Pisgah Game Land Management Plan (State Owned Tracts)

2018-2027

NORTH CAROLINA
Wildlife
RESOURCES COMMISSION

North Carolina Wildlife Resources Commission staff contributed extensively to the development and preparation of this plan through their various fields of professional expertise. All content, management strategies, recommendations, goals, and needs for change were developed using the best available science and professional working knowledge of the 6 State owned tracts of Pisgah Game Land, including their habitats, and terrestrial and aquatic species. Careful consideration has been given to all input received from the public, external agencies, and organizations that have an interest in or use these tracts to ensure that a comprehensive management program is administered on them. The successful implementation of the plan will depend on the continued feedback and support from all interested parties.

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EXECUTIVE SUMMARY

The Pisgah Game Land is comprised of both National Forest land and state owned lands. The State owned tracts of Pisgah Game Land (PGL; 4,780 acres), are the subject of this management plan and are located in Avery, Burke, Caldwell, McDowell, and Mitchell Counties. These include the Black Bear (893 ac.), Linville River (1,432 ac.), Little Table Rock Mountain (1,069 ac.), Lutz (715 ac.), Rose Creek (536 ac.), and Roaring Creek (135 ac.) The state owned tracts of PGL either adjoin U.S. Forest Service property or are in close proximity to it. The state owned tracts of PGL were acquired from 2004-2014. These tracts are popular with hunters and wildlife watchers in addition to other outdoor recreational enthusiasts such as hikers. Important game species include trout, deer, wild turkey, black bear, ruffed grouse, raccoon, and squirrel. Oak forests are by far the predominant habitat type on the State owned tracts of PGL. Sixteen State endangered, threatened, significantly rare, or species of special concern are present on the State owned tracts of PGL. Management goals for these tracts include maintaining and/or restoring a diversity of habitat types and forest age classes through science-based land management to ensure that a diversity of wildlife species are conserved, maintaining popular sport fish and game species at appropriate levels, providing quality habitat for endangered, threatened, and rare species, and providing sufficient infrastructure and opportunity to allow all constituents a quality experience while utilizing the game land with minimal habitat degradation and minimal conflict among user groups. To ensure these goals are met, the NCWRC will monitor wildlife and fish species and users of PGL, secure funding to accomplish management goals, attempt to acquire additional key properties as they become available, maintain and develop regulations that promote sustained use of natural resources, and develop relationships with conservation partners that help meet management goals.

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INTRODUCTION

Game Land Program Mission Statement

Consistent with the original establishment legislation (G.S. 143-239) for the North Carolina Wildlife Resources Commission (NCWRC), the mission of the game lands program is to enhance, facilitate, and augment delivery of comprehensive and sound wildlife conservation programs. Inherent in delivery of a land conservation program consistent with this mission is the feasibility and desirability of multiple uses on lands owned by the state within the system. In addition to hunting, fishing, trapping, and wildlife viewing as primary uses, we recognize the desirability of providing opportunities for other activities on state owned game lands that are feasible and consistent with the agency's mission and compatible with these traditional uses.

Game Land Program Management Objectives

- To provide, protect, and actively manage habitats and habitat conditions to benefit aquatic and terrestrial wildlife resources
- To provide public opportunities for hunting, fishing, trapping, and wildlife viewing
- To provide for other resource-based game land uses to the extent that such uses are compatible with the conservation of natural resources and can be employed without displacing primary users
- To provide an optimally sustainable yield of forest products where feasible and appropriate as directed by wildlife management objectives

Game Land Program History

Prior to 1971, public hunting areas in North Carolina were limited to designated and tightly controlled Wildlife Management Areas. With the Wildlife Management Area system, NCWRC staff was housed on each management area. These personnel were assigned both law enforcement and habitat management duties on their respective areas. Most of these management areas are our current bear sanctuaries.

The current Game Lands Program was established in 1971. This change involved expanding the area of game lands from about 700,000 acres to 1.5 million acres, changing regulations, and reducing fees for hunters and fishermen (Dean 1971). The old Wildlife Management Areas were incorporated into the new Game Lands Program, but the new program also allowed NCWRC to lease or incorporate additional lands as game lands to expand the land base. Beginning in the 1980's, land owners (both corporate and private) realized they could lease their properties for higher rates to hunting clubs and private individuals and began to remove their

properties from the Game Lands Program. Fortunately, the Natural Heritage Trust Fund was established in 1987 and the Clean Water Management Trust Fund in 1996. These funds provided money for the fee simple acquisition of select properties, many of which have been incorporated into the Game Lands Program. These Funds greatly compensated for the loss of game lands leased from the private sector. Currently, approximately 2 million acres are enrolled in the Game Lands Program.

Administration of the new Game Lands Program was assigned to the Division of Wildlife Management. Depot locations with equipment and habitat development crews were established and strategically located in the vicinity of all game lands in the state. All law enforcement on these properties was assigned to the new Division of Law Enforcement. With some minor organizational changes this system remained intact until 2012. In 2012, land management staff in the Division of Wildlife Management and certain similar positions in the Division of Inland Fisheries were merged with Division of Engineering staff into the Division of Engineering and Lands Management. This organizational change was made to deliver a more comprehensive and efficient wildlife and fisheries management program on all public lands and waters in the state. Depots remained at former locations with the establishment of new depots and crews at certain remote locations to improve the efficiency of NCWRC programs.

PURPOSE AND NEED FOR PLAN

This management plan is for the 6 State owned tracts of Pisgah Game Land (PGL) and does not address the USDA Forest Service owned portion of the game land. **Any subsequent reference to PGL in this document refers only to the 6 State owned tracts of the game land unless otherwise stated.** The Land Management Plan for the Pisgah-Nantahala National Forest is currently undergoing revision, with the USDA Forest Service coordinating that effort.

A comprehensive game land management plan is needed for PGL to help implement the NCWRC Strategic Plan on the game land and to accomplish game land program objectives in a timely and efficient manner. In addition, the NCWRC created the North Carolina Wildlife Action Plan (NCWAP) and its revision which provide direction for those species which are not typically hunted or fished (N.C. Wildlife Resources Commission 2005, 2015). Finally, the State owned tracts of PGL are used by both traditional and other recreational users leading to a need to address any potential opportunities or conflicts among user groups. It is therefore timely to address new challenges and opportunities with a comprehensive game land management plan for these State owned tracts.

The PGL management plan was developed with input from NCWRC staff as well as input from interested external agencies, organizations, and individuals to ensure a comprehensive management program is administered on the game land. The successful implementation of the

plan will depend on the continued feedback and support from all staff and stakeholders. This management plan will focus on a 10 year planning horizon. NCWRC staff will review and amend the plan as needed.

REGIONAL CONTEXT

Mountain Ecoregion/Northern Mountains Work Area

The State owned tracts of PGL lie within the NCWRC Mountain Ecoregion and the central portion of the Northern Mountains work area (Appendix 1, Map 1). This work area includes 20 counties or portions of counties within the Blue Ridge Mountains and along the transition zone between the Blue Ridge Mountains and the Piedmont. Approximately 4,200 mi^2 of the work area lies within the Blue Ridge physiographic province (Griffith et al., 2002). The remaining 2,690 mi^2 are contained within the Piedmont physiographic province. The work area contains portions or all of the following river basins: Broad (998 mi^2), Catawba (1,594 mi^2), French Broad (1,433 mi^2), New (753 mi^2), Roanoke (15 mi^2), Watauga (205 mi^2), and Yadkin (1,901 mi^2). The work area contains 13 game lands consisting of approximately 415,991 acres. Approximately 97% of game land acreage within the work area is contained in the Blue Ridge physiographic province, with the remainder in the Piedmont province (Griffith et al., 2002; Appendix 1, Map 1).

The State of North Carolina, with the NCWRC as the primary custodian, owns in fee simple 67,260 acres of game lands within the Northern Mountains work area. Approximately 324,686 acres of game lands within the work area are owned by the USDA Forest Service and managed as game lands under a cooperative agreement (MOU). The remaining 1,242 acres of game lands are leased from other governmental agencies or the private sector. The work area also contains 13 public boating access areas, 50 public fishing access areas, and 3 fish hatcheries. Depots within the work area are located in Burnsville, Marion, Morganton, and Wilkesboro (Appendix 1, Map 1). Seventeen permanent staff, under the direction of an Ecoregion Supervisor, are stationed in the Northern Mountains work area. Two wildlife foresters also serve the Mountain Ecoregion.

Regional Conservation Partnerships

The Game Lands Program is vital to many conservation efforts and partnerships within the Mountain Ecoregion. The NCWRC enjoys a long standing alliance with the USDA Forest Service to cooperatively manage wildlife on the National Forests. The Natural Heritage and Clean Water Management Trust Funds along with the N.C. Ecosystem Enhancement Program have all provided significant and critical funding for the acquisition of key properties that have been added to the Game Lands Program. The Natural Heritage Trust Fund was repealed by

the N.C. General Assembly in 2013 and their funds are now administered through the Clean Water Management Trust Fund. Many of the properties acquired with these funding sources have been established as or have enhanced existing State Natural Heritage Areas and/or have been dedicated as Nature Preserves by the N.C. Natural Heritage Program (NHP). Many nonprofit land conservancies within the ecoregion, such as Blue Ridge Conservancy, Piedmont Land Conservancy, Foothills Conservancy of N.C., Pacolet Area Conservancy, Conservation Trust for N.C., Southern Appalachian Highlands Conservancy, The Conservation Fund, The Trust for Public Land, and The Nature Conservancy have all played vital roles to acquire properties that have been added to the Game Lands Program and to establish landscape level conservation areas. Other conservation partnerships that are important for the Game Lands Program include the United States Forest Service (USFS) Southern Research Station, North Carolina State University (NCSU), Western Carolina University, Clemson University, University of Tennessee, the Southern Blue Ridge Fire Learning Network, the Ruffed Grouse Society, Quality Deer Management Association, National Wild Turkey Federation, Trout Unlimited, Partners in Amphibian and Reptile Conservation, Partners in Flight, Appalachian Mountains Joint Venture, Eastern Brook Trout Joint Venture, and the Appalachian Landscape Conservation Cooperative.

GENERAL GAME LANDS INFORMATION

Location

The 6 State owned tracts of PGL are located in the central portion of the Northern Mountains Work Area and include the following properties: Black Bear Tract (McDowell Co., 893 ac.), Linville River Tract (Burke Co., 1,432 ac.), Little Table Rock Mountain Tract (Avery, McDowell, and Mitchell Counties, 1,069 ac.), Lutz Tract (Caldwell Co., 715 ac.), Roaring Creek Tract (Avery Co., 135 ac.), and the Rose Creek Tract (Mitchell Co., 536 ac.) (Appendix 1, Map 2). The nearest towns to these tracts include Lenoir, Marion, Morganton, Newland, and Spruce Pine. Several public roads, maintained by the North Carolina Department of Transportation (NCDOT) either traverse or are immediately adjacent these tracts and provide public access.

Physical Attributes.

The Black Bear, Little Table Rock Mountain, Lutz, Roaring Creek and Rose Creek tracts lie within the Blue Ridge physiographic province, while the Linville River Tract lies within the Piedmont physiographic province (Griffith et al., 2002) (Appendix 1, Map 2). All the tracts within the Blue Ridge physiographic province are dominated by steep ridges drained by small, fast flowing streams (Appendix 1, Maps 3-8). While the topography of the Linville River Tract is somewhat gentler, it is still dominated by pronounced ridges that are drained by small, fast flowing streams. Approximate average elevations range as follows: 4,400 ft. - Roaring Creek Tract; 3,600 ft. - Little Table Rock Mountain Tract; 3,000 ft. - Rose Creek Tract; 1,600 ft. - Lutz Tract; and 1,400 ft. - Black Bear and Linville River tracts.

Climate

The climate for the Roaring Creek Tract is considered humid continental ("Köppen-Geiger Climate Zones of the Continental United States", 2015). The Little Table Rock Mountain and Rose Creek tracts lie in the transition zone between humid continental and humid subtropical climates, while the Black Bear, Linville River, and Lutz tracts all have humid subtropical climates ("Köppen-Geiger Climate Zones of the Continental United States", 2015).

The following climatological parameters are representative of the Black Bear, Linville River, and Lutz tracts. Normal monthly mean temperature in Morganton, is 57°F (State Climate Office of North Carolina, 2015a). Normal monthly minimum temperature occurs in January (24.9°F) and normal monthly maximum temperature occurs in July (88.7°F; State Climate Office of North Carolina, 2015a). Average annual precipitation is 49.6" and is generally well distributed throughout the year (State Climate Office of North Carolina, 2015a). Snowfall averages 7.1" annually (Spurlin's Best Places, 2015a). Average annual last spring frost date in Lenoir is April 14 and first average annual fall frost date is October 23 (Ray's Weather Center, 2014).

The following climatological parameters are representative of the Little Table Rock Mountain and Rose Creek tracts. Normal monthly mean temperature in Celo is 52.3°F (State Climate Office of North Carolina, 2015b). Normal monthly minimum temperature occurs in January (21.3°F) and normal monthly maximum temperature occurs in July (82 °F; State Climate Office of North Carolina, 2015b). Average annual precipitation is 58.8" and is generally well distributed throughout the year (State Climate Office of North Carolina, 2015b). Snowfall averages 15.9" annually in Spruce Pine (Spurling's Best Places, 2015b). Average annual last spring frost date in Boone is April 30 and first average annual fall frost date is October 8 (Ray's Weather Center, 2015).

The following climatological parameters are representative of the Roaring Creek Tract. Normal monthly mean temperature in Banner Elk is 48.8°F (State Climate Office of North Carolina, 2015c). Normal monthly minimum temperature occurs in January (18.9°F) and normal monthly maximum temperature occurs in July (76.8 °F; State Climate Office of North Carolina, 2015c). Average annual precipitation is 49.6" and is generally well distributed throughout the year (State

Climate Office of North Carolina, 2015c). Snowfall averages 41.4" annually in Banner Elk (Spurling's Best Places, 2015c). Average annual last spring frost date in Boone is April 30 and first average annual fall frost date is October 8 (Ray's Weather Center, 2015).

It should be noted that these climate and weather parameters may vary slightly due to a lack of weather and climate data taken directly from the subject tracts.

Soil

Forty nine soil types have been identified across the 6 State owned tracts of PGL (Soil Survey Staff, 2014). On the Black Bear Tract the soils can generally be classified as loam (85%), sandy loam (13%), and other (4%; Soil Survey Staff 2014). Soils on the Linville River Tract can be classified as sandy loam (72%), sandy clay loam (25%), and other (3%; Soil Survey Staff 2014). At the Little Table Rock Mountain Tract the soils are comprised of gravelly sandy loam (28%), loam (26%), sandy loam (22%), and other (24%; Soil Survey Staff 2014). Soils on the Lutz tract are dominated by sandy loam (69%), stony sandy loam (10%), stony loamy sand (10%), and other (11%; Soil Survey Staff 2014). At Rose Creek the soils are generally sandy clay loam (33%), loam (32%), sandy loam (27%), and other (8%) (Soil Survey Staff 2014). Soils on the Roaring Creek Tract are made up of gravelly loam (50%), stony loam (32%), and gravelly sandy loam (18%; Soil Survey Staff 2014). Maps 9-14 in Appendix 1 indicate the distribution of soil types across the tracts (Soil Survey Staff 2014). Although soil erosion potential varies among soil types, the potential for soil erosion should always be evaluated when disturbing the soil or making management decisions.

Hydrology

The Black Bear, Linville River, and Lutz tracts lie entirely within the Catawba River Basin, while both the Roaring Creek and Rose Creek tracts are within the French Broad River Basin. The Little Table Rock Mountain Tract straddles the continental divide with approximately 60% of the tract within the French Broad and 40% within the Catawba River Basin. Due to topography, most of the streams on all 6 tracts are fast flowing. The main stream draining the Black Bear Tract is Bear Creek along with several unnamed tributaries. Linville River serves as the boundary of the Linville River Tract for approximately 1 mile. The other major stream on the Linville River tract is White Creek. Several unnamed tributaries that flow into Linville River, White Creek, and directly into Lake James are also located on the Linville River Tract. The main stream found on the Little Table Rock Mountain Tract is Rose Creek. Several unnamed tributaries that ultimately flow into North Fork Catawba River and North Toe River are also located on the tract. Approximately 3.5 miles of Wilson Creek and 0.25 mile of Harper Creek are located on the Lutz Tract. A number of unnamed tributaries of Wilson Creek as well as a short section of Estes Mill Creek are also located on the tract. The major streams draining the Rose Creek Tract are Rose Creek and Little Rose Creek, as well as unnamed tributaries of both. A short section of Roaring Creek (0.20 mi.) is located on the Roaring Creek Tract. Elk

Hollow Branch serves as the tract boundary for approximately 0.25 mile. Maps 3-8 in Appendix 1 show the locations of major streams across the tracts.

History

The NCWRC partnered with The Conservation Fund to purchase the Black Bear Tract in 2006. Funding was provided with a grant from the Natural Heritage Trust Fund (NHTF) as well as a private donation.

The Linville River Tract was acquired in 2005 with grants from the Clean Water Management Trust Fund (CWMTF) and the Ecosystem Enhancement Program (EEP). The NCWRC worked with The Foothills Conservancy of North Carolina to complete this acquisition.

The Little Table Rock Mountain Tract is comprised of 2 properties. The first purchase (546 ac.) was made in 2004 with a grant from the EEP and a private donation. The Humpback Mountain property (523 ac.) was purchased in 2014 with a grant from the CWMTF, a portion of an Acres for America grant received by Blue Ridge Forever, and a private donation. The NCWRC partnered with The Conservation Trust for North Carolina to complete these acquisitions.

The main portion of the Lutz tract (643 ac.) was purchased in 2009 with grants from the CWMTF and NHTF. The Elam property (72 ac.) was acquired with purchases made in 2008 and 2011 and added to the Lutz Tract. Funding for the Elam property was provided with a grant from the NHTF. The NCWRC partnered with the Foothills Conservancy of North Carolina to complete these acquisitions.

The Roaring Creek Tract was acquired in 2012. Funding for this purchase was provided by grants from the NHTF, the Doris Duke Foundation, the N.C. Department of Justice Environmental Enhancement Grants Program, and a private donation. The Southern Appalachian Highlands Conservancy served as a partner for this acquisition.

The Rose Creek Tract was purchased in 2011 with grants from the NHTF, the CWMTF, and the Recreation Trails Program as well as a private donation. The NCWRC partnered with The Conservation Trust for North Carolina to complete this purchase.

Habitats

At least 85% of all of the State owned tracts of PGL are forested (N.C. State University 2008). Developed areas along State maintained and game land roads, utility rights-of-way, and areas maintained in herbaceous vegetation comprise the acreage that is not forested. Oak forest is the predominant forest type on all the tracts except the Linville River Tract where managed pines are predominant over oak forest (N.C. State University 2008). Important habitat types

defined by the NCWAP and found on PGL include riverine aquatic communities, bogs and small wetland communities, rock outcrops, oak forest (including dry oak-pine), pine forest, cove forest, early successional habitat, and northern hardwoods (N.C. Wildlife Resources Commission, 2005). Each of these habitat types will be discussed in greater detail in subsequent sections.

Surrounding Land Use

General land use surrounding the State owned tracts of PGL is similar to that found through the central portion of the NCWRC Northern Mountains Work Area. The USDA Forest Service manages 47% of the land within a 5 mile radius of the State owned tracts of PGL. An analysis of SEGAP data indicates the following conditions within a 5 mile radius of these tracts: non-industrial forests – 71%, shrub/scrub – 8%, developed – 8%, grass/forb – 5%, pasture/hay – 5%, row crops – 2%, other – 1% (N.C. State University 2008). Review of 2012 aerial photography reveals that non-industrial forests, residential dwellings, and agriculture dominate the landscape immediately adjacent these tracts.

Landscape Context

The 6 State owned tracts of PGL serve as important conservation corridors enhancing the connectivity among public lands managed primarily for conservation purposes such as the Pisgah and Cherokee National Forests Thurmond Chatham, Mitchell River, Buffalo Cove, Pond Mountain, Three Top Mountain, South Mountains, Sandy Mush and Green River Game Lands, South Mountains and Lake James State Parks, several State Natural Heritage Areas, and various other private and governmentally owned tracts in the area that are managed for conservation purposes. In a broader sense these tracts enhance connectivity regionally to such properties as the Sumter National Forest to the south, the Nantahala National Forest and Great Smoky Mountains National Park to the west, and the Jefferson, and George Washington National Forests to the north.

Purpose

The purpose of the State owned portions of PGL is to manage habitats and communities to benefit aquatic and terrestrial wildlife resources on the properties. These tracts provide opportunities for public hunting, fishing, trapping, wildlife viewing, and other wildlife based recreational activities. These are the primary public uses of the properties. These tracts also provide other public outdoor recreational opportunities to the extent that these uses are compatible with the conservation and management of wildlife resources and do not displace primary users. In addition, the State owned tracts of PGL generally enhance the existing USDA Forest Service and National Park Service holdings that surround them. Finally, State owned game lands provide a sustainable yield of forest products as allowed by topography, NHP dedications, and other factors. All forestry conducted on State owned game lands is directed by wildlife management objectives.

Unique Values/Public Use

An abundance of natural resources are located on the State owned tracts of PGL. These tracts are within easy driving distance of several towns, including Lenoir, Marion, Morganton, Newland, and Spruce Pine, making them easily accessible to the public. The combination of natural resources found on these tracts as well as their proximity to local towns makes them a popular destination for outdoor recreation.

Both the Black Bear and Linville River Tracts have been dedicated by the N.C. Natural Heritage Program as the Pisgah Game Land Dedicated Nature Preserve (North Carolina Natural Heritage Program 2015; Appendix 1, Maps 15-16; Appendix 2). Dedication field work for portions of the Little Table Rock Mountain, Lutz, and Roaring Creek tracts has been completed (Appendix 1, Maps 17-19). It is anticipated that Dedication of the Rose Creek Tract will begin in the near future. Conservation easements are also recorded on the Little Table Rock Mountain Tract (Appendix 1, Map 17; Appendix 3).

Additionally, all or portions of several State Natural Areas are located on the State owned tracts of PGL (North Carolina Natural Heritage Program 2015). These are detailed in Table 1 below.

Table 1. State Natural Areas located wholly or partially on the State owned tracts of Pisgah Game Land (North Carolina Natural Heritage Program 2015).

NATURAL AREA	ACRES	R_RATING	C_RATING	TRACT
Bear Creek Natural Area	63	2-Very High	5-General	Black Bear
Harper Creek/Yellow Buck Mountain	1	5-General	4-Moderate	Lutz
Linville River Aquatic Habitat	5	6-Unranked	4-Moderate	Linville River
Little Tablerock Mountain	774	5-General	4-Moderate	Little Table Rock Mtn.
Roan Mountain Massif	77	1-Exceptional	1-Exceptional	Roaring Creek
Wilson Creek Aquatic Habitat	16	6-Unranked	4-Moderate	Lutz
Wilson Creek Slopes/Lost Cove Creek/Thorps Creek	127	2-Very High	4-Moderate	Lutz

The State owned tracts of PGL do not contain any federally listed endangered or threatened species. However, they do serve as an important reservoir for a number of State endangered, threatened, significantly rare, and species of special concern (North Carolina Natural Heritage Program 2015). These State listed species are detailed in Table 2 below. In addition, many common species of both flora and fauna occur on these tracts.

Table 2. State endangered, threatened, significantly rare, and species of special concern present on State owned tracts of Pisgah Game Land (North Carolina Natural Heritage Program 2015).

Scientific Name	Common Name	EO_Status	Accuracy	State Status	Federal Status	S_Rank	G_Rank	Tract
Carpiodes sp. cf. cyprinus	Carpsucker	Current	3-Medium	SR		S2	GNR	Black Bear
Shortia galacifolia var. brevistyla	Northern Oconee Bells	Current	2-High	E	FSC	S2	G2G3T2	Black Bear
Alasmidonta varicosa	Brook Floater	Current	3-Medium	E	FSC	S1	G3	Linville River
Cambarus johni	Carolina Foothills Crayfish	Current	3-Medium	SR		S3	G3	Linville River
Etheostoma thalassinum	Seagreen Darter	Current	3-Medium	SR		S3	G4	Linville River
Villosa delumbis	Eastern Creekshell	Current	3-Medium	SR		S3	G4	Linville River
Aquila chrysaetos	Golden Eagle	Current	2-High	SR	BGPA	SXB,S1N	G5	Little Table Rock Mtn.
Bolotoperla rossi	Smoky Willowfly	Current	3-Medium	SR		S3	G4	Lutz
Cambarus johni	Carolina Foothills Crayfish	Current	3-Medium	SR		S3	G3	Lutz
Etheostoma thalassinum	Seagreen Darter	Current	3-Medium	SR		S3	G4	Lutz
Ophiogomphus edmundo	Edmund's Snaketail	Current	5-Very Low	SR	FSC	S1	G1G2	Lutz
Aconitum reclinatum	Trailing Wolfsbane	Current	2-High	SR-T		S3	G3	Roaring Creek
Coccyzus erythropthalmus	Black-billed Cuckoo	Current	5-Very Low	SR		S2B	G5	Roaring Creek
Empidonax alnorum	Alder Flycatcher	Current	3-Medium	SR		S2B	G5	Roaring Creek
Erora laeta	Early Hairstreak	Current	4-Low	SR		S2S3	GU	Roaring Creek
Vermivora chrysoptera	Golden-winged Warbler	Current	4-Low	SC	FSC	S2S3B	G4	Roaring Creek

Hunting is a popular activity on the State-owned tracts of PGL with white-tailed deer and wild turkey, and black bear the primary big game species.

Current big game reporting procedures do not account for big game harvest numbers on the State-owned tracts of PGL only. However, big game harvests for the entirety of PGL, which includes both the USDA Forest Service and State owned portions of the game land can be determined. For white-tailed deer and wild turkey it is a reasonable assumption that big game harvests on the State-owned tracts of PGL are at least somewhat comparable to those on the game land as a whole within the counties where the State owned tracts of PGL are located. Harvest statistics below include both the State owned and USDA Forest Service owned portions of PGL within Avery, Burke, Caldwell, McDowell, and Mitchell counties.

The deer harvest was 0.66/mi^2 in 2011, 0.45/mi^2 in 2012, and 0.45/mi^2 in 2013. The drop in harvest in 2012 and 2013 was likely due to a severe epizootic hemorrhagic disease (EHD) outbreak in the region in late summer and early fall 2012. Does comprised 27% (2011), 19%, (2012) and 28% (2013) of the harvest. The deer herd on Pisgah game land as a whole is generally stable, excepting disease outbreaks such as occurred in 2012. Turkey hunting is also very popular on PGL. Gobblers harvested per square mile on PGL within the 5 county area above during the last 3 seasons have been 0.40 (2012), 0.46 (2013), and 0.28 (2014). Variations in annual harvest are likely due to poult survival and the hard mast crop. High poult survival in a given year normally leads to an increased abundance of gobblers 2 springs later. In years of hard mast abundance turkeys generally stay on the heavily forested PGL through winter and into the spring. In years of poor mast abundance turkey often leave the game land in fall or winter seeking more abundant and varied food sources on private land. The turkey population has remained stable on PGL for a number of years. Again, it should be taken into consideration that the State owned tracts of PGL represent only 2% of the entire PGL within the 5 county area where the State owned tracts are located, thus the harvest statistics above are at best only representative of the deer and turkey harvests that actually occur on the State owned tracts of PGL.

Black bear have increased their range over the past 20 years in North Carolina and are common on the State owned tracts of PGL. Bear hunting on these tracts, however, is relatively light. This is due to the relatively small size and location of the tracts, the ownership of several properties adjoining these tracts as well as several State maintained roads located on and near the tracts which makes hunting with dogs problematic. Gray squirrel, red and gray fox, bobcat, raccoon, and opossum are small game and furbearer species found and often hunted for on PGL.

The Lutz Tract contains a 3.3 mile section of Wilson Creek. This section is managed as Public Mountain Trout Waters and classified as Delayed Harvest Trout Waters from Lost Cove Creek to Phillips Branch. Trout are stocked annually from March-July, and again from October through November. This is a very popular destination for anglers and receives a high level of

pressure. Wilson Creek was designated a National Wild and Scenic River in 2000. The Roaring Creek tract contains portions of Roaring Creek and Elk Hollow Branch. Both streams contain high quality populations of Southern Appalachian Brook trout (*Salvelinus fontinalis*) and are managed as Public Mountain Trout Waters and classified as Wild Trout Waters. The Rose Creek tract contains portions of Little Rose Creek and Rose Creek. Little Rose Creek contains a viable population of Brook Trout (unknown origin) and Rose Creek contains Rainbow trout (*Oncorhynchis mykiss*). These streams are managed as Public Mountain Trout Waters and classified as Wild Trout Waters. The Little Table Rock Mountain tract contains a portion of Rose Creek. Rose Creek harbors Rainbow Trout and is managed as Public Mountain Trout Waters and classified as Wild Trout Waters. Access to these streams is by foot only; thus, pressure is relatively light. The Linville River tract contains a small portion of the Linville River that offers limited opportunities for Walleye (*Sander vitreus*), Smallmouth Bass (*Micropterus dolomieu*), and various sunfish

Birding opportunities are available on the State owned tracts of PGL. These tracts offer birders the opportunity to encounter both forest interior species and those that prefer edge to more open habitats. Additionally, birders are able to encounter bird species that are more commonly found at lower elevations (Black Bear, Linville River, and Lutz tracts) and higher elevations (Little Table Rock Mountain, Roaring Creek, and Rose Creek tracts).

The State owned tracts of PGL offer opportunities for other outdoor recreational activities as well. These tracts are popular with hikers. Segments of the Overmountain Victory National Historic Trail (OVNHT) are located on the Black Bear Tract (2.1 mi.) and Rose Creek Tract (1.3 mi.). The segment of the OVNHT on the Rose Creek Tract is also a Stanback Trail. The 2.3 mile Mountains-to-Sea Trail connector trail is located on the Linville River Tract. A 3 mile segment of the Fonta Flora Connector Trail is being constructed on the Linville River Tract as well. A 2.1 mile hiking trail, a Stanback Trail, is located on the Little Table Rock Mountain Tract. The Lutz Tract offers opportunity for swimming and some opportunity for kayaking and tubing during periods of high water flow.

The NCWAP (N.C. Wildlife Resources Commission, 2015) is a comprehensive wildlife conservation plan that prioritizes species of greatest conservation need (SGCN). Approval of this plan by the United State Fish and Wildlife Service makes NCWRC eligible for State Wildlife Grant funding to address SGCN through inventory, monitoring, research, and management. The NCWAP was revised in 2015. The list of priority species not only consists of rare and endangered species but also those that are not officially listed but in need of inventory, monitoring, and/or research.

The entire Wilson Creek watershed and its tributaries have the highest water quality rating in North Carolina (HQW/ORW; N.C. Division of Water Resources 2013). Additionally, the John's River watershed downstream is rated as HQW (N.C. Division of Water Resources 2013). There are 2 State listed species that occur on the Lutz Tract: Seagreen Darter, Etheostoma thalassinum (NCSR) and Carolina Foothills Crayfish, Cambarus johni (NCSR). Several State Listed species are downstream in Wilson Creek and in John's River: Brook Floater,

Alasmidonta varicosa (FSC, NCT), Notched Rainbow, *Villosa constricta* (NCSC), and Eastern Creekshell, *Villosa delumbis* (NCSR) (North Carolina Natural Heritage Program 2014). The Linville River is rated as HQW (N.C. Division of Water Resources 2013) and it is designated in the NCWAP as a priority watershed (N.C. Wildlife Resources Commission 2005). Priority species in Linville River include: Seagreen Darter, *Etheostoma thalassinum* (NCSR), Carolina Foothills Crayfish, *Cambarus johni* (NCSR), Brook Floater, *Alasmidonta varicosa* (FSC, NCT), and Eastern Creekshell, *Villosa delumbis* (NCSR).

GOALS

- Maintain and/or restore a diversity of habitat types and forest age classes through science based land management that are properly interspersed and juxtaposed across the landscape to ensure that a wide variety of terrestrial and aquatic wildlife species are conserved on the State owned tracts of PGL.
- Manage popular sport fish and game species at appropriate levels through science based land management and sound regulations on the State owned tracts of PGL.
- Provide quality habitat for endangered, threatened, and rare species located on the State owned tracts of PGL to ensure their continued existence and to promote recovery.
- Provide sufficient infrastructure and opportunity for all users to enjoy a quality experience with minimal habitat degradation and minimal conflict among user groups while on the State owned tracts of PGL.

MEASURES OF SUCCESS

- Wildlife and fish inventories and monitoring indicate that a wide variety of species are present at appropriate levels on the State owned tracts of PGL.
- Inventories of forest and early successional communities show that progress is being made toward accomplishing maintenance and restoration goals on the State owned tracts of PGL.
- Monitoring and surveys and inventories of target sport fish and game species on the State owned tracts of PGL indicate that population levels of these species are at appropriate levels.
- Monitoring and surveys on the State owned tracts of PGL indicate that populations of endangered, threatened, and rare species found on the game land are stable or increasing.

- Infrastructure is provided and maintained on the State owned tracts of PGL at a level that allows the public to reasonably access and enjoy the game land.
- Public use of the State owned tracts of PGL is managed so that minimal conflicts among game land users occur.
- Agreements with conservation partners are initiated for the State owned tracts of PGL that allow game land goals to be reached more expediently.
- Surveys of user groups indicate general satisfaction with management on the State owned tracts of PGL.
- Valid public complaints regarding management of the State owned tracts of PGL are minimal.

HABITATS

Habitat types are defined according to the NCWAP and are delineated according to an analysis of SEGAP data (N.C. State University 2008) as well as GIS data collected or digitized by NCWRC staff (Appendix 1, Maps 20-25).

