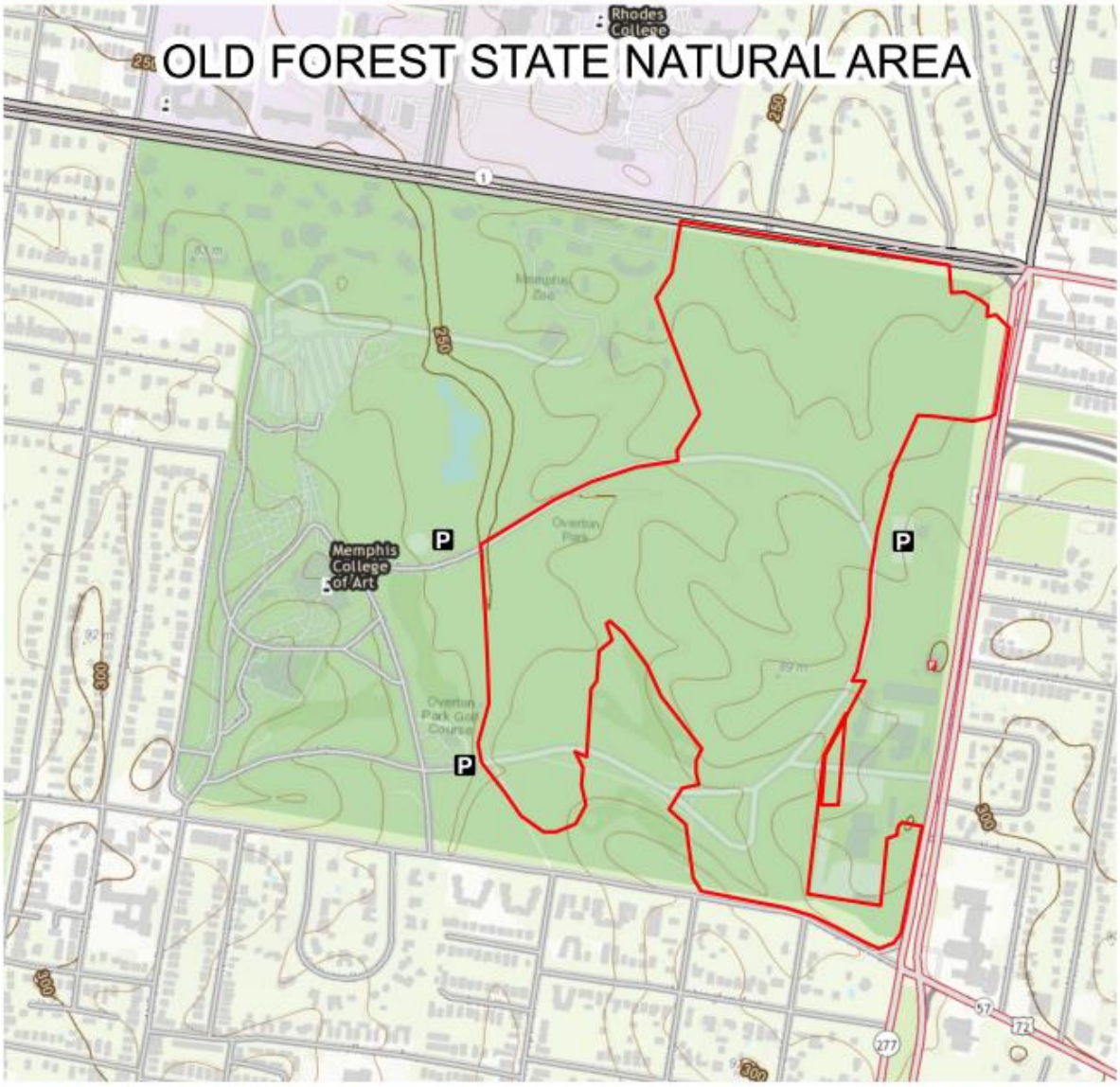
The Overton Park Conservancy is the lead agency designated by the property owner (City of Memphis) and is responsible for day-to-day management duties and decisions. The Old Forest SNA will be managed in accordance with the Natural Areas Preservation Act of 1971 (T.C.A. 11-14-101 et seq.), the Rules for Management of Tennessee Natural Resource Areas (Chapter 0400-2-8), and the management actions outlined in this plan.

VIII APPENDICES

APPENDIX I	Old Forest Natural Area General Location and Detail Map
APPENDIX II	Floristic Study of the Overton Park Forest
APPENDIX III	Natural Areas Preservation Act of 1971
APPENDIX IV	Rules of the Tennessee Department of Environment and Conservation
APPENDIX V	Bird Species Documented in the Old Forest State Natural Area

APPENDIX I

Old Forest State Natural Area General Location and Detail Map



1 inch = 750 feet
1:9,000

Natural Area Boundary

Parking

Trail Head

Overton Park Boundary

DIVISION OF NATURAL AREAS
TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION

(615) 532-0431

APPENDIX II

FLORISTIC STUDY OF THE OVERTON PARK FOREST

Floristic Study of the Overton Park Forest, Memphis, Shelby County, Tennessee

Thomas E. Heineke, PhD
3014 Sycamore View Road
Bartlett, Tennessee 38134

August 2009

Overview

Overton Park in Memphis, Shelby County, Tennessee, is approximately 348 acres (Kessler, undated drawing), much of which was originally forested. It was established in 1901 as the first public park in the City of Memphis. It is bounded on the north by North Parkway, the east by East Parkway, the south by Poplar Avenue and on the west by Kenilworth Street and McLean Boulevard. When the park was created, the Overton Park Forest covered 200 acres according to its designer, George E. Kessler. The Overton Park Forest currently covers approximately 142 acres located in the eastern one-half of the park. This report is based upon the 125 acres that is currently open to the public, and does not include 17 acres of forest located inside the Memphis Zoo's fence.

Historically, paved roads transecting the park were open to motor vehicular traffic. In 1972, the city experimented with Bicycle Days on the interior roads (no automobiles or motorcycles) with just pedestrians and bicycles allowed to access these areas. In 1974, the term "People's Day" was used and signs were erected on swinging gates for the weekends. Finally, on April 13, 1987, the permanent traffic ban for the interior park roads was enacted by the Memphis Park Commission, and the gates were permanently closed to vehicular traffic. A network of dirt trails also traverses the forested portion of the park and small concrete bridges dating from the late 1920's are found in multiple locations along this trail system. However, much of the forest within the park remains un-impacted by roads and trails, especially in the north-central part.

Summary of Findings

A total of 3321[1] flowering plant species from 85 plant families were found to be inhabiting the Overton Park Forest. Of these 245 are native species and 87 are non-native. Only native or naturalized (growing and reproducing without aid) plants were recorded. Plants that were obviously planted and are not spreading on their own were not included. Considering the relatively small area occupied by the forest, the lack of significant topographic variation and the removal of wetland/stream-side habitat created when Lick Creek was channelized many years ago, this is an amazing number of plant species. It clearly points to the biological richness and age of the forest. Two plant species,

[1] The following species have been reported to have been found in Overton Park Forest. However, none of these were found during this effort. There is certainly a possibility that some of these were missed in this survey and if any are found and verified, they should be added to the list.

Aplectrum hymale
Polygonum hydropiper
Polygonum hydropiperoides
Tipularia discolor
Centauria maculosa
Agastache foenicium
Aster ericoides
Eupatorium coelestinum
Zizia aurea
Coreopsis tinctoria
Aster divaricatis
Erigeron pulchellus
Erythronium albidum
Hydrocotyle sp.
Lobelia siphilitica
Mertensia virginica
Vicia sativa
Fragaria virginica

goldenseal (*Hydrastis canadensis*) and oceanblue phacelia (*Phacelia ranunculacea*), both listed on the Tennessee Natural Heritage Program (TNHP) Rare Plant List (2008), were found in the forest. Both plants are designated as species of Special Concern by the TNHP. In addition, two trees occur which are very likely Tennessee State Champion Trees. These are Shumard oak (*Quercus shumardii*) and pawpaw (*Asimina triloba*). Unofficial measurements of the Shumard oak showed it to be approximately 62.7 inches DBH (diameter at breast height), 125 feet tall, with a spread of about 105 feet. The papaw is 8.7 inches DBH, and approximately 50 feet tall, with a 30 foot spread. (It will be necessary to contact the TNHP to get verification of these two trees as state champions).

Methods

Pedestrian surveys were performed within Overton Part Forest an average of once a week from August 2008 through July 2009. An estimated 175 to 200 hours were spent in the forest. Trails and the trail-less portions of the forest were walked randomly. Specimens of plant species that could not be identified in the field (e.g., sedges, grasses, asters) were collected dried in a plant press and identified later with the aid of a dissecting microscope and taxonomic keys. About 200 hours were spent reviewing literature, speaking to knowledgeable individuals, pressing and identifying plants, recording plant species on a master list and writing this report.

Previous Related Studies

Two earlier ecological studies of the Overton Park Forest were conducted, neither of which focused on the existing flora of the forest. The earlier report, *Ecological Assessment and Management Recommendations for the Overton Park Forest* (James M. Guldin, 1987), focused primarily on the assessment of the condition of the forest at that time and management recommendations. In his report, among other things, Guldin recommends that an ". . .accurate ecological inventory of the woody and non-woody vegetation. . ." should be performed.

The *Overton Park Baseline Documentation* (Appalachian Ecological Consultants, 1999), as the title suggests was intended to establish an ecological baseline from which further studies could be made and compared. This study recorded only 86 plants species in the Overton Park Forest. Its author broke the forest down into three recognized forest types and indicated areas of human disturbance.

Purpose

This work is the first floristic study of the forested portion and the areas immediately surrounding the forested portion within of Overton Park. Its purpose is to create a

baseline documentation of all of the vascular plant species[2] which currently grow in the park. This not only provides a current view of the breadth of plant species diversity in the forested part of the park, but also supplies the foundation upon which to base future management of the Overton Park Forest.

Significance of Overton Park Forest

Overton Park Forest is an extremely rare virgin or old-growth forest[3]. It is especially unique when considering the urban location of this forest. It is not only important as a part of Memphis' natural history, reflecting what the area was like prior to human perturbation, but is also of great importance regionally. Its importance was clearly seen by George Kessler who developed the original landscape plan for Overton Park:

> "*In Overton Park you have saved the other chief characteristics of this region by preserving in the forest conditions of the virgin forest upon that property. Nowhere in the United States, except in the Pacific Northwest, will you find tree growth as luxuriant as in the Western Tennessee and Eastern Arkansas forests, and in the two hundred acres of virgin forest in Overton Park you have a property which, as a heritage to the public for the enjoyment of nature, equals in value the cost of the entire park system to the present time*." -George E. Kessler, 1911. (*Overton Park, William* Bearden, 2004)

Very few virgin forests exist in the Mid-South region and certainly none within a city the size of Memphis. Its towering trees, which form the overstory, are the most obvious and prominent characteristic of this forest. Many of the trees have no branches for 50 or 60 feet from their bases. Many of those trees reach heights well over 100 feet and measure four to five feet or larger in diameter at breast height. A large number of these trees are likely greater than 200 years of age[4]. (See Table 1 below for a sampling of some of the larger trees in the forest.)

Old-growth forests are characterized by large, old, live trees, large snags (standing dead trees) and large fallen trees. In these kinds of forests, normally only sporadic, individual tree death occurs. When this happens, gaps are created within the canopy which allow sunlight to reach the forest floor, allowing for the growth and maturation of younger canopy species trees, the further development of understory species (shrubs and smaller trees) and the proliferation of the groundcover layer (wildflowers and other herbaceous and small woody plants). These forests typically display several layers of vegetation, providing greater habitat diversity and concomitant species diversity (than a

[2] Vascular plants are higher plants which have vascular tissue to transport water and nutrients. They include most of what we think about when we consider plants, including trees, shrubs, vines, grasses, sedges, rushes and wildflowers, among others. Non-vascular plants include mosses, lichens, etc.

[3] In this report, the terms old-growth and virgin forest are used interchangeably. Specific definitions for these two terms vary and usually overlap.

[4] In order to accurately determine the ages of the older trees, they would need to be cored and analyzed by a competent professional.

non-virgin forest). Further, old-growth forests usually have few early successional species (mostly annuals). (*Eastern Old-Growth Forests - Prospects for Rediscovery and Recovery* (Mary Byrd Davis, ed., 1996)). Overton Park Forest fits the entire description of an old-growth forest well.

It should be understood that an old-growth forest is not defined merely by its trees. Although many of the trees are estimated to be over 200 years old, trees grow, mature and die over time. Like all forests, this is a biotic community composed of a myriad of plants and animals, based in the soil from which its plants grow. The soil under the Overton Park Forest is mapped as Memphis silt loam, 2 to 5 percent slopes (*Soil Survey Shelby County, Tennessee*, 1989). It is a well-drained, primarily silt loam for at least the first nine feet below the surface. This was evident when work was being done in early 2008 to develop the 4-acre section of the forest within the Memphis Zoo's jurisdiction. During construction of a building, the first 8 to 9 feet of soil had to be removed because it lacked the necessary engineering characteristics needed to build the planned structure. However, this same silt loam provides a nearly ideal substrate for the food base in this old growth forest.

Trees are the most visually dominant forest component. However, they comprise only 20% of the total number of plant species growing in Overton Park Forest. That is, four times as many plant species which are not trees grow in the forest. The animal portion of this forest contains the more obvious mammals, birds, reptiles and amphibians (vertebrates), but a much larger number (of both species and individuals) of invertebrates including insects, spiders, worms, etc., many of which are organisms of decay (detrital animals), which break down the organic matter constantly raining down in the forest and constitute much of the base of the forest's food net. All of these organisms combined (plants and animals) are
the biotic community of the forest. This forest has almost certainly been occupying this location, with very little human disturbance (tree harvesting, etc.), since the last ice age some 10,000 to 12,000 years ago.

Disturbance

Signs of human perturbations are apparent locally throughout the forest, but significantly, many areas have survived to the present time with little apparent disturbance. Indications of disturbance include a few areas containing anthropomorphic debris near the edges of the forest which have been (and likely currently are) used by homeless people, some vegetational destruction along the main trails by people using the trails, and scattered areas occupied heavily by invasive plant species. Of the latter, some of these areas are significant in size. Most commonly observed invasive species include Chinese privet (*Ligustrum sinense*), creeping euonymus (*Euonymus fortunei*), English ivy (*Hedera helix*), Japanese honeysuckle (*Lonicera japonica*), and periwinkle (*Vinca major*). Also observed were a few remaining small populations of kudzu (*Pueraria*

lobata)[5]. The presence of these species is important because they are non-native, spread rapidly, and destroy (by replacing) native plants which previously occupied those areas. Most of the non-native species occupy areas immediately adjacent to trails and forest edges. This is due to the disturbance in those areas. A complete list of the most aggressive non-native species is given in **Table 2** below.

Natural disturbances involving downed trees, mostly due to wind damage, exist sporadically throughout the forest. However, these downed trees are an important part of any healthy forest, providing significant habitat for many forest organisms. On the ground, they are quickly attacked by insects and other organisms of decay (detrital organisms) which, over time, break the fallen tree into its basic nutrients, which then can be taken up by living plants, continuing the cycle. Many of the organisms which work to recycle these trees become food for other organisms in the forest. Also, very importantly, fallen trees create openings where sunlight can penetrate to the forest floor and allow shade-intolerant plant species to grow, increasing plant species diversity and therefore, providing more habitat. Except for removing portions that block sanctioned trails, all downed trees should be left where they fall to return to the elements.

Two triangular areas bordered by paved roads/trails within the park are now being allowed to revert through natural vegetational succession. These areas, due to their generally tree-less condition harbor a number of plant species not found elsewhere in the park, thus adding to the plant species diversity of the park.

Forest Composition

Overstory

By far the most striking and obviously unique component of the Overton Park forest is the canopy of mature hardwood trees. That canopy includes a large number of trees of great age. Although, as mentioned above, coring of the trees would be necessary to determine their age more accurately, this author estimates the age of many of the larger trees will easily exceed 200 years.