Oak Forest

Oak forests are by far the predominant habitat type on the State owned tracts of PGL. Oak Forest is subdivided as either Southern Appalachian oak forest (SAOF) or dry oak-pine forest. This habitat type covers a wide range of moisture and topographic gradients, from xeric (dry) to mesic (wet). Oak forests are of great importance to wildlife across PGL due to their predominance, the variety of conditions in which they are found, and their overall mast production capacity. This habitat type produces vast quantities of acorns, hickory nuts, and a wide variety of associated soft mast forage for wildlife and is often a critical habitat type for a variety of wildlife species (N.C. Wildlife Resources Commission, 2005).

Southern Appalachian Oak Forest

- Current Extent and Condition

Southern Appalachian oak forest occupy the following percentages of the State owned tracts of PGL: Black Bear (59%), Linville River (30%), Little Table Rock Mountain (78%), Lutz (47%), Roaring Creek (56%), and Rose Creek (67%). This forest type is generally found on mesic sites with deep, residual, and often rocky soils (NatureServe 2007). It is often located on open slopes, ridgetops, lower elevation peaks, and higher parts of

broad valleys (NatureServe 2007). SAOF is usually dominated by oak species, most typically northern red oak (*Quercus rubra*), chestnut oak (*Quercus prinus),* white oak *(Quercus alba)*, scarlet oak (*Quercus coccinea)*, and black oak (*Quercus velutina*) with varying amounts of hickory (*Carya* spp.), red maple (*Acer rubrum)*, yellow poplar (*Liriodendron tulipifera),* and other species (NatureServe 2007). Prior to the blight, American chestnut (*Castanea dentate*) was once the dominant or co-dominant species of these forests (NatureServe 2007). The understory and shrub layer ranges from sparse to dense thickets of ericaceous shrubs to open with a sparse to moderate herbaceous layer. Fire occurs fairly frequently in SAOF and is usually of low to moderate intensity and is typically non-catastrophic (Abrams 1992, Delcourt and Delcourt 1997). Fire is often an important factor favoring oak dominance over more mesophytic (moisture adapted) tree species within these forests and can be expected to have a moderate effect on vegetation structure, producing a somewhat more open canopy (NatureServe 2007).

- Desired Future Condition (DFC)

DFC include oak woodlands on areas accessible and operable for timber harvest (primarily shelter-wood cutting), oak savannah development on areas most accessible, operable, and appropriate for prescribed burning rotations, and old growth oak stands on dedicated primary areas or areas inaccessible or inoperable for active management.

Generally, oak woodlands will have a mix of age class and size distribution with advanced oak regeneration available to perpetuate a dominant oak component in the stand. Oak savannas generally have a much more open canopy dominated by oaks with an average diameter at breast height (DBH) of 16 inches) and with a very open understory with a native grass and forb component as the dominant ground cover. Relative over-all abundance of mountain laurel and rhododendron (*Rhododendron spp*.) is reduced in stands where active management occurs. Old growth oak stands will eventually develop an all age class distribution with large, medium and small trees dispersed throughout the stand. As a goal, these stands will be well distributed across the game land to promote landscape diversity.

- Target Game Species

Target game species include white-tailed deer (*Odocoileus virginianus*), wild turkey (*Meleagris gallopavo*), black bear (Ursus americanus), ruffed grouse (*Bonasa umbellus*) (at appropriate elevations only), gray squirrel (*Sciurus carolinensis*) and raccoon (*Procyon lotor*).

- Target Non-Game Species

Target non-game species include those outlined in the NCWAP that occur or potentially occur on PGL. Some examples from the 2005 edition include Eastern whip-poor-will

(*Antrostomus vociferous*), cerulean warbler (*Setophaga cerulean*), wood thrush (*Hylocichla mustelina*), Eastern wood-pewee (*Contopus virens*), hooded warbler (*Setophaga citrina*), timber rattlesnake (*Crotalus horridus*), Eastern box turtle (*Terrapene carolina*), northern pygmy salamander (*Desmognathus organi),* Eastern small-footed bat (*Myotis lebeii*) and Northern long-eared bat (*Myotis septentrionalis*).

- Management Strategies and Needs

Management strategies include timber harvest (primarily shelter-wood cutting but also some clear-cutting may be employed to achieve oak regeneration goals), natural regeneration, planting of white oak and northern red oak, herbicide use to control competition with oak regeneration where needed, and prescribed burning to promote oak regeneration. In general, oak woodlands will be primarily emphasized across all areas where they are accessible and operable for timber harvest and/or prescribed burning. In some cases oak savannahs may be developed to increase diversity and will be created though timber harvest (primarily heavy shelter-wood cutting) and appropriate prescribed burning rotations. Old growth oak stands will be developed on dedicated primary areas or areas inaccessible and/or inoperable for active management. Participation in American chestnut restoration efforts will occur as appropriate and feasible. Cooperative projects including prescribed burning with adjacent federal land owners with these projects expanding opportunities for management.

- Infrastructure needs

Increased planning, identification, and development of fire lines and suitable access to stands and potential burn units will be needed. Temporary logging roads and landings may need to be constructed with new gates installed to control access where appropriate. New and temporary road construction will be limited to that which is necessary to implement management and will be engineered in accordance with state BMP's (Best Management Practices) and with consideration to run-off and sedimentation.

- Management Challenges

Challenges include limited options for management within dedicated primary areas, increased establishment and spread of non-native invasive species, increased development and expansion of adjacent private/urban interface along game land boundaries, limitations due to topography and access, limited burning opportunities, and climate change. Impacts from disease and insects such as: southern pine beetle (*Dendroctonus frontalis Zimmermann*), gypsy moth (*Lymantria dispar*), sudden oak death syndrome, hypoxylon canker (*Hypoxylon spp*.), and regional oak decline are additional challenges to the management of Southern Appalachian oak forests.

Dry Oak-Pine Forest

- Current Extent and Condition

Dry oak-pine forest is not prevalent on the State owned tracts of PGL, occupying 2% of the Black Bear Tract and absent on the remainder of the tracts. This forest system occurs on much drier sites than other oak matrix forests. It is characteristic of coarse and infertile soils that are often shallow and associated with acidic igneous or metamorphic rock. This habitat type is generally positioned on exposed ridges and convex slopes that are generally well drained, which contributes to the dry conditions of these forests (Schafale and Weakley 1990). These forests are often dominated by oak species such as chestnut oak, scarlet oak, and white oak with cohorts of co-dominant tree species such as mockernut hickory (Carya *tomentosa*), shortleaf pine (*Pinus echinata*), and Virginia pine (*Pinus virginiana*). Dry oak-pine forests occur with varying conditions and structure, from open savannah like conditions to closed canopy. Understory in these forests commonly consists of a sparse to moderate herb layer with associations of heath type shrubs such as blueberry, huckleberry, and mountain laurel particularly on the driest sites. Where fire is common, more open stands with a grass component at ground level may also be found. In areas where fire has been suppressed, red maple and white pine (*Pinus strobus*) are often common canopy species (NatureServe 2007). Fires in this system occur more frequently than in SAOF, with fire occurring most often within the dormant season but with an occasional growing season fire occurring once or twice every 20- 25 years (Croy and Frost 2007).

- Desired Future Condition

DFC consists of a diverse mix of common oak species along with pine species such as shortleaf, table mountain (*Pinus pungens*), and pitch pine (*Pinus rigida*). Generally, oak-pine woodlands will have a mix of age classes and size distribution with advanced oak-pine regeneration available to perpetuate the stand. Disturbances at relatively short intervals (primarily fire) will perpetuate oak-pine savannas, areas which will generally have a much more open canopy and include a very open understory consisting of native grass and forbs as the dominant ground cover. On drier sites a greater abundance of blueberry and huckleberry is found in the understory. Relative over-all abundance of mountain laurel and rhododendron is reduced throughout all areas. Old growth oak- pine stands will establish in areas unsuitable for timber harvest or prescribed burning, eventually developing an all age class distribution of large, medium and small trees dispersed throughout the stand. However, in the absence of routine disturbance composition will likely revert to an all hardwood system.

- Target Game Species

Target game species include white-tailed deer, wild turkey, black bear, gray squirrel, and raccoon.

- Target Non-Game Species

Target non-game species include those outlined in the NCWAP that occur or potentially occur on PGL. Some examples from the 2005 edition include Eastern wood-peewee,

brown-headed nuthatch (*Sitta pusilla*), wood thrush, Eastern whip-poor-will, red-headed woodpecker (*Melanerpes erythrocephalus*), Northern flicker (*Colaptes auratus*), yellow-billed cuckoo (*Coccyzus americanus*), timber rattlesnake, Eastern box turtle, and Northern long-eared bat.

- Management Strategies and Needs

Management strategies include timber harvest (primarily shelter-wood cutting but also some clear-cutting may be employed to achieve oak- pine regeneration goals), natural regeneration, planting of white oak and shortleaf pine, herbicide use to control competition with oak and pine regeneration, and prescribed burning to promote oak and pine regeneration. In general, both oak- pine woodlands and savannahs will be emphasized across all areas where they are accessible and operable for timber harvest and or prescribed burning. Cooperative projects including prescribed burning with adjacent federal land owners will expand opportunities for management.

- Infrastructure Needs

Increased planning, identification, and development of fire lines and suitable access to stands and potential burn units will be needed. Temporary logging roads and landings may need to be constructed with new gates installed to control access where appropriate. New and temporary road construction will be limited to that which is necessary to implement management and will be engineered in accordance with state BMP's (Best Management Practices) and with consideration to run-off and sedimentation.

- Management Challenges

Challenges include limited options for management within dedicated primary areas, increased establishment and spread of non-native invasive species, increased development and expansion of adjacent private/urban interface along game land boundaries, limitations due to topography and access, limited burning opportunities, and climate change. Impacts from disease and insects such as: southern pine beetle, gypsy moth, sudden oak death syndrome, hypoxylon canker, and regional oak decline are additional challenges to the management of oak- pine forests on game lands.

Northern Hardwood Forest

- Current Extent and Condition:

Northern hardwood forest is found on 12% of the Roaring Creek Tract and is absent on the remainder of the State owned tracts of Pisgah GL. This system consists of hardwood forests found at the higher elevations of the southern Appalachians, generally above 4,500 ft. (NatureServe 2007). Elevation and topography effects make the climate

cool and wet, with significant moisture derived from fog as well as high rainfall (NatureServe 2007). The border of this system with adjacent systems is usually gradational (NatureServe 2007). The transition to spruce-fir forests that often adjoins at higher elevation is marked by a gradual shift in canopy dominance from hardwoods to conifers *(NatureServe 2007)*. Characteristic species include northern red oak (*Quercus rubra*), buckeye (*Aesculus flava),* American beech *(Fagus grandifolia),* sugar maple (*Acer saccharinum),* and yellow birch (*Betula alleghaniensis*) as well as black cherry (*Prunus serotina*) and basswood *(Tilia Americana)* on some sites *(NatureServe 2007)*. Many sites once dominated by northern red oak (Quercus rubra) or spruce-fir are currently transitioning to other species common in this habitat type. The understory on all but the driest sites is usually dominated by a thick herbaceous layer.

- Desired Future Condition

DFC includes ensuring a diverse species and age composition, retaining streamside management zones/riparian buffers where needed, and providing appropriate levels of early successional wildlife habitat. In general, this forest type will be of an older age structure although a diversity of ages and species is an important DFC. Perpetuation of northern red oak and beech as a mast source in this system will be emphasized with adequate oak regeneration maintained throughout, except where Carolina northern flying squirrels are specifically being managed for.

- Target Game Species

Target game species include ruffed grouse, white-tailed deer, wild turkey, and black bear.

- Target Non-Game Species

Target non-game species include those outlined in the NCWAP that occur or potentially occur on the game lands. Some examples from the 2005 edition include Canada warbler (*Cardellina canadensis)*, yellow-bellied sapsucker (*Sphyrapicus varius)*, rose-breasted grosbeak (*Pheucticus ludovicianus)*, brown creeper (*Certhia americana)*, sharp-shinned hawk (*Accipiter striatus)*, Northern saw-whet owl (*Aegolius acadicus*), Weller's salamander (*Plethodon welleri*), Northern pigmy salamander (*Desmognathus organi)*, Carolina northern flying squirrel (*Glaucomys sabrinus*), and rock shrew (*Sorex dispar*).

- Management Strategies and Needs

Management strategies include retention of variable buffers along either side of creeks, streams, and seeps. Where appropriate and allowed and to meet objectives for diversity of structure and species composition, timber thinnings (with attention to retaining a diverse mix of species beneficial to wildlife, including northern red oak, black cherry, American beech, persimmon, etc.) and/or selective mechanical treatments may be used.

The development of small openings through the use of mechanical treatments for the creation of early successional wildlife habitat or for stand regeneration may be used. Old growth stands may be developed over time by default within streamside management zones/riparian buffers, dedicated primary natural areas, and areas inaccessible and/or inoperable for active management.

- Infrastructure Needs

Identification and development of fire lines and suitable access to stands and potential burn units will be needed. Temporary logging roads and landings may need to be constructed with new gates installed to control access where appropriate. New and temporary road construction will need to be limited to that which is necessary to implement management and will be engineered in accordance with state BMP's (Best Management Practices) and with consideration to run-off and sedimentation.

- Management Challenges

Management challenges include incompatible adjacent land uses, climate change, and limited ability to conduct active management due to steep slopes, limited access, poor soils, and restrictive dedications.

Cove Forest

- Current Extent and Condition:

Cove forests occupy the following portions of the State owned tracts of PGL: Black Bear (19%), Linville River (6%), Little Table Rock Mountain (11%), Lutz (18%), Roaring Creek (13%), and Rose Creek (25%). Cove forests are generally found in hollows or small valleys that promote moist conditions and often occur on east or north facing slopes. This forest type consists of mesophytic hardwood or hemlock-hardwood forests of sheltered topographic positions (NatureServe 2007). The hemlock-hardwood association occupies the following: Black Bear (3%), Linville River (1%), Little Table Rock Mountain (3%), Lutz (9%), and Rose Creek (12%). The hemlock-hardwood association is absent on the Roaring Creek Tract. The mesophytic hardwood association on the State owned tracts of PGL includes a mosaic of acidic and "rich" coves that may be distinguished by individual plant communities based on perceived differences in soil fertility and species richness (NatureServe 2007). Rich coves normally have a well-developed herbaceous layer at ground level whereas acidic coves most often do not. Of the mesophytic cove forests on the State owned tracts of PGL, about 3/4 would be considered acidic cove except on the Rose Creek Tract where this percentage is likely higher and on the Little Table Rock Mountain Tract where the percentage of acidic coves is lower.

Cove forests are typically closed canopy systems with characteristic species typically including yellow poplar (*Liriodendron tulipifera*), Carolina silverbell (*Halesia carolina*),

northern red oak, Eastern hemlock (*Tsuga canadensis*), basswood (*Tilia americana*), white ash (*Fraxinus americana*), American Beech (*Fagus grandifolia*), cucumber *(Magnolia acuminate)*, and fraser magnolia (*Magnolia fraseri)* (Clebsch and Busing 1989) (NatureServe 2007). Many of these forests exhibit a more un-even aged structure than other forest types and regeneration is commonly regulated through gap-phase dynamics and patch openings created by wind and ice. Although fire plays a lesser role in this habitat type, it does occur infrequently and at low intensities burning in a mosaic pattern. Fire effects in these habitats were likely minimal as many of the species that occur here are some of the most fire-intolerant in the region (NatureServe 2007).

- Desired Future Condition

DFC includes ensuring that overstories consist of a diversity of species and have lush understories containing a wide diversity of herbs and forbs. Stands should have a diverse age class distribution and species composition, with functioning old growth systems present. Viable stands of hemlocks should be conserved. Streamside management zones/riparian buffers should be retained, protected and functioning. Areas of early successional habitat should be provided at appropriate levels to ensure wildlife and seral stage diversity. Invasive species should be monitored and controlled as appropriate.

- Target Game Species

Target game species include white-tailed deer, wild turkey, black bear, ruffed grouse (at appropriate elevations only), gray squirrel, and raccoon.

- Target Non-Game Species

Target non-game species include those outlined in the NCWAP that occur or potentially occur on PGL. Some examples from the 2005 edition include cerulean warbler, brown creeper, wood thrush, hairy woodpecker (*Picoides villosus*), Eastern box turtle, masked shrew (*Sorex cinereus*), Weller's salamander, and Northern pigmy salamander.

- Management Strategies and Needs

Management strategies include identifying, protecting, and treating hemlock stands where possible to reduce loss of species, protecting riparian buffers along streamside management zones, and harvesting timber where appropriate using a mix of thinning (with attention to retaining a diverse mix of species beneficial to wildlife, including black walnut, persimmon, black cherry, etc.) and group selection techniques to create early successional wildlife habitat via natural regeneration. Old growth stands may be developed by default over time within streamside management zones/riparian buffers, dedicated primary areas, and on areas inaccessible and/or inoperable for active

management. Land managers should identify important cove forests to protect from potential damage from prescribed burning and use appropriate and less intense burning techniques when this habitat type is included in burn units.

- Infrastructure Needs

Increased planning, identification, and development of fire lines and suitable access to stands and potential burn units will be needed. Temporary logging roads and landings may need to be constructed with new gates installed to control access where appropriate. New and temporary road construction will need to be limited to that which is necessary to implement management and will be engineered in accordance with state BMP's (Best Management Practices) and with consideration to run-off and sedimentation.

- Management Challenges

Management challenges include incompatible adjacent land uses, establishment and proliferation of non-native invasive species, climate change, and inability to conduct active management due to steep slopes, limited access, poor soils, and restrictive dedications.

Pine Forest

For purposes of this discussion pine forests are subdivided and classified as either dry coniferous woodlands or managed pines.

Dry Coniferous Woodlands

- Current Extent and Condition

Dry coniferous woodlands occupy the following on the State owned tracts of PGL: Black Bear (7%), Linville River (2%), Little Table Rock Mountain (2%), Lutz (17%), and Rose Creek (3%). This forest type is absent on the Roaring Creek Tract. This habitat type tends to occupy the southern exposures and broader ridge tops of gently rolling terrain. It is often associated with shallow and generally sandy soils, and found at mid to low elevations less than 3000 feet (Fryar 2004). The dominant tree species in this forest type include Shortleaf pine, which typically occupies more than 50% of the over-story, pitch pine, Virginia pine, and occasionally Eastern white pine. On some sites, oaks and hickories may also occur in the over-story.

Under historic natural fire regimes, where fire occurred more frequently, these systems likely consisted of herbaceous (grassy) understories, with a relatively sparse woody shrub layer (Fryar 2004). However, acidic-tolerant shrubs such as blueberry and huckleberry may also be well-developed in these forests. The amount of herbs and

shrubs is greatly linked to the frequency of fire, with stands that burn more frequently having a greater abundance of grasses and herbs and stands with less frequency of fire having a greater abundance of shrubs (NatureServe 2007). In the absence of fire, understory species are often fire-intolerant and shade-tolerant hardwoods such as dogwood, red maple, sassafras (*Sassafras albidum*), sourwood (*Oxydendrum arboreum*), and black gum among others. Following over-story replacement events, Virginia pine, if previously a component or in adjacent stands, can quickly replace native shortleaf communities (Frost 2005). Fire is clearly an important influence in these forests, and may be the sole factor determining the occurrence of this system in lieu of hardwood forests. Natural fires were likely frequent and of low intensity, or a mix of low and higher intensity. Settlement, logging, pine beetle outbreaks, and fire suppression have potentially altered the character and blurred the boundaries of these type forests more than most other systems in the region (NatureServe 2007).

- Desired Future Condition

DFC is an open overstory consisting of woodland and "savannah like" conditions. Composition consists predominantly of mountain yellow pine species but includes some dry oak species such as scarlet oak, chestnut oak, and white oak. Table mountain and pitch pine stands will be managed for on higher elevation sites, while shortleaf pine will be favored on lower elevation sites. The understory should contain a diversity of grasses and forbs, with some sites dominated by grasses. On drier sites, an abundance of blueberry and huckleberry should be found. Stands will have a mix of age classes and size distributions as well as increased regeneration of shortleaf, table mountain, and pitch pine found throughout the understory. Relative over-all abundance of mountain laurel and rhododendron should be reduced throughout.

- Target Game Species

Target game species include white-tailed deer, black bear, and wild turkey.

- Target Non-Game Species

Target non-game species include those outlined in the NCWAP that occur or potentially occur on PGL. Some examples from the 2005 edition include Eastern wood-peewee, brown-headed nuthatch, wood thrush, Eastern whip-poor-will, red-headed woodpecker, Northern flicker, yellow-billed cuckoo, timber rattlesnake, Eastern box turtle, and Northern long-eared bat.

- Management Strategies and Needs

Management of dry coniferous woodlands consists of relatively frequent and repeated prescribed burning to reduce hardwood competition, open the understory, and promote table mountain, pitch, and shortleaf pine regeneration (less frequent and intense fire will create pine woodland conditions and more frequent and intense fires will promote pine

savannah conditions). In some instances, when restoration or reclamation from hardwood conversion is needed; stand replacement fires, timber harvest (thinnings), or other forestry practices may be used. In areas devastated by disease and or pests, complete overstory removal or heavy thinnings may be used. Combinations of natural regeneration or planting of shortleaf pine may be used to regenerate stands. Applications of herbicide to sites where there is a need to control competitive vegetation and non-native invasive species may be required.

- Infrastructure Needs

Increased planning, identification, and development of fire lines and suitable access to stands and potential burn units will be needed. Temporary logging roads and landings may need to be constructed with new gates installed to control access where appropriate. New and temporary road construction will need to be limited to that which is necessary to implement management and will be engineered in accordance with state BMP's (Best Management Practices) and with consideration to run-off and sedimentation.

- Management Challenges

Challenges include limited options for management within dedicated primary areas, increased establishment and spread of non-native invasive species, increased development and expansion of adjacent private/urban interface along game land boundaries, increased competition from Virginia pine where disturbances are limited, limitations due to topography and access, limited burning opportunities, climate change, encroachment from hardwoods, and impacts from disease and insects such as southern pine beetle.

Managed Pine Forest

- Current Extent and Condition

This forest type comprises about 54% of the Linville River Tract and 3% of the Black Bear Tract. It is absent on the remainder of the tracts. These are primarily loblolly pine and white pine plantations planted by the former landowners. However, due to fire exclusion and white pine's shade tolerance, this species has spread into other, less typical sites in some locations where it might not normally occur if historic disturbance regimes had continued. Similarly, loblolly pine has spread into some locations from the planted stands. Understory conditions in "Managed Pine Forest" stands are typically absent of vegetative ground cover and shrubs but sometimes include light amounts of ericaceous shrubs such as blueberry and mountain laurel, a few mixed hardwood saplings, and/or scattered pine regeneration. Limited forest inventory data indicate that nearly all of the planted pine stands on PGL are less than 40 years of age.

- Desired Future Condition

All artificial pine monoculture/plantation conditions are restored through conversion to natural forest communities, including oak and pine woodlands and savannahs, that have open overstories, diverse pine and hardwood species composition, and that are structurally beneficial to wildlife. Understories are developed and diverse consisting of a mix of herbs, grasses, and forbs. Cove forests will be established on appropriate sites and natural hydrologic functions restored. Dry coniferous woodlands will be established on the driest sites and ridges with natural disturbance regimes restored. Oak forests will occupy the mid and intermediate slopes with natural disturbance regimes restored. Non-native invasive species will be monitored and controlled as appropriate.

- Target Game Species

Target game species include white-tailed deer, black bear, and wild turkey.

- Target Non-Game Species

Target non-game species include those outlined in the NCWAP that occur or potentially occur on JRGL and/or SMGL. The targets will depend upon whether the DFC is oak and pine woodland, cove forest, dry coniferous woodland or oak forest (see above for targets in each system).

Some examples from the 2005 edition include timber rattlesnake, Eastern whip-poor-will, chuck-will's-widow (*Antrostomus carolinensis*), bats, red-headed woodpecker, and brown-headed nuthatch.

- Management Strategies and Needs

Management strategies will primarily involve timber harvest consisting of clear cutting and thinning as stands mature and develop into merchantable timber. Natural regeneration of hardwoods will be key to diversifying these stands and developing a desired future mixed pine-hardwood composition. Plantings including that of oaks and shortleaf pine as well as some herbicide use may be employed where needed to develop pine-oak stands. Where appropriate and needed, prescribed burning will also be used.

- Infrastructure Needs

Increased planning, identification, and development of fire lines and suitable access to stands and potential burn units will be needed. Temporary logging roads and landings may need to be constructed with new gates installed to control access where appropriate. New and temporary road construction will need to be limited to that which is

necessary to implement management and will be engineered in accordance with state BMP's (Best Management Practices) and with consideration to run-off and sedimentation.

- Management Challenges

Challenges include stands or portions of managed pine stands within dedicated primary areas remaining in monoculture conditions. Other challenges include increased establishment and spread of non-native invasive species, increased development and expansion of adjacent private/urban interface along game land boundaries, limitations due to steep topography and limited access, limited burning opportunities, climate change, and impacts from disease and insects such as southern pine beetle.

Early Successional

Early successional habitats (ESH) are considered those on which the vegetation is ≤ 20 years of age. For purposes of this discussion early successional habitats are divided into 3 subcategories; Herbaceous, Shrub-Scrub, and Woody.

Herbaceous

- Current Extent and Condition

Herbaceous ESH is comprised of grasses and forbs and is lacking a significant woody component. It occupies the following on the State owned tracts of PGL: Black Bear (1%), Linville River (2%), Little Table Rock Mountain (1%), Lutz (3%), and Roaring Creek (3%). Herbaceous ESH is not found in significant amounts on the Rose Creek Tract. The majority of herbaceous ESH on PGL is located in conventional and linear wildlife openings, along utility ROWs and roads, and other areas where sunlight is able to reach the ground. This habitat is generally maintained using a variety of standard agricultural practices.

- Desired Future Condition

DFC includes maintaining currently planted openings and expanding the acreage of natural (especially in burned areas) and planted herbaceous ESH where appropriate, to create habitat diversity across the tracts. Herbaceous ESH will be composed of a variety of both planted and natural vegetation, and will have a diversity of vertical structure and layers composition conducive to songbird and other wildlife use.

- Target Game Species

Target game species include white-tailed deer, wild turkey, rabbit (*Sylvilagus floridanus*), mourning dove (*Zenaida macroura)*, and ruffed grouse *(Bonasa umbellus)* (at appropriate elevations only).

- Target Non-Game Species

Target non-game species include those outlined in the NCWAP that occur or potentially occur on PGL. Some examples from the 2005 edition include Eastern whip-poor-will, American kestrel (*Falco sparverius*), barn owl (*Tyto alba*), prairie warbler (*Setophaga discolor*), field sparrow (*Spizella pusilla*), golden-winged warbler (*Vermivora chrysoptera*), coal skink (*Plestiodon anthracinus*), timber rattlesnake, Eastern box turtle, least shrew (*Cryptotis parva*), and least weasel (*Mustela nivalis*). A major target in this type will be birds needing this specialized habitat.

- Management Strategies and Needs

Management strategies for establishing and maintaining herbaceous ESH habitat will include mowing, herbicide application, prescribed burning, disking, planting, the application of soil amendments, and day-lighting.

- Infrastructure Needs

Infrastructure needs will include installing new gates to control access as well as installation and maintenance of culverts, bridges, and fords for crossing streams and creeks. Construction and maintenance of firebreaks will be needed where this management technique is employed.

- Management Challenges

Management challenges include limited days when prescribed burning can be employed, invasive species, Natural Heritage Program dedications, incompatible adjacent land uses, and climate change.

Shrub-Scrub

- Current Extent and Condition

Scrub-Shrub habitat refers to those ESHs comprised mainly of low growing, multi-stemmed woody vegetation ≤10 years of age. Grasses and forbs can be a significant component of this habitat, especially during the first years of growth. Shrub-scrub habitat ranges from dense woody vegetation to a mix of woody vegetation interspersed with grasses and forbs. Mature trees may be present, but only at widely spaced

intervals. The character of this habitat depends on its age, how it was established, site quality, aspect, and other factors. Shrub-Scrub ESH occupies 5% (Black Bear), 1% (Linville River), 8% (Little Table Rock Mountain), 2% (Lutz), and 14% (Roaring Creek) of the State owned tracts of PGL. It is not found in significant quantities on the Rose Creek Tract. Most of this habitat type is located in recent timber sales with the remainder located along utility rights-of-way, roadways, forest canopy gaps, old abandoned fields, etc.

- Desired Future Condition

DFC includes a mix of shrub/scrub ESH created by timber harvests and prescribed burning to create diversity on the landscape. An important DFC is to provide a continuous supply of this habitat type through time. Actual proportions of this habitat will be determined by the habitat needs of target species.

- Target Game Species

Target game species include white-tailed deer, wild turkey, rabbit, mourning dove, woodcock (*Scolopax minor*), and ruffed grouse (at appropriate elevations only).

- Target Non-game Species

Target non-game species include those outlined in the NCWAP that occur or potentially occur on PGL. Some examples from the 2005 edition include golden-winged warbler, blue-winged warbler (*Vermivora cyanoptera*), field sparrow, prairie warbler, yellow-breasted chat, willow flycatcher (*Empidonax traillii*), chestnut sided warbler (*Setophaga pensylvanica*), timber rattlesnake, and least weasel. A major target in this type will be birds needing this specialized habitat.

- Management Strategies and Needs

Techniques used to provide and maintain shrub-scrub ESH will include periodic timber harvests, mechanical treatments, herbicide application, and repeated prescribed burning.

- Infrastructure Needs

Infrastructure needs will include new logging road and firebreak construction in some areas and installing new gates to control access. Reconstruction, refurbishing, improvement, and maintenance of old roads and firebreaks will also be a significant infrastructure need.

- Management Challenges

Management challenges include limited days when prescribed burning can be employed, invasive species, Natural Heritage Program dedications, incompatible adjacent land uses, and climate change.

Woody

- Current Extent and Condition

Woody ESH includes areas with vegetation age classes between 11- 20 years. It differs from herbaceous and shrub-scrub ESH by having a composition consisting predominantly of regenerative, woody vegetation with some assemblages of shrubs, and usually to a much lesser extent, grasses and forbs. Areas such as abandoned fields and secondary successional areas such as clear-cuts are examples of this habitat type. This habitat type is generally lacking on the State owned tracts of PGL, except on the Lutz Tract where it occupies 2% of the property.

- Desired Future Condition

An important DFC is to provide a continuous supply of this habitat type through time and to increase the amount of this habitat type in the existing open areas or in timber treatment areas.

- Target Game Species

Target game species include white-tailed deer, wild turkey, black bear, rabbit, mourning dove, woodcock, and ruffed grouse (at appropriate elevations only).

- Target Non-Game Species

Target non-game species include those outlined in the NCWAP that occur or potentially occur on PGL. Some examples from the 2005 edition include prairie warbler, willow flycatcher, yellow-breasted chat, and least weasel. A major target in this type will be birds needing this specialized habitat.

- Management Strategies and Needs

Management strategies used to provide and maintain woody ESH will include periodic timber harvests, mechanical treatments, herbicide application, and repeated prescribed burning.

- Infrastructure Needs

Infrastructure needs will include new logging road and firebreak construction in some areas and installing new gates to control access. Reconstruction, refurbishing,

improvement, and maintenance of old roads and firebreaks will also be a significant infrastructure need.

- Management Challenges

Management challenges include limited days when prescribed burning can be employed, invasive species, Natural Heritage Program dedications, incompatible adjacent land uses, and climate change.

Rock Outcrops

- Current Extent and Condition

This habitat type includes both high and low elevation rock outcrops and consists of cliffs or rock outcrops that may be vertical or horizontal and located on peaks, ridge tops, upper slopes, and other topographically exposed locations (Schafale and Weakley 1990). Vegetation is sparse and limited mainly to plants growing on bare rock, small ledges, and crevices (NatureServe 2007). Vegetation is primarily bryophytes, lichens, and herbs, with sparse stunted trees and shrubs rooted in deeper soil pockets and crevices (NatureServe 2007). On the State owned tracts of PGL this habitat is mainly found embedded in forested habitat and comprises less than 1% of the properties. This may be a low estimate since the presence and location of much of this habitat can only be verified by ground truthing. Several cliffs and rock outcrops are located at the northeast corner of the Little Table Rock Mountain Tract near the Blue Ridge Parkway.
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- Desired Future Condition

DFC includes maintaining the undisturbed structure of cliffs and rock outcrops.

- Target Game Species

None

- Target Non- Game Species

Target non-game species include those outlined in the NCWAP that occur or potentially occur on the game land. Some examples from the 2005 edition include coal skink, timber rattlesnake, Eastern small-footed bat, Northern long-eared bat, Alleghany wood rat (*Neotoma magister*), rock vole (*Microtus chrotorrhinus*), and rock shrew.

- Management Strategies and Needs

Large cliffs and rock outcroppings that have little vegetation providing shade should be maintenance free. Recreational use of these types of outcroppings should be evaluated

to determine the extent of use and monitored so that impacts are minimized. Other outcroppings should be protected from soil disturbing activities and evaluated for buffering depending upon specific outcrop habitat attributes. For example, management for salamanders may require a forested buffer to protect salamander habitat, whereas another may be better suited to day-lighting for reptile conservation. These management strategies will often be dictated by the size of the outcrop, the occurrence of species, and forest habitat in which the outcropping is embedded. Outcroppings should be surveyed and mapped as needed to provide baseline data and assess appropriate management.

- Infrastructure Needs

None.

- Management Challenges

Management challenges include recreational use (e.g. climbing and bouldering), invasive species, soil disturbance, incompatible adjacent land uses, and climate change.