On the low ridges, dominant canopy species are southern red oak (*Quercus falcata*) and tulip poplar (*Liriodendron tulipifera*), with white oak (*Quercus alba*), bitternut hickory (C*arya cordiformis*), black cherry (*Prunus serotina*) and sassafras (*Sassafras albidum*) occurring with them. On lower sites, cherrybark oak (*Quercus pagoda*) and sweetgum (*Liquidambar styraciflua*) become important members of the canopy.

Understory

Most commonly observed understory species were hop hornbeam (*Ostrya virginiana*), red maple (*Acer rubrum*), redbud (*Cercis canadensis*), pawpaw (*Asimina*

[5] Dr. David Kesler of Rhodes College was contacted upon finding these small populations of kudzu. He immediately applied Transline, an herbicide specific to kudzu, to those areas.

triloba) and flowering dogwood (*Cornus florida*). Also regularly observed were American hornbeam (*Carpinus caroliniana*), red buckeye (*Aesculus pavia*), spicebush (*Lindera benzoin*), hazelnut (*Corylus americana*) and Hearts-a-bursting (*Euonymus americanus*).

Lianas (woody vines)

Eight species of grapes (in the genus *Vitis*) grow within the forest. This is a very high number considering the size of the forest and its relatively small topographic variation. The tops of many of the canopy trees are festooned with grapes that are as old as the trees that support them. These vines are a great asset to the Overton Park Forest, providing fruit, cover and structure (nesting) for wildlife, while causing no harm to the trees on which they rest. Another genus of woody vines that expresses the remarkable plant species diversity of the forest is *Smilax*, the cat-briers or green-briers. Four different species of these mostly prickly vines were documented in this study, an unusually high number. Other commonly occurring woody vines include rattan vine (*Berchemia scandens*) and poison ivy (*Toxicodendron radicans*).

Ground Cover/Herbaceous

Commonly occurring ground cover species in the spring are toothwort (*Dentaria laciniata*), wake-robin (*Trillium recurvatum*), smooth yellow violet (*Viola pennsylvanica*), celandine poppy (*Stylophorum diphyllum*), mayapple (*Podophyllum peltatum*) wild ginger (*Asarum canadense*) and woodland bluegrass (*Poa sylvestris*). Commonly observed species in summer and fall include arrow-leaved aster (*Aster sagittifolius*), white avens (*Geum canadensis*), Virginia knotweed (*Polygonum virginianum*), bellflower (*Campanula americana*) and cut-leaf coneflower (*Rudbeckia laciniata*).

Rare/Unusual Plant Species Found in Overton Park Forest

Two rare wildflower species were recorded during the field work at the park (*Tennessee Natural Heritage Program*, 2008). These are goldenseal (*Hydrastis canadensis*) and oceanblue phacelia (*Phacelia ranunculacea*). Goldenseal was found in a number of locations in the forest, while oceanblue phacelia occurs in a small area near the Lick Creek channel. Specifics on their status follows:

Hydrastis canadensis - **State Status** S-CE; **State Rank** S3; **Global Rank** G4
Phacelia ranunculacea - **State Status** S; **State Rank** S2S3; **Global Rank** G4

State Status
S– Special concern species - means any species or subspecies of plant that is uncommon in Tennessee, or has unique or highly specific habitat requirements or scientific value and therefore requires careful monitoring of its status.
CE– Commercially exploited - plants that are being taken from the wild in large numbers and propagation or cultivation is insufficient to meet market demand. These

plants are of long-term conservation concern but the division does not recommend they be included in the normal environmental review process

State Rank
S2– Very rare and imperiled within the state, six to twenty occurrences and less than 3000 individuals, or few remaining individuals, or because of some factor(s) making it vulnerable to extirpation from Tennessee.
S3– Rare and uncommon in the state, from 21 to 100 occurrences.

Global Rank
G4– Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery. Thus, the plant is of long-term concern.

Other Significant Findings

Eleven species of oaks were documented from the Overton Park Forest and its immediate surrounding area. Two of these (pin oak and post oak) were seen only in the park area on the east side of the forest. However, considering their age and the identity of the other trees in that park area, it is most likely that they were part of the original forest composition. Further, as is the nature of any study, these species could have been overlooked in the main part of the forest due to the short time over which this study was conducted.

Another group of plants that showed an astonishing diversity were the grapes. A total of eight species in the grape family (all woody vines) were identified during the study. Again, this is a very high number of species in this family to be found in such a small area with limited topographic variation. Further, thirteen species of ferns were found during the study. This is many more than expected. Finally, four species of catbrier grow in the forest. Like the oaks and grapes, this diversity of species within the genus (*Smilax*) clearly demonstrates the richness of the Overton Park Forest.

Recommendations

Assuming that no development will be done in the forest in the future, by far the greatest threat to the health and integrity of Overton Park Forest is invasive, non-native plant species. Because they are not native and therefore, did not evolve with the native plants in the forest, these plant species have few, if any controls (competition from native species, insects and diseases) on their growth. Therefore, they grow at the expense of the native species in the forest and effectively eliminate native species from the forest. It is essential that the invasive species problem be addressed because these plants will continue to occupy greater and greater portions of the forest and more and more native species will be lost. To demonstrate what can be expected with the elimination of these threats, most of the kudzu has already been eliminated in this forest and, in areas where this aggressive plant had been, there now are almost entirely native species.

To return the forest to near its pre-disturbance condition, aggressive, persistent and long-term efforts should be made to eliminate as many of these non-native species as possible. (A list of those species which pose the greatest threat to the Overton Park Forest is given in Appendix A, below.) Killing can be done most easily, effectively and safely on species that remain green during the winter when most of the rest of the plants in the forest are dormant and, therefore, will not be harmed by the herbicide. A list of recommended contacts for information concerning the use and timing of herbicide is given at the bottom of this section. English ivy and euonymus growing up trees need to be carefully cut low on the tree trunks and their woody stems treated with 50/50 glyphosate (sometimes sold as Roundup). Stumps of all other invasive woody species which, due their larger size, need to be cut rather than pulled, should be sprayed with the same herbicide mixture. This has been proven to be effective in eliminating re-sprouting of those plants in most cases. Smaller Chinese privet can be pulled by hand. All other "evergreen" invasive plants will need to be sprayed when temperature and wind conditions are right at the appropriate time of year – late winter-early spring. Focused, guided (by someone familiar with the plants growing in the forest) and persistent eradication is necessary to effectively eliminate these species from the forest. This will not only remove these destructive species which are currently occupying ever-increasing areas within the forest, but also provide areas for native species to begin to proliferate and re-occupy those areas. Periodic surveys should be made to make sure that these invasive species have indeed been killed and have not returned.

To provide additional protection for this very unique forest, it is recommended that some formal recognition should be given it. This recognition would be given to help insure that the forest will be protected in perpetuity. The source of this designation might come from the state of Tennessee (the Tennessee Natural Heritage Program or perhaps the Tennessee Historic Preservation Commission). Also, the City of Memphis and/or Shelby County may be able to offer more serious protection through regulation written for the specific purpose of protecting this incredible piece of the city's heritage.

Recommended Contacts for the Use and Timing of Herbicides:

U.S. Department Of Agriculture, Natural Resources Conservation Service, Suite 5, Box 22, 7777. Walnut Grove Road Memphis, TN 38120. Phone: (901) 544-0228, Ext. 3

Shelby County Extension, Agricenter International, 7777 Walnut Grove Rd. Suite B Box 21, Memphis, TN 38120; Phone - (901) 752-1207

UT Extension Administrative Office, UT Extension, 2621 Morgan Circle, 121 Morgan Hall Knoxville, TN 37996; Phone: 865-974-7115

West Tenn Urban Forester, Shawn Posey, 7777 Walnut Grove Rd., PO Box 30, Memphis, TN 38120; Phone - (901) 754-5185; shawn.posey@tn.gov

EFETAC , Stephanie L. Worley Firley, Eastern Forest Environmental Threat Assessment Center, 200 Weaver Boulevard, Asheville, NC 28804; Phone - (828) 257-4380, sworleyfirley@fs.fed.us, http://www.forestthreats.org

Conclusion

Overton Park Forest is a unique resource which cannot be replaced. It is invaluable to the city and to the region as an outstanding example of old growth forest. Because it is within an urban setting, it is even more exceptional. Everything possible should be done to assure that it is protected in perpetuity. This conclusion was reached by all earlier studies. This forest is indeed extraordinary and unequaled.

To satisfy both the scientist and non-scientist, the vascular flora of Overton Park Forest are given in two formats: one by common name (Appendix A) and one by scientific name (Appendix B) (both attached). Plant families are listed alphabetically as are the species found within each family.

Literature Cited

Appalachian Ecological Consultants. 1999. *Overton Park Baseline Documentation.* Unpublished report.

Bearden, William. 2004. *Overton Park*. Arcadia Publishing.
Davis, Mary Byrd, ed. *1996. Eastern Old-Growth Forests - Prospects for Rediscovery and Recovery*.

Guldin, James M. 1987 *Ecological Assessment and Management Recommendations for the Overton Park Forest.* Unpublished report.

Tennessee Natural Heritage Program. Division of Natural Areas, TN Dept. of Environment and Conservation. 2008. *Rare Plant List*.
www.state.tn.us/environment/na/pdf/plant_list.pdf

Acknowledgment

A great debt of gratitude is owed Naomi Van Tol without whose knowledge of the location, the history and many of the unusual aspects of the forest, this work would be much less complete. Her assistance was invaluable.

Table 1

Sampling of a few of the larger trees in Overton Park Forest

	DBH (inches)	Height (feet)	Spread (feet)
Black Oak (Quercus velutina	45.1	105	80
Cherrybark Oak (Quercus pagoda)	62.7	125	105
Hop Hornbeam (Ostrya virginiana)	11.6	60	33
Tulip poplar (Liriodendron tulipifera)	57.2	115	65
Tulip poplar (Liriodendron tulipifera)	48.0	110	70
White Oak (Quercus alba)	52.2	110	75

Table 2

Aggressive Non-native Plant Species Found in the Forest[6]

Celastrus orbiculatus (oriental bittersweet)
Euonymus fortunei (euonymus)*
Hedera helix (English ivy)*
Ligustrum sinense (Chinese privet)*
Lonicera japonica (Japanese honeysuckle)*
Pueraria lobata (kudzu)
Sapium sebiferum (Chinese tallow tree)
Vinca major (great periwinkle)*
Poncirus trifoliata (trifoliate orange)
Liriope muscaria (liriope)*
Ophiopogon japonicus (mondo grass)*

* "evergreen" plant species that can be sprayed with herbicide when deciduous native plant are dormant

[6] *DBH was measured using a DBH tape; height and spread were estimated.*

Appendix A

Plants Occurring in Overton Park Forest - By Common Name

PTERIDOPHYTA **– Ferns**

ASPLENIACEAE - Spleenwort Family
Broad beech fern - *Thelypteris hexagonoptera*
Christmas fern - *Polystichum acrostichoides*
Common woodsia - *Woodsia obtusa*
Ebony spleenwort - *Asplenium platyneuron*
Fragile fern - *Cystopteris fragilis*
Lady fern - *Athyrium filix-femina*
Resurrection fern - *Polypodium polypodioides*
Sensitive fern - *Onoclea sensibilis*
Silvery spleenwort - *Athyrium thelypteroides*
Southern lady fern - *Athyrium filix-femina* var. *asplenioides*

OPHIOGLOSSACEAE - Adder's-Tongue Fern Family
Grape fern - *Botrychium dissectum* var. *obliquum*
Rattlesnake fern - *Botrychium virginianum*

POLYPODIACEAE - Polypody Family
Resurrection fern - *Polypodium polypodioides* var. *michauxianum*

SPERMATOPHYTA **- Seed-bearing Plants**

GYMNOSPERMAE **- Naked seeded Plants**

CUPRESSACEAE - Cypress family
Eastern red cedar - *Juniperus virginiana*

ANGIOSPERMAE **- Flowering Plants**

ACANTHACEAE - Acanthus Family
Dicliptera - *Dicliptera brachiata*

ACERACEAE - Maple family
Box elder - *Acer negundo*
Red maple - *Acer rubrum*
Silver maple - *Acer saccharinum*
Sugar maple - *Acer saccharum*

AIZOACEAE - Ice Plant Family
Carpet weed - *Mollugo verticillata*

AMARANTHACEAE - Pigweed family
Red-rooted pigweed - *Amaranthus retroflexus*
Spiny pigweed - *Amaranthus spinosus*

ANACARDIACEAE - Cashew Family
Smooth sumac -*Rhus glabra*
Poison ivy - *Toxicodendron radicans*

ANNONACEAE - Custard Apple Family
Pawpaw - *Asimina triloba*

APIACEAE - Carrot Family
Black snakeroot - *Sanicula canadensis*
Chervil - *Chaerophyllum procumbens*
Honewort - *Cryptotaenia canadensis*
Sweet cicely - *Osmorhiza longistylis*
Torilis - *Torilis japonica**

APOCYNACEAE - Dogbane family
Climbing dogbane - *Trachelospermum difforme*
Great periwinkle - *Vinca major*

AQUIFOLIACEAE - Holly Family
American holly - *Ilex opaca*
Chinese holly - *Ilex cornuta*
Deciduous holly - *Ilex decidua*

ARACEAE - Arum Family
Green dragon - *Arisaema dracontium*
Italian arum - *Arum italicum*
Jack-in-the-pulpit - *Arisaema triphyllum*

ARALIACEAE - Aralia Family
English ivy - *Hedera helix*
Hercules club - *Aralia spinosa*

ARISTOLOCHIACEAE - Birthwort Family
Wild ginger - *Asarum canadense*

ASCLEPIADACEAE - Milkweed Family
Bluevine - *Cynanchum laeve*
Carolina climbing milkweed - *Matelea carolinensis*
Climbing milkweed - *Matelea gonocarpa*

ASTERACEAE Sunflower Family
Aster, arrow-leaved, *Aster sagittifolius*

Aster, frost - *Aster pilosus*
Aster, lowland - *Aster simplex*
Aster, side-flowered - *Aster lateriflorus*
Aster, slender - *Aster exilis*
Bear's-foot - *Polymnia uvedalia*
Butter-weed - *Senecio glabellus*
Camphor-weed - *Pluchea camphorata*
Climbing hempweed - *Mikania scandens*
Cut-leaf coneflower - *Polymnia uvedalia*
Dandelion - *Taraxicum officinale*
Elephant-foot - *Elephantopus carolinianus*
False aster - *Boltonia asteroides* var. *recognita*
Fireweed - *Erechtites hieracifolia*
Fleabane, annual - *Erigeron annuus*
Fleabane, Philadelphia - *Erigeron philadelphicus*
Fleabane, prairie - *Erigeron strigosus*
Goldenrod, Canada - *Solidago canadensis*
Goldenrod, rough-leaved - *Solidago rugosa*
Goldenrod, woodland - *Solidago caesia*
Late boneset - *Eupatorium serotinum*
Mare's-tail - *Conyza canadensis*
Pink thoroughwort - *Eupatorium incarnatum*
Ragweed, common - *Ambrosia artemisiifolia*
Ragweed, giant - *Ambrosia trifida*
Sow thistle, Common - *Sonchus oleraceus*
Sow thistle, Spiny - *Sonchus asper*
Spanish needles - *Bidens bipinnata*
White crownbeard - *Verbesina virginica*
White snake-root - *Eupatorium rugosum*
Wild lettuce, biennial - *Lactuca biennis*
Wild lettuce, Canada - *Lactuca canadensis*

BALSAMINACEAE - Balsam Family
Jewelweed - *Impatiens capensis*

BERBERIDACEAE - Barberry Family
Mahonia - *Mahonia beadei*
Nandina - *Nandina domestica*
May-apple - *Podophyllum peltatum*

BETULACEAE- Birch Family
American hornbeam - *Carpinus caroliniana*
Hazelnut - *Corylus americana*
Hophorn beam - *Ostrya virginiana*
River birch - *Betula nigra*

BIGNONIACEAE - Bignonia Family
Cross-vine - *Bignonia capreolata*
Trumpet creeper - *Campsis radicans*
Catalpa - *Catalpa speciosa*
Princess tree - *Paulonia tomentosa*

BORAGINACEAE - Borage Family
Hound's tongue - *Cynoglossum virginianum*

BRASSICACEAE - Mustard Family
Common peppergrass - *Lepidium virginicum*
Shepherd's purse - *Capsella bursa-pastoris*
Spring cress - *Cardamine bulbosa*
Spring cress- *Cardamine hirsuta*
Toothwort - *Dentaria laciniata*