Floodplain Forest

- Current Extent and Condition

Floodplain forest is located along streams and occurs at very low levels, occupying no more than 3% of any of the State owned tracts of PGL. Dominant tree species include a mixture of bottomland and mesophytic hardwoods such as: American sycamore (*Platanus occidentalis*), yellow poplar, American beech, white ash, American elm (*Ulmas americana*), river birch (*Betula nigra*), box elder (*Acer negundo*), red maple, and black walnut (*Juglans nigra*). Other common trees include; green ash (*Fraxinus pennsylvanica*), American holly (*Ilex opaca*), Southern hackberry (*Celtis laevigata*), American hornbeam (*Carpinus caroliniana*), and to a lesser extent some oaks and hickories. The herbaceous and shrub layers in these forests can be extremely diverse, with the density and abundance of species closely linked to the level of disturbance and soil type (NatureServe 2007). Understories can range from densely closed thickets to open woodlands and may consist of such species as, spicebush (*Lindera benzoin*), Strawberry-bush (*Euonymus americanus*), Dog-hobble (*Leucothoe fontanesiana*), alder (*Alnus spp.*), and a variety of herbs and forbs. Vines are also particularly common in floodplain forests and typically include Virginia creeper (*Parthenocissus quinquefolia*), poison ivy (*Toxicodendron radicans*), and *Smilax* spp. (Schafale and Weakley 1990).

These forests are rarely impacted by fire except under extreme drought conditions, but are more commonly regulated and maintained by seasonal and annual flooding events. Not only do these flooding events effect soil movement and deposition, but they also play a major role in seed dispersal, plant successional processes, and the creation of

vernal pools. Beavers can also be an important disturbance factor in these forests, setting back succession, creating canopy gaps, and developing semi-permanent wetlands within these forests (Schafale and Weakley 1990). Floodplain forests are particularly important habitats for breeding amphibians, especially where there are inclusions of floodplain pools and semi-permanent impoundments. (N.C. Wildlife Action Plan, 2005, 2015). This habitat type is also favored by American woodcock during their migration.

- Desired Future Conditions (DFC)

Since the vast majority of the floodplain forests found on the State owned tracts of PGL are located within dedicated primary areas and streamside management zones, the overstory of this forest type will remain predominantly closed. Natural disturbances such as flooding with sediment deposition and beaver activity will continue to occur and will influence forest composition and structure. Natural hydrologic functions of these forests will be maintained. Over-story and understory composition will consist of a wide diversity of species suited to hydric soils. Non-native exotic species will be monitored and controlled as appropriate.

- Target Game Species

Target game species include white-tailed deer, wild turkey, raccoon, beaver and woodcock.

- Target Non-Game Species

Target non-game species include those outlined in the NCWAP that occur or potentially occur on the game land. Some examples from the 2005 edition include yellow-billed cuckoo, red headed woodpecker, Kentucky warbler (*Oporornis formosus*), Eastern kingsnake (*Lampropeltis getula*), spotted salamander (*Ambystoma maculatum*), marbled salamander (*Ambystoma opacum*), hoary bat (*Lasiurus cinereus*), bog lemming (*Synaptomys cooperi*), and smoky shrew (*Sorex fumeus*).

- Management Strategies and Needs

Management strategies include identifying and protecting floodplain forests while retaining appropriate buffers along either side of the associated streams and their tributaries. Management to the extent allowed will be implemented for the purposes of maintaining or enhancing fish and wildlife habitat while ensuring erosion and siltation issues are adequately addressed. In some cases, where feasible and appropriate, prescribed fire may be allowed to enter into this habitat, particularly where the rivers and associated tributaries can be utilized as natural firebreaks or where management of river cane is needed. Limited forestry activities may be used where permitted to develop woodcock and other wildlife habitat. Applications of herbicide may be implemented

where allowed when there is a need to control non-native invasive species. Old growth stands will be allowed to develop over time within streamside management zones and riparian buffers.

- Infrastructure Needs

Increased planning, identification, and development of access to key areas may be needed. This will include installing new gates to control access as well as installation and maintenance of culverts, bridges, and fords for crossing streams and creeks.

- Management Challenges

Challenges to management of floodplain forests include limited management opportunities within dedicated primary areas along with the increased probability of establishment and spread of non-native invasive species from flooding events. Access limitations and siltation from upstream sources on private land are also challenges within floodplain forests.

Bogs and Small Wetland Communities

- Current Extent and Condition

Bogs and small wetlands comprise <1% of any of the State owned tracts of PGL. It is mainly found embedded within forested habitat in very small quantities. This is a very important habitat type due to the complex of species that utilize and depend on it and it warrants management consideration. The presence and location of much of this habitat can only be verified by ground-truthing.

- Desired Future Conditions (DFC)

DFC includes maintaining and/or enhancing this habitat type.

- Target game species

Target game species include woodcock, and raccoon.

- Target non-game species

Target non-game species include those outlined in the NCWAP that occur or potentially occur at PGL. Examples include the bog turtle (*Glyptemys muhlenbergii*), bog lemming, four-toed salamander (*Hemidactylium scutatum*), and mole salamander (*Ambystoma talpoideum*).

- Management strategies and needs

Management of this habitat type is varied and depends on the current status of the wetland (i.e., forested or open, intact or impacted by draining/ditching, presence of undesirable and/or invasive plant species). Furthermore, each bog/wetland should be individually evaluated as the management goals will vary from one bog/wetland to another. In some instances, hydrological restoration may be needed, including plugging ditches, installing water control structures, addressing head-cutting or erosion problems, and removing drainage devices. For some wetlands or bogs, vegetation management may be needed. This can be accomplished in a number of ways, including but not limited to manual hand-clearing of woody and/or invasive plants, prescribed burning, and grazing. In other wetlands, the desired condition may be a forested bog, but each will need to be evaluated on a case by case basis by WRC biologists and species experts.

- Infrastructure Needs

Infrastructure needs may include installing water control structures, installing gates to control access as well as installation and maintenance of culverts, bridges, and fords for crossing streams and creeks.

- Management Challenges

Management challenges include historical fine sediment pollution from erosion in the subject watersheds, invasive species, incompatible adjacent land uses, and climate change.

Riverine/Aquatic Communities

- Current Extent and Condition

The entire Wilson Creek watershed and its tributaries have the highest water quality rating in North Carolina (HQW/ORW; N.C. Division of Water Resources 2013). Additionally, the John's River watershed is rated as HQW (N.C. Division of Water Resources 2013). The NCWAP designates Wilson Creek (Johns River Sub-basin) and Linville River as priority watersheds (N.C. Wildlife Resources Commission, 2005). Wilson Creek flowing through the Lutz Tract is classified as a National Wild and Scenic River. It contains a stocked trout fishery managed as Public Mountain Trout Waters and classified as Delayed Harvest Trout Waters. It also contains a limited Smallmouth Bass *(Micropterus dolomieu)* population. Streams on the Roaring Creek tract are intact headwater streams with ample riparian buffers. These streams contain high quality populations of Southern Appalachian brook trout (*Salvelinus*

fontinalis). These streams are managed as Public Mountain Trout Waters Program and classified as Wild Trout Waters. The Rose Creek tract contains portions of both Rose Creek and Little Rose Creek. Little Rose Creek contains a recently discovered population of Brook Trout and Rose Creek contains a population of Rainbow Trout (*Oncorhynchus mykiss*). These streams are managed as Public Mountain Trout Waters and classified as Wild Trout Waters. The Little Table Rock Mountain Tract contains a portion of Rose Creek. Again, this stream contains a population of Rainbow Trout and is managed as Public Mountain Trout Waters and classified as Wild Trout Waters. The Linville River tract contains a limited warmwater community.

- Desired Future Conditions (DFC)

The desired future condition of aquatic habitat on PGL is reduced levels of fine sediment in headwater streams and no new introductions of invasive species.

- Target game species

Target game species include beaver (Castor canadensis), waterfowl and furbearers. The target cold water game fish species are Rainbow Trout (Oncorhynchus mykiss), Brook Trout (Salvelinus fontinalis), and Brown Trout (Salmo trutta) on the Lutz, Roaring Creek, Rose Creek, and Little Table Rock Mountain Tracts. The target warm water game fish species are Smallmouth Bass (Micropterus dolomieu), Walleye (Sander vitreus), and various sunfish and catfish species on the Linville River Tract.

Target non-game species

Several State listed species occur on these game lands including Seagreen Darter (*Etheostoma thalassinum)* (NCSR), Carolina Foothills Crayfish (*Cambarus johni)* (NCSR), Brook Floater (*Alasmidonta varicose)* (FSC, NCT)*,* Notched Rainbow (*Villosa constricta)* (NCSC)*,* Eastern Creekshell (*Villosa delumbis)* (NCSR), and hellbender (*Cryptobranchus a. alleganiensis*) (FSC) (North Carolina Natural Heritage Program 2014).

Management Strategies and Needs

Riparian buffers will be those required by the NHP Dedication or easements. Where dedications or easements are not in place riparian buffers will be left at widths of no less than those recommended by North Carolina Forest Service Forestry Best Management Practices (50 feet.). In areas where topography and/or site conditions dictate further protection, riparian buffers may exceed these recommendations. The NCWRC will seek to identify and to control any active sediment sources on PGL. Common erosion sources on forested land include foot trails, roads, firebreaks, and stream crossings. Stream crossings are common sources of fine sediment pollution because they often create bank erosion and can direct road runoff into streams.

Road and trail crossings on many tributaries are created using corrugated metal pipes. Unless carefully designed, these crossings can create movement barriers for fish and other aquatic life by being perched on the downstream end or having a steep slope. An inventory of these crossings is needed to identify and fully understand which locations are creating barriers and recommend engineering solutions.

- Infrastructure Needs

Infrastructure improvements are needed to address erosion wherever it is occurring. Eroding foot trails and forest roads are the greatest sources of fine sediment pollution on the game land and some of these are in need of repair. In many cases, repair will require engineering designs and heavy equipment to out-slope roads, convert fords to dry crossings, and design effective water breaks. Less problematic trails need routine maintenance.

- Management Challenges

The primary management challenge to aquatic communities is the historical fine sediment pollution from erosion in the subject watersheds.

FOREST MANAGEMENT

Forest management practices are the most cost effective method available for achieving desired habitat conditions and diversity on all of the State owned PGL tracts. These practices are instrumental to restoring communities to diverse compositions and structures. However, due to factors such as inaccessibility, Natural Heritage dedication restrictions, steep terrain, and or unsuitable timber, not all portions of these tracts are conducive for forest management. Much of the forest management across these tracts to date was implemented by former land owners or has been conducted by the NCWRC on a stand by stand basis based on priorities for wildlife habitat enhancement, ecosystem restoration, timber stand improvement, and increasing access.

One of the primary focuses of forest management on State owned tracts of PGL is restoring ecosystem functionality and improving wildlife habitat throughout all forested communities. Due to the lack of recent disturbances and past poor land use practices, many of the forested communities across these tracts are degraded, dying, and are being replaced by more shade tolerant, mesic tree species such as yellow poplar, Eastern white pine, and red maple. To restore, enhance, and increase overall diversity across PGL, silvicultural and forest management practices such as prescribed fire, timber harvest, reforestation, herbicide

applications, KG blading, and mechanical release are necessary. Additionally, these forestry tools and combinations of techniques are important and vital to restoration of certain habitat types and forest communities, improving wildlife habitat diversity within forest stands and at the landscape level, reducing the risk of catastrophic wildfire, keeping forests healthy, and providing sustainable forest resources.

Forest Land Class/Types and Conditions

Past land use history (agricultural grazing, land clearing, commercial forestry) and disturbance (natural and human caused) vary greatly across all of the State owned tracts of PGL, and have shaped the current forest types and conditions seen today. The figures below detail the current land class/forest type by percentage for each State owned tract making up PGL.

Figure 1: Forest Land Class/Types on Black Bear Tract (N.C. State University 2008).

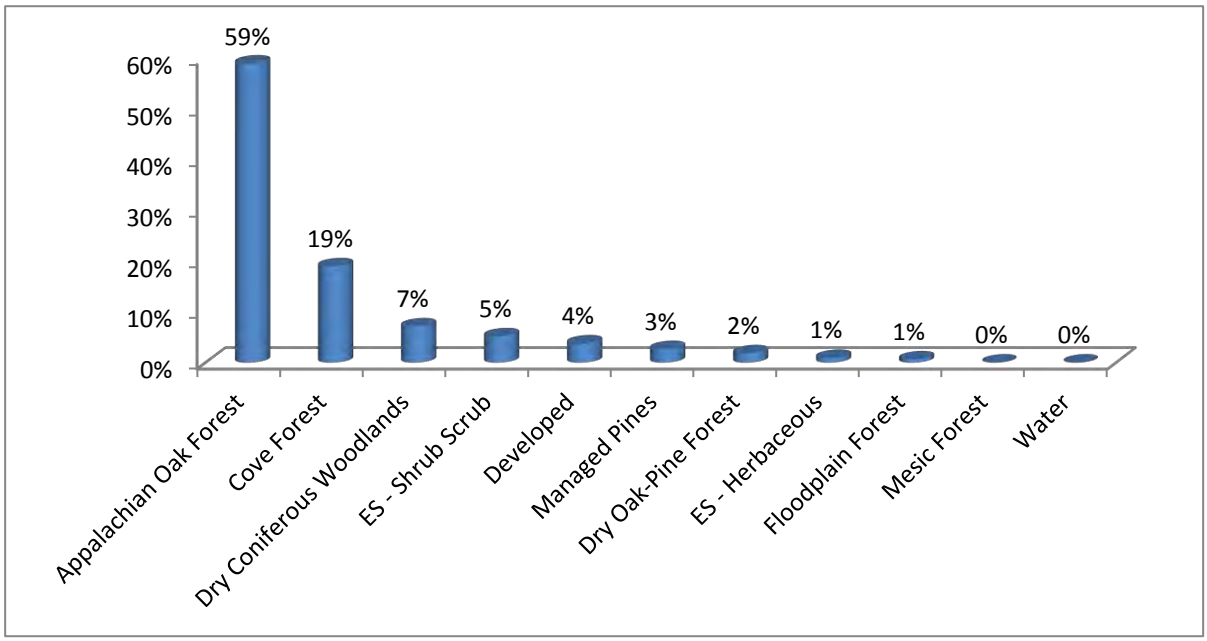


Figure 2: Forest Land Class/Types on the Linville River Tract (N.C. State University 2008).

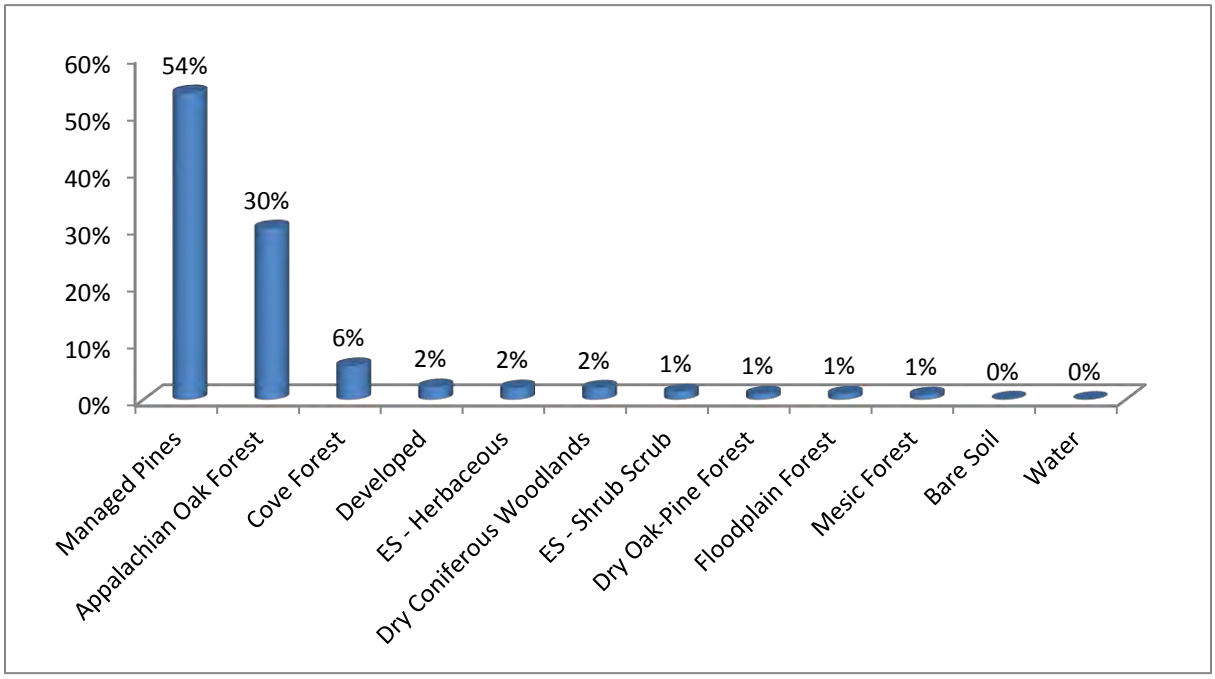


Figure 3: Forest Land Class/Types on the Little Table Rock Mountain Tract Tract (N.C. State University 2008).

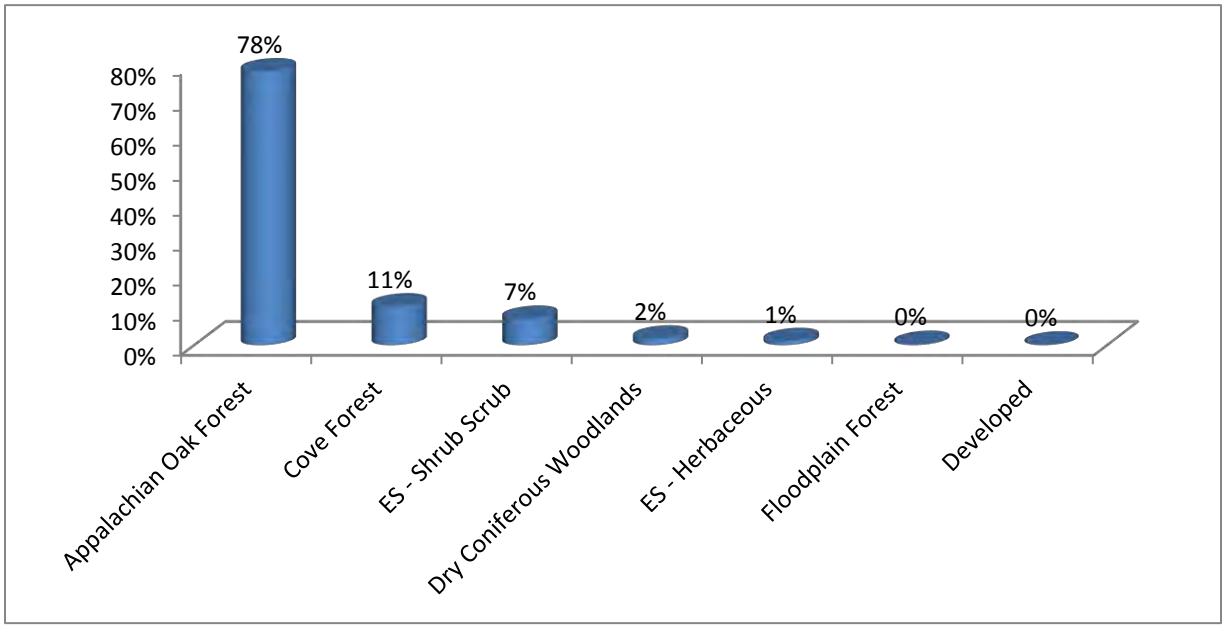


Figure 4: Forest Land Class/Types on the Lutz Tract (N.C. State University 2008).

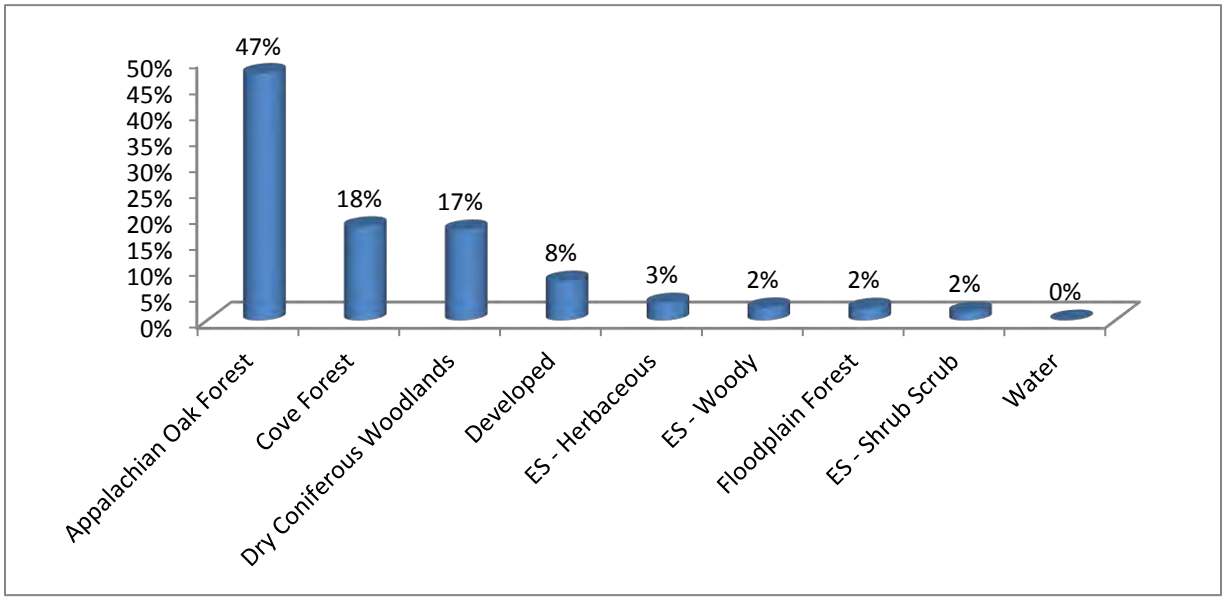


Figure 5: Forest Land Class/Types on the Roaring Creek Tract (N.C. State University 2008).

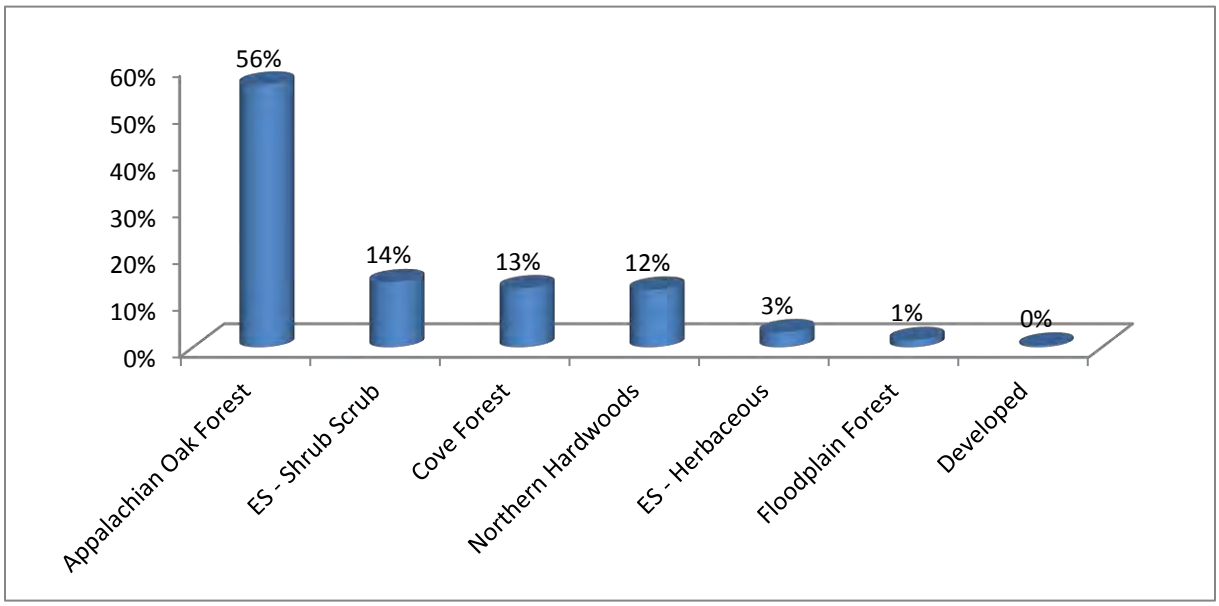
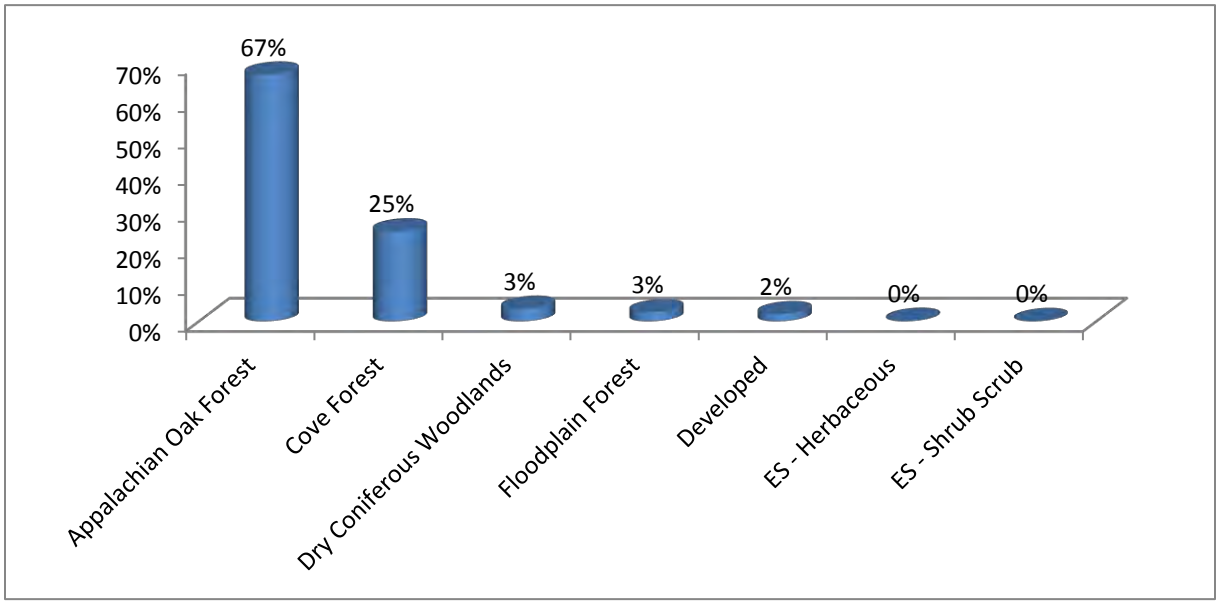


Figure 6: Forest Land Class/Types on the Rose Creek Tract (N.C. State University 2008).



At present, there has only been a forest inventory with a digitized stand map produced for the Linville River Tract, however, this data is now dated and over 12 years old. All state-owned tracts of Pisgah Game Land are in need of updated forest inventories and stand maps. Although adequate forest inventory maps are not yet available, digitization of aerial imagery and satellite data show that more than 90% these tracts consist of closed canopy forest. Young forests and early successional areas constitute relatively small portions of each tract. Forest age class information is unavailable for all tracts except for the Linville River Tract, where managed pine forests (planted pine stands) comprise more than 50% of the tract and range from 25 to 40 years of age. The vast majorities of these stands have not reached maturity but will do so within the next 10 years providing numerous opportunities for restoration and conversion to natural forest types. Site indexes (a measure of productivity) on PGL vary considerably by elevation and forest community. Lower productivity and site indexes tend to occur on the rocky ridges and drier sites, whereas higher productivity and site indexes tend to occur within the rich, mesic forests, and floodplain forests.

Forest Resource Needs

Given the high percentage of oak forest on all State owned PGL tracts, and their importance as mast (acorn) producers to a variety of wildlife species, oak and oak/pine forests have and will continue to be a primary focus of forest management across PGL. Threats to oak forests from pathogens, inadequate advanced oak regeneration, and invasive species create the need for continual forest management practices to be implemented in these systems. Timber harvest (primarily shelter-wood cutting and/or thinning), herbicide use (to control competition with oak

regeneration), prescribed burning (to enhance forest stand structure and promote oak reproduction), and planting of oaks will be needed to promote healthy and diverse oak forests.

Dry coniferous forests, particularly on the Black Bear, Linville River, and Lutz tracts, will also be a primary focus of forest management. There is a great need to address the loss of these forests across the landscape due primarily to the historical lack of disturbance needed to promote them, devastating losses of stands over the last decade from infestations of southern pine beetle, and the conversion of many sites to managed pine forests. For the same reasons, shortleaf pine communities have declined significantly over the last 100 years, and efforts to promote restoration of this important forest community is currently a priority for management on PGL as well as across the region. As with oak forests, timber harvests (primarily shelter-wood cutting and/or thinning), herbicide use (to control competition with other regeneration), mechanical release, prescribed burning (to enhance forest stand structure and promote reproduction), and planting of shortleaf pine seedlings will be needed to promote healthy and diverse pine forests.

There is also an immediate need to conduct accurate forest resources inventories and stand maps on all these tracts. This will provide important information for planning and directing forestry and wildlife habitat management on PGL. Additionally, opportunities for forest management and wildlife habitat research, including prescribed fire, should continue to be encouraged on the game land.

Timber Harvest

Timber harvest is an integral silvicultural part of forest management on PGL. To date there has been only one implemented sale by NCWRC on PGL which occurred in 2010 on the Black Bear Tract. This sale consisted of 1 unit totaling 44 acres. This unit, which consisted of a natural white pine stand that established itself following the abandonment of an agricultural field, was harvested using a reserve shelterwood thinning technique. It was implemented with the objective of creating “savanna like” conditions that selected for oak, pitch pine, and shortleaf pine. Although timber harvest is an important forest management tool for restoration of natural communities and developing and improving wildlife habitat, opportunities to increase the acres and size of harvest areas across the various tracts of PGL varies. This is due to several factors such as inoperable terrain, lack of access, proximity to private residences, and Primary area and easement restrictions. Future timber harvests on PGL will likely be limited primarily to the Black Bear and Linville River tracts, however all PGL tracts maybe considered based on need and future management objectives.

Shelterwood with reserves harvested in 2010 on the Black Bear Tract of PGL. This harvest was implemented to improve species composition and structure, provide early successional habitat, and promote oak and mountain yellow pine .

Some general guidelines used for timber harvest across State owned game lands are listed below:

- Shelter-wood, selection type harvests, and various thinning regimes generally select leave trees that are beneficial to wildlife (oaks and other mast producers, etc.), although in some cases may include conifer species (hemlock, shortleaf pine, table mountain pine, etc.) where restoration is the goal, but may also be used to thin managed pines.
- Clear-cut units will generally be 25 acres or less in size and will be distributed across the tracts to provide habitat diversity and early successional habitat.
- Sites of proposed clear-cutting will be reviewed for significant cultural resources and all sites of proposed timber harvest will be reviewed with appropriate staff regarding issues of protected plants, animals, significant resources, non-game species, potential management conflicts, and other issues.
- Firewood harvests will be administered through the sale of firewood permits on designated sites (usually along roads and at log landings where personal fuel wood is easily available).
- Riparian buffer zones will be left at widths of no less than those recommended by North Carolina Forest Service Forestry Best Management Practices and all North Carolina Forest Practices Guidelines will be applied where applicable.
-

Tree Planting and Reforestation

Reforestation and tree planting occur on State owned game lands most commonly following timber sales, however instances of disease or pest outbreaks or natural disturbances such as wind are also cause for these activities to occur. Reforestation occurs in two forms which include artificial and natural regeneration. Natural regeneration has and will continue to be the preferred form of reforestation on game lands. Sites which are able to support regeneration of beneficial tree species and a diverse composition of species are generally allowed to regenerate naturally. Stands which previously consisted of monoculture managed pine or have uniform species composition prior to harvest are often sites in which artificial regeneration is used. In some instances where the threat of competition from non-desirable vegetation is determined to be great, artificial regeneration methods may be used to allow desirable species a “head start” or advancement in their establishment and growth. Generally, clear-cut pine and mixed pine/hardwood stands that are planted back with pine (typically shortleaf pine) will occur on a wide spacing of 14 feet by 14 feet to encourage development of additional natural regeneration to a mixed pine/hardwood stand. These forests provide better habitat diversity than pure pine stands. Additionally, sites to be planted with pines will be site prepared by prescribed burning, which will generally occur in summer immediately following the nesting season. Areas planted with oaks will be planted on a similar spacing to those areas planted with pines. In some cases herbicide use, mechanical release, and prescribed burning will be used to enhance both natural and planted regeneration (both pre and post-harvest) as needed. To date there have been no artificial plantings conducted by NCWRC on PGL, however future restoration of managed pine stands, particularly on the Linville River Tract will likely include artificial regeneration methods.

Herbicide Treatments

Applications of herbicide for forest management are another tool that is implemented on State owned game lands. These practices are generally carried out through contracts with the North Carolina Forest Service in conjunction with both site preparation and/or tree planting services. The use of herbicide for forest management purposes is particularly important with regards to controlling a variety of non-native invasive species that are found on PGL. Controlling invasive species is a critical component of habitat restoration and a pivotal step in ensuring the success of reforestation plantings following timber harvest and for management and restoration of native vegetation. Herbicide is also beneficial in helping to control competition to planted seedlings from fast growing tree species such as yellow poplar and white pine following timber harvests. This allows desirable species such as oak, a slow growing species, opportunity to establish the site. Applications of herbicide to control competition are typically carried out following reforestation plantings, but in some instances may be implemented prior to timber harvest as well.

Non-native invasive species such as Princess tree (*Paulownia tomentosa)* (left) and Japanese knotweed (*Fallopia japonica)* (right) are two species which are treated through herbicides on the State owned tracts of PGL.

Prescribed Burning

The use of prescribed fire is of primary importance for restoring and maintaining ecosystem and habitat diversity across the game land. In conjunction with timber harvest, prescribed fire is one of the main tools used by NCWRC to manage game lands. Many of the habitats across PGL, in particularly those that are the most degraded, require regular application of prescribed fire for propagation, enhancement, restoration, and maintenance. These include such habitats as oak and mountain yellow pine communities as well as the early successional habitats that are critical for wildlife across PGL. Burning with prescribed fire also helps reduce hazardous forest fuel loads that have the potential to carry wildfire from or across the game land to surrounding public and private lands, houses, and developments.

Burning is also an important forest management tool for site preparation prior to regenerative forest plantings. Fire also serves as a means to reduce competition from less desirable tree species such as yellow poplar, white pine, and red maple as well to control excessive establishment of mountain laurel and rhododendron. The use of fire also helps to control the spread and establishment of many of the non-native, invasive species that have proliferated.

NCWRC works with many cooperators such as federal agencies, private orginazations, land conservancies, universities, and researchers to plan, implement, and monitor prescribed burns. Burns are carefully planned and conducted with safety to the public, staff, wildlife, and surrounding property the primary focus. Sites for prescribed burns are carefully chosen based on need, access, and ability to contain the fire. Research and monitoring is implemented as part of the prescribed burning program to assess effects to the landscape and wildlife and to provide important information regarding environmental changes and needed objectives for future management.

A joint prescribed burn is conducted on the Black Bear tract of PGL in conjuction with the US Forest Service for the purpose of restoring fire adapted communities, improving wildlife habitat diversity, and wildfire protection to adjacent private land developements.

Generally, understory burning is conducted during the winter and early spring and to a limited extent in the fall months. Understory burns are typically implemented on each burn unit every 3 to 5 years depending upon goals and objectives for that unit. In stands which include timber harvest and where development of oak, pine, and/or oak/pine woodland conditions is desired, application of prescribed burning will be less frequent and less intense. On areas selected for development of oak, pine, and/or oak/pine savannah conditions, application of prescribed burning will be more frequent and more intense. On sites selected for maintenance of wildlife openings and management of early successional herbaceous, shrub/scrub, and woody habitat, prescribed burning may occur annually and/or every other year.

Currently there are only two prescribed burn units on the State owned tracts of PGL. Both units occur on the Black Bear Tract. One unit is located entirely on the tract and totals nearly 200 acres, while the second unit totals nearly 2000 acres. Of the 2000 acres, approximately 250 acres is located on the Black Bear Tract and the rest on U.S. Forest Service holdings. Additional opportunities and needs for prescribed burning occur on several of the other State owned tracts of PGL. These include the Linville River and Lutz tracts, and portions of the Roaring Creek Tract containing early successional habitat.

Annual Forest Management Planning

Generally, an annual forest management plan will be developed for forestry and prescribed burning projects on PGL as part of the overall annual planning process for regional game lands.

On PGL, annual forest planning will be directed by this management plan and will address specific wildlife-forestry projects, including the game lands' forest management prescriptions, estimated project acreages (timber harvest, herbicide use, prescribed burning, tree planting, etc. used to achieve wildlife habitat goals and objectives), costs, and forest product receipts (from the sale of timber, pulpwood, firewood, etc.).

INFRASTRUCTURE

Infrastructure Assessment

An assessment of existing infrastructure on the State owned tracts of PGL was conducted by Division of Engineering & Lands Management staff on January 22, 2015. Maps 26-30 in Appendix 1 show the current locations of existing public access roads, administrative access roads, parking areas, etc. that are found on each tract. These maps also indicate locations for the infrastructure upgrades discussed below for PGL. The results of these assessments along with recommendations for maintenance and improvements are discussed by category below.

Road Assessment

All State owned tracts of PGL, except the Roaring Creek Tract, have an ample network of roads, which provide vehicular access. The tracts have roads open to public vehicular use and roads that are only open to administrative traffic. Administrative access roads are used by NCWRC staff to gain access for management and are also used by the public for foot access for hunting, fishing, hiking, wildlife viewing, and other outdoor recreational activities. Due to steep topography and its relatively small size no road construction projects are planned for the Roaring Creek Tract. Ample vehicular access to this tract is provided by Roaring Creek Road (S.R. 1132).

Existing Road Conditions

The roads in the best condition include the following:

<u>Black Bear Tract</u>

- Access Road to Northern Parking Lot (Bear Creek)

This road intersects Lake James Road (S.R. 1552), adjacent the bridge north of the Black Bear Boating Access Area. This is a one lane gravel road, approximately 0.25 miles long, which provides access to an existing parking lot. The road is in good condition and currently needs no upgrades.

- Administrative access from Northern Parking Lot (Bear Creek)

  This road segment begins at the existing parking lot at the end of the road described above. This road provides 2 miles of administrative vehicular access and foot access for the public. It also serves as a segment of the Overmountain Victory National Historic Trail. Approximately .5 miles of the road, from existing parking lot to last bridge, received major upgrades in 2016 including reshaping, gravel, and the installation of four bridges. The section of road is in good condition and currently needs no upgrades.

- Administrative Access off of Lake James Road (S.R. 1552) (Bailey Creek) - Black Bear Tract

  This road connects to Lake James Road and provides administrative access to the eastern portion of the Black Bear Tract. It continues through U.S. Forest Service property and also connects to the administrative access road that originates from the northern parking lot at a location between the second and third bridge. The first .4 mile of road is in good condition and needs only routine maintenance.

Linville River Tract

- Wolf Pit Road
  This road provides access from NC 126 to the central portion of the Linville River Tract. This road also provides access to several residences just north of PGL. The NCDOT has performed upgrades to this road, which included applying additional gravel and improving drainage.

Little Table Rock Mountain Tract

None.

Lutz Tract

- Brown Mountain Beach Road (S.R. 1328)

This road runs parallel to Wilson Creek and provides access through the entire length of the Lutz Tract. This is a NCDOT maintained, two lane gravel road, which is in good condition.

Rose Creek Tract

None.

Future Road Improvements

Maintenance and needs for future improvements were identified on the following existing sections of NCWRC access roads. The recommended road improvements discussed in this section are grouped by priority as follows:

High Priority

While some of the roads on PGL are in good condition, there are other roads that need improvements. Over the next ten years, the highest priority roads for upgrade are the following:

- Administrative Access from Northern Parking Lot (Bear Creek) - Black Bear Tract

  This road begins at the existing northern parking lot at the end of the road described in "Existing Road Conditions" section. This road provides administrative vehicular access and foot access for the public. A portion of this road is soil and needs reshaping and gravel. The section of road needing upgrade is from the last bridge to the uppermost wildlife opening. This section of road is approximately 1.3 miles and will have an estimated upgrade cost of $100,000.

- Administrative Access off of Lake James Road (S.R. 1552) (Bailey Creek) - Black Bear Tract

  This road connects to Lake James Road and provides administrative access to the eastern portion of the Black Bear Tract. It continues through U.S. Forest Service property and also connects to the administrative access road that originates from the northern parking lot at a location between the second and third bridge. Sections of this

road remain in soil with moderate erosion problems. This road needs to be upgraded to a one lane gravel road with improved drainage, which includes reshaping and ditching.

The sections of road needing upgrade start from existing gravel and continues to both the U.S. Forest Service property and the administrative access road that originates from northern parking lot. The length of road needing upgrades is approximately .4 mile and will have an estimated upgrade cost of $60,000.

- Road at Intersection of N.C.126 and Fish Hatchery Road (S.R.1240) – Linville River Tract

  This road begins at the intersection of NC-126 and Fish Hatchery Road and provides administrative access through the eastern portion of the Linville River Tract as well as access to a 24 acre private tract. This is an existing dirt road in poor condition. The 24 acre private tract is a priority for NCWRC purchase. If the private tract is purchased, this road should be upgraded to a one lane gravel road with improved drainage.

  The entire length of road is in need of improvement. This road is approximately 3.0 miles and will have an estimated upgrade cost of $450,000.

- Administrative Access Road – Little Table Rock Mountain Tract

  This road begins at the end White Rocks Road and at a public parking area. The administrative access provides access through the central portion of the Little Table Rock Mountain Tract. The road is a one lane gravel/dirt road in poor condition. It needs grading to improve drainage and also requires the addition of gravel.

  The section of road needing upgrade is from the existing parking lot to the terminus. This road is approximately 2.7 miles and will have an estimated upgrade cost of $405,000.

Medium Priority

The above mentioned roads on PGL have the highest priority for repair over the next ten years. However, they are not the only roads in need of upgrade. The following roads on PGL are considered medium priority and should be repaired after the high priority projects are completed.

- Administrative Access Road – Black Bear Tract

This is an existing dirt road, which extends west from the northern parking lot as referenced in the “Existing Road Conditions” section. This road has several low/soft spots that need the addition of fabric and gravel. Current needs allow for this road to remain dirt, but if future use increases it should be upgraded to a one lane gravel road.

The repair of low/soft spots in the road will have an estimated cost of $10,000.

If future use increases, the section of road needing upgrade is approximately 0.5 miles and will have an estimated cost of $75,000.

- Administrative Access – Rose Creek Tract

  This existing 1.3 mile road/trail serves as a segment of the Overmountain Victory National Historic Trail and provides administrative access through the Rose Creek Tract. It extends from the Blue Ridge Parkway at Hefner Gap to Altapass Highway (S.R. 1121). The road/trail has several areas of poor drainage that need repair. Near an existing footbridge and just upslope of the road/trail at the game land boundary is an existing spring, where much of this erosion originates. Repair of this source of erosion will likely need to be coordinated with an adjacent landowner since repairs will likely need to be made along the game land boundary and may extend onto a small portion of private property. Drainage along the entire road/trail should be improved with the addition of berms, swales and culverts in order to eliminate the erosion problems and provide a drivable road for administrative access.

  This road repair has an estimated cost of $20,000

- Administrative Access Road – Linville River Tract

  This road provides administrative access through the western portion of the Linville River Tract. The road begins at the junction of N.C. 126 then branches off in two directions (west and east). This is a dirt road, with some areas of gravel, and is in fair condition. Portions of this road need to be upgraded with gravel, while other areas need to be graded and seeded to provide a road with herbaceous vegetation with appropriate drainage.

  The entire road requires some level of repair, ranging from seeding to the addition of gravel. This road is approximately 3.0 miles and will have an estimated upgrade cost of $100,000

Low Priority

Other roads on PGL that need upgrade, but are considered the lowest priority include the following:

- Ripple Creek Lane – Lutz Tract

  This is an administrative access road that is used primarily for access to stock trout in Wilson Creek. It is currently a dirt road in fair condition. It can be improved by providing a one lane gravel access.

  The section of road needing upgrade is from N.C. 90 to the stocking locations. This road is approximately 0.5 miles and will have an estimated upgrade cost of $50,000.

New Road Construction

There are no new roads proposed for Pisgah Game Land.

Road Maintenance

All roads require inspection and maintenance to function well and avoid damage and deterioration. Maintenance should be performed regularly, as the longer the delay in needed maintenance, the more damage will occur and the more costly the repairs will be.

Typical Road Maintenance Practices

- Inspect roads regularly, especially before the winter season and following heavy rains.
- Keep ditches and culverts free from debris (see also Culvert Maintenance Section of this Plan).
- Remove sediment from the road or ditches where it blocks normal drainage.
- Regrade and shape the road surface periodically to maintain proper surface drainage.
    - Typical road should be crowned at approximately 4%, or ½" per foot.
    - Some roads may not require a crown, but should have a constant cross slope (super-elevation).
    - Gravel should be distributed at an even depth across the road.
    - Gravel should have an even distribution of fine and course materials.
    - Keep downhill side of the road free of berms, unless intentionally placed to control drainage.
    - Proper maintenance and grading of the road will require a motorgrader and a roller.
- Avoid disturbing soil and vegetation in ditches, shoulders, and cut/fill slopes to minimize erosion.
- Maintain shoulders on both sides of the road to ensure oncoming vehicles have enough room to pass. Shoulders should be relatively flat, with a mowed grass surface.
- Maintain erosion-resistant surfacing such as grass or rip rap in ditches.
- If it is determined that a road needs major repairs or upgrades, contact Regional Supervisor and Design Services to schedule an assessment.

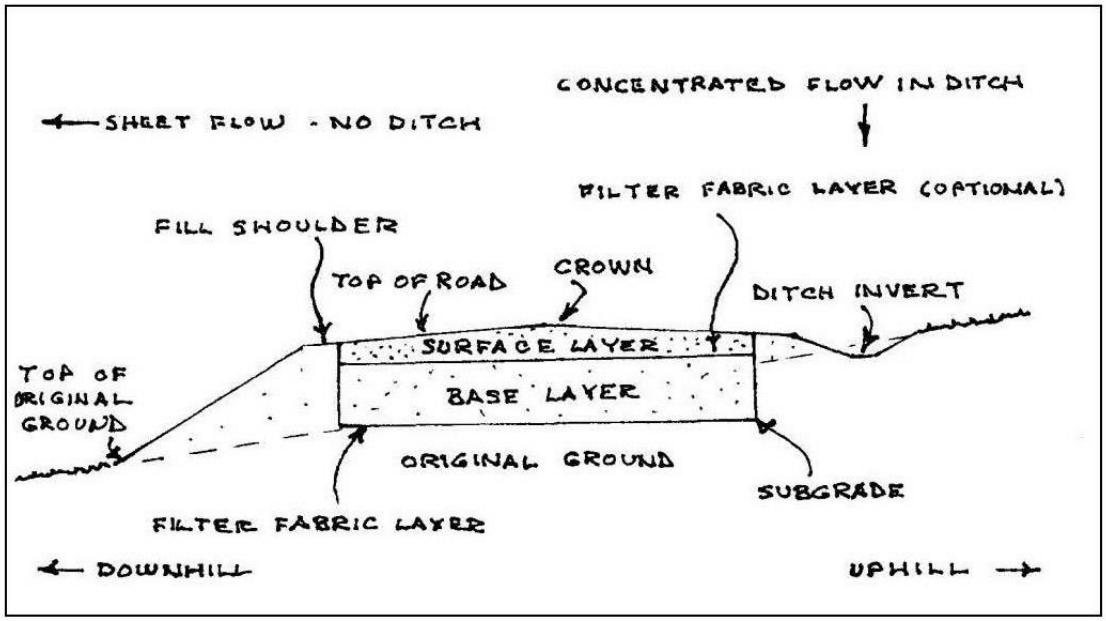


Figure 1 - Typical Road Cross-Section – Canaan, NH Highway Department

Road Safety Features

- Remove trees and other vegetation as necessary to provide adequate sight distance and clear travel way.
- Install and maintain road signage. This includes:
  - Stop signs –Should be installed at every intersection, with the signs on the minor roads.
  - Warning signs – Should be installed to warn the public of any road closures or problems in the game land.
  - Road/Route signs – Should be installed at every road intersection on a game land.
  - Information kiosks with game land road map – Entry signs should be installed at every entrance to a game land off of a DOT road. Information kiosks should be located near the entrances and in parking areas.
  -

Gates

Gates are used on game lands to direct and limit public vehicular traffic, reduce infrastructure maintenance costs, limit disturbance to wildlife and to protect wildlife habitat improvements. For maintenance purposes, gates should be used to limit access to roads that are unsafe or are in disrepair, to limit use on roads to certain times during the year to minimize the wear and deterioration of the road, and to meet wildlife habitat management objectives. If a road is considered unsafe or in disrepair, field staff should contact an engineer. The engineer will perform an inspection to determine the best course of action to repair or upgrade the road.

All gates on both game lands should be constructed of steel pipe with protected locks and painted orange for maximum visibility. No cable gates should be installed, and any existing cables should be replaced.

Troubleshooting

Road Surface Problems

Problem: Longitudinal erosion of the road surface
Possible Causes:

- Flat or U-Shaped road. A crown or super-elevation of the road is needed to shed water laterally off the outer edges of the road surface
- Small ridge of soil or grass growth along the outer edge of the road is preventing water from draining off the road surface. Edge needs to be graded to remove this ridge.
- Water is traveling in a wheel rut. Road needs to be regarded. This problem often results from soft roads.
- Road ditch is not large enough and overflows onto road surface. Install more frequent turnouts to get water away from the road or increase the size of the ditch.

Problem: Lateral erosion cutting across the road surface
Possible Causes:

- Most often occurs at a low spot in the road or where a ditch filled in and no longer functions. Water builds up and overtops and erodes the road surface. A culvert should be installed in this location.

Problem: Potholes
Possible Causes:

- Potholes are typically caused by insufficient crown or road cross slope. The road should be re-graded to remove the potholes, then re-crown or super-elevate the road as necessary.

Ditch Problems

Problem: Bottom of ditch is eroding
Possible Causes:

- Slope of ditch is too steep to handle the flow without additional protective measures, which include addition vegetation, erosion control mats, rip rap, check dams, etc.
- Ditch is too small to handle the volume of water flowing through it. May need to install periodic turnouts to reduce flow through the ditch.
- Bottom of ditch is too narrow and needs to be widened to a parabolic shape.

Problem: Sides of ditches are slumping or eroding
Possible Causes:

- Side slopes are too steep and need to be lessened by digging the back.
- Side slopes need to be stabilized with additional vegetation, erosion control mat, or rip rap.

Parking Areas

Pisgah Game Land has numerous parking areas to serve the public. All of the existing parking areas are in good condition, but new parking is needed as follows.

- Parking Lot off of Altapass Highway (S.R. 1121) – Rose Creek Tract

  Users of the Overmountain Victory National Historic Trail park at a small parking area at the trailhead on Altapass Highway. The parking area should be improved to include 3-5 spaces. This improvement will require clearing of vegetation, minor grading, and graveling. This improvement would cost approximately $10,000.

Gates

Lockable gates are generally installed at or near the entrance of each NCWRC maintained access road and in other locations where warranted. Gates are used on game lands to direct and limit public vehicular traffic, reduce infrastructure maintenance costs, limit disturbance to wildlife, and to protect wildlife habitat improvements.

Gates should be used to limit access to roads that are unsafe or are in disrepair and to limit public use on roads to certain times during the year to minimize the wear and deterioration of the road and to meet wildlife and habitat management objectives. If a road is considered unsafe or in disrepair, field staff should contact an engineer. The engineer will perform an inspection to determine the best course of action to repair or upgrade the road.
All gates on both game lands are constructed of steel pipe with protected locks and are in good condition. All gates installed on both game lands should be painted orange for maximum visibility. No cable gates should be installed, and any existing cables should be replaced. Additional gates will be installed as needed and as future infrastructure improvements dictate.

Dam/Impoundment Assessment

Dams

Pisgah Game Land has no lakes/ponds or associated dams that require inspection for this management plan.

Impoundments

Pisgah Game Land has no impoundments that require inspection for this management plan.

Dam/Impoundment Maintenance

Dams are complex structures that consist of many parts (see Figure 2). In order to prevent failures, dams must be inspected to identify potential problems, and maintenance must be performed to prevent deterioration of the structure that may result in failures. Because of their complexity, dams can fail in many ways including, but not limited to, overtopping, seepage failure, and structural failure.

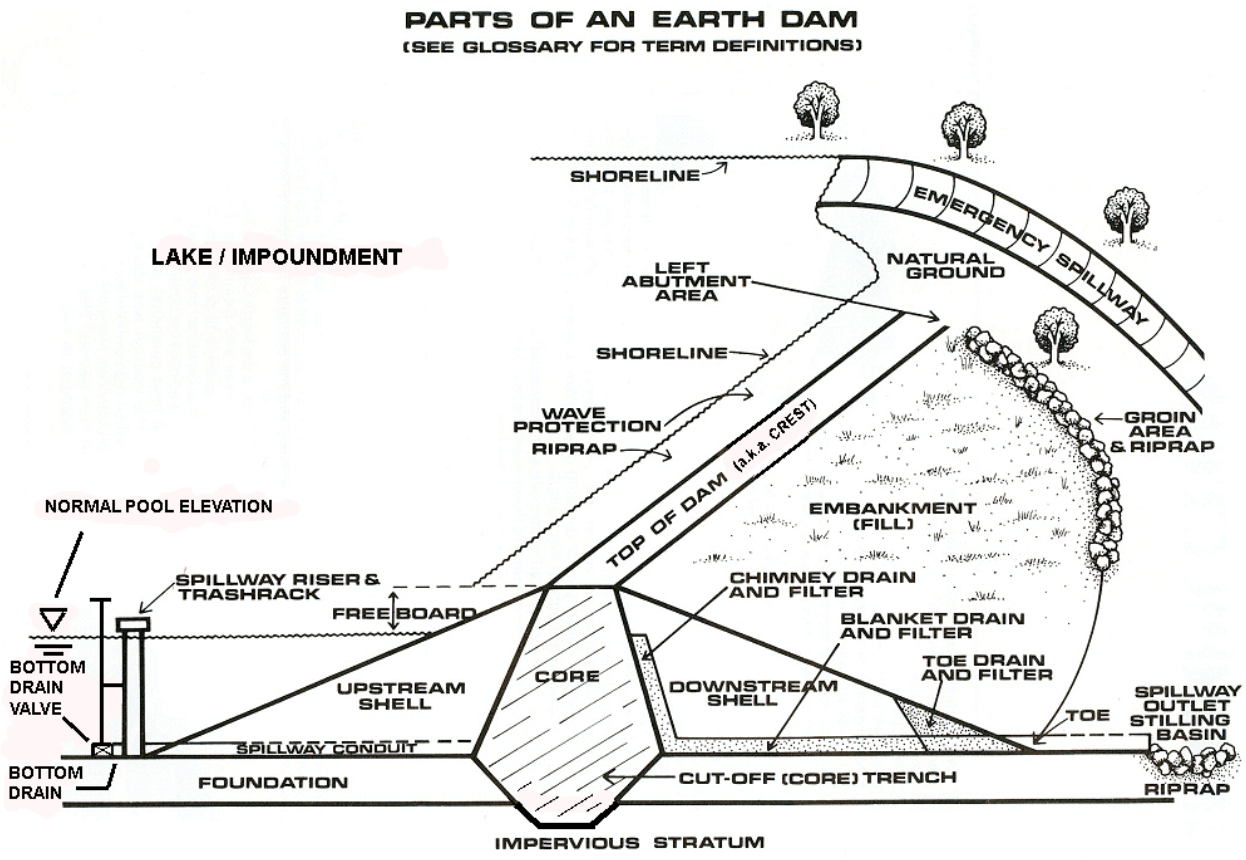


Figure 2 – Parts of an Earthen Dam (from Dam, Operation, Maintenance, and Inspection Manual – NCDENR Land Quality Section)

Periodic Inspection of dams is very important. Dams should be thoroughly visually inspected by technician staff at least twice a year, once in the summer and once in the winter. A closer inspection of the embankment can be made in the winter when the vegetation is dormant and in the summer after the embankment has been mowed. An engineer should be contacted after the embankment has been mowed. Ideally, an engineer will inspect the dam once per year. An engineer should be contacted any time of the year if a problem is observed. Each component of

the dam should be inspected for problems, and corrective action should be taken as necessary. Records of inspections and corrective measures should be kept on hand to monitor any problems that may be observed. Checklists for inspections are available in the "Dam, Operation, Maintenance, and Inspection Manual" published by the NC Department of Environment and Natural Resources.

A healthy stand of grass should be maintained on the dam embankment, toe, groin, top (if a road is not present), and in the emergency spillway to prevent erosion. Shrubs and woody vegetation should not be allowed on the embankment or in the spillway. Roots can cause seepage paths, and trees that fall can leave large holes that can weaken the dam. Brush and trees can also make it difficult to visually inspect the embankment for other issues, and they also provide a haven for burrowing rodents. They also prevent grass growth. As such, all trees, shrubs, and bushy vegetation should be removed from the dam. Embankments should be mowed at least once a year with equipment capable of navigating the potentially steep slopes and capable of removing small woody growth. Emergent vegetation on the shoreline of the embankment should also be controlled. Commercial herbicides can be used in these areas, however all application instructions, environmental precautions, and safety practices should be followed.

Any and all erosion observed on the embankment, on the groin, and in the emergency spillway should be addressed immediately. Vegetation should be re-established in the eroded area by adding soil as necessary and installing topsoil and fertilizer if necessary prior to seeding. Turf reinforcing mat may also be required to stabilize the repair. The cause of the erosion should also be addressed. The upstream face/shoreline of the embankment should also be checked for erosion. This may be caused by wave action. These areas should be repaired immediately by excavating out the eroded material and installing filter fabric and rip rap to prevent further damage.

Dam inspections should also address seepage that is observed. Seepage can occur anywhere on the downstream face, around principal spillway pipes, or beyond the toe of the dam. Seepage may vary in appearance from a soft, wet area to a flowing spring. These areas may show up as areas where the vegetation is more lush and darker green. Marsh or wetland vegetation may also be present in these areas. Seepage can lead to weakening of the embankment evidenced by slides caused by soil saturation or pressures in the soil pores. Seepage can also lead to piping, or the movement of soil particles, which can lead to dam failure. A continuous or sudden drop in the water level may also be an indication that seepage is occurring. Regular inspections and record keeping (seepage flow rates, water levels, content of flow, size of wet areas, and type of vegetation growth) are important to monitor the seepage conditions to determine whether the seepage is steady or in a state of change. If seepage is observed, an engineer should be notified.

The embankment should also be inspected for cracks, slides, sloughing, and settlement. Short, isolated cracks are not usually significant, however larger (wider than ¼ inch), well-defined cracks indicate problems. Transverse cracks that appear across the embankment may be due to differential settlement, and they can provide paths for seepage and piping. Longitudinal

cracks that appear parallel to the embankment may indicate the early stages of a slide. Small cracks should be filled to prevent water intrusion. Slides are serious threats to dam safety as they can lead to instability of the embankment and failure. If a slide develops, the water level should be lowered to investigate of the cause and facilitate the construction of a repair. An engineer should be contacted to examine all cracks, slides, and settlements observed.

During the dam inspection, evidence of rodents (groundhogs, muskrat, and beavers) should be noted. Burrows can weaken the embankment and serve as pathways for seepage. Beavers can also plug spillways causing the water level to rise above the design level. Rodents should be removed from the dam by acceptable means and burrows should be filled. Trash racks, spillways, and other outlets should be inspected for clogging and cleaned as necessary.

Roads on top of dams should be maintained to prevent damage to dam embankments. They should be constructed using a proper base and wearing surface. If a wearing surface is not constructed, traffic should not be allowed on the dam during wet conditions. Water trapped in ruts can lead to saturation and weakening of the embankment. A wearing surface will prevent or minimize ponding water and infiltration. A wearing surface should be constructed to drain into the impoundment, and stormwater runoff should not be concentrated at one point.

Principal spillway pipes should be inspected thoroughly once a year. They should be inspected for improper alignment (sagging), elongation and displacement at joints, cracks, leaks, surface wear, loss of protective coating, corrosion, and blockage. Special attention should be paid to pipe joints. The pipe should also be checked for signs of water seeping along the outside. Small or minor problems can be patched, however major problems may require replacement of the pipe. An engineer should be contacted if problems with the pipe are observed. Erosion at the pipe outlet should also be inspected. Severe undermining can lead to pipe joint displacement and weakening of the dam embankment. Rip rap may be installed to mitigate against continued erosion, however an engineer should be contacted if there is severe erosion. Inspection reports should be kept to monitor the progression of any observed problems.

Riser structures should be thoroughly inspected at least once a year. They should be examined for spalling and deterioration. Any cracking, staining, exposed reinforcing bars, and broken out sections that are observed should be further examined as this may lead to structural instability. They should also be checked for alignment and settlement. Mechanical equipment such as valves, gates, stems, and couplings should be inspected for corrosion, broken, or worn parts. It would also be good to operate these devices at least once a year to ensure that they are functioning and seating properly. An engineer should be contacted if problems in riser structures are observed, and they should be addressed immediately.

Trash racks and flashboards should be inspected on a more frequent basis. Clogging of these features can lead to higher water levels that may compromise the stability of the dam. Clogs should be cleared and all trash should be removed. If possible, the cause of the clogging should be identified and addressed. Broken trash racks and boards should be repaired or replaced. Broken trash racks can allow trash and debris to enter the riser and/or principal spillway pipe and can lead to clogging of these features.

Vegetated emergency spillways should be inspected at least twice per year (at the same time as the embankment). Spillway should be mowed to prevent trees, brush, and weeds from becoming established and to promote the growth of grass. Any erosion should be repaired immediately, and any obstructions should be removed. Periodic reseeding and fertilization may be necessary to avoid erosion and bare areas.

Concrete and other lined emergency spillways should be thoroughly inspected at least once a year. Concrete should be inspected for floor or wall movement, improper alignment, settlement, joint displacement, undermining, and cracking. Structural repairs should begin by removing all unsound concrete. Cracks must be repaired carefully to prevent water intrusion. An engineer should be notified if any structural problems are observed with the spillway. Rip rap lined spillways should be inspected for erosion and displacement of stone. All woody vegetation should be removed, and any obstructions should be removed. Inspection forms and notes should be kept to monitor the progression of any observed deficiencies.

It is important to keep detailed and accurate records of all observations, inspections, maintenance, rainfall and pool levels, drawdowns, and other operational procedures. These records can aid in monitoring the progression of deficiencies as well as diagnosing problems. More information on dam inspections, operation, and maintenance can be found in the “Dam, Operation, Maintenance, and Inspection Manual” prepared by NCDENR Division of Land Resources Land Quality Section.

Culvert Assessment

There are a large number of culverts on PGL. During the infrastructure inspection with field staff, the following were identified as needing improvement.

- Administrative Access Road – Linville River Tract (from Medium Priority List)

  There is an existing culvert and beaver dam along the western leg of this road. The beaver dam and culvert need to be removed. A new culvert should be appropriately sized and installed in this location to prevent any future road erosion. The estimated cost of this culvert installation is $10,000.

Culvert Maintenance

Culvert maintenance is performed to extend the life and ensure proper function of the installed drainage structure. The accumulation of sediment and/or debris at the inlet or outlet of a culvert or damage such as crimping of the pipe effectively reduces the diameter and flow capacity of the pipe.

Culvert maintenance includes removal of accumulated sediment and/or debris that prevents passage of water (and organisms) through culvert inlets, outlets and connected drainage ways. It may also include reinforcement of eroding inlets and outlets by installing riprap or other erosion control measures. Damaged culverts and culverts requiring frequent repeat maintenance should be considered for future remediation via redesign and reinstallation.

The following items should be checked for and addressed as part of routine maintenance inspections:

- partial or complete blockage of the inlet or outlet of the pipe with sediment, stone, leaves, woody debris, refuse or any other items that could affect flow through the culvert
- evidence of scour, bank or channel bed erosion near the inlet or outlet of the culvert
- evidence of flow overtopping the road at the culvert location
- damage to the pipe including crimping of the inlet or outlet, crushing or piercing of the pipe
- severe corrosion of the pipe
- damage to headwalls

Staff should inspect ditches and culverts as part of their regular road maintenance activities. This inspection is especially important during leaf fall and following periods of heavy rain. Staff should consider the location of the culvert before performing maintenance using heavy equipment. Culverts located in active stream channels, dedicated or critical habitat areas may require special permission or installation of erosion control measures before maintenance can commence.

Leaves and woody debris that have accumulated in or around the inlet of the culvert should be removed immediately using hand tools if possible. Removal of accumulated silt and/or gravel from ditches approaching the culvert inlet should be performed using a small excavator, backhoe or a tractor equipped with a scrape blade. Sediment in or around the immediate vicinity of the pipe inlet or outlet should be removed using hand tools to prevent damaging the culvert. Cleaned out material is to be pulled away from the culvert then hauled and spread at a site where it cannot be washed back to the culvert area.

Repeat problems with sediment collecting around the inlet may indicate the existence of an erosion problem originating from the slopes, streams or ditch lines in the vicinity of the culvert. Identification and stabilization of these problem areas through practices such as seeding or matting could improve performance of the culvert and reduce maintenance requirements.

Flow overtopping the road at the culvert location generally indicates that the pipe is undersized and could warrant resizing and replacement. Any damage to the culvert, as described above, may also necessitate replacement of the pipe. If maintenance staff identifies any culverts that may need replacement, they should contact engineering staff to calculate the peak flow capacity and diameter of the new pipe.

Recreational Facilities

The state owned tracts of PGL offer a variety of opportunities for public recreation. This section will review existing recreation facilities and identify sites for potential new development.

Boating Access Areas

There are no boating access areas located on PGL, but there are two just outside the boundary. The Black Bear Boating Access Area is located adjacent the Black Bear Tract and provides access to Lake James. The Linville River Boating Access Area is located adjacent the Linville River Tract and also provides access to Lake James. Both access areas are owned by Duke Energy and maintained by NCWRC.

The only navigable water located on PGL is Wilson Creek (Lutz Tract). Due to the size of the stream, kayaking is generally limited to high water events. This activity occurs both above and below the Lutz Tract and no boating access areas are needed to support this activity.

Public Fishing Areas

There is currently one public fishing area on PGL. This pier is located in the Lutz Tract and provides fishing opportunities in Wilson Creek, which NCWRC regularly stocks with trout. It would be possible to construct additional public fishing piers along Wilson Creek but no specific locations have been identified. This should be further investigated by both Engineering and Inland Fisheries staff. If a suitable location is identified, a pier could be constructed for approximately $25,000.

No other locations on PGL have streams that provide easy access to a fishery. Due to this, no other public fishing areas are feasible.

Shooting Ranges

There are currently no shooting ranges located on PGL. If a shooting range were constructed on PGL, it would have an estimated cost of $300,000. This does not include any additional costs for new road construction.

Hiking

There are several hiking trails located on PGL. The Linville River Tract contains 2.3 and a 3.0 mile segments of the Mountains to Sea Connector Trail. The Little Table Rock Mountain Tract has a hiking trail (2.1 mi.) that provides access to the top of Little Table Rock Mountain. The Rose Creek Tract contains a 1.3 mile segment of the Overmountain Victory National Historic Trail and the Black Bear Tract contains a 2.1 mile segment of the same trail.

Hiking is a popular use of many game lands and demand for this activity is anticipated to increase in the future. It is recommended that staff work on a long term plan to identify and construct hiking trails where feasible and desired. Construction of hiking trails may be accomplished by WRC or through partnerships with hiking clubs and conservation groups. Routine maintenance of hiking trails should be accomplished through agreements with conservation partners.

Camping

There are currently no designated campgrounds on the state owned tracts of PGL.

There is a U.S. Forest Service maintained campground near the Lutz Tract. Additionally, the state owned tracts of PGL are either immediately adjacent or are near U.S. Forest Service property where camping is allowed. Due to this, no future campgrounds are planned at this time.