CAMPANULACEAE - Harebell Family
American bellflower - *Campanula americana*
Venus' looking-glass - *Triodanis perfoliata* var. *biflora*

CAPRIFOLIACEAE - Honeysuckle Family
Coralberry - *Symphoricarpos orbiculatus*
Elderberry - *Sambucus canadensis*
Honeysuckle, coral- *Lonicera sempervirens*
Honeysuckle, Japanese - *Lonicera japonica*
Southern black haw - *Viburnum rufidulum*
Tartarian honeysuckle - *Lonicera tartarica*

CARYOPHYLLACEAE - Pink Family
Chickweed, common- *Stellaria media*
Chickweed, mouse-eared- *Cerastium nutans*
Starry campion - *Silene stellata*

CELASTRACEAE - Staff-tree Family
Burning bush - *Euonymus alatus*
Creeping euonymus - *Euonymus fortunei*
Hearts-a-bursting - *Euonymus americanus*
Oriental bittersweet - *Celastrus orbiculatus*

CHENOPODIACEAE - Goosefoot Family
Lamb's quarters - *Chenopodium album*
Mexican tea - *Chenopodium ambrosioides*

COMMELINACEAE - Spiderwort Family
Common dayflower - *Commelina communis*
Diffuse dayflower - *Commelina diffusa*

CONVOLVULACEAE - Morning-glory Family
Common morning-glory - *Ipomoea purpurea*
Dichondra - *Dichondra caroliniensis*
Dodder - *Cuscuta gronovii*

CORNACEAE - Dogwood Family
Dogwood, flowering - *Cornus florida*
Dogwood, rough-leaved - *Cornus drummondii*
Dogwood, stiff - *Cornus foemina*

CUCURBITACEAE - Cucumber Family
Watermelon - *Citrullus vulgaris*
Creeping cucumber - *Melothria pendula*

CYPERACEAE - Sedge Family
Flat-sedge, round - *Cyperus rotundus*
Flat-sedge, sweet-scented - *Cyperus densicaespitosus*
Sedge - *Carex leavenworthii*
Sedge - *Carex oligocarpa*
Sedge - *Carex oxylepis*
Sedge - *Carex pensylvanica*
Sedge - *Carex rosea*
Sedge - *Carex texensis*

DIOSCOREACEAE - Yam Family
Yam, Chinese - *Dioscorea batatas*
Yam, wild - *Dioscorea quaternata*

EBENACEAE - Ebony Family
Persimmon - *Diospyros virginiana*

ELAEAGNACEAE - Oleaster Family
Autumn olive - *Elaeagnus pungens*

EUPHORBIACEAE - Spurge Family
Chamber bitter - *Phyllanthus urinaria*
Chinese tallow-tree - *Sapium sebiferum*
Spurge - *Chamaesyce humistrata*
Three-seeded mercury - *Acalypha rhomboidea*
Three-seeded mercury, slender - *Acalypha gracilens*

FABACEAE - Bean family
Clover, alsike - *Trifolium hybridum*
Clover, low hop - *Trifolium campestre*
Clover, red - *Trifolium pratense*
Hog peanut - *Amphicarpa bracteata*

Kudzu - *Pueraria lobata*
Lespedeza, Japanese - *Kummerowia striata*
Locust, black - *Robinia pseudoacacia*
Locust, honey - *Gleditsia triacanthos*
Mimosa tree - *Albizia julibrissin*
Redbud - *Cercis canadensis*
Tick trefoil, pointed - *Desmodium glutinous*
Tick trefoil, panicled - *Desmodium paniculatum*
Tick trefoil, white-flowered - *Desmodium pauciflorum*
Vetch, common - *Vicia sativa*
Wild sensitive plant - *Cassia nictitans*
Wisteria - *Wisteria sinensis*

FAGACEAE - Beech Family
Oak, black - *Quercus velutina*
Oak, cherrybark - *Quercus pagoda*
Oak, chinquapin - *Quercus muhlenbergii*
Oak, northern red - *Quercus rubra*
Oak, pin (park) - *Quercus palustris*
Oak, post (park) - *Quercus stellata*
Oak, Shumard - *Quercus shumardii*
Oak, southern red *Quercus falcata*
Oak, water - *Quercus nigra*
Oak, white - *Quercus alba*
Oak, willow - *Quercus phellos*

GERANIACEAE - Geranium Family
Carolina crane's bill - *Geranium carolinianum*
Wild geranium - *Geranium maculatum*

GINKGOACEAE - Ginkgo Family
Ginkgo - *Ginkgo biloba*

HAMAMELIDACEAE Witch-hazel Family
Sweetgum - *Liquidambar styraciflua*

HIPPOCASTANACEAE - Horse Chestnut Family
Red buckeye - *Aesculus pavia*

HYDROPHYLLACEAE - Water-leaf Family
Large leaf water leaf - *Hydrophyllum macrophyllum*
Oceanblue phacelia - *Phacelia ranunculace**a***

JUGLANDACEAE - Walnut Family
Hickory, bitternut - *Carya cordiformis*
Hickory, mockernut - *Carya tomentosa*

Hickory, shagbark - *Carya ovata*
Hickory, Texas - *Carya texana*
Pecan - *Carya illinoensis*
Back walnut - *Juglans nigra*

JUNCACEAE -Rush Family
Path rush - *Juncus tenuis*
Wood-rush - *Luzula multiflora*

LAMIACEAE - Mint Family
Bee-balm - *Monarda fistulosa*
Beefsteak plant - *Perilla frutescens*
Deadnettle, spotted - *Lamium maculatum*
Deadnettle, purple - *Lamium purpureum*
Ground ivy - *Glechoma hederacea* var. *micrantha*
Henbit - *Lamium amplexicaule*
Lyre-leaf sage - *Salvia lyrata*
Self-heal - *Prunella vulgaris*

LAURACEAE - Laurel Family
Sassafras - *Sassafras albidum*
Spicebush - *Lindera benzoin*

LILIACEAE - Lily Family
Daylily - *Hemerocallis fulva*
Large-flowered bellwort - *Uvularia grandiflora*
Liriope - *Liriope muscari*
Mondo grass- *Ophiopogon japonicus*
Narcissus - *Narcissus pseudo-narcissus*
Poet's narcissus - *Narcissus poeticus*
Solomon's seal - *Polygonatum biflorum*
Solomon's seal, false - *Smilacina racemosa*
Star of Bethlehem - *Ornithogalum umbellatum*
Wake-robin - *Trillium recurvatum*
Wild onion - *Allium canadense*
Wild garlic - *Allium vineale*

LYTHRACEAE - Loosestrife Family
Crepe myrtle - *Lagestroemia indica*

MAGNOLIACEAE - Magnolia Family
Magnolia, southern - *Magnolia grandiflora*
Tulip poplar - *Liriodendron tulipifera*

MALVACEAE - Mallow Family
Carolina bristlemallow - *Modiola caroliniana*

Rose-of-Sharon - *Hibiscus syriacus*
Sida - *Sida rhombifolia*

MELIACEAE - Mahogany family
Chinaberry tree - *Melia azederach*

MENISPERMACEAE - Moonseed Family
Carolina moonseed - *Cocculus carolinus*
Moonseed - *Menispermum canadense*

MORACEAE - Mulberry family
Crab–weed - *Fatoua villosa*
Mulberry, red - *Morus rubra*
Mulberry, white - *Morus alba*
Mulberry, paper - *Broussonetia papyrifera*
Osage orange - *Maclura pomifera*

NYSSACEAE - Gum Family
Black gum - *Nyssa sylvatica*

OLEACEAE - Ash Family
Ah, green - *Fraxinus pennsylvanica*
Ash, white - *Fraxinus americana*
Chinese privet - *Ligustrum sinense*
Forsythia - *Forsythia viridissima*

OXALIDACEAE - Sorrell Family
Sorrell - *Oxalis dillenii*
Sorrell, red - *Oxalis rubra*

PAPAVERACEAE - Poppy Family
Celandine poppy - *Stylophorum diphyllum*

PASSIFLORACEAE - Passionflower Family
Yellow passionflower - *Passiflora lutea* var. *glabriflora*

PHYTOLACCACEAE - Poke Family
Poke-weed - *Phytolacca americana*

PLANTAGINACEAE - Plantain Family
Plantain, blackseed - *Plantago rugelii*
Plantain, lance-leaf - *Plantago lanceolata*

PLATANACEAE - Plane-tree Family
Sycamore - *Platanus occidentalis*

POACEAE- Grass Family
Bald bromegrass - *Bromus racemosus*
Barnyardgrass - *Echinochloa crusgalli*
Beadgrass - *Paspalum pubiflorum*
Bearded shorthusk - *Brachyelytrum erectum*
Bermuda grass - *Cynodon dactylon*
Bluegrass, woodland - *Poa sylvestris*
Bluegrass, annual - *Poa annua*
Broom-sedge - *Andropogon virginicus*
Crab grass - *Digitaria sanguinalis*
Deer-tongue panicum - *Dichanthelium clandestinum*
Foxtail, yellow - Setaria glauca
Foxtail, giant - *Setaria faberi*
Giant cane - *Arundinaria gigantea*
Goose grass - *Eleusine indica*
Grease grass - *Tridens flavus*
Inland sea oats - *Chasmanthium latifolium*
Japanese chess - *Bromus japonicus*
Johnson grass - *Sorghum halepense*
Junglerice - *Echinochloa colonum*
Longleaf woodoats - *Chasmanthium sessiliflorum*
Manna grass - *Glyceria striata*
Nepal grass - *Microstegium vimineum*
Nimblewill - *Muhlenbergia schreberi*
Panic grass - *Panicum anceps*
Prairie wedgescale - *Sphenopholis obtusata*
Rice cutgrass - *Leersia oryzoides*
Stinkgrass - *Eragrostis cilianensis*
Tall fescue - *Festuca arundinacea*
Tufted lovegrass - *Eragrostis pectinacea*
Twoflower melicgrass - *Melica mutica*
White-grass - *Leersia virginica*
Wildrye, Canada- *Elymus canadensis*
Wildrye, riverbank - *Elymus riparius*
Wildrye, Virginia - *Elymus virginicus*

POLEMONIACEAE - Phlox Family
Jacob's ladder - *Polemonium reptans*
Woodland phlox - *Phlox divaricata* var. *laphamii*

POLYGONACEAE - Smartweed Family
Dock, curly - *Rumex crispus*
Dock, bitter - *Rumex obtusifolius*
Knotweed, Virginia - *Polygonum virginianum*
Knotweed - *Polygonum aviculare*
Smartweed, climbing - *Polygonum scandens*

Smartweed, common - *Polygonum pensylvanicum*
Smartweed, creeping - *Polygonum cespitosum* var. *longisetum*
Smartweed, denseflowered - *Polygonum densiflorum*
Smartweed, spotted - *Polygonum punctatum*

PORTULACACEAE - Purslane Family
Little hogweed - *Portulaca oleracea*
Spring beauty - *Claytonia virginica*

RANUNCULACEAE - Buttercup Family
Doll's-eyes - *Actaea pachypoda*
Golden seal - *Hydrastis canadensis*
Meadow rue - *Thalictrum dioicum*
Small-flowered buttercup - *Ranunculus abortivus*
Virgin's bower - *Clematis virginiana*

RHAMNACEAE - Buckthorn Family
Rattan vine - *Berchemia scandens*

ROSACEAE - Rose Family
Barren strawberry - *Duchesnia indica*
Beaked agrimony - *Agrimonia rostellata*
Carolina plum - *Prunus caroliniana*
Common cinquefoil - *Potentilla simplex*
Hawthorn - *Crataegus* sp.
Highbush blackberry - *Rubus argutus*
Japanese quince - *Chaenomales japonica*
Multiflora rose - *Rosa multiflora*
Serviceberry - *Amelanchier arborea*
Slender parsley piert - *Alchemilla microcarpa*
Southern dewberry - *Rubus trivialis*
White avens - *Geum canadense*
Wild black cherry - *Prunus serotina*
Wild crab apple - *Malus coronaria*

RUBIACEAE - Madder Family
Bedstraw - *Galium circaezans*
Bluet - *Hedyotis purpurea*
Button-weed, common - *Diodia teres*
Button-weed, Virginia - *Diodia virginiana*
Cleavers - *Galium aparine*
Field madder - *Sherardia arvensis*

RUTACEAE -Rue Family
Trifoliate orange - *Poncirus trifoliata*

SALICACEAE - Willow Family
Black willow - *Salix nigra*
Eastern cottonwood - *Populus deltoides*

SAXIFRAGACEAE - Saxifrage Family
Common hydrangea - *Hydrangea arborescens*
Mock orange - *Philadelphus inodorous*

SCROPHULARIACEAE - Figwort Family
Japanese mazus - *Mazus pumilus*
Late figwort - *Scrophularia marilandica*
Neckweed - *Veronica peregrina*
Persian speedwell - *Veronica persica*
Square-stemmed monkey flower - *Mimulus alatus*

SIMARUBACEAE - Quassia Family
Tree-of-heaven - *Ailanthus altissima*

SMILACACEAE -Catbrier Family
Catbrier, glaucus - *Smilax glauca*
Catbrier, hispid - *Smilax hispida*
Catbrier, roundleaf - *Smilax rotundifolia*
Catbrier, Small's - *Smilax smallii*

SOLANACEAE - Potato Family
Ground-cherry - *Physalis pruinosa*
Horse nettle - *Solanum americanum*

TILIACEAE - Linden Family
American basswood - *Tilia americana*
Basswood - *Tilia heterophylla*

ULMACEAE - Elm Family
Elm, American - *Ulmus americana*
Elm, slippery - *Ulmus rubra*
Hackberry - *Celtis occidentalis*
Sugarberry - *Celtis laevigata*

URTICACEAE -Nettle Family
Nettle, false - *Boehmeria cylindrica*
Nettle, wood - *Laportea canadensis*
Clearweed - *Pilea pumila*

VERBENACEAE - Verbena Family
Lopseed - *Phryma leptostachya*

VIOLACEAE - Violet Family
Johnny-jump-up - *Viola rafinesquii*
Violet, butterfly - *Viola papilionacea*
Violet, common - *Viola sororia*
Violet, smooth yellow- *Viola pubescens* var. *eriocarpa*

VITACEAE - Grape Family
Grape, fox - *Vitis vulpina*
Grape, raccoon - *Ampelopsis cordata*
Grape, riverbank - *Vitis riparia*
Grape, summer - *Vitis aestivalis*
Grape, winter - *Vitis cinerea*
Muscadine - *Vitis rotundifolia*
Pepper vine - *Ampelopsis arborea*
Virginia creeper - *Parthenocissus quinquefolia*

Appendix B

(Species marked with an asterisk (*) are non-native)

PTERIDOPHYTA

ASPLENIACEAE
Asplenium platyneuron - ebony spleenwort
Athyrium filix-femina var. *asplenioides* - southern lady fern
Athyrium filix-femina - lady fern
Athyrium thelypteroides - silvery spleenwort
Cystopteris fragilis - fragile fern
Onoclea sensibilis - sensitive fern
Polypodium polypodioides - resurrection fern
Polystichum acrostichoides - Christmas fern
Thelypteris hexagonoptera - broad beech fern
Woodsia obtusa - common woodsia

OPHIOGLOSSACEAE
Botrychium dissectum var. *obliquum* - grape fern
Botrychium virginianum - rattlesnake fern

POLYPODIACEAE
Polypodium polypodioides var. *michauxianum* - resurrection fern

GYMNOSPERMAE
CUPRESSACEAE
Juniperus virginiana - eastern red cedar

ANGIOSPERMAE
ACANTHACEAE
Dicliptera brachiata - dicliptera

ACERACEAE
Acer negundo - box elder
Acer rubrum - red maple
Acer saccharinum - silver maple
Acer saccharum - sugar maple
AIZOACEAE
Mollugo verticillata - carpet weed*

AMARANTHACEAE
Amaranthus retrofllexus - red-rooted pigweed*
Amaranthus spinosus - spiny pigweed*

ANACARDIACEAE
Rhus glabra - smooth sumac

Toxicodendron radicans - poison ivy

ANNONACEAE
Asimina triloba - pawpaw

APIACEAE
Chaerophyllum procumbens - chervil
Cryptotaenia canadensis - honewort
Osmorhiza longistylis - sweet cicely
Sanicula canadensis - Canadian black snakeroot
Torilis japonica - torilis*

APOCYNACEAE
Trachelospermum difforme - climbing dogbane
Vinca major - great periwinkle*

AQUIFOLIACEAE
Ilex decidua - deciduous holly
Ilex opaca - American holly
Ilex cornuta - Chinese holly*

ARACEAE
Arisaema dracontium - green dragon
Arisaema triphyllum - jack-in-the-pulpit
Arum italicum - Italian arum*

ARALIACEAE
Aralia spinosa - Hercules club
Hedera helix - English ivy*

ARISTOLOCHIACEAE
Asarum canadense - wild ginger

ASCLEPIADACEAE
Cynanchum laeve - bluevine
Matelea carolinensis - climbing milkweed
Matelea gonocarpa - climbing milkweed

ASTERACEAE
Ambrosia artemisiifolia - common ragweed
Ambrosia trifida - giant ragweed
Aster exilis - slender aster
Aster lateriflorus - side-flowered aster
Aster pilosus - frost aster
Aster Sagittifolius - arrow-leaved aster
Aster simplex - lowland aster

Bidens bipinnata - Spanish needles
Boltonia asteroides var. *recognita* - false aster
Conyza canadensis - mare's-tail
Elephantopus carolinianus - elephant-foot
Erechtites hieracifolia - fireweed
Erigeron annuus - annual daisy fleabane
Erigeron philadelphicus - Philadelphia daisy fleabane
Erigeron strigosus - prairie fleabane
Eupatorium incarnatum - pink thoroughwort
Eupatorium rugosum - white snake-root
Eupatorium serotinum - late boneset
Lactuca biennis -wild lettuce
Lactuca canadensis - Canada wild lettuce
Mikania scandens - climbing hempweed
Pluchea camphorata - camphor-weed
Polymnia uvedalia - bear's-foot
Rudbeckia laciniata - cut-leaf coneflower
Senecio glabellus - butter-weed
Solidago caesia - woodland goldenrod
Solidago canadensis - tall goldenrod
Solidago rugosa -rough-leaved goldenrod
Sonchus asper - sow thistle*
Sonchus oleraceus - sow thistle*
Taraxicum officinale - dandelion*
Verbesina virginica - white crownbeard

BALSAMINACEAE
Impatiens capensis - jewelweed

BERBERIDACEAE
Mahonia beadei - mahonia*
Nandina domestica - nandina*
Podophyllum peltatum - may-apple

BETULACEAE
Betula nigra - river birch
Carpinus caroliniana - American hornbeam
Corylus americana - hazelnut
Ostrya virginiana - hophorn beam

BIGNONIACEAE
Bignonia capreolata - cross-vine
Campsis radicans - trumpet creeper
Catalpa speciosa - catalpa
Paulonia tomentosa - princess tree*

BORAGINACEAE
Cynoglossum virginianum - hound's tongue

BRASSICACEAE
Capsella bursa-pastoris - shepherd's purse*
Cardamine bulbosa - spring cress
Cardamine hirsuta - spring cress*
Dentaria laciniata - toothwort
Lepidium virginicum - common peppergrass

CAMPANULACEAE
Campanula americana - American bellflower
Triodanis perfoliata var. *biflora* - Venus' looking-glass

CAPRIFOLIACEAE
Lonicera japonica - Japanese honeysuckle*
Lonicera sempervirens - coral honeysuckle
Lonicera tartaria - Tartarian honeysuckle*
Sambucus canadensis - elderberry
Symphoricarpos orbiculatus - coralberry
Viburnum rufidulum -southern black haw

CARYOPHYLLACEAE
Cerastium nutans - mouse-eared chickweed
Silene stellata - starry campion
Stellaria media - common chickweed*

CELASTRACEAE
Celastrus orbiculatus - oriental bittersweet*
Euonymus alatus - burning bush*
Euonymus americanus - hearts-a-bursting
Euonymus fortunei - creeping euonymus*

CHENOPODIACEAE
Chenopodium album - lamb's quarters
Chenopodium ambrosioides - Mexican tea*

COMMELINACEAE
Commelina communis - common dayflower*
Commelina diffusa - diffuse dayflower

CONVOLVULACEAE
Cuscuta gronovii - dodder
Dichondra caroliniensis - dichondra
Ipomoea purpurea - common morning-glory*

CORNACEAE
Cornus drummondii - rough-leaf dogwood
Cornus florida - flowering dogwood
Cornus foemina - still dogwood

CUCURBITACEAE
Citrullus vulgaris - watermelon*
Melothria pendula - creeping cucumber

CYPERACEAE
Carex leavenworthii - sedge
Carex oligocarpa - sedge
Carex oxylepis - sedge
Carex pensylvanica - sedge
Carex rosea - sedge
Carex texensis - sedge
Cyperus densicaespitosus
Cyperus rotundus - round flat-sedge

DIOSCOREACEAE
Dioscorea batatas - Chinese yam*
Dioscorea quaternata - wild yam

EBENACEAE
Diospyros virginiana - persimmon

ELAEAGNACEAE
Elaeagnus pungens -autumn olive*

EUPHORBIACEAE
Acalypha gracilens - slender three-seeded mercury
Acalypha rhomboidea - three-seeded mercury
Chamaesyce humistrata - spurge
Phyllanthus urinaria - chamber bitter*
Sapium sebiferum - Chinese tallow-tree*

FABACEAE
Albizia julibrissin - mimosa tree*
Amphicarpa bracteata - hog peanut
Cassia nictitans - wild sensitive plant
Cercis canadensis - redbud
Desmodium glutinous - pointed tick trefoil
Desmodium paniculatum - panicled tick trefoil
Desmodium pauciflorum - white-flowered tick trefoil
Gleditsia triacanthos - honey locust
Kummerowia striata - Japanese lespedeza*

Pueraria lobata - kudzu*
Robinia pseudoacacia - black locust
Trifolium campestre - low hop clover
Trifolium hybridum - Alsike clover*
Trifolium pratense - red clover
Vicia sativa - common vetch*
Wisteria sinensis - wisteria*

FAGACEAE
Quercus alba - white oak
Quercus falcata - southern red oak
Quercus muhlenbergii - chinquapin oak
Quercus nigra - water oak
Quercus pagoda - cherrybark oak
Quercus palustris - pin oak (park)
Quercus phellos - willow oak
Quercus rubra - northern red oak
Quercus shumardii - Shumard oak
Quercus stellata - post oak (park)
Quercus velutina - black oak

GERANIACEAE
Geranium carolinianum –Carolina crane's bill
Geranium maculatum - wild geranium

GINKGOACEAE
Ginkgo biloba - ginkgo*

HAMAMELIDACEAE
Liquidambar styraciflua - sweetgum

HIPPOCASTANACEAE
Aesculus pavia - red buckeye

HYDROPHYLLACEAE
Hydrophyllum macrophyllum - large leaf water leaf
Phacelia ranunculacea - oceanblue phacelia

JUGLANDACEAE
Carya cordiformis - bitternut hickory
Carya illinoensis - pecan
Carya ovata - shagbark hickory
Carya texana - Texas hickory
Carya tomentosa - mockernut hickory
Juglans nigra - black walnut

JUNCACEAE
Juncus tenuis - path rush
Luzula multiflora - wood rush

LAMIACEAE
Glechoma hederacea var. *micrantha* - ground ivy*
Lamium amplexicaule - henbit*
Lamium maculatum - spotted dead nettle*
Lamium purpureum - purple dead nettle*
Monarda fistulosa - bee-balm
Perilla frutescens - beefsteak plant*
Prunella vulgaris - self-heal
Salvia lyrata - lyre-leaf sage

LAURACEAE
Lindera benzoin - spicebush
Sassafras albidum - sassafras

LILIACEAE
Allium canadense - wild onion
Allium vineale - wild garlic*
Hemerocallis fulva - daylily*
Liriope muscari - liriope*
Narcissus poeticus - poet's narcissus*
Narcissus pseudo-narcissus - narcissus*
Ophiopogon japonicus - mondo grass*
Ornithogalum umbellatum - star of Bethlehem*
Polygonatum biflorum - Solomon's seal
Smilacina racemosa - false Solomon's seal
Trillium recurvatum - wake-robin
Uvularia grandiflora - large-flowered bellwort

LYTHRACEAE
Lagestroemia indica - crepe myrtle*

MAGNOLIACEAE
Liriodendron tulipifera - tulip poplar
Magnolia grandiflora - southern magnolia

MALVACEAE
Hibiscus syriacus - rose-of-Sharon*
Modiola caroliniana - Carolina bristlemallow
Sida rhombifolia - sida

MELIACEAE
Melia azederach - Chinaberry tree*

MENISPERMACEAE
Cocculus carolinus - Carolina moonseed
Menispermum canadense - moonseed

MORACEAE
Broussonetia papyrifera - paper mulberry*
Fatoua villosa - crab–weed*
Maclura pomifera - Osage orange
Morus alba - white mulberry*
Morus rubra - red mulberry

NYSSACEAE
Nyssa sylvatica - black gum

OLEACEAE
Forsythia viridissima - forsythia*
Fraxinus americana - white ash
Fraxinus pennsylvanica - green ash
Ligustrum sinense - Chinese privet*

OXALIDACEAE
Oxalis dillenii - sorrel
Oxalis rubra - red sorrel*

PAPAVERACEAE
Stylophorum diphyllum - celandine poppy

PASSIFLORACEAE
Passiflora lutea var. *glabriflora* - small passion flower

PHYTOLACCACEAE
Phytolacca americana - poke-weed

PLANTAGINACEAE
Plantago lanceolata - lance-leaf plantain*
Plantago rugelii - plantain

PLATANACEAE
Platanus occidentalis - sycamore

POACEAE
Andropogon virginicus - broom-sedge
Arundinaria gigantea - giant cane
Brachyelytrum erectum - bearded shorthusk
Bromus japonicus - Japanese chess*
Bromus racemosus - bald bromegrass*

Chasmanthium latifolium - inland sea oats
Chasmanthium sessiliflorum - longleaf woodoats
Cynodon dactylon - Bermuda grass*
Dichanthelium clandestinum - deer-tongue panicum
Digitaria sanguinalis - crab grass*
Echinochloa colonum - jungle rice*
Echinochloa crusgalli - barnyard grass*
Eleusine indica - goose grass*
Elymus canadensis - Canada wild rye
Elymus riparius - riverbank wildrye
Elymus virginicus - Virginia wild rye
Eragrostis cilianensis - lovegrass*
Eragrostis pectinacea - lovegrass
Festuca arundinacea - tall fescue*
Glyceria striata - manna grass
Leersia oryzoides - rice cutgrass
Leersia virginica - white grass
Melica mutica - melic grass
Microstegium vimineum - Nepal grass*
Muhlenbergia schreberi - nimblewill
Panicum anceps - panic grass
Paspalum pubiflorum - beadgrass
Poa annua - annual bluegrass
Poa sylvestris - woodland bluegrass
Setaria faberi - giant foxtail*
Setaria glauca - yellow foxtail*
Sorghum halepense - Johnson grass*
Sphenopholis obtusata - prairie wedgescale
Tridens flavus - grease grass

POLEMONIACEAE
Phlox divaricata var. *laphamii* - woodland phlox
Polemonium reptans - Jacob's ladder

POLYGONACEAE
Polygonum aviculare - knotweed*
Polygonum cespitosum var. *longisetum* - creeping smartweed*
Polygonum densiflorum - dense-flowered smartweed
Polygonum pensylvanicum - common smartweed
Polygonum punctatum - spotted smartweed
Polygonum scandens - climbing smartweed
Polygonum virginianum - Virginia knotweed
Rumex crispus - curly dock*
Rumex obtusifolius - bitter dock*

PORTULACACEAE

Claytonia virginica - spring beauty
Portulaca oleracea - little hogweed*

RANUNCULACEAE
Actaea pachypoda - doll's-eyes
Clematis virginiana - virgin's bower
Hydrastis canadensis - golden seal
Ranunculus abortivus - small-flowered buttercup
Thalictrum dioicum - meadow rue

RHAMNACEAE
Berchemia scandens - rattan vine

ROSACEAE
Agrimonia rostellata - beaked agrimony
Alchemilla microcarpa - slender parsley piert*
Amelanchier arborea - service-berry
Chaenomales japonica - Japanese quince*
Crataegus sp. - hawthorn
Duchesnia indica - barren strawberry*
Geum canadense - white avens
Malus coronaria - wild crab apple
Potentilla simplex - common cinquefoil
Prunus caroliniana - Carolina plum*
Prunus serotina - wild black cherry
Rosa multiflora - multiflora rose*
Rubus argutus - highbush blackberry
Rubus trivialis - southern dewberry

RUBIACEAE
Diodia teres - common button-weed
Diodia virginiana - Virginia buttonweed
Galium aparine - cleavers
Galium circaezans - bedstraw
Hedyotis purpurea - bluet
Sherardia arvensis - field madder*

RUTACEAE
Poncirus trifoliata - trifoliate orange*

SALICACEAE
Populus deltoides - eastern cottonwood
Salix nigra - black willow

SAXIFRAGACEAE
Hydrangea arborescens - common hydrangea

Philadelphus inodorous - mock orange

SCROPHULARIACEAE
Mazus pumilus - Japanese mazus*
Mimulus alatus - square-stemmed monkey flower
Scrophularia marilandica - late figwort
Veronica peregrina - neckweed
Veronica persica - Persian speedwell*

SIMARUBACEAE
Ailanthus altissima - tree-of-heaven*

SMILACACEAE
Smilax glauca - glaucus catbrier
Smilax hispida - hispid catbrier
Smilax rotundifolia - roundleaf catbrier
Smilax smallii - Small's catbrier

SOLANACEAE
Physalis pruinosa - ground-cherry
Solanum americanum - horse nettle

TILIACEAE
Tilia americana - American basswood
Tilia heterophylla - basswood

ULMACEAE
Celtis laevigata - sugarberry
Celtis occidentalis - hackberry
Ulmus americana - American elm
Ulmus rubra - slippery elm

URTICACEAE
Boehmeria cylindrica - false nettle
Laportea canadensis - wood nettle
Pilea pumila - clearweed

VERBENACEAE
Phryma leptostachya - lopseed

VIOLACEAE
Viola papilionacea - butterfly violet
Viola pubescens var. *eriocarpa* - smooth yellow violet
Viola rafinesquii - johnny-jump-up
Viola sororia - common violet

VITACEAE
Ampelopsis arborea - pepper vine
Ampelopsis cordata - raccoon grape
Parthenocissus quinquefolia - Virginia creeper
Vitis aestivalis - summer grape
Vitis cinerea - winter grape
Vitis riparia - riverbank grape
Vitis rotundifolia - muscadine
Vitis vulpina - fox grape

APPENDIX III

NATURAL AREA PRESERVATION ACT OF 1971

Tennessee Code Annotated. Title 11: Natural Areas and Recreation. Chapter 14: Natural Areas Preservation. Section 11-14-101 et seq. Included below and available on file at:

TDEC / DNA
Natural Areas Office
1625 Hollywood Drive
Jackson, TN 38305
(731) 512-1369

TDEC / DNA
401 Church St., 7th Floor L&C Annex
Nashville, TN 37243
(615) 532-0436

Available on the worldwide web at: http://www.michie.com/. Click the link for Tennessee Code.

Natural Areas Preservation Act of 1971

CHAPTER 14
NATURAL AREAS PRESERVATION

Part 1

General Provisions

11-14-101. Short title.

This part shall be known and may be cited as the "Natural Areas Preservation Act of 1971."

[Acts 1971, ch. 116, § 1; T.C.A., § 11-1701.]

11-14-102. Purpose.

The general assembly finds that in the countryside of Tennessee there are areas possessing scenic, scientific, including biological, geological and/or recreational values, and which are in prospect and peril of being destroyed or substantially diminished by actions such as dumping of refuse, commercialization, construction, changing of population densities or similar actions, there being either no regulations by the state or by local governments or regulations which are inadequate or so poorly enforced as not to

yield adequate protection to such areas. It is the intention of the general assembly to provide protection for such areas.