Recreational Facility Maintenance

Maintenance of recreational facilities is critical to the overall operation of the game land program. Typical use of the game lands is dispersed, however, recreational facilities concentrates users on a specific area or feature. This concentration of users, whether it is a boating access, fishing access, shooting range, or other use, results in a need to ensure the facility is safe and functional. Routine site visits for inspection and maintenance will accomplish

this goal. Site visits should consist of two actions: (1) Inspection for safety issues and functionality; (2) Actual maintenance activities.

1. Inspections should examine the following items
   a. Safety inspection items:

      Facility components

      - Decking
      - Handrails
      - Structural supports (piles, substructure, and floats)
      - Fasteners (bolts, screws, and nails)

      Slip or trip hazards

      - Uneven walking surfaces
      - Mud on walking surfaces
      - Ponded water on walking surfaces
      - Drop offs

      Overhead

      - Dead trees or limbs
      - Overhead utilities

   b. Functionality Inspection Items

      Parking

      - Surface condition (ruts, potholes, gravel)
      - Delineation (wheel stops, paint)

      Ramp

      - Blockages (sediment, wood)
      - Surface condition

      Pier/Dock

      - Bollards
      - Wooden components
      - Bumpers

      Shooting range

      - Berms
      - Target area
      - Benches
      - Shelter (roof, structure, and floor)

      Signage

      - Kiosk (entrance, regulation and information)

        - ADA (Americans with Disabilities Act)
    - No Parking
    - Keep Ramp Clear

2. Maintenance activities should include routine and corrective activities
    a. Routine Activities include:
        - Litter and debris removal
        - Grass mowing
        - Woody vegetative growth control
    b. Corrective activities can include but not be limited to:
        - Lumber replacement
        - Sign replacement
        - Minor grading
        - Tree or limb removal

Over time recreational facilities degrade to the point that routine maintenance activities cannot provide corrective action. Examples of this level of degradation include but are not limited to: structural problems, persistent and/or severe erosion issues, and broken/or severely degraded concrete. Once this level of degradation is reached, supervisory personnel should inspect the facility and determine the scope of the needed repairs. If major repairs are required supervisor personnel should contact an engineer for assistance.

PUBLIC USES

Primary public uses of state owned game lands include hunting, fishing, trapping, wildlife viewing and nature study. All other uses of state owned game lands are considered secondary uses and are evaluated using the Game Lands Use Evaluation Procedure to determine their compatibility with primary uses (see Appendix 4).

A public input meeting regarding the use and management of the State owned tracts of PGL was held in Morganton on 2/19/15. The public was also given the opportunity to provide input regarding PGL via the agency website (see Appendix 5). Input received from the public as well as staff working knowledge was used to guide and prepare the sections below.

Hunting/Trapping

Hunters and trappers are considered primary users of the State owned tracts of PGL. Management strategies should include those that maintain the current number of hunters on these game lands or provide additional opportunities. Trapping currently occurs at low levels on PGL. Any management strategies that encourage trapping should be implemented. Little public input was received related to access improvements on PGL, however some improvements to current infrastructure to enhance user access are planned (see Infrastructure section). Acquisition of properties or easements that provide entry to areas that are currently difficult to access should be pursued. Management strategies that continue to enhance disabled hunter opportunities will be pursued as well. A focus on active habitat management on PGL will ensure that adequate numbers of game species are present. Challenges to providing quality hunting and/or trapping include conflicts with hikers and other hunters/trappers as well maintaining adequate levels of game species to provide for reasonable hunter success rates.

Fishing

The Lutz and Roaring Creek tracts both offer ample fishing opportunities for coldwater and warmwater species. Wilson Creek flowing through the Lutz Tract is managed as Public Mountain Trout Waters and classified as Delayed Harvest Trout Waters. The Roaring Creek Tract contains portions of Roaring Creek and Elk Hollow Branch which are managed as Public Mountain Trout Waters and classified as Wild Trout Waters. Additionally, Rose Creek and Little Table Rock Mountain tracts offer limited fishing opportunities on portions of Little Rose Creek and Rose Creek, which are managed as Public Mountain Trout Waters and classified as Wild Trout Waters. The Linville River Tract offers limited warmwater fishing opportunities.

Wildlife Viewing

Wildlife viewing includes activities such as birding, wildlife photography, and general wildlife viewing. Wildlife viewers are considered a primary user group on PGL. Management strategies to increase the number of wildlife viewers that utilize PGL should be implemented. Strategies to increase and enhance wildlife viewing opportunities include: directional signage along roads that provide access to these tracts, informational signage regarding wildlife viewing opportunities at key access locations (i.e., parking areas), and adding signage at kiosks that indicate the best times of the year for wildlife viewing. Involving birding groups with special projects will increase public awareness of opportunities that PGL provides. Infrastructure improvements needed to better facilitate this and other user groups are noted in the “Infrastructure” section above. The continuation of active habitat management where feasible and allowed and as outlined in the “Habitats” section of the plan will ensure a diversity and adequate numbers of wildlife species are present on both game lands and will serve to keep viewer interest high. Developing specific habitat improvements along trails and near parking

areas will be explored. The primary challenge to provide a quality wildlife viewing experience include conflicts with other user groups on the game land.

Other Outdoor Recreation

Other than traditional uses, the most popular outdoor recreational pursuit on the State owned tracts of PGL is hiking. In addition, activities such as photography, kayaking, tubing, mountain biking and geocaching occur at lower levels on these tracts. All of these users are considered secondary users of the game land.

Hiking is a popular activity on PGL and occurs year-round. Approximately 10.8 miles of designated hiking trails have been developed on PGL. This includes 2 segments of the OVNHT that totals 3.4 miles located on the Black Bear and Rose Creek tracts. In addition, 2 segments of the Mountains to Sea Connector Trail are located on the Linville River Tract. These segments total 5.3 miles. A 2.1 mile designated hiking trail is also located on the Little Table Rock Mountain Tract. Specific requests from hikers included developing more designated trails and more segments of the OVNHT where applicable. The development of partnerships between hiking groups and NCWRC that allow for trail construction and/or maintenance is encouraged. The establishment of any new trails will be made on a case by case basis to ensure that new trails do not create excessive erosion issues, are not in violation of the Natural Heritage dedication or other easement areas, and do not displace or create excessive conflicts with primary game land users. Conflicts between hunters and hikers occasionally occur. Providing information on kiosks at key access locations may help reduce this source of conflict among user groups.

Informational sign along a designated hiking trail on the Little Table Rock Mountain Tract, Pisgah Game Land.

Photographers are currently utilizing PGL. This activity can be enjoyed on year round and should be encouraged. Conflict between photographers and other game land users may occur, but conflicts are thought to be minimal.

Canoeing, kayaking, and tubing are enjoyed on Wilson Creek where it flows through the Lutz Tract. This section of river is difficult to navigate due to small rapids and potentially hazardous conditions in high flows. Nonetheless, a large constituent of boaters float through section of river, especially when flows are higher than average.

Mountain biking currently occurs on PGL, but only at low levels. Increased levels of mountain biking should not be encouraged on these tracts due to a lack of suitable trails to ride on, conflicts with hikers, hunters, and wildlife watchers, and the potential to create erosion problems. Increased levels of mountain biking should also be discouraged since it can degrade wildlife habitat improvements, especially in sensitive areas. Ample opportunities for mountain biking can be found on the adjacent Pisgah National Forest and this activity should not be featured on the state owned tracts of PGL.

Geocaching is an activity where participants use Global Positioning Systems or other mobile devices to hide and seek containers called “caches”. All geocaching activities will need to be consistent with the Geocaching Policy adopted by the NCWRC (December 4, 2014). Public

comments regarding this activity were not received but geocaching likely occurs at low levels on PGL. Any caches located in hazardous locations can potentially put others in a dangerous situation trying to find the cache and brings up numerous liability issues. Geocaching can continue to occur at current levels, but some restrictions may need to be implemented. Conflicts between hunters and geocachers may occasionally occur. Providing information on kiosks at key access locations may help reduce this source of conflict between user groups.

INFORMATION NEEDS

Current State of Knowledge

- Initial non-game surveys that were conducted as part of acquisition of all tracts
- Sportfish survey data: Wilson Creek (Lutz Tract), Roaring Creek and Elk Hollow Creek (Roaring Creek Tract)
- Fire Learning Network fuels monitoring research, (Black Bear Tract, ongoing)
- Photo plot monitoring of burn units and timber harvest unit (Black Bear Tract, ongoing)
- Priority fish and crayfish monitoring targeting state listed or rare species, (all tracts)

Wildlife/Habitat Inventory and Monitoring Needs

White-tailed deer, black bear, and wild turkey are featured big game species on PGL. Big game harvest records are an important tool utilized to monitor population levels and trends and make management decisions. However, additional surveys (camera traps, hunter surveys, etc.) would augment current information and help NCWRC staff better manage and make more informed decisions about appropriate harvest levels for both species. Using camera traps to estimate deer density and hunter numbers and effort, combined with registered kill would provide the key ingredients of a complete deer management program.

We currently lack adequate information regarding birds, small mammals (including bats), amphibians and reptiles on PGL. General surveys to inventory and monitor these species and their habitats are warranted. Monitoring of priority aquatic species and sportfish should continue on PGL. We currently lack genetic information for the Brook Trout population located in the Rose Creek tract. Tissue samples and subsequent genetic analyses are needed to verify genetic origin of this recently discovered population. With basic inventory information on these species and their associated habitats, we can develop target species population levels and develop habitat management strategies to achieve those levels where feasible.

While invasive plants are present on PGL there are not any invasive plant species that are well established, except on the Lutz tract where Japanese knotweed is problematic along Wilson Creek. Feral hogs are established in the Roan Highlands area which includes the Roaring Creek Tract. An effort to remove this population of feral hogs is being coordinated by the Southern Appalachian Highlands Conservancy. NCWRC should continue to support this work. It is important to monitor and control invasive species that are present on PGL and to rapidly detect and eradicate new invasive species before they become entrenched. Enhanced monitoring of invasive species is needed to identify problem areas and better guide control strategies and efforts.

Additional inventories include: potential hemlock wooly adelgid predator beetle release sites, potential prescribed burn units, and suitable forest restoration opportunities within managed pine stands.

Monitoring land use and community planning efforts adjacent PGL is needed. This includes local government land use, long range transportation plans, zoning changes, and new commercial and residential development. To the extent that these uses and plans may affect the success of game land management goals and objectives, appropriate bodies should be informed how to minimize impacts to game lands where possible. Monitoring of local development and transportation plans and proposed projects in terms of how they may affect important wildlife corridors between regional conservation lands is also important.

Wildlife/Habitat Management Needs

Habitat management needs are summarized within each habitat section with goals described in the “desired future conditions” subsections. Updated forest inventory and stand maps are needed for PGL. The overall management objective for PGL will focus on restoration and enhancement of critical habitats and communities including oak forests, early successional communities, rock outcrops, and various aquatic habitats. Researching areas for development of critical habitat types and monitoring the success and impacts of habitat and community restoration activities will be needed.

Species specific management focus on PGL will continue to be on popular game species. WAP priority species will be managed for on PGL along with threatened and endangered plants and a diversity of songbirds. More specifically, brook trout genetic evaluation and golden-winged warbler management and monitoring are needed at the Rose Creek and Roaring Creek Tracts.

User Group Needs

- Enhance opportunities for wildlife watchers (N.C. Birding Trail, etc.)
- Better monitor numbers of hunters
- Identify potential shooting range locations
- Monitor hiking activity – where, who, how much, when?
- Monitor use by birders/wildlife watchers
- Develop list of any commercial users and monitor any commercial use
- Research to determine user group dynamics
- Research to monitor habitat degradation by game land users
- Perform comprehensive user survey

FINANCIAL ASSETS AND FUTURE NEEDS

Current Assets

The current level of staffing is adequate to meet the objectives of the plan. The current staffing is indicated below.

- 1 Ecoregion Supervisor
- 1 Wildlife Forester
- 1 Land Management Biologist
- 1 Conservation Technician Supervisor
- 12 Conservation Technicians
- 1 District Fisheries Biologist
- 1 Assistant District Fisheries Biologist
- 1 Aquatic Diversity Coordinator
- 1 Aquatic Diversity Biologist
- 1 Wildlife Diversity Supervisor
- 4 Wildlife Diversity Biologists
- 10 Wildlife Enforcement Officers
- 1 Field Engineer
- 2 Temporary Technicians

None of these staff are dedicated solely to PGL.

Current Costs/Funding Needs

Current and future estimated expenditures (adjusted for projected inflation rate) for managing PGL through 2027 is presented in Table 3 on the following page.

Pisgah WRC Game Land																
Financial Summary of Activities																
Habitat Activities																
					Unit											
Project	Description	Activity	Quantity	Unit	Cost	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	Total
H	Firebreaks	Construct firebreaks	0.5	mi	$ 3,000	1500	1537	1575	1614	1654	1695	1738	1781	1825	1870	$ 16,790
H	Firebreaks	Maintain firebreaks	0.75	mi	$ 700	525	538	551	565	579	593	608	623	639	655	$ 5,876
H	Herbaceous Planting	Planting/Maintenance	20	ac	$ 200	4000	4099	4201	4305	4412	4521	4633	4748	4866	4987	$ 44,772
H	Vegetation Control	Prescribe burning	165	ac	$ 30	4950	5073	5199	5327	5460	5595	5734	5876	6022	6171	$ 55,406
H	Vegetation Control	Mechanical Treatments	1	ac	$ 200	200	205	210	215	221	226	232	237	243	249	$ 2,239
															Subtotal	$ 125,083
Operation and Maintenance Activities																
					Unit											
Project	Description	Activity	Quantity	Unit	Cost	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	Total
O & M	Bridges	Replace Culvert	1	ea	$ 2,500	2500	2562	2626	2691	2757	2826	2896	2968	3041	3117	$ 27,983
O & M	Public Use Facilities	Maintain parking areas	13	ea	$ 500	6500	6661	6826	6996	7169	7347	7529	7716	7907	8103	$ 72,755
O & M	Road and Trails	Maintain gates	2	gate	$ 150	300	307	315	323	331	339	348	356	365	374	$ 3,358
O & M	Road and Trails	Maintain roads	3	mi	$ 3,500	10500	10760	11027	11301	11581	11868	12163	12464	12773	13090	$ 117,528
O & M	Signs and Boundaries	Maintain boundary	6.7	mi	$ 800	5360	5493	5629	5769	5912	6058	6209	6363	6520	6682	$ 59,995
															Subtotal	$ 281,619
Development Activities																
					Unit											
Project	Description	Activity		Unit	Cost	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	Total
D	Parking Area	Parking Area Upgrade, Rose Creek Tract	1	ea	$ 10,000		10,248									$ 10,248
D	Drainage Structure	Culvert Replacements, Black Bear Tract	2	ea	$ 7,500					16,488						$ 16,488
D	Drainage Structure	Culvert Replacement, Linville River Tract	1	ea	$ 10,000						11,240					$ 11,240
D	Road Upgrade	Access Road, Jct. Fish Hatchery Rd, NC 126, Linville River Tract	3	mi	$ 450,000				483,480							$ 483,480
D	Road Upgrade	Little Table Rock Mtn. Road	2.7	mi	$ 405,000			425,088								$ 425,088
D	Road Upgrade	Road West of Bear Creek Road, Black Bear Tract	0.5	mi	$ 75,000					82,440						$ 82,440
D	Road Upgrade	Rose Creek Road, Rose Creek Tract	1.3	mi	$ 20,000			20,992								$ 20,992
D	Road Upgrade	Administrative Access Road, Linville River Tract	3	mi	$ 100,000						112,400					$ 112,400
D	Road Upgrade	Ripple Creek Lane, Lutz Tract	0.5	mi	$ 50,000							57,440				$ 57,440
															Subtotal	$ 1,219,816
														Grand Total		**$ 1,626,517**

Table 3. Estimated current and future expenditures for managing Pisgah Game Land through 2027.

ACQUISITION PLAN

The State owned tracts of PGL generally enhance existing USDA Forest Service and National Park Service holdings. Where not surrounded by Federal property the tracts are mostly adjacent small, privately owned residential holdings that would not make good additions to the Game Lands Program. Nonetheless, any tracts adjacent the State owned tracts of PGL that are offered to the State should be evaluated on an individual basis to determine their value as additions to the Game Lands Program. Higher priority tracts will include those that address a particular conservation need, offer additional public or administrative access to the tracts, or ones that dissolve inholdings or right-of-way easements that currently exist on the properties. It should be noted that NCWRC only acquires property from willing sellers and does not pursue property condemnation.

In a broader sense, any properties offered for acquisition should be evaluated for providing connectivity or a corridor among regional conservation lands. Tracts that provide critical habitat for threatened or endangered species should be pursued also.

REGULATIONS/ENFORCEMENT

The following regulations and enforcement issues are identified.

- Require all users to have game land use permit (statewide policy should be developed for all game lands)
- Unauthorized removal of protected species from the game land
- Regulations for the both the State owned and USDA Forest Service owned portions of Pisgah Game Land should be streamlined as much as possible

PARTNERSHIPS

Partnerships with the groups identified below to accomplish plan objectives should be maintained or explored.

- USDA Forest Service
- N.C. Department of Transportation
- Southern Appalachian Highlands Conservancy
- The Nature Conservancy
- Roan Highlands Stewardship Partnership
- National Park Service
- Foothills Conservancy of North Carolina
- Conservation Trust for North Carolina
- The Conservation Fund
- North Carolina Parks and Recreation
- Southern Blue Ridge Fire Learning Network
- Western Carolina University
- North Carolina Forest Service
- Blue Ridge Resource Conservation and Development Council
- National Wild Turkey Federation
- Trout Unlimited
- Audubon Society, Carolina Birding Club
- Burke County
- Hiking Clubs

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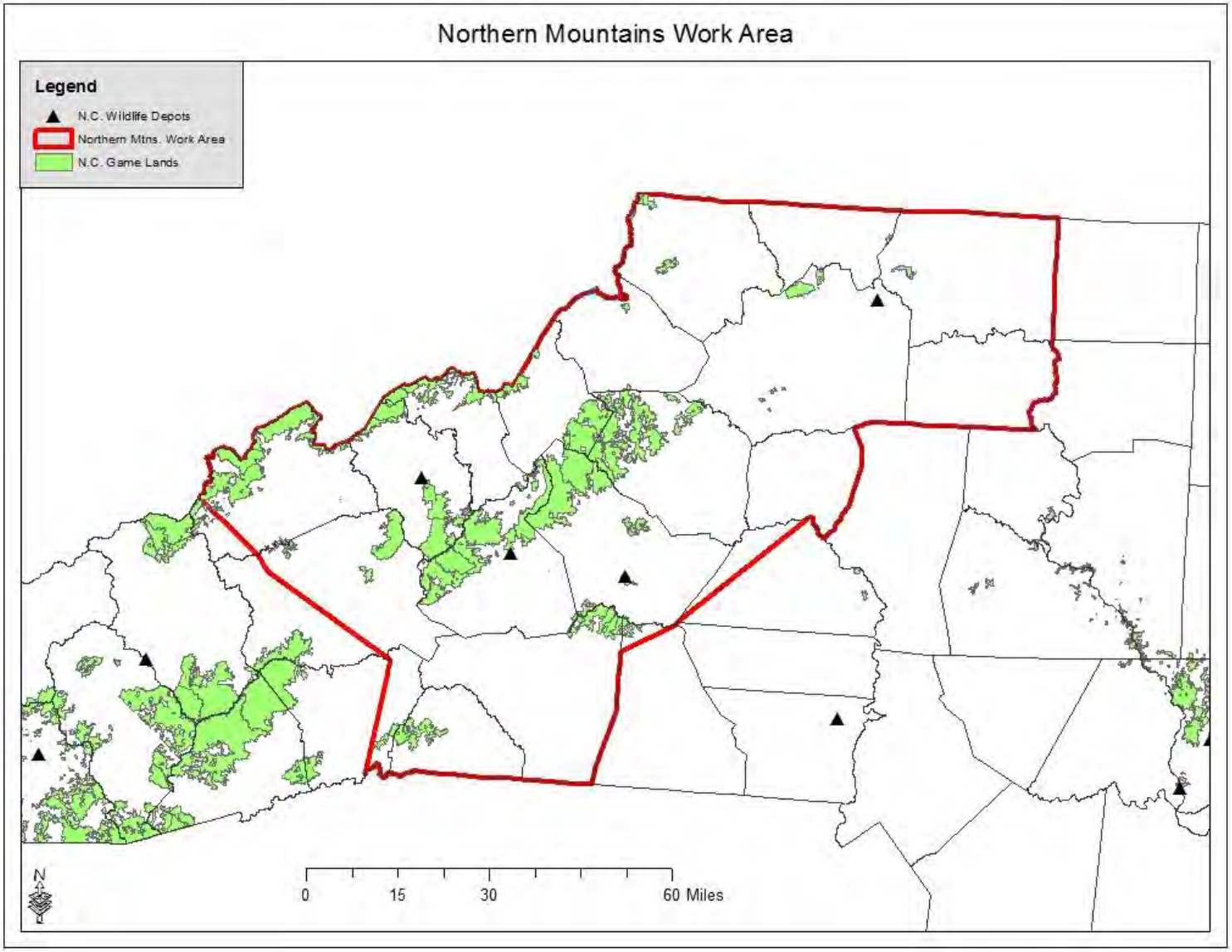
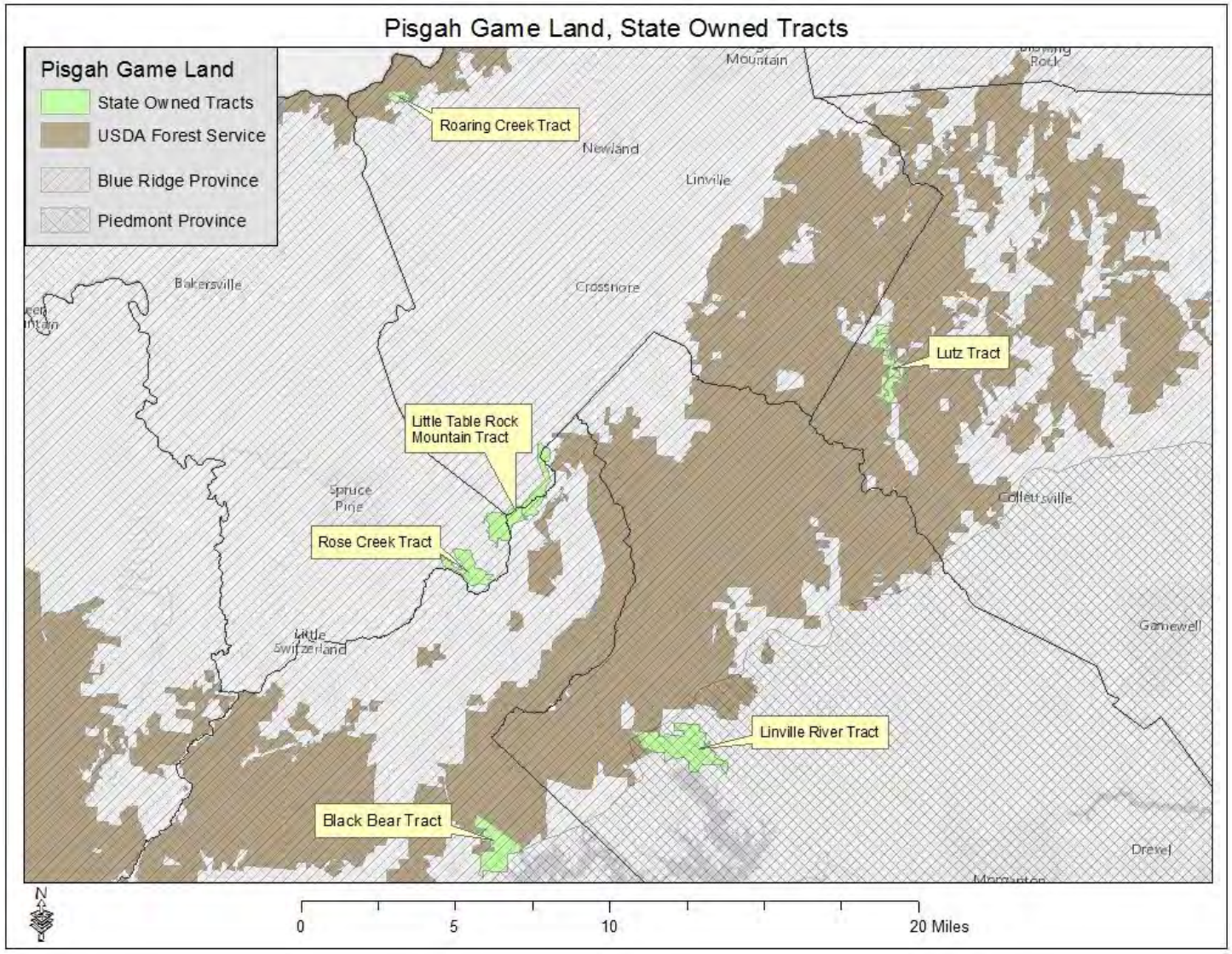
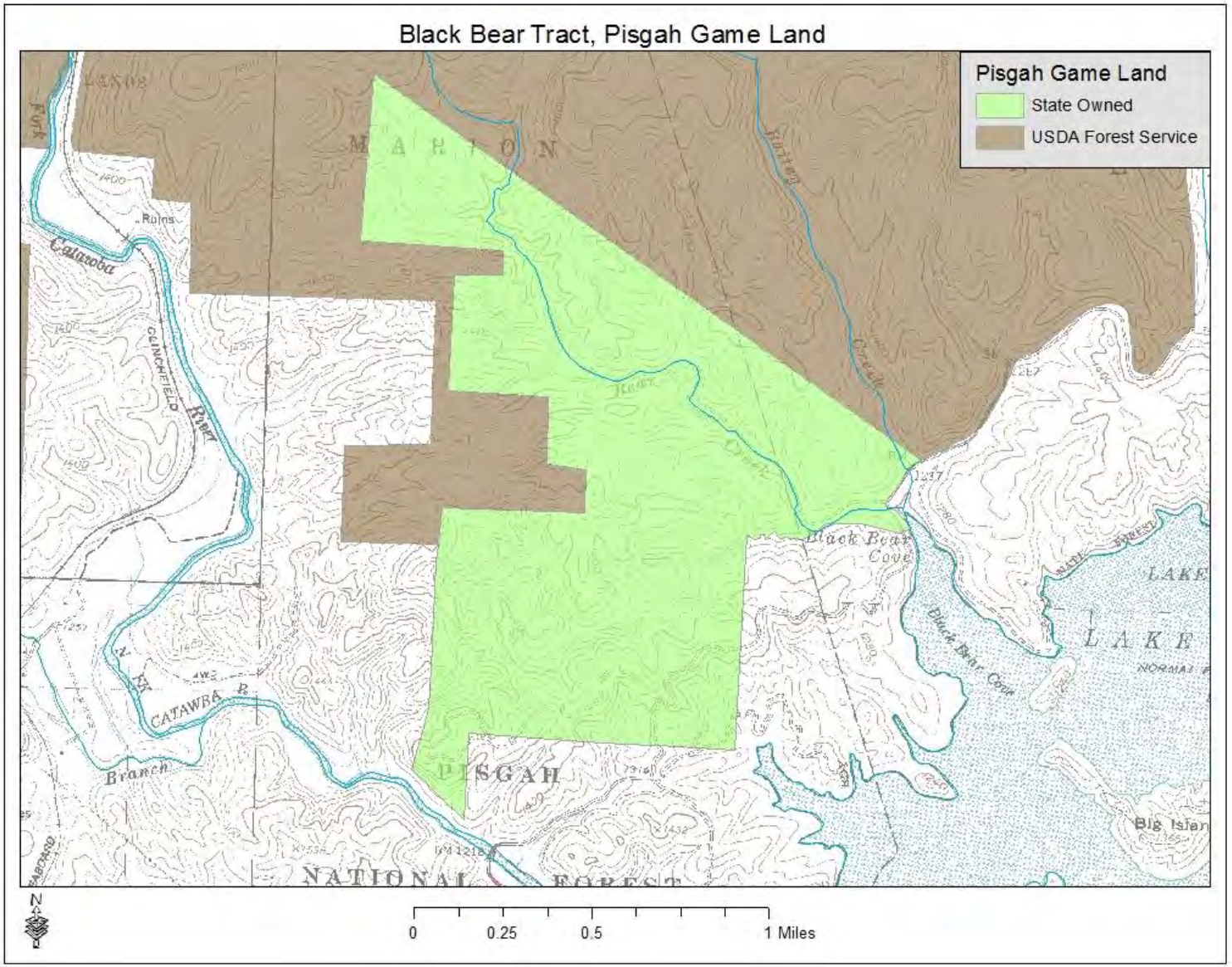
APPENDIX 1 – MAPS



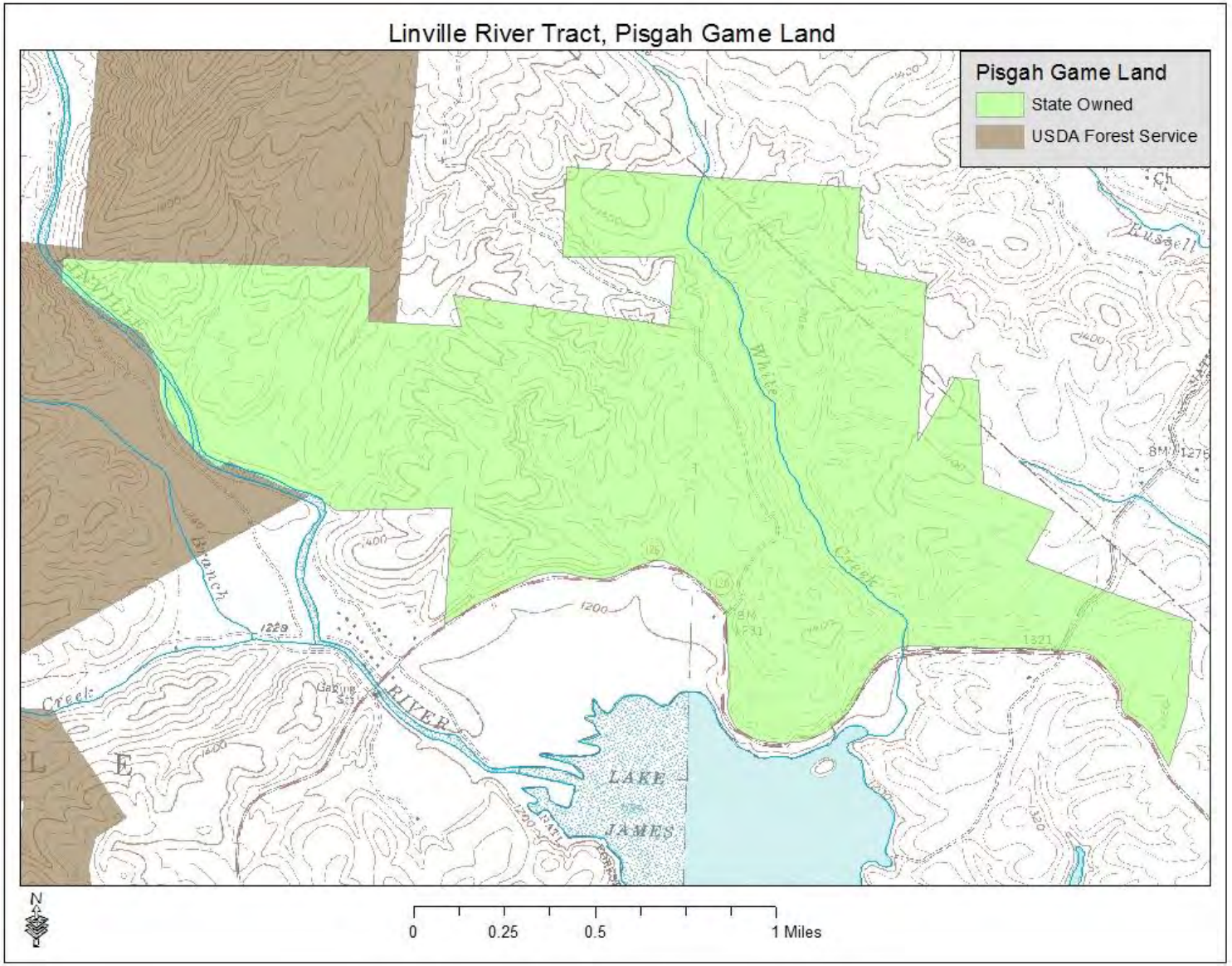
Map 1. Northern Mountains Work Area.