[Acts 1971, ch. 116, § 2; T.C.A., § 11-1702.]

11-14-103. Definitions.

As used in this part, unless the context otherwise requires:

(1) "Area" means an area of land or water, or both, whether in public or private ownership, which has scenic, natural, or scientific values;

(2) "Commissioner" means the commissioner of environment and conservation;

(3) "Department" means the department of environment and conservation;

(4) "Local government" means the government of a county or municipality; and

(5) "System" means collectively the areas, whether scenic, natural or scientific, which will be placed in this part and which shall receive the preservation and protection that is provided by this part.

[Acts 1971, ch. 116, § 3; T.C.A., § 11-1703.]

11-14-104. Administration - Report on implementation.

(a) This part shall be administered by the department, in cooperation with the wildlife resources agency and with the conservation commission, acting as an advisory body.

(b) After a period of study, the commissioner shall, by February 1, 1972, make a recommendation to the members of the general assembly as to the requirements for the proper administration and implementation of this program, specifying whether a new division is required and whether a new director is required, and to submit to the department of finance and administration a request for the funds deemed necessary for the initiation of the program.

(c) The commissioner is authorized to make and shall enforce certain regulations necessary for the preservation and enhancement of the values herein protected, and for control of recreational, educational, scientific and other uses of these areas in a manner that shall not impair them. [Acts 1971, ch. 116, § 4; impl. am. Acts 1974, ch. 481, §§ 4, 6; T.C.A., § 11-1704.]

11-14-105. Classifications.

There shall be two (2) classes of areas within the meaning of this part:

(1) Class I, scenic-recreational areas, which are areas associated with and containing waterfalls, natural bridges, natural lakes, small but scenic brooks or streams, gorges, coves, woodlands, caverns or other similar features or phenomena, which are unique in scenic and recreational value and not extensive enough for a state park but worthy of perpetual preservation; and
(2) Class II, natural-scientific areas, which are areas associated with and containing floral assemblages, forest types, fossil assemblages, geological phenomena, hydrological phenomena, swamplands and other similar features or phenomena which are unique in natural or scientific value and are worthy of perpetual preservation.

[Acts 1971, ch. 116, § 5; T.C.A., § 11-1705.]

11-14-106. Development permitted.

(a) The following development shall be permitted in the two (2) classes of areas:

(1) (A) Class I areas may be developed with foot trails, foot bridges, overlooks, primitive campgrounds and small picnic areas with associated sanitary facilities.

(B) Class II areas may be developed with foot trails, foot bridges, overlooks and primitive campgrounds; and

(2) Either class may be developed with such facilities as may be reasonably necessary for the dissemination of educational material and for the safe and proper management and protection of the area; provided, that no such facility shall be constructed or sited in such a manner as to be inconsistent with the preservation of the natural or scientific values in a Class II area or as an intrusion upon the scenic and recreational values in a Class I area.

(b) The commissioner shall adopt rules and regulations for each natural area, specifying the activity or activities permitted. Such permissible activities shall not be inconsistent with the purpose of perpetual preservation. If, in the discretion of the commissioner, any portion of an area is deemed to be of so fragile a nature that overuse may damage it, limitations may be placed on activities within those portions. Removal of plants, animals or geological specimens shall not be permitted except by permit issued by the commissioner. If hunting or fishing are among the activities permitted by the commissioner, the commissioner shall adopt, with the advice of the wildlife resources agency, rules and regulations to regulate such activity on the natural area in question. Such rules and regulations may be more restrictive than the rules and regulations adopted for statewide hunting and fishing by the wildlife resources agency.

[Acts 1971, ch. 116, § 6; 1978, ch. 634, § 1; T.C.A., § 11-1706.]

11-14-107. Reports by department.

The department, with the cooperation of the wildlife resources agency and the conservation commission, as an advisory body, shall study and submit to the next session

of this general assembly a list of Class I and Class II areas, together with maps showing their boundaries, to be initially made a part of the system. Thereafter, the department shall submit annually to each succeeding general assembly proposals for additions and alterations to Class I or Class II areas, or for improvements to this program. Each proposal shall specify the category of the proposed addition and shall be accompanied by a report on the factors which, in the judgment of the department, make the area a worthy addition to the system. The department shall consult with citizens' organizations in the administration of this part as much as possible.

[Acts 1971, ch. 116, § 7; impl. am. Acts 1974, ch. 481, §§ 4, 6; T.C.A., § 11-1707.]

11-14-108. Designation of areas.

(a) The general assembly may designate Class I or Class II areas proposed by the commissioner to become parts of the system. However, designation by the general assembly need not necessarily be restricted to areas proposed by the department.

(b) The following areas are designated natural areas:

(1) Class I - Scenic-Recreational Areas

(A) Ozone Falls. A one-hundred-ten-foot (110') falls and scenic gorge area, consisting of approximately sixteen and five-tenths (16.5) acres in Cumberland County;

(B) Big Cypress Tree. A bottomland hardwood, partly forested area containing the largest recorded bald cypress (Taxodium Distichum) tree on the North American continent with approximately two hundred seventy (270) acres in Weakley County;

(C) Reelfoot Lake. A natural, earthquake-formed lake, consisting of approximately eighteen thousand (18,000) acres of land and water owned by the state of Tennessee and the United States in Lake and Obion counties;

(D) Natural Bridge. A twenty-five-foot (25') natural rock bridge, consisting of approximately three (3) acres in Franklin County;

(E) Falling Water Falls. A one-hundred-thirty-foot (130') falls with view of the Sequatchie Valley, consisting of approximately one hundred thirty-six (136) acres in Hamilton County;

(F) Burgess Falls. A cascade-type one-hundred-twenty-foot (120') falls with included lake and scenic stream, consisting of approximately three hundred fifty (350) acres of land and water in Putnam County;

(G) Dunbar Cave. A well-explored, scenic and historic cave along with a small lake and upland hardwood forest, consisting of approximately one hundred fifteen (115) acres of land and water in Montgomery County;

(H) Bays Mountain. An approximately three thousand five hundred (3,500) acre natural area located in Sullivan and Hawkins counties, plus any of approximately seven hundred (700) acres in private ownership which may be acquired for addition to the natural area. The area includes a lake, interpretive trails, outdoor education and recreation facilities, and areas of great scenic beauty, including Laurel Run Gorge where several of Tennessee's rare plant species occur. The area is managed by the governments and agencies of Kingsport and Hawkins County with cooperation and support from the Tennessee natural areas program;

(I) Frozen Head State Park. An area of eight thousand six hundred twenty (8,620) acres lying within the eleven thousand six hundred fifty (11,650) acre park and excluding approximately three hundred thirty (330) acres located along North Prong Flat Fork Creek and Judge Branch and below one thousand six hundred feet (1,600') elevation above mean sea level and also excluding one (1) acre on the summit of Frozen Head Mountain. The area contains undisturbed forest land of unique configuration and is located in the southeast portion of Morgan County;

(J) Grundy Forest. An area consisting of two hundred thirty-four (234) acres containing unique gorges with outstanding scenic views in Grundy County;

(K) House Mountain. An area of approximately eight hundred fifty (850) acres on the upper slopes and crest of the four thousand (4,000) acre mountain which is a unique synclinal outlier of Clinch Mountain, possessing a combination of scenic views, geological formations and bird and plant life, lying within a major metropolitan area and incorporating the southern terminus of the Trail of the Lonesome Pine, in Knox County. No land for the House Mountain scenic-recreational area shall be acquired by any governmental entity by use of its power of eminent domain;

(L) Short Mountain - Jim Cummings Natural Area. An erosional remnant or outlier of the Cumberland Plateau, comprising approximately five hundred (500) acres with scenic rock formations and a thriving population of flora and fauna, in Cannon County;

(M) Hampton Creek Cove. A six hundred ninety-three (693) acre site in the headwaters of Hampton Creek in Carter County, that supports several rare plants and animals for Tennessee and represents a key tract in the protection of the Roan Mountain Massif;

(N) Shelby Farms Forest. An area of approximately one thousand (1,000) acres which is woodland along the Wolf River in Shelby County, which provides an ecological "edge effect" and protective corridor for the movement of wildlife. Shelby Farms Forest Natural Area is shown on the United States Geological Survey Quadrangle maps (photorevised 1983): Northeast Memphis; Ellendale; and Germantown. The boundary coordinates are given below in the one thousand-meter Universal Transverse Mercator grid ticks (UTM) noted on these maps. The one thousand (1,000) acre natural area includes two (2) forests: a six hundred (600) acre bottomland hardwood/bald cypress-tupelo swamp forest north of Walnut Grove Road, and a four hundred thirteen (413) acre mature bottomland

hardwood/bald cypress forest south of Walnut Grove Road. The six hundred (600) acre forest is shown on the Northeast Memphis and the Ellendale quads. The northern boundary of this forest is formed by interstate highway 240 at UTM coordinates 2 38 000 , 38 94 000 . The eastern border of this forest is bounded by a line drawn from UTM coordinates 2 38 000 , 38 94 150 (i.e., approximate intersection of TVA right-of-way and I-40) to UTM coordinates 2 40 300 , 38 91 750 . The southern boundary of the forest is formed by the right-of-way for Walnut Grove Road (present and future). The western boundary of the forest is the Wolf River. The four hundred thirteen (413) acre forest is shown on the Ellendale and Germantown quads. The northern boundary of this forest is formed by a line drawn through UTM coordinates 2 40 500 , 38 90 800 to UTM coordinates 2 43 000 , 38 90 800. The eastern border of this forest is formed by UTM coordinates 2 43 200 , 38 90 000. The southern and partial western boundaries of this forest are formed by the Wolf River. The westernmost boundary of this forest is shown at UTM coordinates 2 40 500 , 38 90 800. The following corridor is specifically excluded from Shelby Farms Forest Natural Area, to wit: The area as shown on the Ellendale and Germantown quadrangle maps on which the northern boundary is formed by the right-of-way of Walnut Grove Road (present and future); the western and southern boundaries are formed by the Wolf River and the eastern boundary is formed by a line drawn through UTM coordinates 2 40 600 , 38 90 400 to 2 41 200 , 38 91 500 . This natural area will be cooperatively managed by Shelby County and the department of environment and conservation;

(O) Short Springs. An area of approximately four hundred twenty (420) acres located within Coffee County. The area includes rich woods, forested ravines, low cascades, springs and waterfalls, one (1) of which is sixty feet (60 ft.) in height; in addition it contains a large diversity of wildflowers including two (2) state-listed endangered plant species (Nestronia and Broad-leaved Bunchflower). It is an excellent example of the forested slopes which are transitional between the Highland Rim and the Central Basin;

(P) Ghost River (Section of the Wolf River). An area of approximately two thousand (2,000) acres located in Fayette County that supports high quality bottomland hardwood forest and forested wetland communities occurring along scenic meanders of the Wolf River. The Bald Cypress-Tupelo Forest Community is a dominant natural feature established along river, swamp, and lake habitats and is representative of unaltered pristine river systems; and

(Q) Devil's Backbone. A forest of approximately nine hundred fifty (950) acres with a high diversity of upland community types representative of the western Highland Rim. It is located in Lewis County west of the Natchez Trace Parkway. Its prominent topographic features are numerous dry rocky ridges with moderate to steep slopes which form hollows with several perennial streams. The department will develop a plan for the development and management of the additional acreage east of the Natchez Trace in consultation with Lewis County; and

(R) Chimneys. An area of approximately thirty-three (33) acres along Pocket Creek in Marion County that protects an unusual geologic feature and surrounding forested gorge.

This area, located within the Cumberland Plateau Physiographic Province, includes two (2) isolated sandstone pinnacles rising out of Pocket Gorge. The pinnacles are connected by a natural bridge or arch that forms a natural window in their base. In addition to the pinnacles, this area also includes several waterfalls and an "old growth" hemlock forest.

(2) Class II - Natural-Scientific Areas

(A) Laurel Snow Pocket Wilderness. A wooded area with three (3) flowing streams, two (2) scenic waterfalls, gorges, and a small stand of virgin timber consisting of seven hundred ten (710) acres in Rhea County;

(B) Stinging Fork Falls Pocket Wilderness. A gorge lying in and along Stinging Fork Creek that includes waterfalls and scenic overlooks. The area consists of one hundred four (104) acres and is located in Rhea County;

(C) Honey Creek Pocket Wilderness. A wooded area near the Big South Fork River Gorge that includes rock houses, scenic streams, and a waterfall. The area is located in Scott County, and consists of one hundred nine (109) acres;

(D) Virgin Falls Pocket Wilderness. A wooded area consisting of three hundred seventeen (317) acres and containing the unusual Virgin Falls, sinkholes, caves, and portions of the Caney Fork River located in White County;

(E) Savage Gulf. A mixed-mesophytic, semi-virgin forest, consisting of approximately fifteen thousand five hundred ninety (15,590) acres in Grundy County;

(F) Colditz Cove. An area of approximately seventy-two (72) acres in Fentress County containing the seventy-five foot (75') Northrup Falls and a scenic gorge with many interesting rock formations;

(G) May Prairie. A remnant of the prairie that once covered many acres in Middle Tennessee, consisting of approximately two hundred fifty (250) acres in Coffee County;

(H) Piney Falls. Two (2) small waterfalls along with a scenic gorge that includes pockets of virgin timber, consisting of approximately four hundred forty (440) acres in Rhea County;

(I) Morril's Cave. A tract of land containing approximately thirty (30) acres that includes an undisturbed cave with beautiful formations and eight to ten (8-10) miles of passages. The area is located in Sullivan County;

(J) Radnor Lake. A one thousand two hundred (1,200) acre area in Davidson County, containing a seventy (70) acre lake, marshes, streams, and wooded hills;

(K) Cedars of Lebanon State Forest Natural Area. An area consisting of one thousand forty-three (1,043) acres comprising the best examples of the Cedar Glade ecosystem in Tennessee and possibly the entire United States. It is located in Wilson County;

(L) Bone Cave. A cave of extremely significant archaeological, historical, and scenic value consisting of approximately four hundred (400) acres in Warren County;

(M) Twin Arches. An area of approximately one thousand five hundred (1,500) acres containing two (2) fifty foot (50') high natural bridge arches located in Pickett County;

(N) Fall Creek Falls State Park. An isolated and rugged portion of the Cumberland Plateau in Van Buren and Bledsoe counties containing nine thousand two hundred eighty (9,280) acres of the sixteen thousand thirty (16,030) acre state park;

(O) Roundtop Mountain. An area bordering for one (1) mile on the Great Smoky Mountains National Park and containing an ecosystem very similar to the relatively untouched Appalachian Uplands of the national park. The area is located in Sevier County;

(P) Mr. and Mrs. Harry Lee Carter Natural Area. An area of approximately three hundred seventy-five (375) acres, located in Franklin County, also known as, and containing, Lost Cove Cave (Buggytop Caves);

(Q) Riverwoods Natural Area. An area of approximately twenty-one (21) acres, located in Shelby County;

(R) Hawkins Cove. A two hundred thirty-five (235) acre site in Franklin County which supports a population of the Cumberland rosinweed, a rare plant for Tennessee;

(S) Walterhill Floodplain. A thirty-four (34) acre area located along the Stones River in Rutherford County, and supporting one of the world's largest populations of the Stones River bladderpod, one of Tennessee's rarest plants;

(T) Vesta Cedar Glade. A one hundred fifty (150) acre cedar glade in Wilson County, which supports one of only five (5) known populations of the endangered Tennessee coneflower plus other rare cedar glade plants;

(U) Sunk Lake. An area containing a series of open lakes and swamp forest, and consisting of approximately one thousand six hundred eighty-three (1,683) acres in Lauderdale County;

(V) Frozen Head State Park. An area of approximately two thousand seven hundred (2,700) acres in the southeast portion of Morgan County containing the headwaters of the New River. The area contains significant mature forest and rare plants and is one of the least disturbed areas within the Cumberland Mountains;

(W) Hicks Gap. An area of approximately three hundred fifty (350) acres located within Prentice Cooper State Forest in Marion County. The area includes a forested slope in the scenic Tennessee River Gorge containing a large population of a federally endangered plant species known as Scutellaria montana (large-flowered skullcap);

(X) Barnett's Woods. A forty (40) acre site located in Montgomery County which supports the federally threatened Price's potato bean;

(Y) Hubbard's Cave. A fifty (50) acre site located in Warren County. More than two hundred fifty thousand (250,000) federally endangered gray and Indiana bats, more than all other known Tennessee caves combined, hibernate in the cave;

(Z) Mount View Glade. A nine (9) acre site located in Davidson County which supports an important colony of the globally-rare, federally-endangered Tennessee coneflower;

(AA) Powell River Preserve. A twenty-nine (29) acre site located in Claiborne County which supports the state's largest population of large-leaved grass of Parnassus and showy ladyslipper;

(BB) Sneed Road Cedar Glade. A one (1) acre site located in Williamson County which may be the best remaining site for the federally-endangered leafy prairie-clover;

(CC) Sunnybell Cedar Glade. A thirty-six (36) acre site in Rutherford County which supports a large population of rare yellow sunnybells and six (6) other rare plants;

(DD) Taylor Hollow. A one hundred seventy-three (173) acre remnant old growth forest in Sumner County which supports the rare blue-eyed Mary and dwarf trillium;

(EE) Washmorgan Hollow. A seventy-three (73) acre site in Jackson County which supports a rare mint population and is a significant neotropical bird habitat;

(FF) Overbridge. An area of seventy (70) acres in Rutherford County which supports a pristine cedar glade community including a population of the federally endangered Pyne's Ground Plum and six (6) state listed plants;

(GG) Couchville Cedar Glade. A seventy-two (72) acre site in Davidson County adjacent to Long Hunter State Park which supports the largest population of the globally-rare, federally endangered Tennessee coneflower. This site is considered to be one of the best barren and glade sites in Tennessee;

(HH) William L. Davenport Refuge. An area of approximately 120 acres in Polk County that includes a southern Appalachian bog community. This plant community is considered globally rare. It is characterized by an open canopy and is covered by a mat of large cranberry (Vaccinium macrocarpon) interspersed with tawny cotton-grass (Eriophorum virginicum), and alder (Alder serrulata) at the bog's edge;

(II) Walker Branch Dragonfly and Damselfly Preserve. This is approximately 225 acres in Hardin County near the Tennessee River. This site has forested wetland communities including Tupelo gum (Nyssa aquatica) and Bald cypress (Taxodium distichium) with surrounding floodplain and upland forest community types. There are upland seeps, which combined with these many other forest communities, provide unique habitat for more than 37 species of dragonflies and damselflies;

(JJ) Elsie Quarterman Cedar Glade. An area of approximately one hundred eighty-five (185) acres in Rutherford County that includes a large expanse of cedar glades and barrens supporting a population of the federally endangered Tennessee coneflower (Echinacea tennessensis), and numerous other cedar glade endemic plants and natural communities;

(KK) Montgomery Bell. This area is comprised of a southern tract of approximately three hundred fifty (350) acres and a northern tract, referred to as Wildcat Ridge, of approximately two hundred fifty (250) acres of oak-hickory forests in Dickson County. These tracts are among the best known examples of representative oak-hickory forest ecosystems on the Western Highland Rim in Tennessee;

(LL) Watauga River Bluffs. An area of approximately fifty (50) acres located along the Watauga River in Carter County that includes a mixture of calcareous riverine bluffs and mixed oak/hemlock forest. This site supports a population of the rare Carolina pink (Silene caroliniana), and one of the best examples of a rock chestnut oak-eastern red cedar forest in the Ridge and Valley physiographic province.

(MM) North Chickamauga Creek Gorge. An area of approximately three thousand seven hundred (3,700) acres located in Hamilton County that includes the rugged and steep gorge of North Chickamauga Creek. This area provides habitat for the state and federally endangered large-flowered skullcap (Scutellaria montana) and the state endangered and federally threatened Virginia spirea (Spirea virginiana), as well as numerous other rare species of plants. This Cumberland Plateau site includes a diversity of forest types from rich mixed mesophytic forest in the gorge to xeric oak-hickory-pine forest on the uplands;

(NN) Flat Rock Cedar Glades and Barrens. An area approximately five hundred seventy-six (576) acres in Rutherford County that includes a large expanse of cedar glades and barrens supporting populations of the federally and state endangered Pyne's Ground-Plum (Astragalus bibullatus) and Leafy Prairie-Clover (Dalea foliosa), as well as numerous other rare and endemic species of plants. This biologically rich site is within the Central Basin Physiographic Province and represents one of the largest and most ecologically diverse glade/barren complexes in the Central Basin; and

(OO) Fate Sanders Barrens. An area of approximately two hundred thirty (230) acres located in Rutherford County that includes barrens with small glades interspersed among cedar-hardwood forest. The barrens of this Central Basin site are dominated by native warm season grasses, while the glades support state-listed rare and endemic plant species.

(PP) Vine Cedar Glade. An area of approximately thirty five (35) acres in Wilson County that includes rare cedar glades and barrens communities and supports a population of the federally endangered Tennessee coneflower (Echinacea tennesseensis) as well as numerous other species of rare cedar glade plants. This area is located in the Central Basin physiographic province of middle Tennessee.

(QQ) William B. Clark Conservation Area. An area of approximately four hundred twenty (420) acres located in Fayette County that supports high quality bottomland hardwood and forested wetland communities occurring along scenic meanders of the Wolf River. Located in the Coastal Plain physiographic province of west Tennessee, this site contains unaltered river channels and forested flood plains featuring high quality Bald Cypress-Water Tupelo forest communities, and provides habitat for numerous species of plants and animals in need of conservation.

[Acts 1971, ch. 116, § 8; 1973, ch. 185, § 1; 1973, ch. 324, § 1; 1974, ch. 612, § 1; 1975, ch. 33, § 1; 1977, ch. 254, § 1; 1977, ch. 263, § 1; 1977, ch. 302, §§ 1, 2; T.C.A., § 11-1708; Acts 1984, ch. 574, § 1; 1985, ch. 99, §§ 1-3; 1986, ch. 912, §§ 6, 7; 1987, ch. 154, §§ 1, 2; 1987, ch. 210, § 1; 1988, ch. 508, §§ 1-3; 1988, ch. 643, § 1; 1989, ch. 91, § 1; 1994, ch. 627, § 1; 1995, ch. 105, §§ 1, 2; 1997, ch. 237, §§ 1, 2; 1998, ch. 622, §§ 1-5; 1999, ch. 357, §§ 1-5; 2000, ch. 636, §§ 1, 2.]
****

11-14-109. Plan for development and protection.

The commissioner shall, within two (2) years after an area has been made a part of this system, have completed a comprehensive plan of development and protection, and shall have begun the process of acquisition.

[Acts 1971, ch. 116, § 9; T.C.A., § 11-1709.]

11-14-110. Acquisition of property.

Within the boundaries of any Class I or Class II area included within the system, except those belonging to local governments, the commissioner may acquire, on behalf of the state of Tennessee, lands in fee title, or if applicable, and preferably, interest in land in the form of conservation easements. Easements should especially be sought in establishment of trails or other narrow, elongated or extensive land uses. Acquisition of land in fee or of any interest therein may be by donation, purchase with donated or appropriated funds, exchange, or otherwise. In acquiring property or property interests, as herein defined, the commissioner shall have the powers set forth in title 29, chapter 16, as heretofore or hereinafter amended, or under any other applicable statutory provisions now in force or hereafter enacted for the exercise of the power of eminent domain. No area shall be added to this part except by an act of the general assembly.

[Acts 1971, ch. 116, § 10; T.C.A., § 11-1710; Acts 1981, ch. 361, § 13.]

11-14-111. Cooperation with other agencies.

The commissioner, with the assistance of the other concerned state agencies, shall seek the cooperation of federal, county, and municipal agencies for the purposes of planning, development, and administration of the areas included within this program, and for the wise utilization of economic resources.

[Acts 1971, ch. 116, § 11; T.C.A., § 11-1711.]

11-14-112. Registration of privately owned areas.

The department shall maintain a registry of scenic or natural-scientific areas that are not in state ownership and whose owners have agreed to maintain them in a natural state, in accordance with such rules and regulations promulgated by the commissioner. Owners of such areas shall be permitted to make public the fact that the area is listed in the state registry. If the commissioner finds at any time that the owner has failed to maintain the criteria for natural areas as specified in this part, registration shall lapse.

[Acts 1971, ch. 116, § 12; 1978, ch. 634, § 2; T.C.A., § 11-1712.]

11-14-113. Areas becoming part of other state areas.

Any component of the system that is or shall become a part of any state park, wildlife refuge, or similar area shall be subject to the provisions of this part and the laws under which the other areas may be administered and, in the case of conflict between the provisions of these laws, the more restrictive provisions shall apply.

[Acts 1971, ch. 116, § 13; T.C.A., § 11-1713.]

11-14-114. Reports from other agencies.

All state agencies shall, as areas are placed in this system, inform the commissioner of any proceedings, studies, or other activities within their jurisdiction and regardless of by whom requested which are then in progress and which affect or may affect any of the areas specified in § 11-14-105. They shall likewise inform the commissioner of any such proceedings, studies or other activities which are thereafter commenced or resumed before they are commenced or resumed.

[Acts 1971, ch. 116, § 14; T.C.A., § 11-1714.]

11-14-115. Violations - Penalties.

Whoever violates, fails, neglects or refuses to obey any provisions of this part or rule or regulation promulgated hereunder may be punished by a fine of not less than one hundred dollars ($100) for each day of such violation.

[Acts 1971, ch. 116, § 15; T.C.A., § 11-1715; Acts 1998, ch. 1080, § 6.]

11-14-116. Reelfoot Lake natural area - Administration - Land acquisition.

(a) Notwithstanding any provisions of this part to the contrary, the provisions of this section are applicable to the Reelfoot Lake natural area, an area designated as a natural area under the provisions of § 11-14-108 and described therein.

(b) The responsibility for the administration of the Reelfoot Lake natural area under this part is transferred from the department, in cooperation with the wildlife resources agency and with the conservation commission acting as an advisory body, to the wildlife resources agency, in cooperation with the department and with the conservation commission acting as an advisory body.

(c) All powers and duties of the commissioner under this part, with respect to the Reelfoot Lake natural area, are transferred to and shall be exercised and performed by the executive director of the wildlife resources agency, except that the power and duty to promulgate regulations are transferred to and shall be exercised by the wildlife resources commission.

(d) All powers and duties of the department under this part, with respect to the Reelfoot Lake natural area, are transferred to and shall be exercised by the wildlife resources agency.

(e) The wildlife resources commission, when promulgating regulations applicable to the Reelfoot Lake natural area, and the wildlife resources agency and its executive director, in the administration of the Reelfoot Lake natural area, shall seek the cooperation and advice of the department during the preparation of such regulations and the development of all management plans and policies for the natural area.

(f) The powers and duties of the wildlife resources commission, the wildlife resources agency and its executive director, with respect to the Reelfoot Lake natural area under this section shall not extend to those properties operated by the division of parks and recreation, as the Reelfoot Lake State Resort Park, including noncontiguous day use areas, and consisting of approximately two hundred seventy-nine and twenty-three hundredths (279.23) acres.

(g) No provision of this part shall prevent the wildlife resources commission from allowing hunting, fishing or other taking of wildlife on the Reelfoot Lake natural area in accordance with the provisions of title 70 and the rules, regulations and proclamations promulgated pursuant to title 70. However, such rules, regulations and proclamations may include restrictions on hunting, fishing or other taking of wildlife in limited areas

designated by the wildlife resources commission as requiring such restrictions for the protection of plant and animal species which are listed by either the department or the wildlife resources commission as endangered, threatened, deemed in need of management or of special concern.

(h) Annually, not later than January 8, the executive director of the wildlife resources agency shall submit a report to the appropriate standing committees of the senate and the house of representatives of the general assembly. Such report shall outline, in summary form, the agency's activities and accomplishments in administering the Reelfoot Lake natural area during the preceding fiscal year.

(i) (1) The general assembly finds and declares that it is in the general interests of the people of Tennessee to establish a partnership between this state and private, nonprofit corporations, qualifying under Section 501(c)(3) of the United States Code, for the purpose of implementing the expeditious acquisition of interest in lands at Reelfoot Lake.

(2) The executive director of the wildlife resources agency shall identify appropriate private, nonprofit corporations to assist with the acquisition of these lands. These corporations shall have the protection of charters of incorporation. The executive director is authorized, with the approval of the commissioner of finance and administration and the state building commission, to enter into agreements with such corporations to permit the corporations to purchase surveys, appraisals, title work, and other services required for the acquisition of interests in lands at Reelfoot Lake; provided, that contractors selected by the corporations for these purposes must be properly licensed in Tennessee for these purposes. The executive director, with the approval of the commissioner of finance and administration and the state building commission, is further authorized to accept such surveys, appraisals, title work, and services on behalf of the state and to enter into agreements with such corporations to acquire options and to pre-acquire on behalf of the state interests in lands at Reelfoot Lake. The executive director is further authorized, with the approval of the commissioner of finance and administration and the state building commission, to acquire conservation easements from such corporations where such corporations may retain the fee title; provided, that the executive director may not purchase a conservation easement under such circumstances for more than its appraised value. The executive director may, through such agreements, commit the state to reimburse the corporations for their costs of acquisition and for their costs of capital. The commissioner of finance and administration and the state building commission shall establish a form for such agreements.

[Acts 1984, ch. 548, § 1; 1985, ch. 350, §§ 1-3.]

APPENDIX IV

RULES OF THE TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION

RULES OF TENNESSEE DEPARTMENT OF CONSERVATION
DIVISION OF STATE PARKS

CHAPTER 0400-02-08
MANAGEMENT OF TENNESSEE
NATURAL RESOURCE AREAS

TABLE OF CONTENTS

0400-02-08-.01 NATURAL RESOURCES AREAS.

Natural Resource Areas are areas that have significant natural, historical, cultural or recreational values and consist of legislatively designated natural areas, rivers and trails that have been established to preserve a project's inherent qualities and/or provide a specialized recreational facility. Each area is maintained and operated primarily for the preservation of the particular resource. The development of areas under this major classification will be limited to a few basic physical facilities. Larger structures such as interpretation and visitor centers, staff residences, picnic areas, parking areas and toilet facilities will be located in specified zones near the major access points if they cannot be located outside of the designated natural area. The purpose of these rules is to assure the preservation of areas designated as Natural Resource Areas throughout the State and to prevent abuse and misuse of the privileges and facilities provided.

Authority: T.C.A. §§ 11-1-101, 11-13-106, 11-14-104 and 4-5-201 et seq. Administrative History: Original rule filed June 7, 1974, effective July 7, 1974. Repeal and new rule filed September 16, 2013; effective December 15, 2013.

0400-02-08-.02 APPLICABILITY AND SCOPE.

These rules apply to all designated natural areas. The state park rules at Chapter 0400-02-02 also apply to natural areas. Many state statutes are also applicable to all natural resource areas, including, but not limited to, T.C.A. § 11-5-108 regarding vandalism of caves.

Authority: T.C.A. §§ 11-1-101, 11-13-106, 11-14-104 and 4-5-201 et seq. Administrative History: Original rule filed June 7, 1974, effective July 7, 1974. Repeal and new rule filed September 16, 2013; effective December 15, 2013.

0400-02-08-.03 DEFINITIONS.

The following definitions shall apply to these regulations:

(1) The term "Commissioner" shall mean the Commissioner of the Tennessee Department of Environment and Conservation or his or her designee.

(2) The term "Department" shall mean the Tennessee Department of Environment and Conservation.

(3) The term "Natural Resource Area" shall mean those areas legislatively designated natural areas, scenic rivers and scenic trails.

(4) The term "Program Administrator" shall mean the administrator of the Scenic Trails System, the Scenic Rivers System or the Natural Areas System.

(5) The term "manager" shall mean that person given the responsibility of overseeing that particular natural resource area.

(6) The term "designated agency" shall mean that agency designated in the management plan for the area as being responsible for management of the area.

(7) The term "exotic species" shall mean those species considered non-indigenous to the particular area.

Authority: T.C.A. §§ 11-1-101, 11-13-106, 11-14-104 and 4-5-201 et seq. Administrative History: Original rule filed June 7, 1974, effective July 7, 1974. Repeal and new rule filed September 16, 2013; effective December 15, 2013.

0400-02-08-.04 PENALTIES.