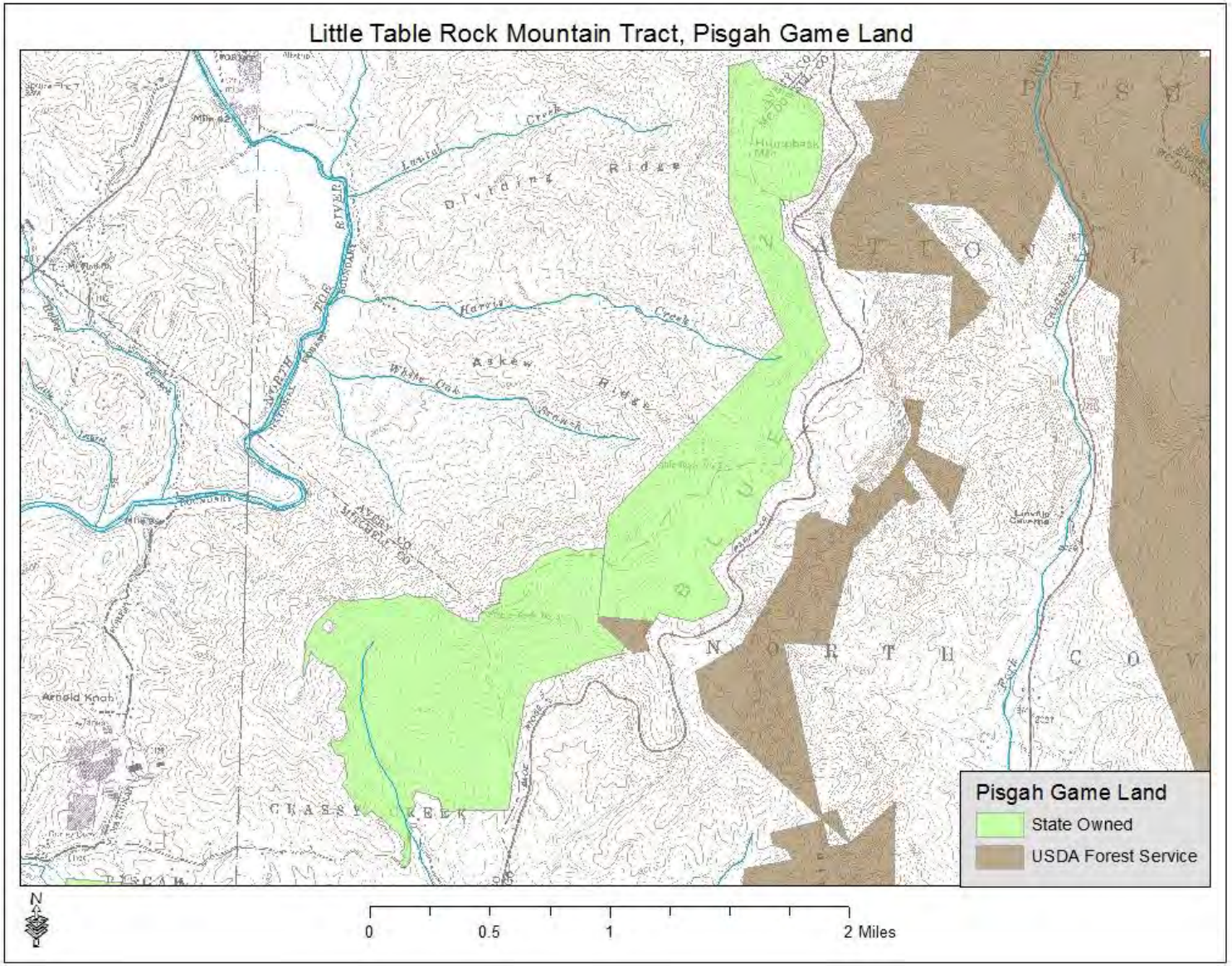
Map 2. Pisgah Game Land, State Owned Tracts.



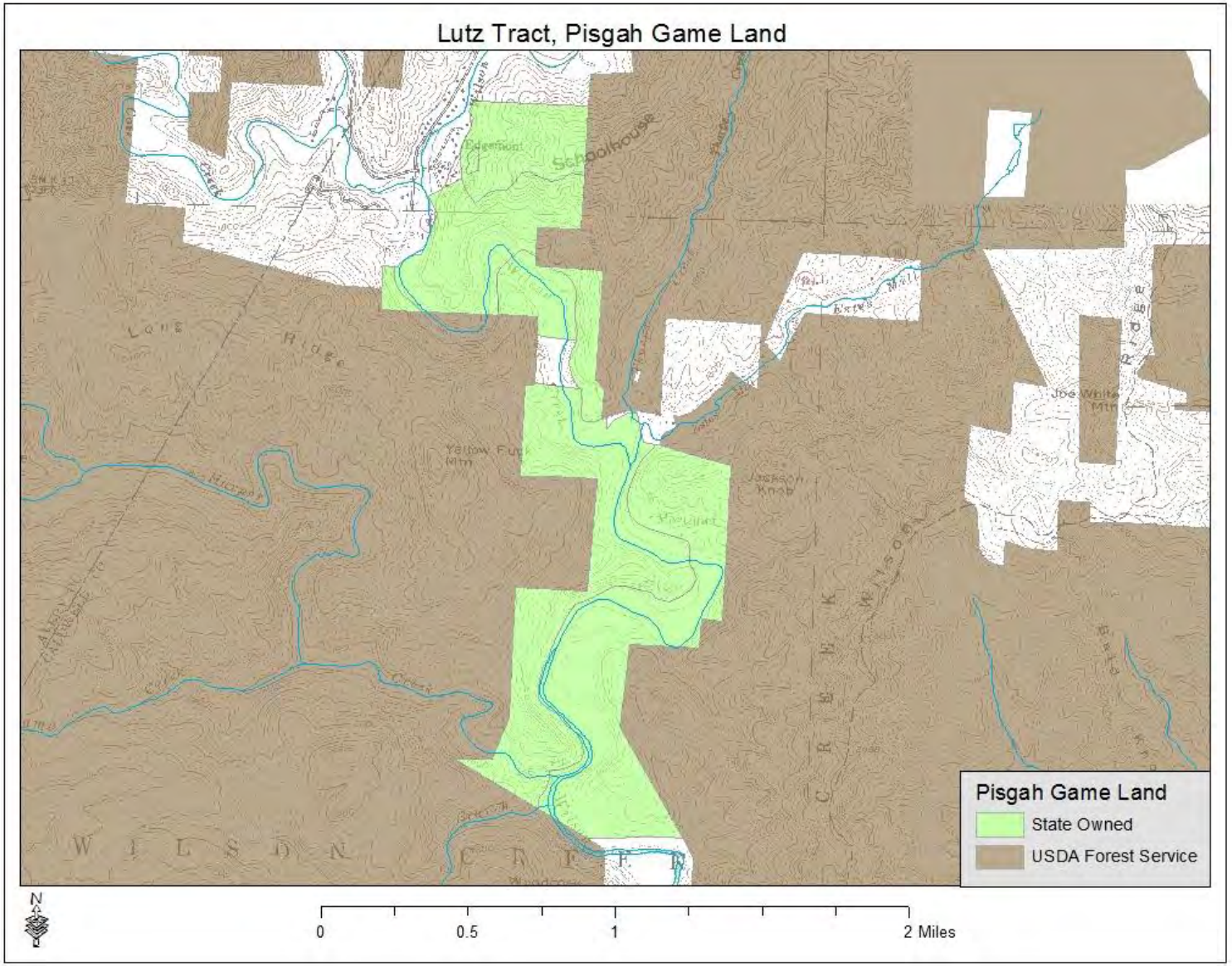
Map 3. Black Bear Tract, Pisgah Game Land.



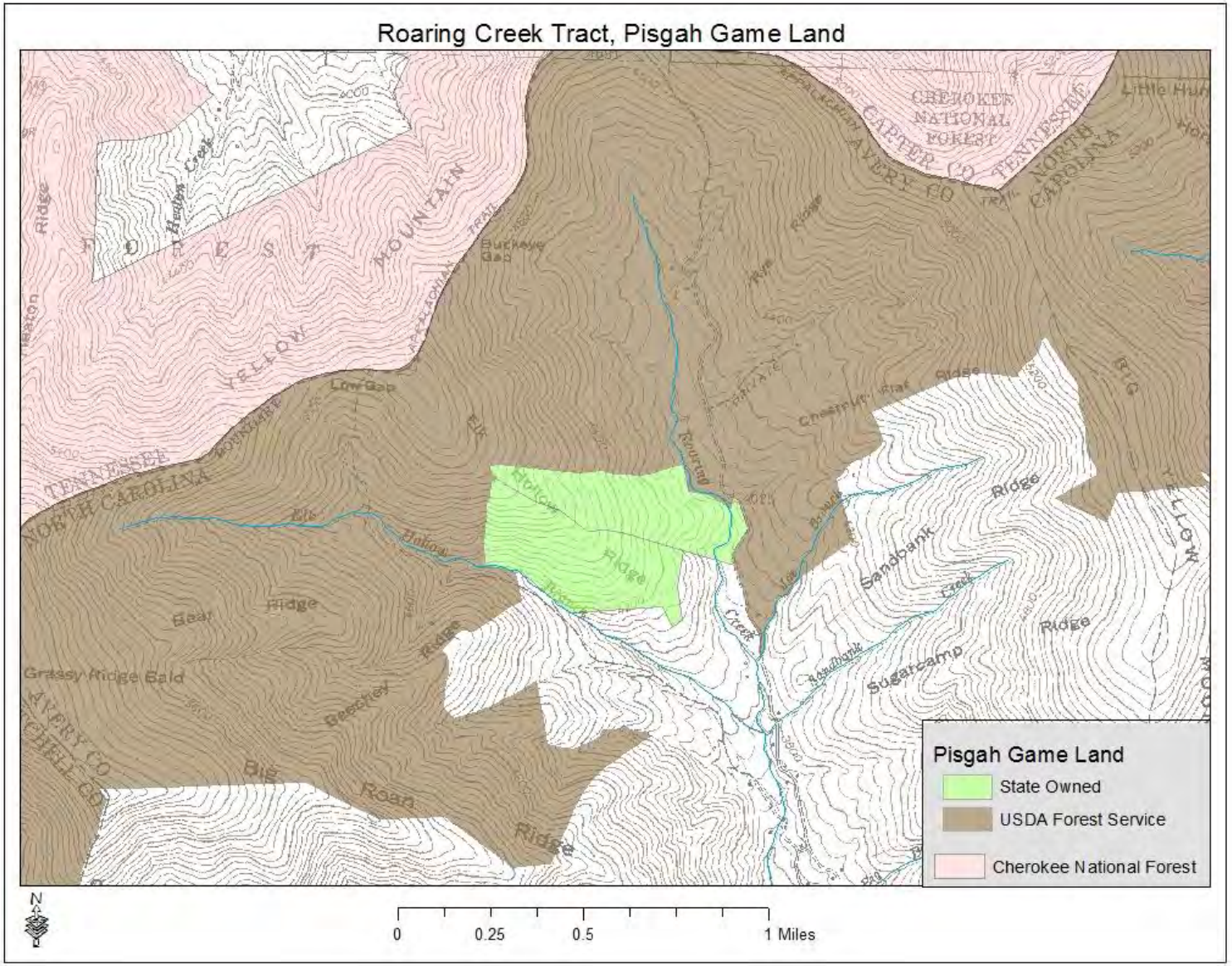
Map 4. Linville River Tract, Pisgah Game Land.



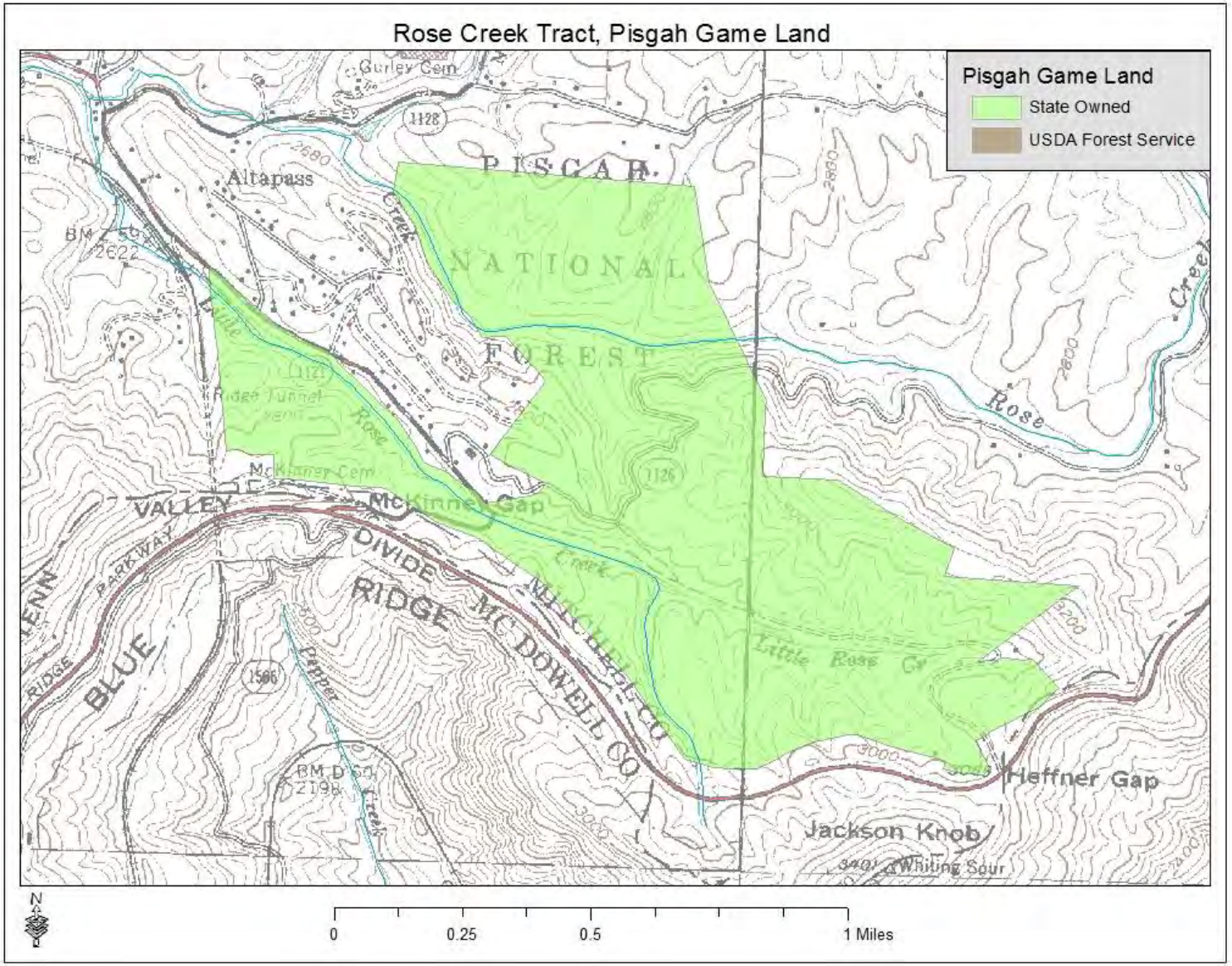
Map 5. Little Table Rock Mountain Tract, Pisgah Game Land.



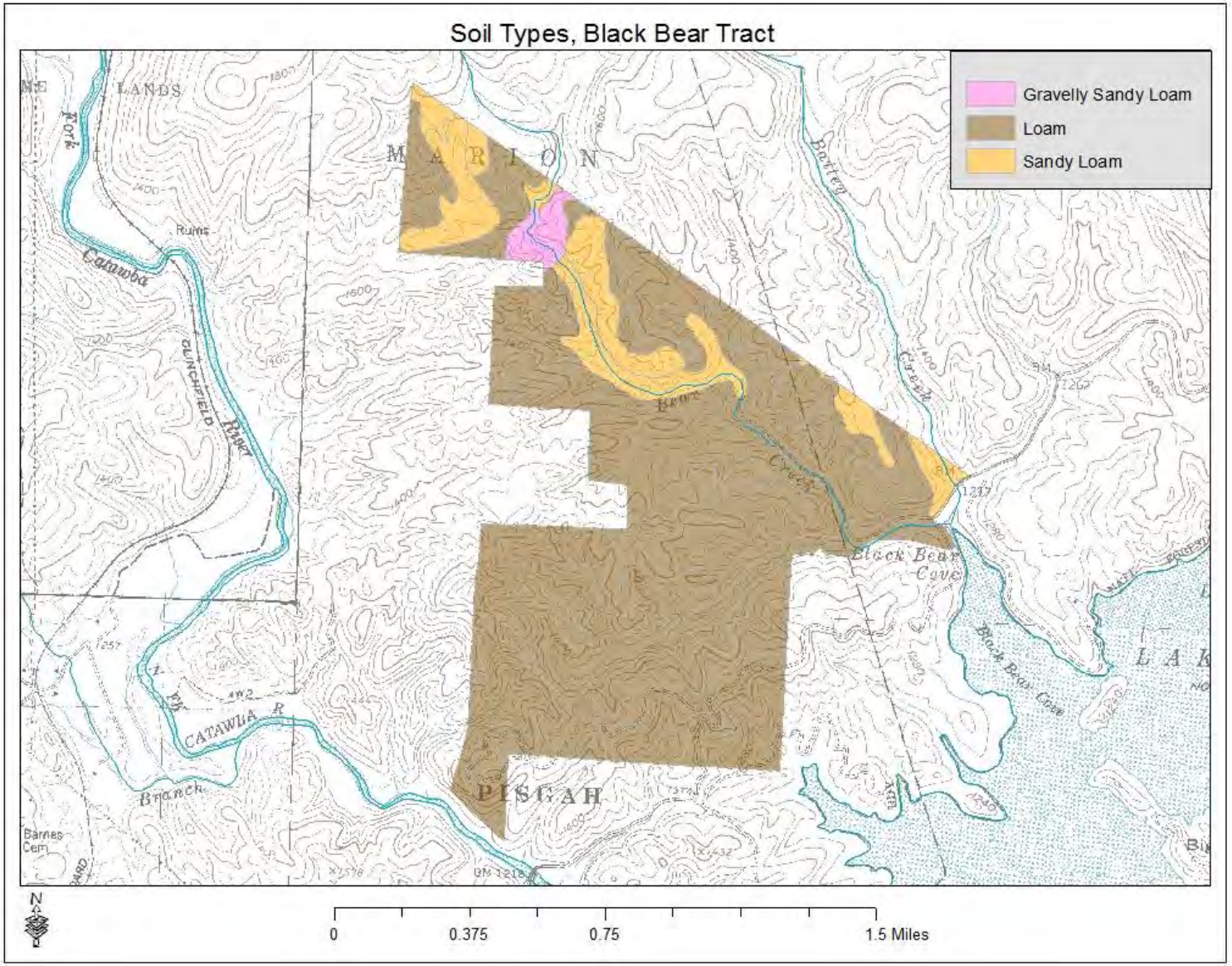
Map 6. Lutz Tract, Pisgah Game Land.



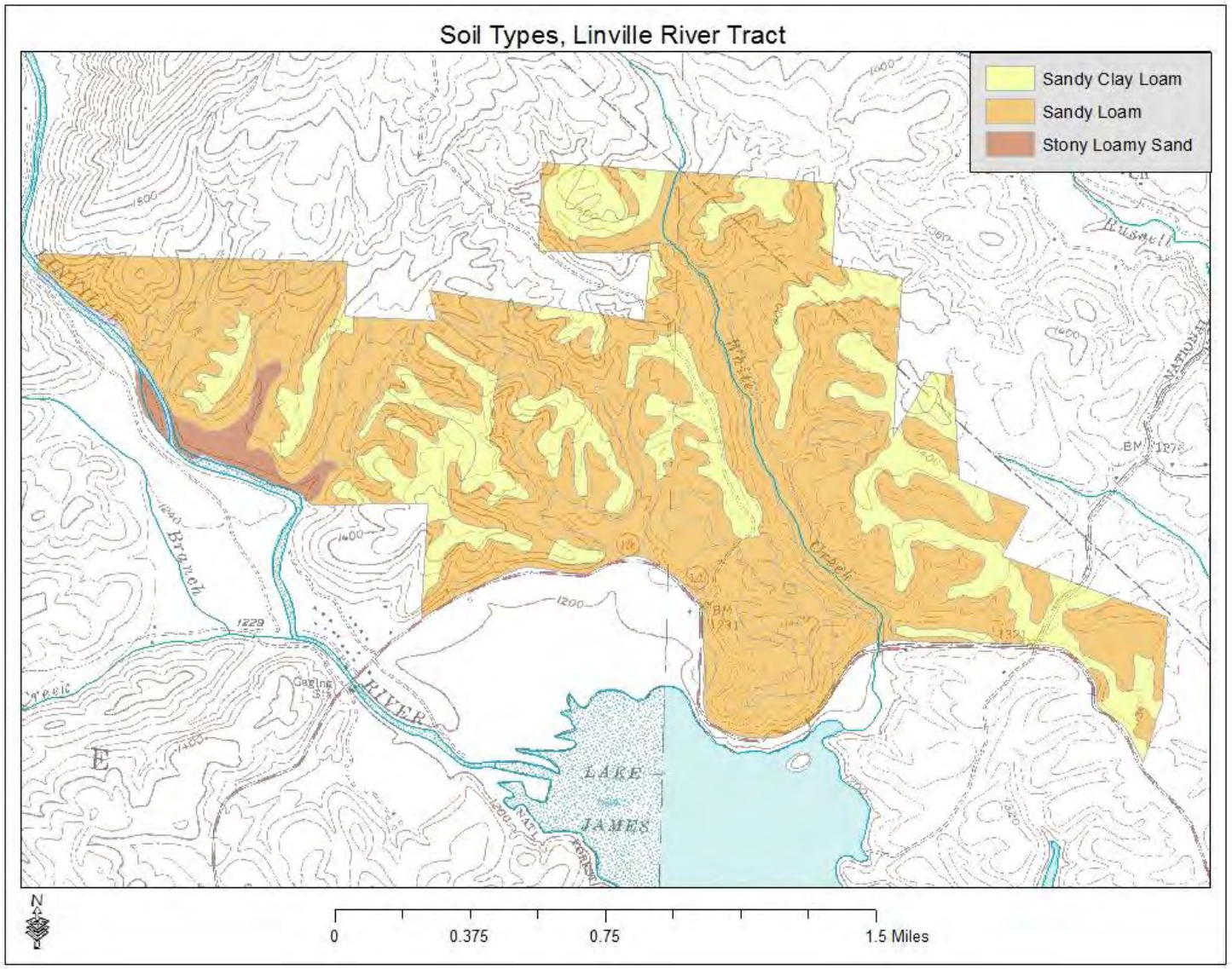
Map 7. Roaring Creek Tract, Pisgah Game Land.



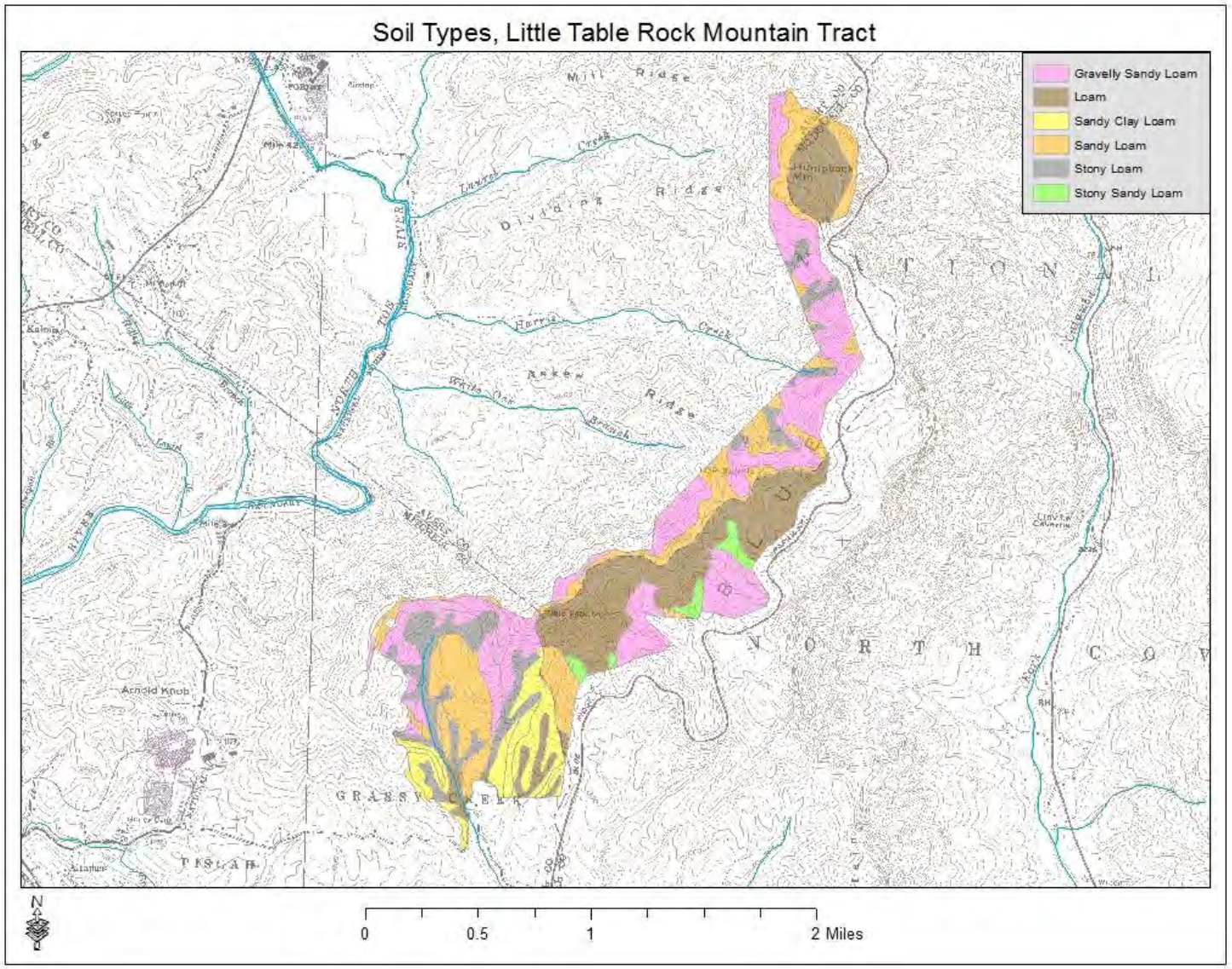
Map 8. Rose Creek Tract, Pisgah Game Land.



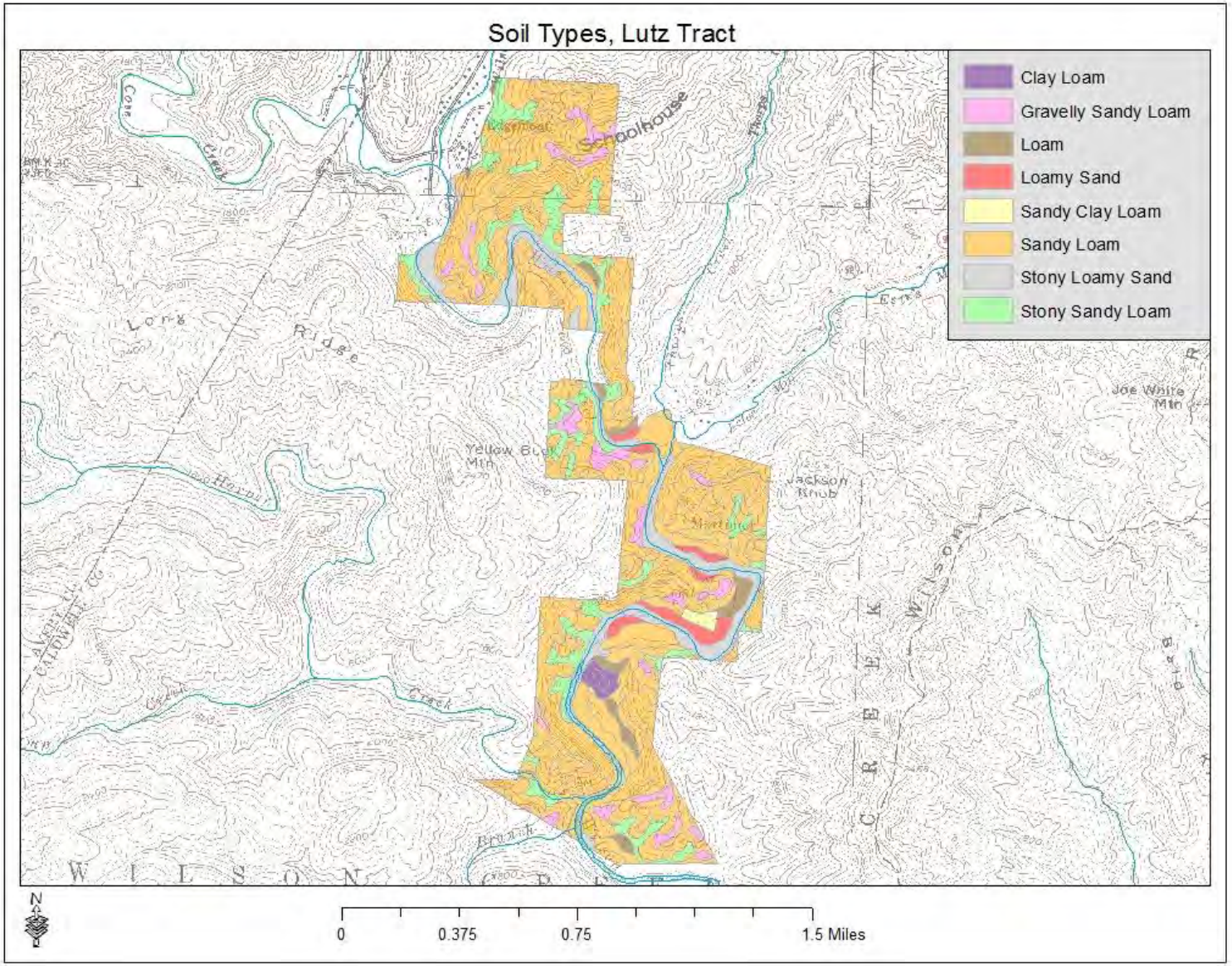
Map 9. Black Bear Tract, Soil Types (Soil Survey Staff 2014).



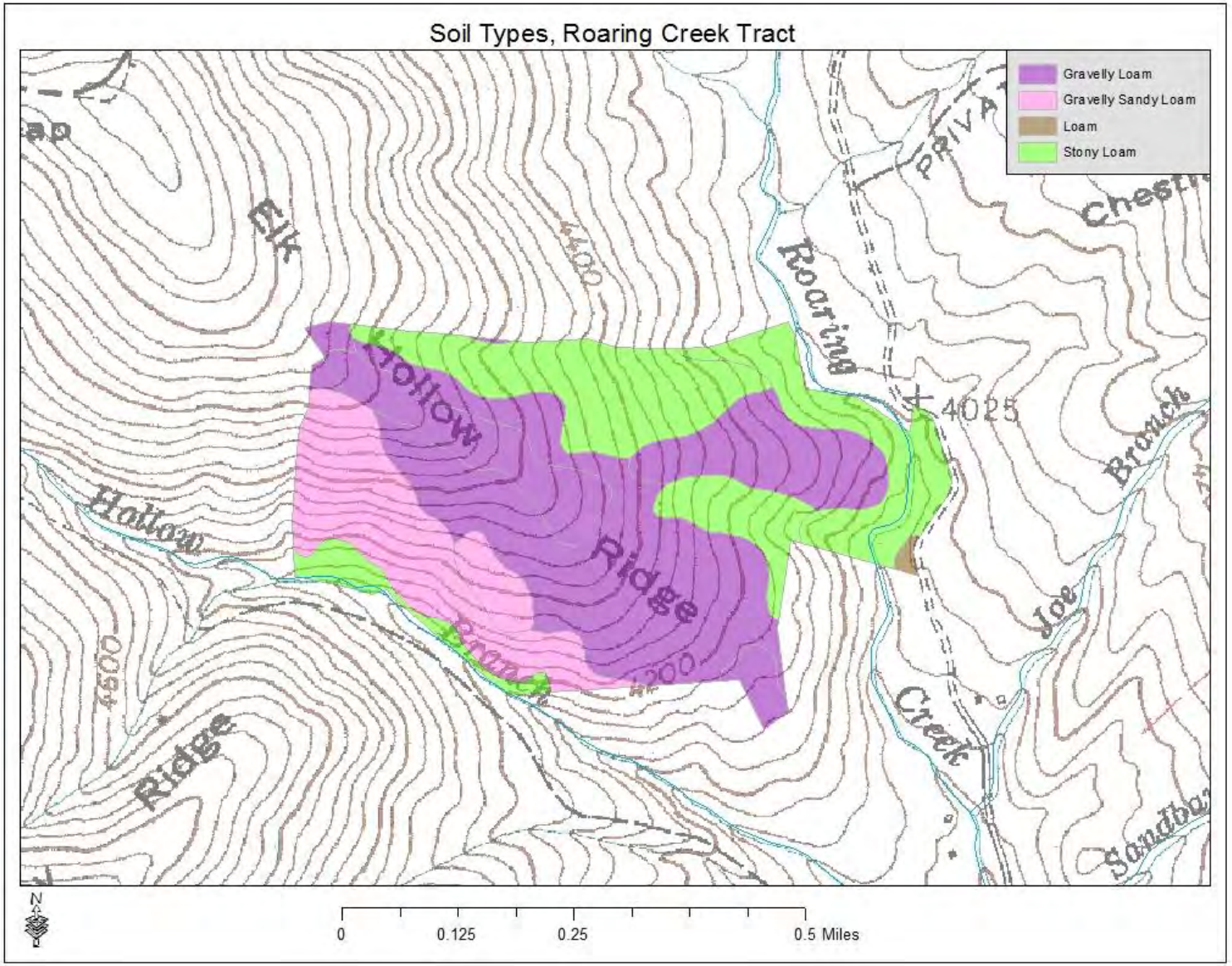
Map 10. Linville River Tract, Soil Types (Soil Survey Staff, 2014).