The penalties and sanctions provided by the General Assembly for violations of the statutes and rules governing scenic rivers, scenic trails and natural areas differ.

(1) T.C.A. § 11-13-117 states that whoever violates, fails, neglects or refuses to obey any provision of the Scenic Rivers Act or rule or order of the Commissioner may be punished by a fine of not more than fifty dollars ($50) for each day of such violation.

(2) T.C.A. § 11-11-120 states that whoever violates, fails, neglects or refuses to obey any provision of the Tennessee Trails System Act or rule or order of the Commissioner may be punished by a fine of not more than fifty dollars ($50) for each day of such violation.

(3) T.C.A. § 11-14-115(a) states that whoever violates, fails, neglects or refuses to obey any provision of the Natural Areas Preservation Act or rule promulgated thereunder may be punished by a fine of not less than one hundred dollars ($100) for each day of such violation. T.C.A. § 11-14-115(b) states that any person who commits any of the following acts or omissions is subject to a civil penalty of up to ten thousand dollars ($10,000) per day for each day during which the act or omission continues or occurs:

(a) Any damage or vandalism to any natural area;

(b) The removal or destruction of any rare, threatened or endangered species of plants in any natural area; or

(c) Any other violation of the Natural Areas Preservation Act or this Chapter.

Authority: T.C.A. §§ 11-1-101, 11-13-106, 11-14-104 and 4-5-201 et seq. Administrative History: Original rule filed June 7, 1974, effective July 7, 1974. Repeal and new rule filed September 16, 2013; effective December 15, 2013.

0400-02-08-.05 MANAGEMENT PLAN.

(1) There shall be a management plan for each designated natural area. Development of each management plan will adhere to a standardized outline format. The Department shall consult with citizen's organizations, as well as federal, state and municipal agencies in the preparation of these plans as much as possible. For additional information concerning public involvement see T.C.A. §§ 11-11-109, 11-13-105 and 11-14-107.

(2) Responsibility for preparation and revision of the management plan for each designated natural area shall rest with the designated natural area's program administrator or the state park manager with the approval of the Commissioner. The state park manager is responsible for preparation and revision when the primary management authority is the state park. For designated state natural areas owned and managed by federal agencies, both the preparation and revision of the management plan and the day to

day management of the natural area is the responsibility of the federal agencies. The natural areas program administrator will be notified when federal agencies or state park managers are preparing and revising a management plan. For designated natural areas that are not owned by state or federal agencies and not in state ownership, the owners shall be consulted regarding the natural areas management plan preparation. Representatives of administering agencies, private organizations and other interested groups or individuals may provide written comment on management plans.

(3) The management plan for each designated natural area and revisions thereto shall take effect upon approval by the Commissioner. A deviation from these rules shall take effect only as provided in Rule 0400-02-08-.05. An up-to-date copy of each management plan shall be held by the manager, the Department and the designated agency. These copies shall be available for public inspection during regular business hours as provided by law.

(4) Management of each Natural Resource Area shall be in accordance with these rules except for deviations as may be provided in the management plan for designated natural areas.

(5) Whenever it is required by the management plan that there be a deviation from the rules in the management of a designated natural area, such deviation shall be set forth in detail, together with the reasons therefore, in the management plan. A deviation from these rules shall take effect only upon approval by the Commissioner, and only when in accordance with the provisions and restrictions of the respective resource legislation.

Authority: T.C.A. §§ 11-1-101, 11-13-106, 11-14-104 and 4-5-201 et seq. Administrative History: Original rule filed June 7, 1974, effective July 7, 1974. Repeal and new rule filed September 16, 2013; effective December 15, 2013.

0400-02-08-.06 ADMINISTRATION AND CUSTODY.

The form and method of administration and custody of each designated natural area shall be designated in the management plan. Each designated natural area shall have a manager who shall administer, manage and protect the area in accordance with these rules and the management plan. The management plan shall designate an agency or owner to manage the area. The management plan may make a recommendation on whether an individual manager is needed full time in the area.

Authority: T.C.A. §§ 11-1-101, 11-13-106, 11-14-104 and 4-5-201 et seq. Administrative History: Original rule filed June 7, 1974, effective July 7, 1974. Repeal and new rule filed September 16, 2013; effective December 15, 2013.

0400-02-08-.07 REPORTS.

The designated agency shall submit an annual report and such other periodic reports to the Commissioner in such form and at such time as the Department may designate. The

annual report shall include a record of management activities, land and easement inspection reports, natural catastrophes, visitor use data and other influences affecting natural conditions within the Natural Resource Area as provided in Rule 0400-02-08-.30. State and federal agencies will be contacted for special conditions that might affect the area.

Authority: T.C.A. §§ 11-1-101, 11-13-106, 11-14-104 and 4-5-201 et seq. Administrative History: Original rule filed June 7, 1974, effective July 7, 1974. Repeal and new rule filed September 16, 2013; effective December 15, 2013.

0400-02-08-.08 INTRUSIONS.

(1) Environmental intrusions are those areas, structures or works of man that cause a negative impact upon the character of the Natural Resource Area or the experience the area offers to its users.

(2) There shall be no development of structures, rights-of-way or land uses which do not conform with the purposes and definition of a natural area as specified in T.C.A. §§ 11-14-101 et seq., or these rules, except for intrusions that are permitted by each management plan. Any intrusion allowed by the management plan shall be considered as a deviation from these rules and treated as provided in Rule 0400-02-08-.05.

(3) Any environmental intrusion not necessary for the public use or well being or for the management of the area, and of such nature that it can be excluded, shall be so removed. This includes, but is not limited to, removing and revegetating roads, relocating powerlines and, removing buildings, dams and trash dumps.

Authority: T.C.A. §§ 11-1-101, 11-13-106, 11-14-104 and 4-5-201 et seq. Administrative History: Original rule filed June 7, 1974, effective July 7, 1974. Repeal and new rule filed September 16, 2013; effective December 15, 2013.

0400-02-08-.09 PUBLICITY.

Information about Tennessee Natural Resource Areas and appropriate descriptive material shall be developed and made available to all interested persons. Publicity which would tend to induce the general public to visit an area, except to such extent as is compatible with the maximum desirable visitor use for the area as established by the management plan, shall be avoided. (See Rule 0400-02-08-.25.) Information will emphasize protection and preservation of the area.

Authority: T.C.A. §§ 11-1-101, 11-13-106, 11-14-104 and 4-5-201 et seq. Administrative History: Original rule filed June 7, 1974, effective July 7, 1974. Repeal and new rule filed September 16, 2013; effective December 15, 2013.

0400-02-08-.10 BOUNDARY MARKERS.

State owned Natural Resource Area boundaries shall be made clearly evident by placing survey monuments at corners or other strategic locations, by posting boundary markers at intervals not exceeding two hundred feet or a smaller distance if necessary so that each sign shall be visible from at least one other sign, except as otherwise provided in the management plan, and, if appropriate, by fencing or other means. Boundary marking of non-state owned designated natural areas shall be addressed in the management plan.

Authority: T.C.A. §§ 11-1-101, 11-13-106, 11-14-104 and 4-5-201 et seq. Administrative History: Original rule filed June 7, 1974, effective July 7, 1974. Repeal and new rule filed September 16, 2013; effective December 15, 2013.

0400-02-08-.11 BOUNDARY FENCES.

Necessary boundary fences and barriers may be installed as provided in the management plan. Generally they shall not be in a form that will create a detrimental effect on movement of wildlife, air circulation, other natural or aesthetic conditions, or cause unnecessary public opposition.

Authority: T.C.A. §§ 11-1-101, 11-13-106, 11-14-104 and 4-5-201 et seq. Administrative History: Original rule filed June 7, 1974, effective July 7, 1974. Repeal and new rule filed September 16, 2013; effective December 15, 2013.

0400-02-08-.12 ROADS.

(1) Service Roads. Vehicular access lanes shall be installed and maintained within a Natural Resource Area only where essential for patrol, fire control or other necessary management activities and in accordance with the management plan. Such lanes shall be closed to all except service and emergency vehicles. They shall provide a single track and clearing shall not extend more than seven feet on each side of the center of the lane. Existing roads no longer necessary for management purposes shall be treated as intrusions per Rule 0400-02-08-.08 unless otherwise utilized for public access as part of a trail system.

(2) Public Access Roads. Public access roads will be installed and maintained only when needed to provide for visitor utilization of the area. Installation of these roads will be in accordance with Rule 0400-02-08-.24 and the management plan. These roads will be constructed subject to the following criteria:

(a) Road development in all Natural Resource Areas shall be limited to the minimum necessary to provide access for the maintenance and/or public use of the area. Roads shall be designed with extreme care and located with a concern for environment. Roads shall follow the general contour of the natural terrain.

(b) Roads in Natural Resource Areas shall be constructed for a design speed not to exceed twenty-five miles per hour. Excessive cuts and fills shall be avoided. The width of roadways shall not exceed eighteen feet. Shoulders of the roadway shall not exceed one foot in width on each side. Two additional feet of shoulder will be allowed where guardrails are needed for safety purposes. The design of all structures-bridges, tunnels, grade separation devices and retaining walls shall be aesthetically pleasing as well as functional. Grades of up to 10% shall be used where needed for short distances. Gravel surfaced roads shall be used when practical in keeping with primitive character of Natural Resource Areas. Asphalt or concrete surfacing may be used where heavy use will make gravel surfacing impractical or when the safety of the visitor is involved.

(3) Careful attention shall be given to the impact that roads will have on the environment in the planning phase of Natural Resource Area development. Road construction will not be initiated if during this phase it is determined that the impact will be negative to the character of the area. The appropriate program administrator for the area shall carefully weigh such values as drainage, streamflow, wildlife habitat and mobility, natural vegetation, geologic features, scenic features, noise levels and other natural characteristics of the area before determining whether a road is to be built. The exact route of the proposed road shall be inspected at the site to ensure that all natural features have been considered.

Authority: T.C.A. §§ 11-1-101, 11-13-106, 11-14-104 and 4-5-201 et seq. Administrative History: Original rule filed June 7, 1974, effective July 7, 1974. Repeal and new rule filed September 16, 2013; effective December 15, 2013.

0400-02-08-.13 TRAILS.

Location, form and plan of any trails other than natural wildlife paths shall be specified in the management plan and conform to the objectives of the Natural Resource Area. Trails shall be adequate to provide for permitted use of an area and to prevent erosion, trampling of vegetation and other deterioration, but otherwise shall be kept to a minimum. Use of tread materials, foot bridges and elevated walks is permissible when necessary and provided for in the management plan. Trail development in designated natural areas is limited to foot trails and foot bridges. Only low impact recreation associated with hiking is permitted on foot trails. An exception may be granted for county or municipal owned natural areas where biking activities were expressly permitted prior to designation, provided that it is mentioned as a deviation in the management plan as provided in Rules 0400-02-08-.05 and 0400-02-08-.30.

Authority: T.C.A. §§ 11-1-101, 11-13-106, 11-14-104 and 4-5-201 et seq. Administrative History: Original rule filed June 7, 1974, effective July 7, 1974. Repeal and new rule filed September 16, 2013; effective December 15, 2013.

0400-02-08-.14 OTHER STRUCTURES AND IMPROVEMENTS.

Necessary signs, trash receptacles and structures are permitted if provided for in the management plan or in a permit for research activities. All structures and service facilities shall be located in specific areas only. Signs and structures shall conform to such style and standards as the Department may establish.

Authority: T.C.A. §§ 11-1-101, 11-13-106, 11-14-104 and 4-5-201 et seq. Administrative History: Original rule filed June 7, 1974, effective July 7, 1974. Repeal and new rule filed September 16, 2013; effective December 15, 2013.

0400-02-08-.15 BUFFER AREAS.

Buffer areas may be established adjacent to or within Natural Resource Areas when deemed appropriate to eliminate the adverse effects of external influences. Such areas may be devoted to uses other than nature preservation which do not adversely affect the area. Buffer areas may be controlled by ownership, easement, cooperative agreement or other appropriate means. Criteria for buffer areas shall be included in the management plan. Management of a buffer area shall be in accordance with guidelines and provisions in the applicable Natural Resource Area legislation.

Authority: T.C.A. §§ 11-1-101, 11-13-106, 11-14-104 and 4-5-201 et seq. Administrative History: Original rule filed June 7, 1974, effective July 7, 1974. Repeal and new rule filed September 16, 2013; effective December 15, 2013.

0400-02-08-.16 SERVICE AREAS.

Wherever possible, service areas should be established within buffer areas to provide access and parking, management facilities and visitor facilities. Provisions for necessary service areas shall be included in the management plan.

Authority: T.C.A. §§ 11-1-101, 11-13-106, 11-14-104 and 4-5-201 et seq. Administrative History: Original rule filed June 7, 1974, effective July 7, 1974. Repeal and new rule filed September 16, 2013; effective December 15, 2013.

0400-02-08-.17 SCENIC AND LANDSCAPE MANAGEMENT.

No measures shall be taken to alter natural growth or features for the purpose of enhancing the beauty, neatness or amenities of an area. There shall be no cutting of grass, brush or other vegetation, thinning of trees, removal of dead wood, except for safety purposes, opening of scenic vistas or planting, except as provided in the management plan.

Authority: T.C.A. §§ 11-1-101, 11-13-106, 11-14-104 and 4-5-201 et seq. Administrative History: Original rule filed June 7, 1974, effective July 7, 1974. Repeal and new rule filed September 16, 2013; effective December 15, 2013.

0400-02-08-.18 SAFETY HAZARDS.

Guardrails, fences, steps and other devices necessary for visitor safety may be installed as provided in the management plan. Dead trees, branches or other features that constitute a safety hazard to persons on trails or in other authorized use areas should be removed. Control of hazardous plants or animals shall be as provided in paragraph (3) of Rule 0400-02-08-.23.

Authority: T.C.A. §§ 11-1-101, 11-13-106, 11-14-104 and 4-5-201 et seq.
Administrative History: Original rule filed June 7, 1974, effective July 7, 1974. Repeal and new rule filed September 16, 2013; effective December 15, 2013.

0400-02-08-.19 REMOVAL OR INTRODUCTION OF OBJECTS.

Except as provided in the management plan, there shall be no removal of any natural material, product or object from a Natural Resource Area. A collecting permit is required for collecting in all areas. (See Rule 0400-02-08-.28.) No natural or man made object that could endanger or detract from the natural characteristics of the Natural Resource Area maybe introduced to the area.

Authority: T.C.A. §§ 11-1-101, 11-13-106, 11-14-104 and 4-5-201 et seq. Administrative History: Original rule filed June 7, 1974, effective July 7, 1974. Repeal and new rule filed September 16, 2013; effective December 15, 2013.

0400-02-08-.20 WATER LEVEL CONTROL.

Natural water levels shall not be altered. Water levels which have been altered by man may be changed if provided for in the management plan as essential for the restoration, safety, management or maintenance of the area.

Authority: T.C.A. §§ 11-1-101, 11-13-106, 11-14-104 and 4-5-201 et seq. Administrative History: Original rule filed June 7, 1974, effective July 7, 1974. Repeal and new rule filed September 16, 2013; effective December 15, 2013.

0400-02-08-.21 FIRE CONTROL.

All wildfires shall be brought under control as quickly as possible. After a fire within a Natural Resource Area there shall be no cleanup, fire hazard reduction or replanting except with the approval of the Commissioner. Any special procedures and methods to be used for prevention and control of fire shall be included in the management plan.

Authority: T.C.A. §§ 11-1-101, 11-13-106, 11-14-104 and 4-5-201 et seq. Administrative History: Original rule filed June 7, 1974, effective July 7, 1974. Repeal and new rule filed September 16, 2013; effective December 15, 2013.

0400-02-08-.22 EROSION CONTROL.

Erosion and soil deposition due to past or present disturbance by human activity or natural conditions within the area may be controlled in accordance with provisions of the management plan.

Authority: T.C.A. §§ 11-1-101, 11-13-106, 11-14-104 and 4-5-201 et seq. Administrative History: Original rule filed June 7, 1974, effective July 7, 1974. Repeal and new rule filed September 16, 2013; effective December 15, 2013.

0400-02-08-.23 VEGETATION AND WILDLIFE MANAGEMENT.

(1) Management of Rare or Unusual Plants and Animal Species.

(a) Control of plant succession and habitat shall be undertaken only if restoration or preservation of a particular vegetative type, or preservation of a rare species of native flora or fauna, is designated in the management plan as an objective of the Natural Resource Area.

(b) Control measures must be undertaken only with adequate prior observation and study of the areas and only with adequate scientific evidence of necessity. Control measures shall be followed by adequate observation and study of results. The Tennessee Wildlife Resources Agency will be consulted in matters of management or control of wildlife populations.

(2) Control of Exotic Species. Control of species may be undertaken as provided in the management plan. No introduction of non-indigenous species is allowed except when the introduced species is used to control damaging pests. The Tennessee Wildlife Resources Agency will be consulted in matters of management or control of wildlife populations.

(3) Control of Native Populations. There shall be no action to increase or reduce populations of native plants or animals or to restrict movement of wildlife across boundaries of a Natural Resource Area except as provided in the management plan. The Tennessee Wildlife Resources Agency will be consulted in matters of management or control of wildlife populations.

Authority: T.C.A. §§ 11-1-101, 11-13-106, 11-14-104 and 4-5-201 et seq. Administrative History: Original rule filed June 7, 1974, effective July 7, 1974. Repeal and new rule filed September 16, 2013; effective December 15, 2013.

0400-02-08-.24 USE.

(1) Use of areas shall be allowed only to such extent and in such manner as will not impair natural conditions. To the extent possible, the management plan shall define the use of each portion of the Natural Resource Area and specify the controls and restrictions

to be placed on access and use. The manager will monitor conditions under which use will result in deterioration of the area and shall have the authority to further restrict access and use as necessary to protect the area. (See Rule 0400-02-08-.25.)

(2) Visitor activities that are not compatible with the preservation of the natural character of each Natural Resource Area shall not be permitted.

Authority: T.C.A. §§ 11-1-101, 11-13-106, 11-14-104 and 4-5-201 et seq. Administrative History: Original rule filed June 7, 1974, effective July 7, 1974. Repeal and new rule filed September 16, 2013; effective December 15, 2013.

0400-02-08-.25 NATURAL ENVIRONMENT ZONE.

(1) Each Natural Resource Area may be divided into Natural Environment Zones according to degree of development within the respective areas. Visitor presence and use may be specified for each zone.

(2) In establishing zones, consideration will be given to the natural features and characteristics of the resource and to the objectives of the Natural Resource Area as stated in the management plan.

(3) Natural areas are classified by default as natural environment predominates (Zone 2). A delineation of another type of zone will be referenced in the management plan.

(4) Classification of Natural Environment Zones.

ZONE DESCRIPTION AND PRIMARY USE

1 Unmodified area containing unique natural characteristics is predominant. Primary use is research. Permit required for utilization.

2 Natural environment predominates. Day use passive recreation experience is emphasized. Primary visitor uses are hiking and observation.

3 Slightly modified natural environment discernible. Man made structures are minimal. Primary visitor uses are hiking, observation and camping.

4 Modified natural environment evident. Visitor centers, staff residences, picnic, parking and sanitary facilities are permitted.

Authority: T.C.A. §§ 11-1-101, 11-13-106, 11-14-104 and 4-5-201 et seq. Administrative History: Original rule filed June 7, 1974, effective July 7, 1974. Repeal and new rule filed September 16, 2013; effective December 15, 2013.

0400-02-08-.26 ACCESS CONTROL.

Ingress and egress shall be allowed only at such locations and under such conditions as may be specified in the management plan. (See Rule 0400-02-08-.24 and Rule 0400-02-08-.12(2).)

Authority: T.C.A. §§ 11-1-101, 11-13-106, 11-14-104 and 4-5-201 et seq. Administrative History: Original rule filed June 7, 1974, effective July 7, 1974. Repeal and new rule filed September 16, 2013; effective December 15, 2013.

Authority: T.C.A. §§ 11-1-101, 11-13-106, 11-14-104 and 4-5-201 et seq. Administrative History: Original rule filed June 7, 1974, effective July 7, 1974. Repeal and new rule filed September 16, 2013; effective December 15, 2013.

0400-02-08-.27 ORIENTATION AND GUIDANCE OF VISITORS.

There may be an interpretive program within each Natural Resource Area for the orientation, education and guidance of visitors. Exhibits, programs and printed materials as well as guide service, interpretive programs and labeled nature trails may be provided within the area. The overall interpretive program shall conform to the criteria in the management plan and to such additional general or special rules as the Division may establish.

Authority: T.C.A. §§ 11-1-101, 11-13-106, 11-14-104 and 4-5-201 et seq. Administrative History: Original rule filed June 7, 1974, effective July 7, 1974. Repeal and new rule filed September 16, 2013; effective December 15, 2013.

0400-02-08-.28 SPECIAL USE OF AREAS.

A person wishing to engage in research or educational activities on a designated state natural area not otherwise permitted by these rules or in the management plan for the area shall secure a permit from the Department. If the activities are to be carried on by a group, a special use permit may be issued to the group leader who shall be responsible for the actions of the group.

(1) Educational Permits.

(a) This permit shall provide adequate information about the applicant and his or her educational activities. There will be included the name, address, position, professional qualifications and general field of interest of the applicant and a description of the educational activities including the objective, methods and procedures to be followed, records to be kept, duration of the project, areas to be visited, frequency and length of visits and detailed description of disturbances to be made.

(b) Educational permits will be required on Natural Environment Zone 1 and other areas that may be designated in the management plan. (See Rule 0400-02-08-.25)

(2) Scientific Research and Collection Permits.

(a) This permit shall provide adequate information about the applicant and his or her research activities. There will be included the name, address, position, professional qualifications and general field of interest of the applicant and a description of the activities including the objective, methods and procedures to be followed, records to be kept, duration of the project, areas to be visited, frequency and length of visits and detailed description of disturbances to be made.

(b) Scientific Research and Collecting permits will be issued to an individual or individuals sponsoring not more than fifteen students for the purpose of collection of biological, geological or archaeological materials in Natural Resource Areas. Permits shall be issued on the basis that the applicant agrees to adhere to these rules concerning Natural Resource Areas.

(c) Applicants that are granted permission to conduct research or collect in Natural Resource Areas must submit written yearly reports of their research to the Department after application is approved. The collection data must be available to the public at all times for the purpose of scientific research to be made part of the management plan.

(d) The application must specify information concerning the species or objects to be taken, numbers of species, method of taking and disposition of specimens. A scientific research and collecting permit will be required for any part of a designated state natural area. Any permit that may be required by another agency must be obtained prior to research or collecting on State Natural Resource Areas.

(e) Specimens collected for curation are to be deposited in a publicly assessable institution.

(3) Fire Permits. A permit for the use of fire on a Natural Resource Area will be required for areas designated by the management plan as Natural Environment Zones 1 and 2. In Zones 3 and 4 a fire permit is not necessary but the use of fire will be permitted only in designated areas.

(a) General Information Concerning Permits.

(i) A permit will be valid for no longer than one year but may be renewable.

(ii) A permit may be modified, suspended or revoked by the Department at any time.

(iii) A person holding a permit will report to the manager before commencing and upon completing permitted activities.

Authority: T.C.A. §§ 11-1-101, 11-13-106, 11-14-104 and 4-5-201 et seq. Administrative History: Original rule filed June 7, 1974, effective July 7, 1974. Repeal and new rule filed September 16, 2013; effective December 15, 2013.

0400-02-08-.29 MANAGEMENT RESEARCH.

There shall be continuing studies of the general problems of managing Natural Resource Areas. Appropriate action will be taken by the manager to alleviate problems determined by these studies. The overall goal of preservation of the Natural Resource Areas will be the main influence on the type and scope of any action taken.

Authority: T.C.A. §§ 11-1-101, 11-13-106, 11-14-104 and 4-5-201 et seq. Administrative History: Original rule filed June 7, 1974, effective July 7, 1974. Repeal and new rule filed September 16, 2013; effective December 15, 2013.

0400-02-08-.30 RECORD.

Records shall be retained for each Natural Resource Area. Records may include annual reports of the manager as provided in Rule 0400-02-08-.07 and all other pertinent documentary material, studies, reports, obsolete portions of the management plan, research and collection permits and descriptions of significant events. The form and content of the record shall be as the Department may establish.

Authority: T.C.A. §§ 11-1-101, 11-13-106, 11-14-104 and 4-5-201 et seq. Administrative History: Original rule filed June 7, 1974, effective July 7, 1974. Repeal and new rule filed September 16, 2013; effective December 15, 2013.

0400-02-08-.31 REPEALED.

Authority: T.C.A. §§ 11-1-101, 11-13-106, 11-14-104 and 4-5-201 et seq. Administrative History: Original rule filed June 7, 1974, effective July 7, 1974. Repeal filed September 16, 2013; effective December 15, 2013.

0400-02-08-.32 REPEALED.

Authority: T.C.A. §§ 11-1-101, 11-13-106, 11-14-104 and 4-5-201 et seq. Administrative History: Repeal filed September 16, 2013; effective December 15, 2013.

0400-02-08-.33 REPEALED.

Authority: T.C.A. §§ 11-1-101, 11-13-106, 11-14-104 and 4-5-201 et seq. Administrative History: Original rule filed June 7, 1974, effective July 7, 1974. Repeal filed September 16, 2013; effective December 15, 2013.

APPENDIX V

Bird Species Documented in the Old Forest State Natural Area

The following list of birds was compiled from Tennessee Ornithological Society bird checklists for Overton Park. Birds listed for Overton Park that are not expected to be found in the natural area due to lack of habitat have been excluded from the natural area inventory.

Scientific Name	**Common Name**	**Notes**
Cathartes aura	Turkey Vulture	Flyover
Coragyps atratus	Black Vulture	Flyover
Ictinia mississippiensis	Mississippi Kite	State Deemed in Need of Management, not known to nest in the natural area
Accipiter striatus	Sharp-shinned Hawk	State Deemed in Need of Management: not considered to nest in the natural area
Accipiter cooperii	Cooper's Hawk	
Buteo lineatus	Red-shouldered Hawk	
Buteo platypterus	Broad-winged Hawk	
Buteo jamaicensis	Red-tailed Hawk	
Zenaida macroura	Mourning Dove	
Streptopelia decaocto	Eurasian Collared-dove	Exotic
Columba livia	Rock Pigeon	Exotic
Coccyzus americanus	Yellow-billed Cuckoo	
Tyto alba	Barn Owl	State Deemed in Need of Management: not considered to nest in the natural area
Bubo virginianus	Great Horned Owl	
Strix varia	Barred Owl	
Chordeiles minor	Common Nighthawk	Flyover
Chaetura pelagic	Chimney Swift	
Archilochus colubris	Ruby-throated Hummingbird	
Ceryle alcyon	Belted Kingfisher	
Melanerpes erythrocephalus	Red-headed Woodpecker	
Melanerpes carolinus	Red-bellied Woodpecker	
Sphyrapicus varius	Yellow-bellied Sapsucker	
Picoides pubescens	Downy Woodpecker	
Picoides villosus	Hairy Woodpecker	
Colaptes auratus	Northern Flicker	
Dryocopus pileatus	Pileated Woodpecker	
Contopus virens	Eastern Wood-Pewee	
Empidonax flaviventris	Yellow-bellied Flycatcher	
Empidonax virescens	Acadian Flycatcher	
Empidonax minimus	Least Flycatcher	
Sayornis phoebe	Eastern Phoebe	
Myiarchus crinitus	Great Crested Flycatcher	
Vireo olivaceus	Red-eyed Vireo	
Vireo gilvus	Warbling Vireo	
Vireo philadelphicus	Philadelphia Vireo	

Vireo griseus	White-eyed Vireo	
Vireo flavifrons	Yellow-throated Vireo	
Vireo solitarius	Blue-headed Vireo	
Cyanocitta cristata	Blue Jay	
Corvus brachyrhynchos	American Crow	
Corvus ossifragus	Fish Crow	
Progne subis	Purple Martin	Flyover
Stelgidopteryx serripennis	Northern Rough-winged Swallow	Flyover
Tachycineta bicolor	Tree Swallow	Flyover
Hirundo rustica	Barn Swallow	Flyover
Baeolophus bicolor	Tufted Titmouse	
Poecile carolinensis	Carolina Chickadee	
Sitta carolinensis	White-breasted Nuthatch	
Certhia americana	Brown Creeper	
Thryothorus ludovicianus	Carolina Wren	
Troglodytes aedon	House Wren	
Troglodytes troglodytes	Winter Wren	
Regulus satrapa	Golden-crowned Kinglet	
Regulus calendula	Ruby-crowned Kinglet	
Polioptila caerulea	Blue-gray Gnatcatcher	
Sialia sialis	Eastern Bluebird	
Turdus migratorius	American Robin	
Hylocichla mustelina	Wood Thrush	
Catharus fuscescens	Veery	
Catharus ustulatus	Swainson's Thrush	
Catharus minimus	Gray-cheeked Thrush	
Catharus guttatus	Hermit Thrush	
Dumetella carolinensis	Gray Catbird	
Mimus polyglottos	Northern Mockingbird	
Toxostoma rufum	Brown Thrasher	
Sturnus vulgaris	European Starling	Exotic
Bombycilla cedrorum	Cedar Waxwing	
Parula americana	Northern Parula	
Vermivora celata	Orange-crowned Warbler	
Vermivora peregrine	Tennessee Warbler	
Vermivora pinus	Blue-winged Warbler	
Vermivora chrysoptera	Golden-winged Warbler	
Vermivora ruficapilla	Nashville Warbler	
Dendroica petechia	Yellow Warbler	
Dendroica pensylvanica	Chestnut-sided Warbler	
Dendroica magnolia	Magnolia Warbler	
Dendroica tigrina	Cape May Warbler	
Dendroica caerulescens	Black-throated Blue Warbler	
Dendroica cerulea	Cerulean Warbler	State Deemed in Need of Management: not expected to nest in the natural area
Dendroica fusca	Blackburnian Warbler	
Dendroica coronata	Yellow-rumped Warbler	

Dendroica virens	Black-throated Green Warbler	
Dendroica dominica	Yellow-throated Warbler	
Dendroica discolor	Prairie Warbler	
Dendroica palmarum	Palm Warbler	
Dendroica pinus	Pine Warbler	
Dendroica castanea	Bay-breasted Warbler	
Dendroica striata	Blackpoll Warbler	
Dendroica dominica	Yellow-throated Warbler	
Helmitheros vermivora	Worm-eating Warbler	
Protonotaria citrea	Prothonotary Warbler	
Mniotilta varia	Black-and-white Warbler	
Setophaga ruticilla	American Redstart	
Limnothlypis swainsonii	Swainson's Warbler	State Deemed in Need of Management: Surveys needed to determine if breeds in the natural area
Seiurus aurocapillus	Ovenbird	
Seiurus noveboracensis	Northern Waterthrush	
Seiurus motacilla	Louisiana Waterthrush	
Oporornis formosus	Kentucky Warbler	
Oporornis agilis	Connecticut Warbler	
Oporornis Philadelphia	Mourning Warbler	
Geothlypis trichas	Common Yellowthroat	
Wilsonia pusilla	Wilson's Warbler	
Wilsonia canadensis	Canada Warbler	
Wilsonia citrina	Hooded Warbler	
Icteria virens	Yellow-breasted Chat	
Piranga rubra	Summer Tanager	
Piranga olivacea	Scarlet Tanager	
Cardinalis cardinalis	Northern Cardinal	
Pheucticus ludovicianus	Rose-breasted Grosbeak	
Passerine cyanea	Indigo Bunting	
Pipilo erythrophthalmus	Eastern Towhee	
Spizella pusilla	Field Sparrow	
Zonotrichia albicollis	White-throated Sparrow	
Passerella iliaca	Fox Sparrow	
Melospiza melodia	Song Sparrow	
Junco hyemalis	Dark-eyed Junco	
Molothrus ater	Brown-headed Cowbird	
Agelaius phoeniceus	Red-winged Blackbird	
Euphagus carolinus	Rusty Blackbird	
Quiscalus quiscula	Common Grackle	
Icterus galbula	Baltimore Oriole	
Icterus spurius	Orchard Oriole	
Carpodacus purpureus	Purple Finch	
Carpodacus mexicanus	House Finch	Exotic
Carduelis pinus	Pine Siskin	
Carduelis tristis	American Goldfinch	