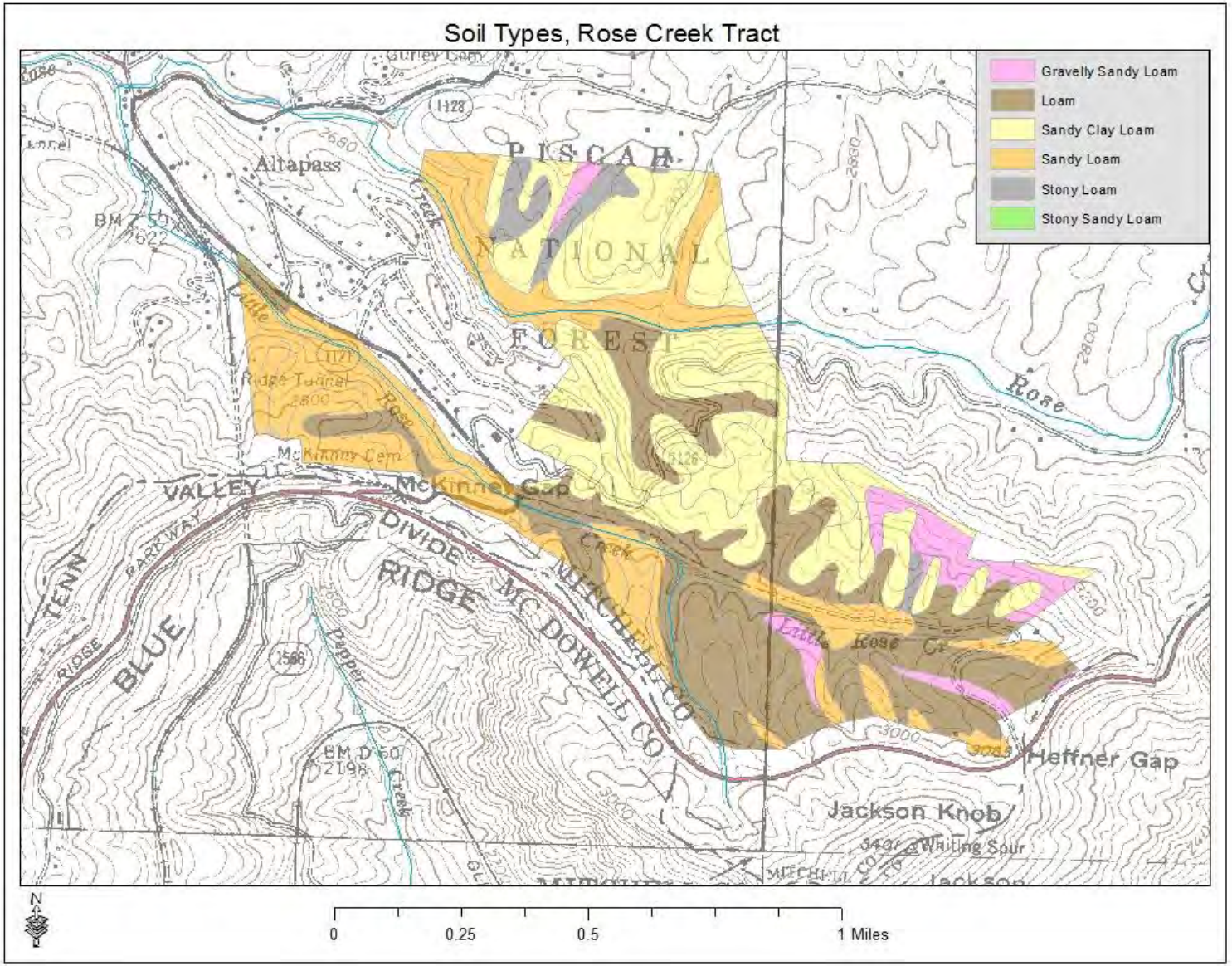
Map 11. Little Table Rock Mountain Tract, Soil Types (Soil Survey Staff, 2014).



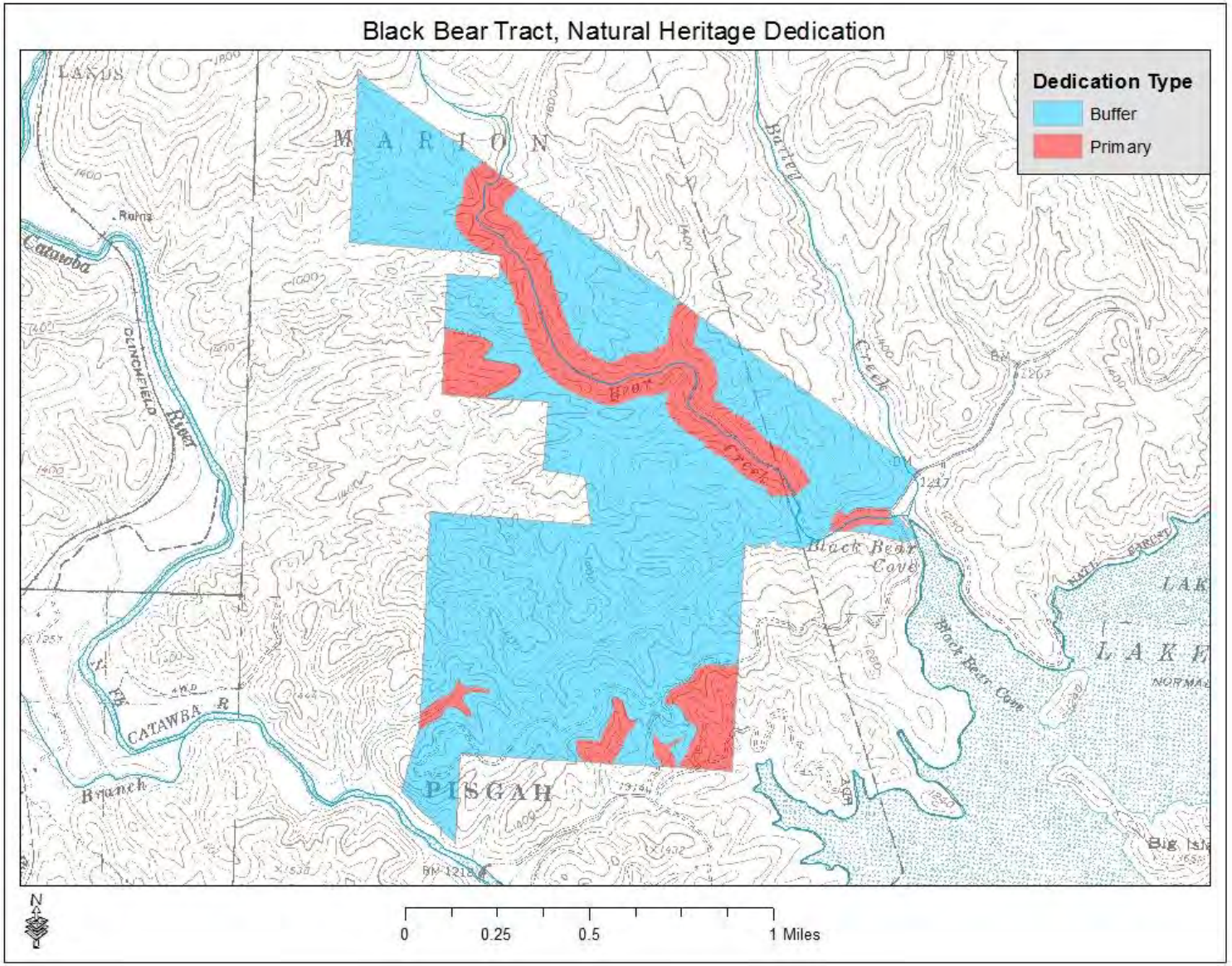
Map 12. Lutz Tract, Soil Types (Soil Survey Staff, 2014).



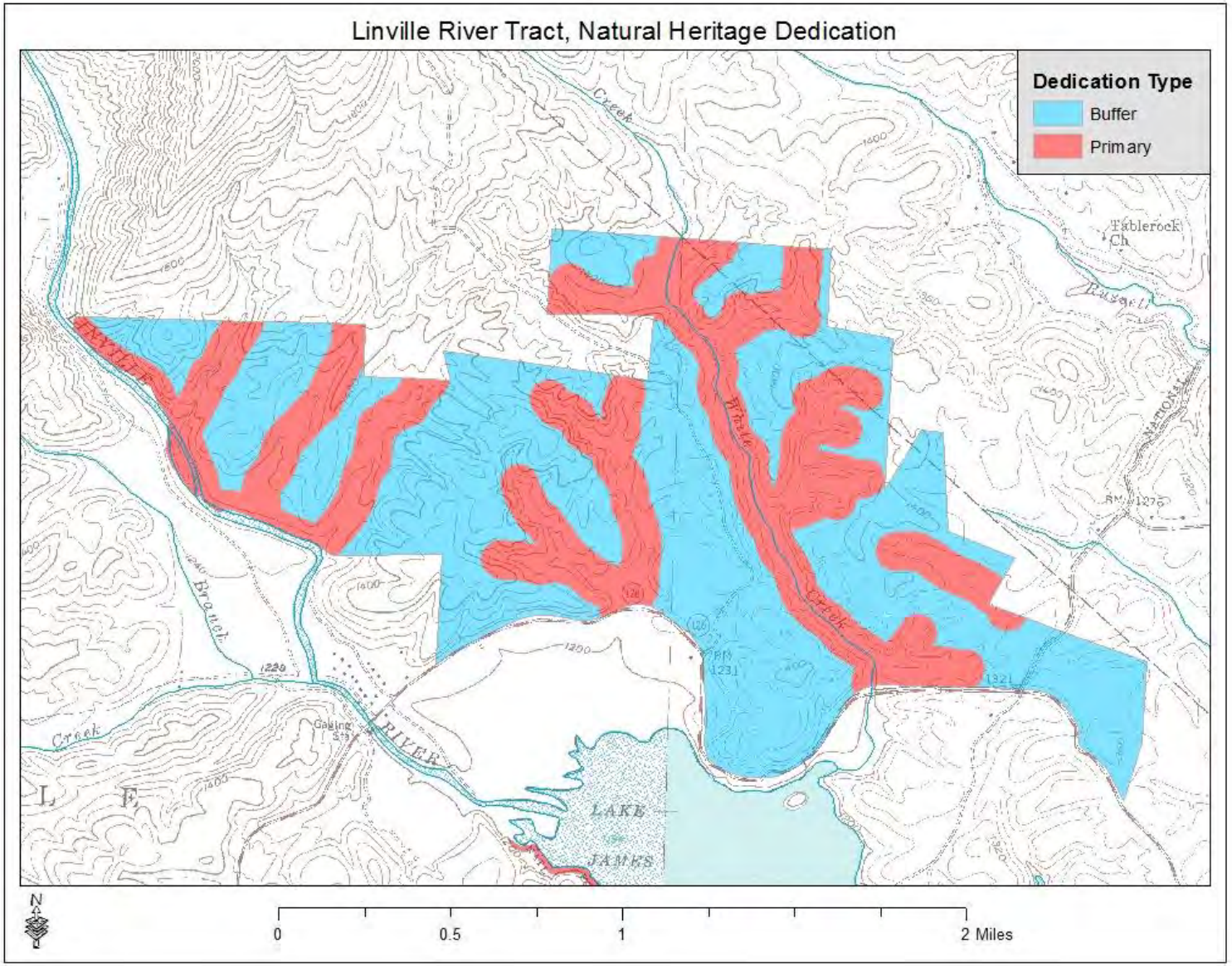
Map 13. Roaring Creek Tract, Soil Types (Soil Survey Staff, 2014)



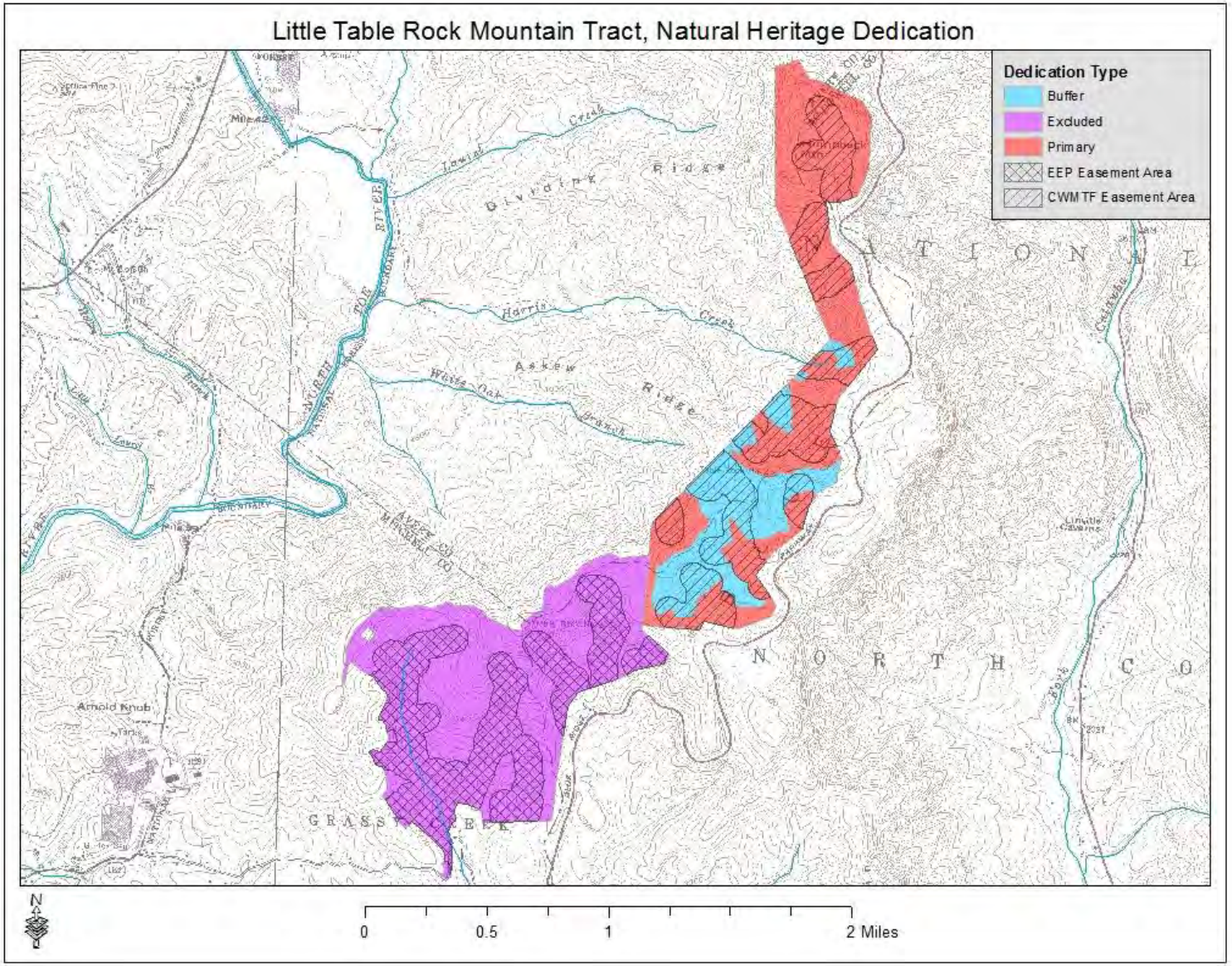
Map 14. Rose Creek Tract, Soil Types (Soil Survey Staff, 2014).



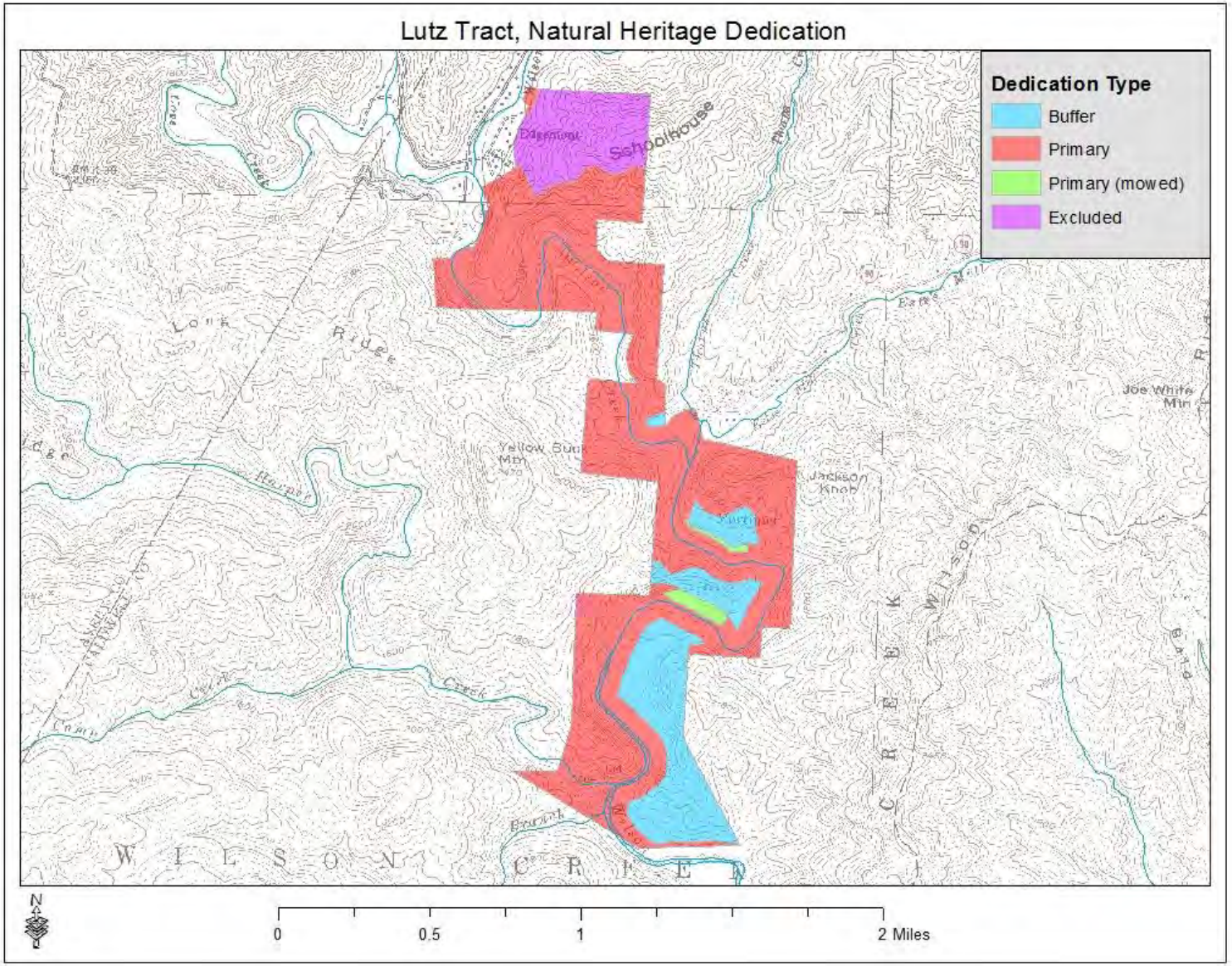
Map 15. Black Bear Tract, Natural Heritage Dedication (also see Appendix 2).



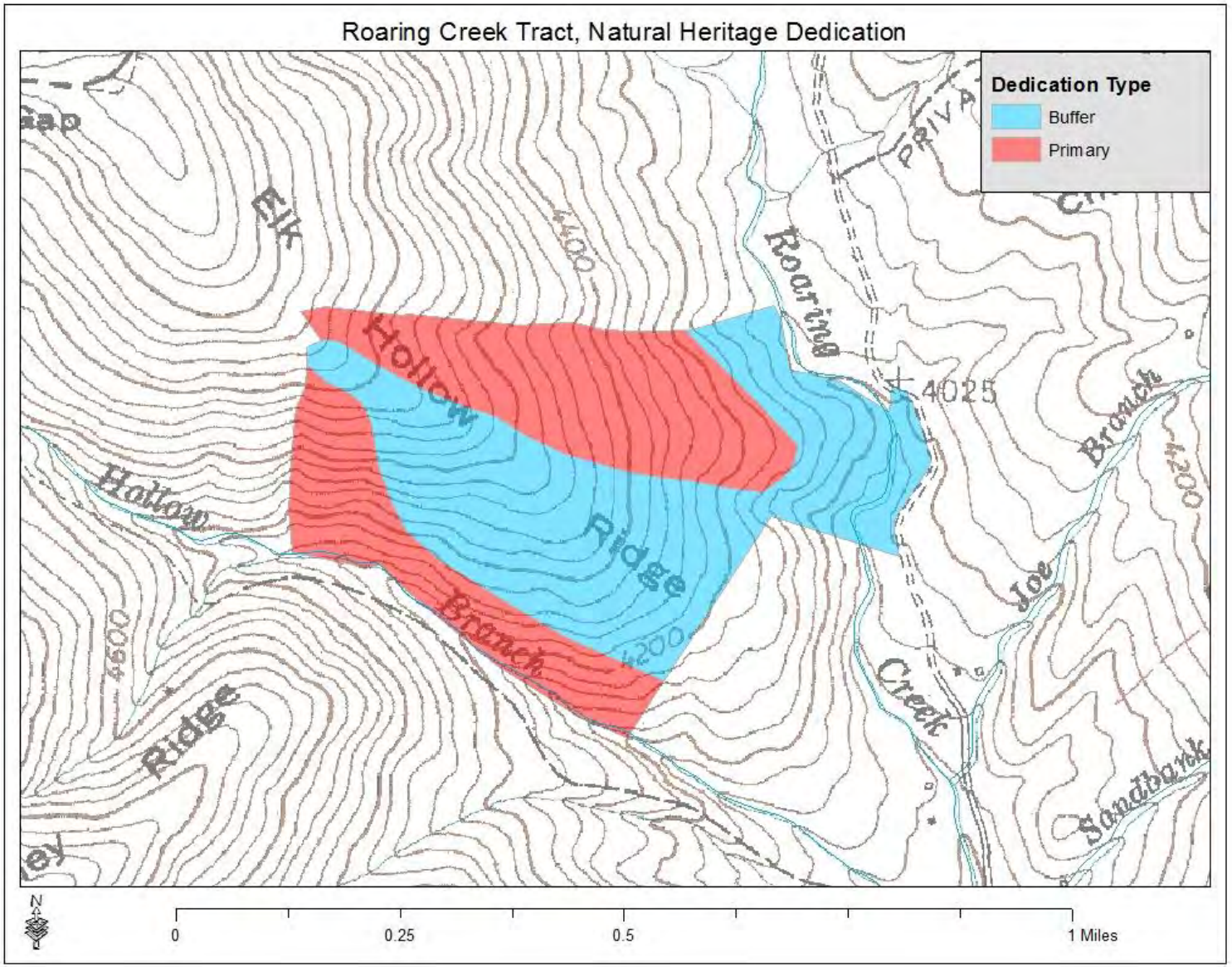
Map 16. Linville River Tract, Natural Heritage Dedication (also see Appendix 2).



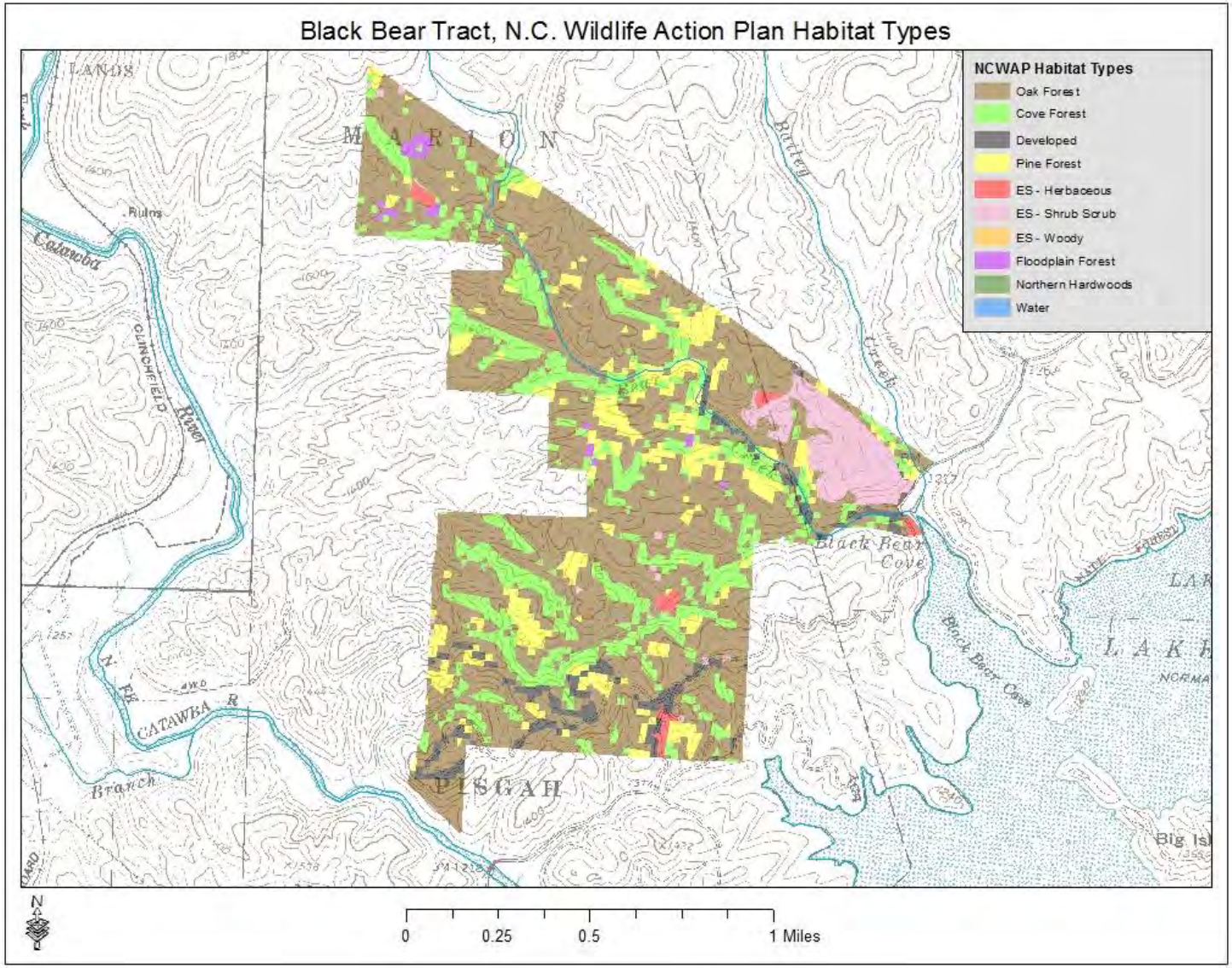
Map 17. Little Table Rock Mountain Tract, Natural Heritage Dedication and Easement Areas (Also see Appendix 3).



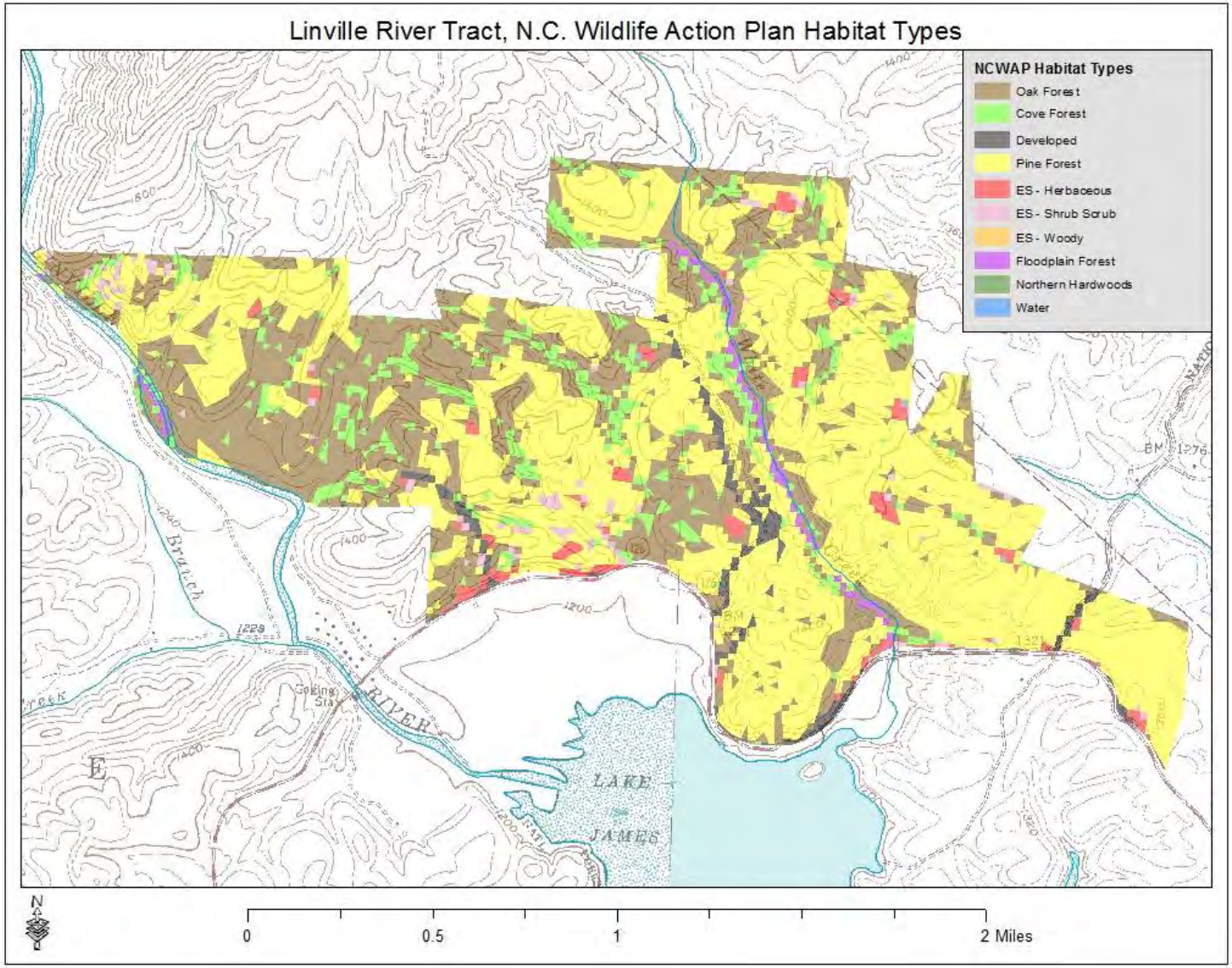
Map 18. Lutz Tract, Natural Heritage Dedication.



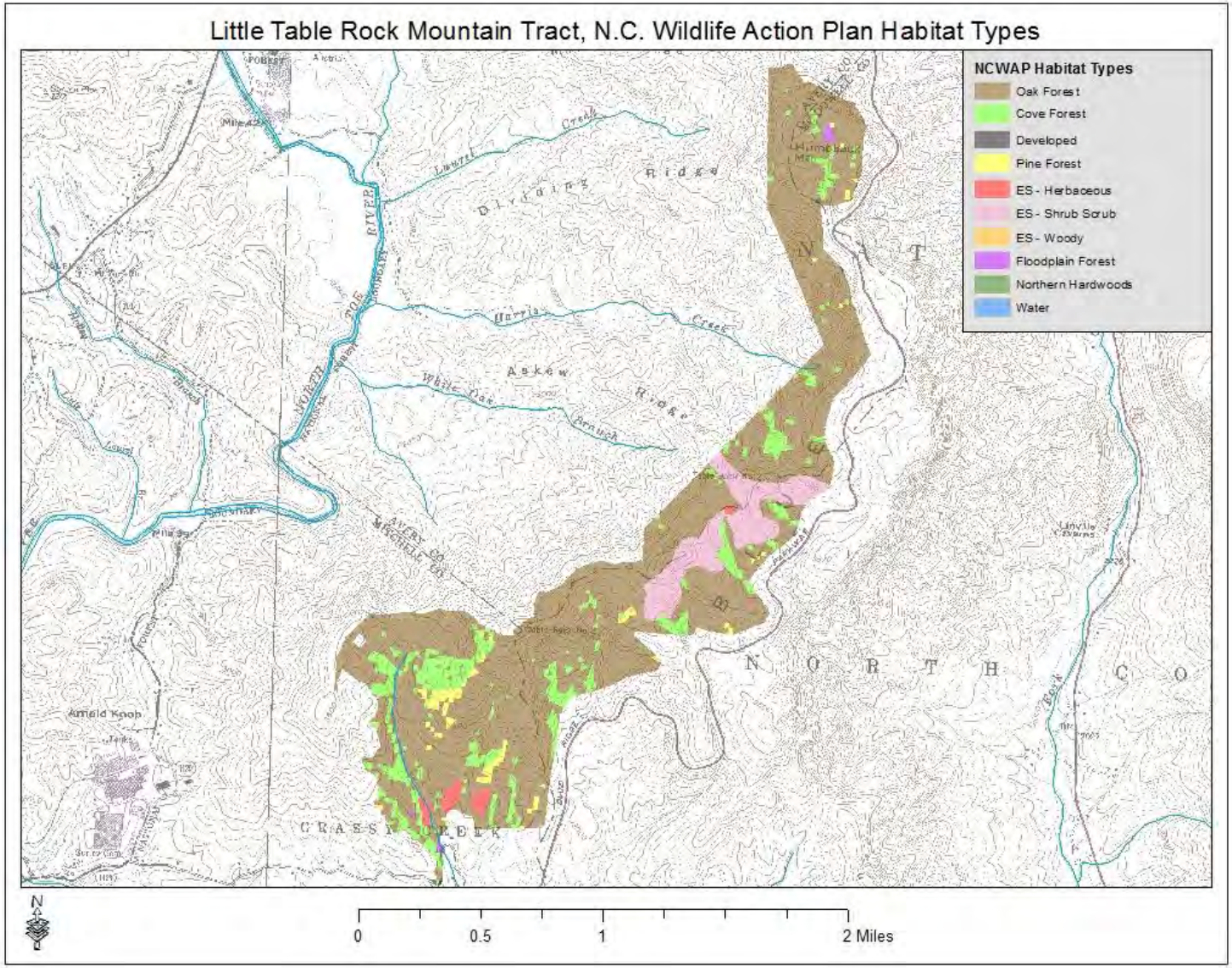
Map 19. Roaring Creek Tract, Natural Heritage Dedication.



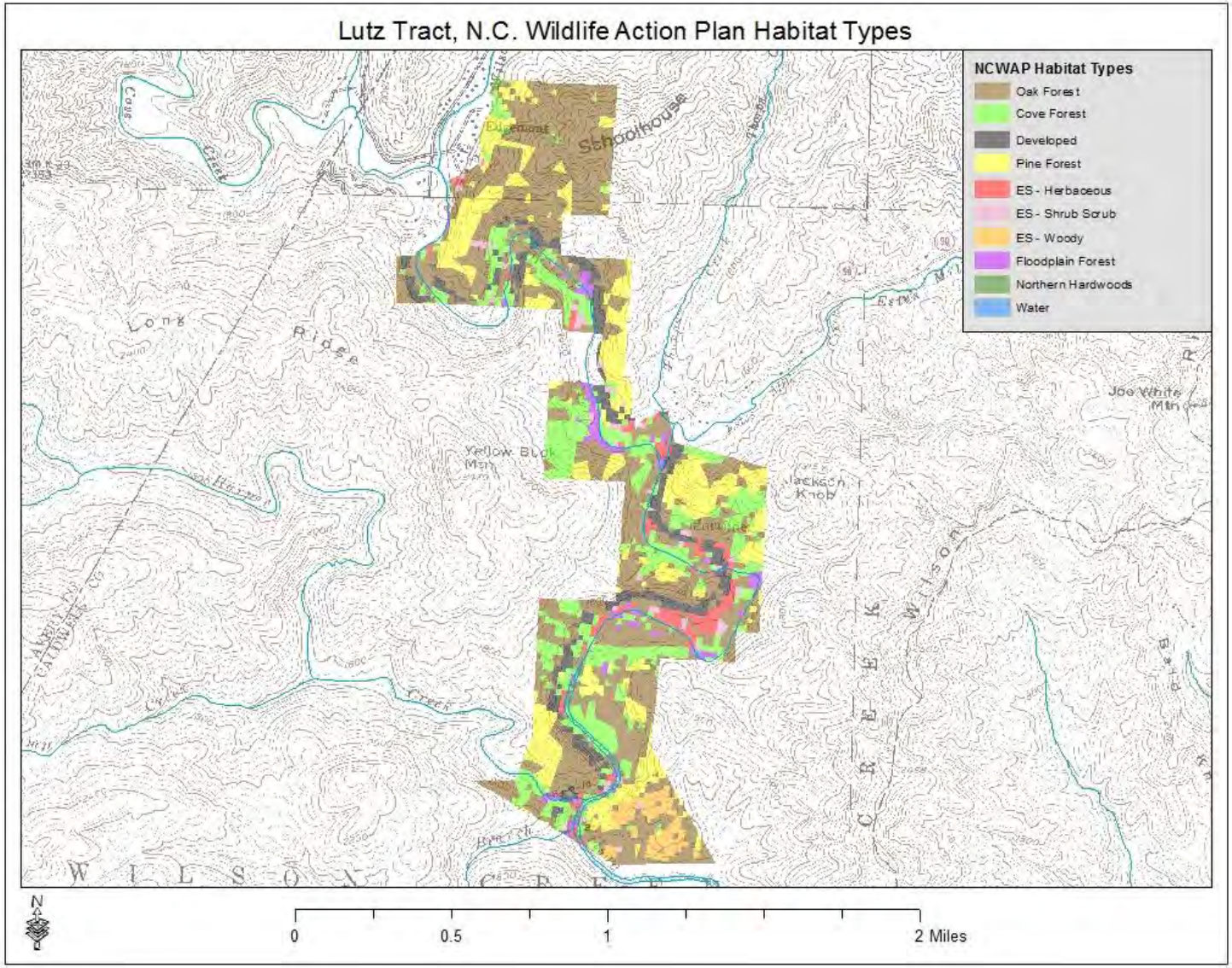
Map 20. Black Bear Tract, N.C. Wildlife Action Plan Habitat Types (N.C. State University 2008) (N.C. Wildlife Resources Commission 2005).



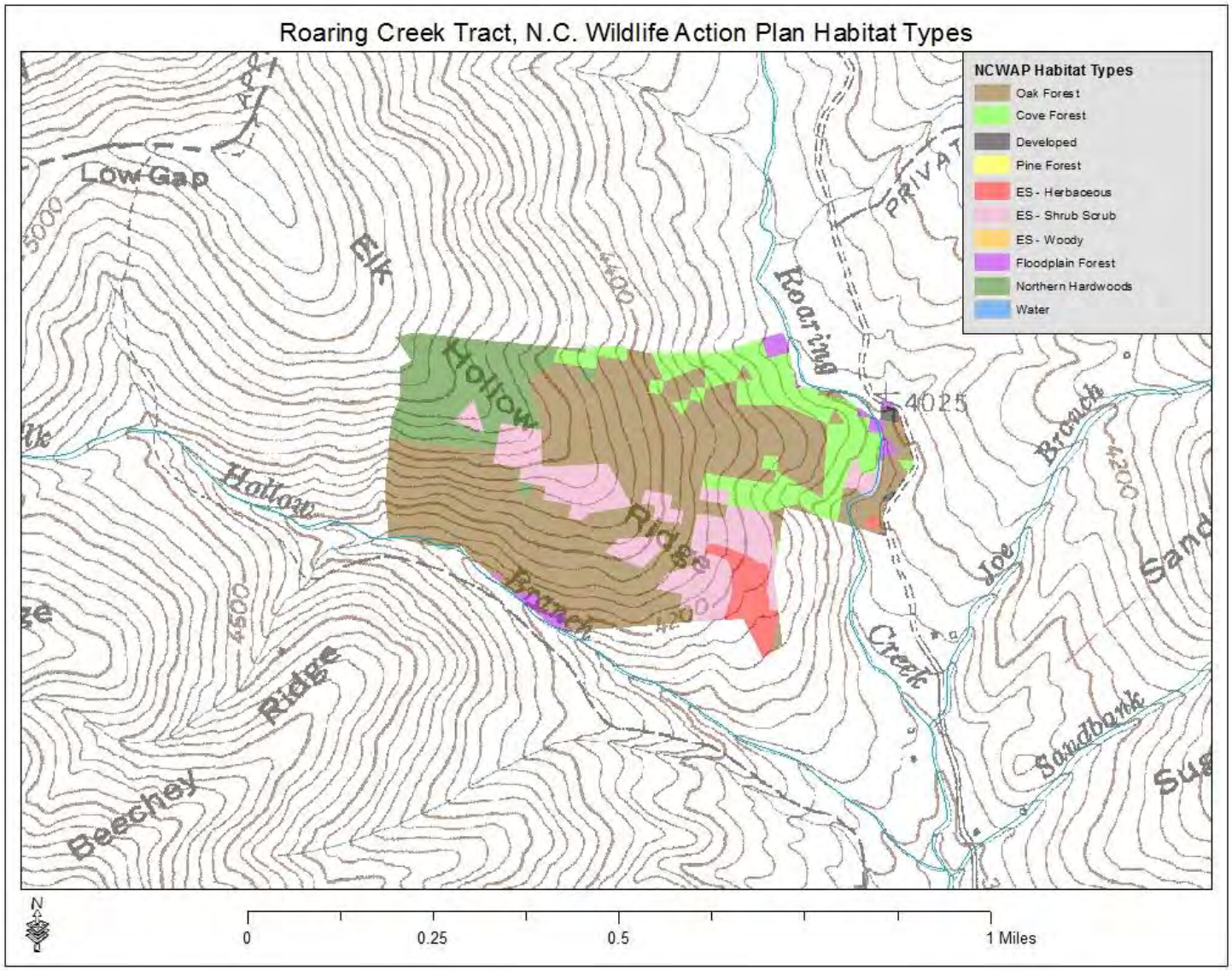
Map 21. Linville River Tract, N.C. Wildlife Action Plan Habitat Types (N.C. State University 2008) (N.C. Wildlife Resources Commission 2005).



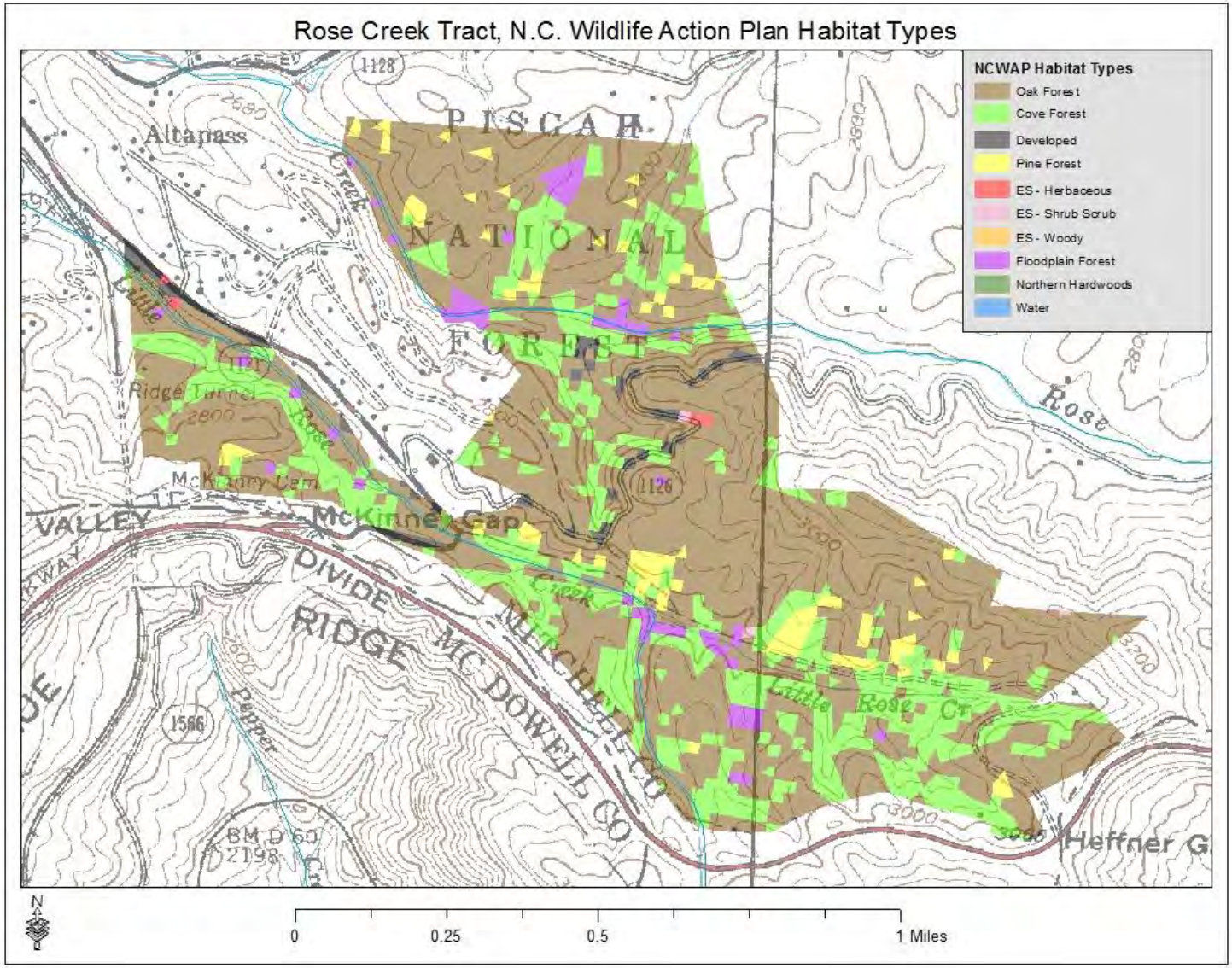
Map 22. Little Table Rock Mountain Tract, N.C. Wildlife Action Plan Habitat Types (N.C. State University 2008) (N.C. Wildlife Resources Commission 2005).



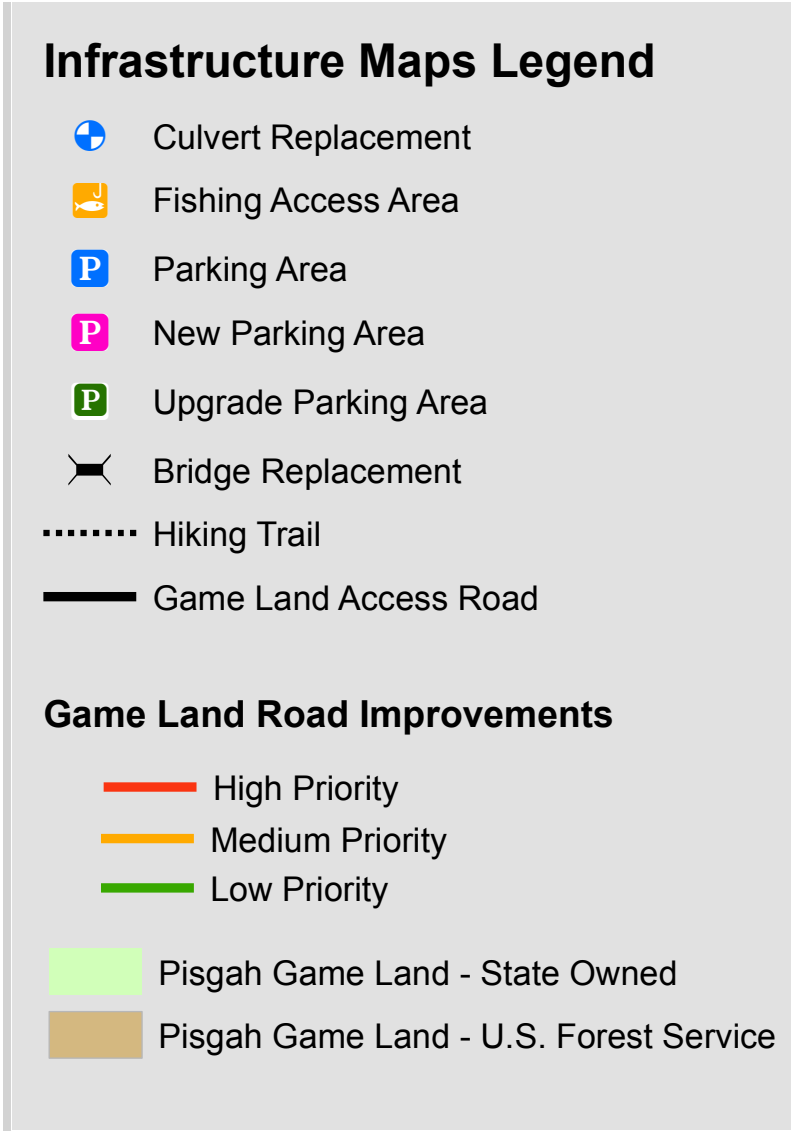
Map 23. Lutz Tract, N.C. Wildlife Action Plan Habitat Types (N.C. State University 2008) (N.C. Wildlife Resources Commission 2005).

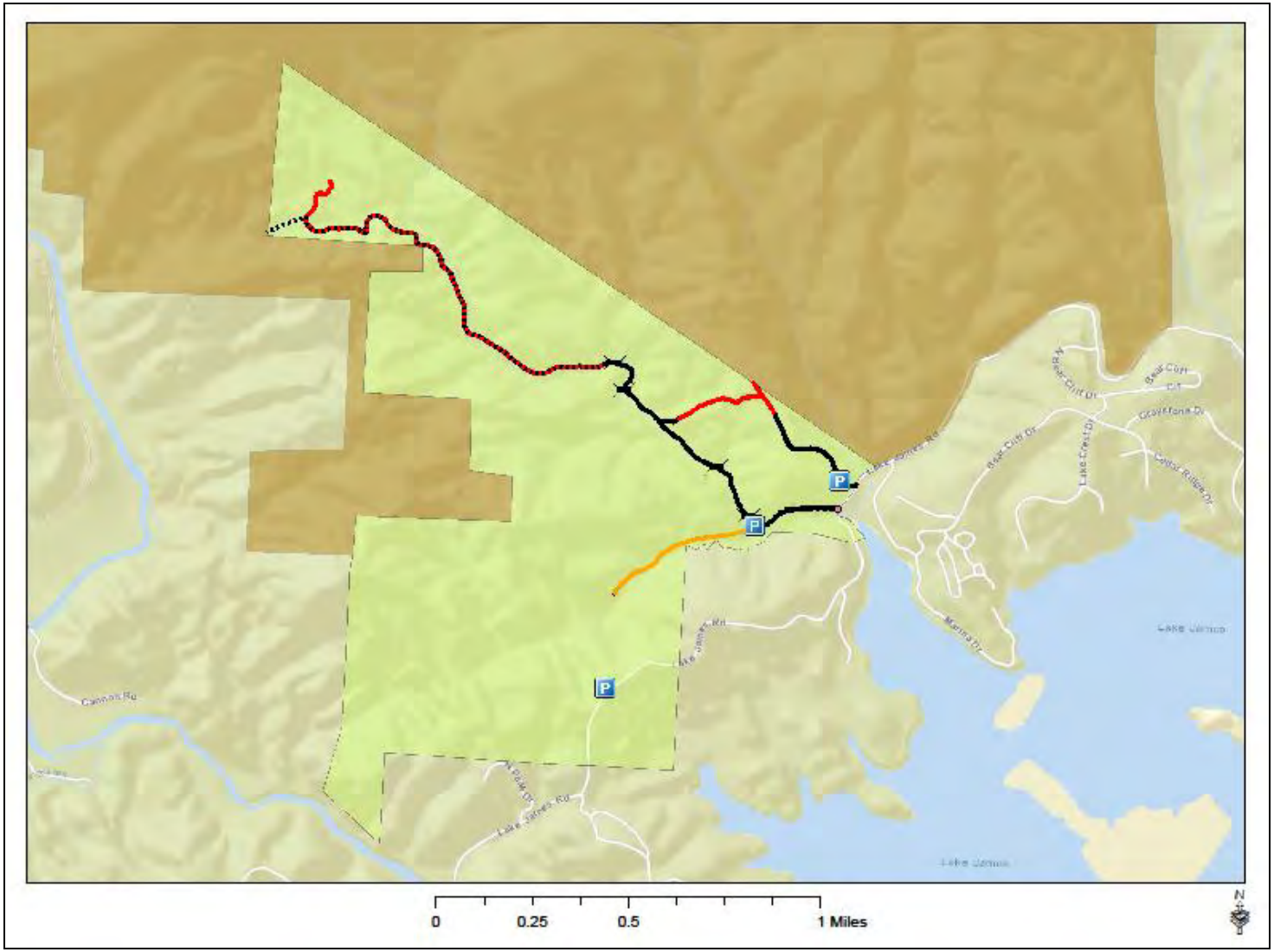


Map 24. Roaring Creek Tract, N.C. Wildlife Action Plan Habitat Types (N.C. State University 2008) (N.C. Wildlife Resources Commission 2005).

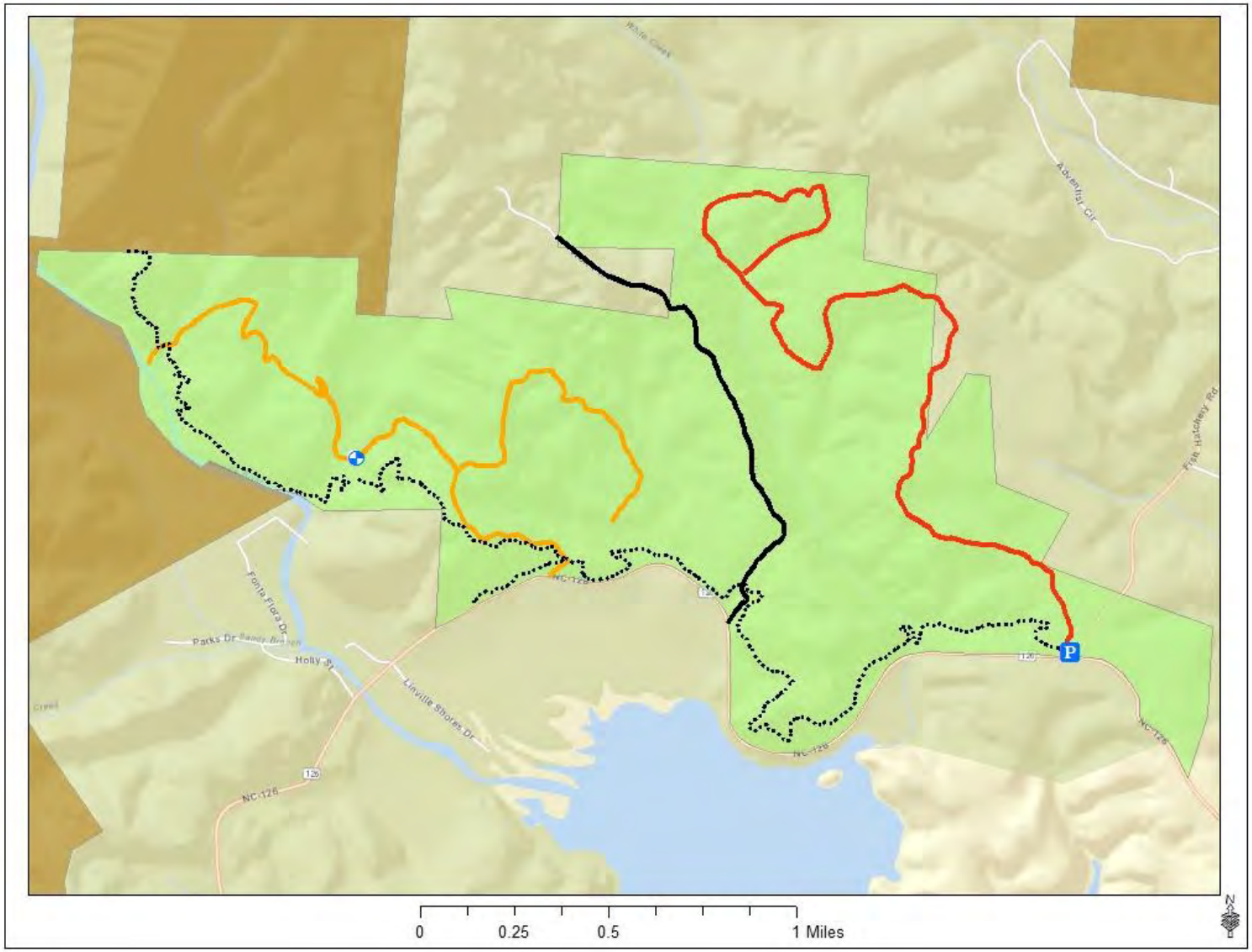


Map 25. Rose Creek Tract, N.C. Wildlife Action Plan Habitat Types (N.C. State University 2008) (N.C. Wildlife Resources Commission 2005).

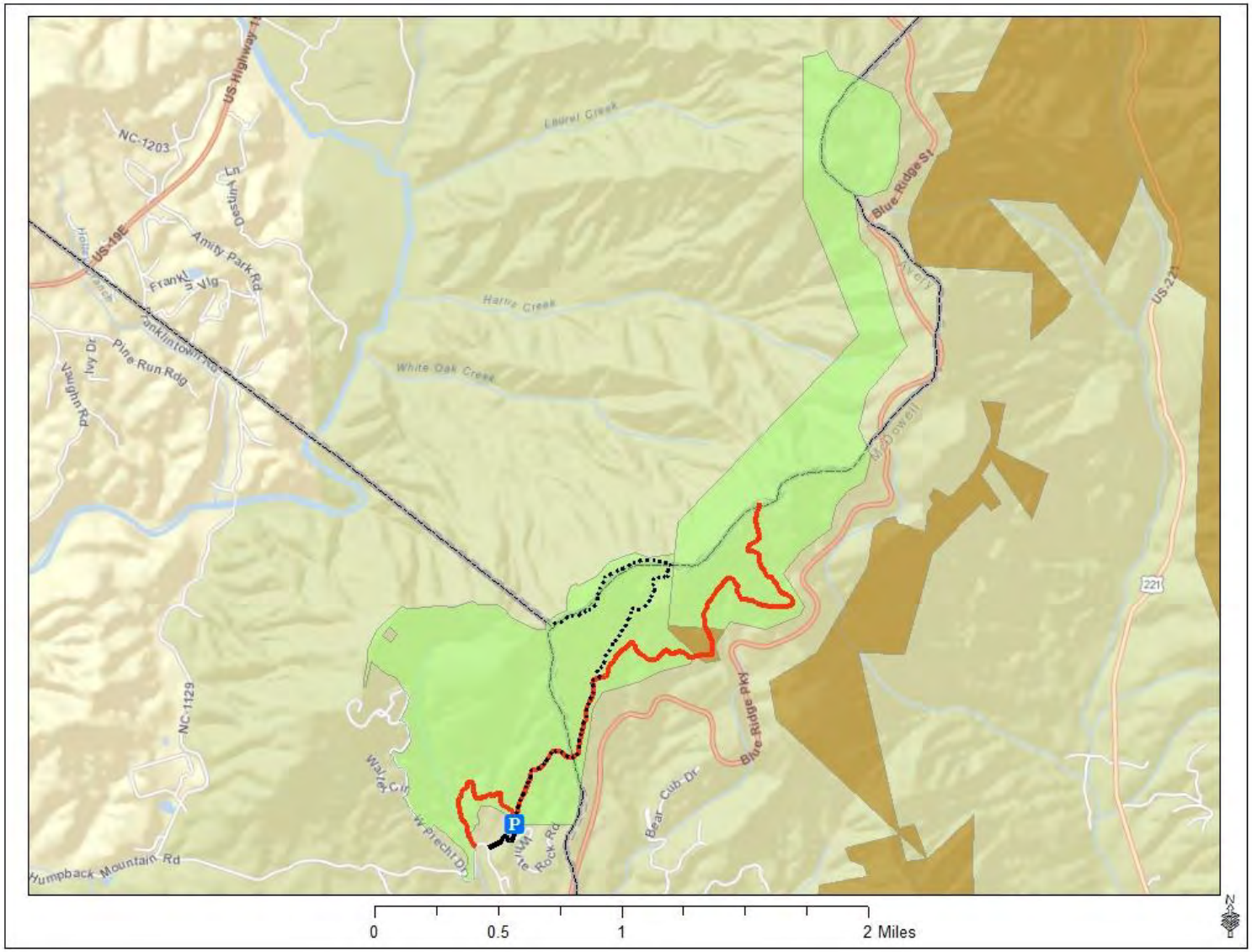

Infrastructure Maps Legend
Culvert Replacement
Fishing Access Area
Parking Area
New Parking Area
Upgrade Parking Area
Bridge Replacement
Hiking Trail
Game Land Access Road
Game Land Road Improvements
High Priority
Medium Priority
Low Priority
Pisgah Game Land - State Owned
Pisgah Game Land - U.S. Forest Service



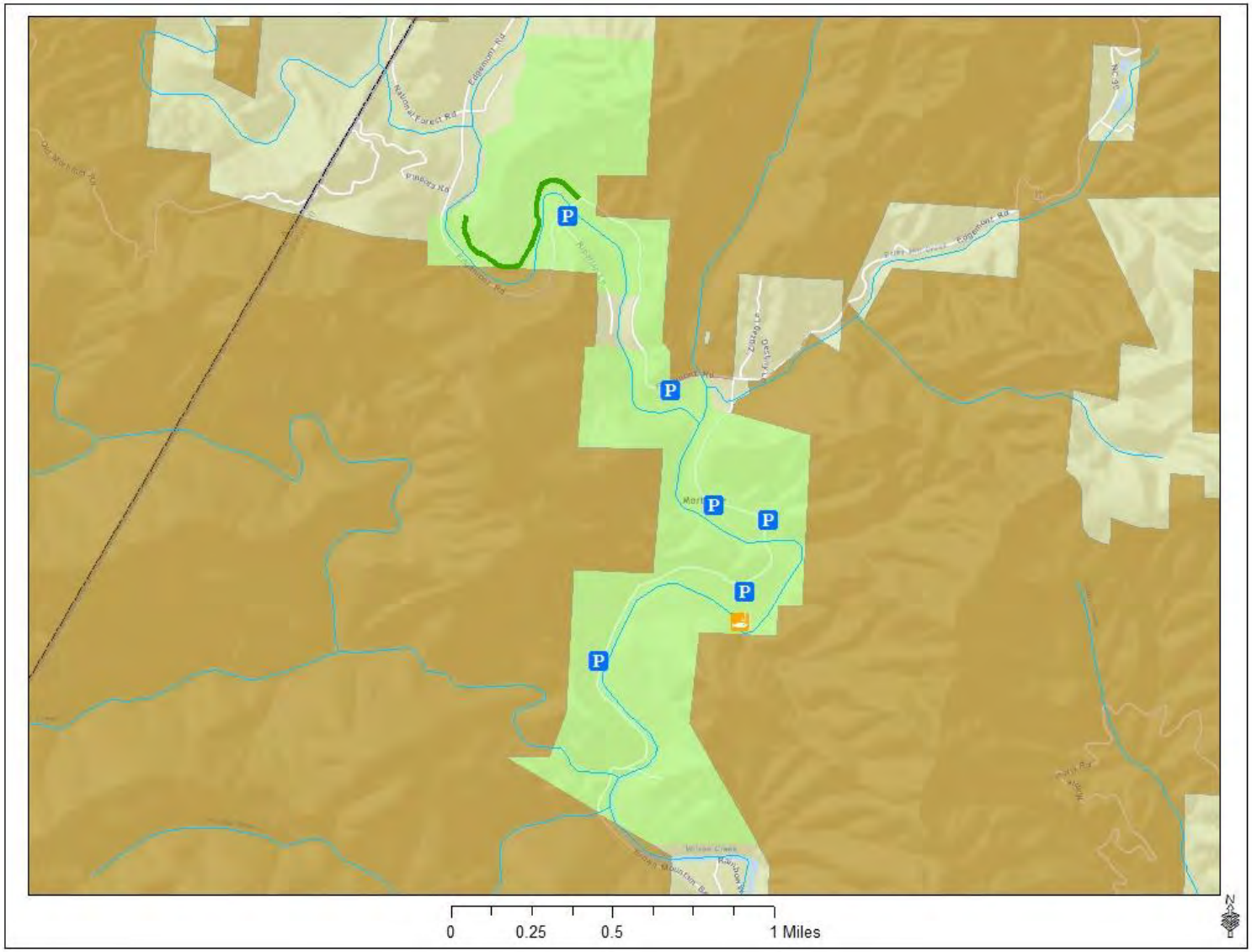
Map 26. Infrastructure, Black Bear Tract, Pisgah Game Land.



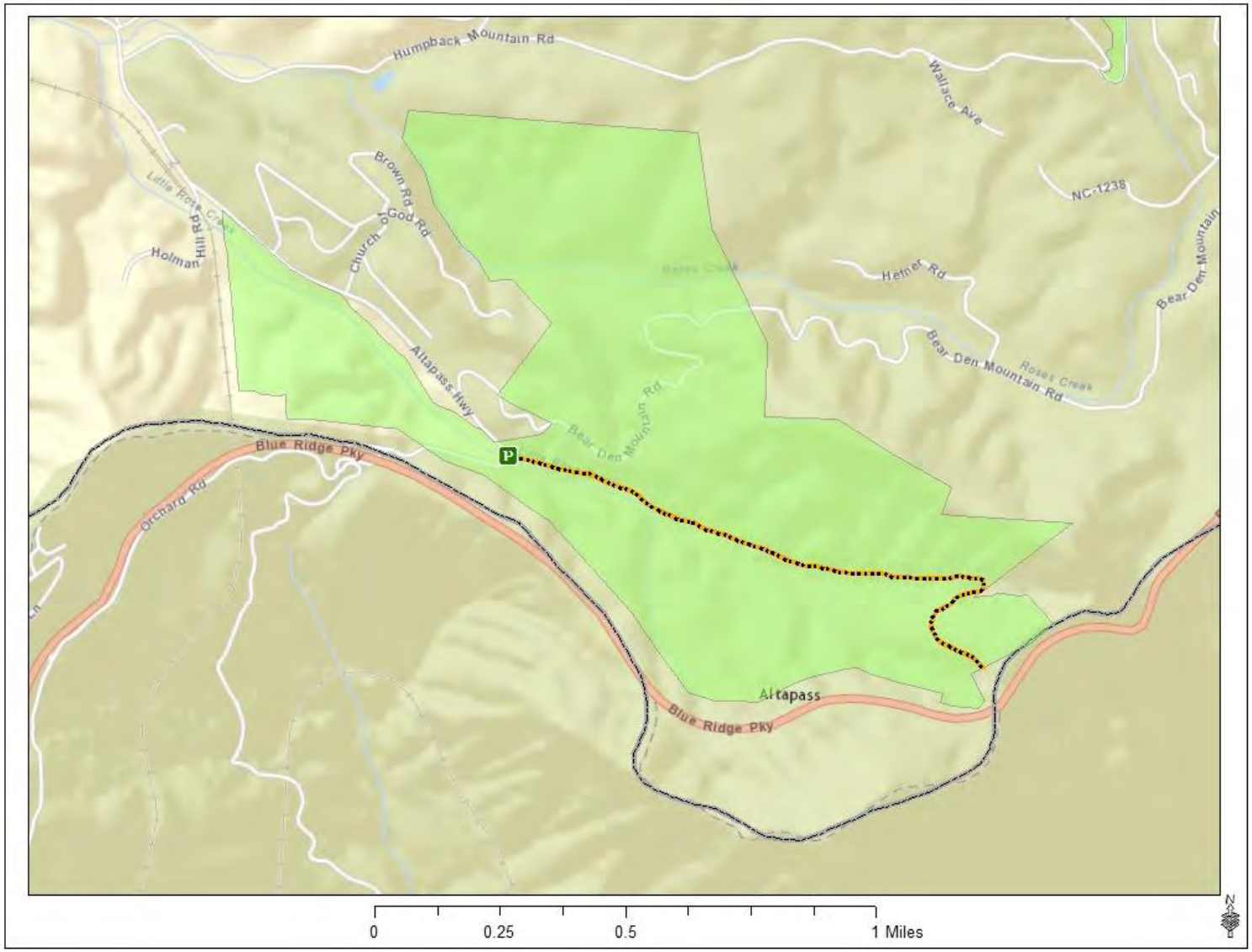
Map 27. Infrastructure, Linville River Tract, Pisgah Game Land.



Map 28. Infrastructure, Little Table Rock Mountain Tract, Pisgah Game Land.



Map 29. Infrastructure, Lutz Tract, Pisgah Game Land.



Map 30. Infrastructure, Rose Creek Tract, Pisgah Game Land.

APPENDIX 2 – NATURAL HERITAGE ARTICLES OF DEDICATION

North Carolina
Department of Administration

Michael F. Easley, Governor

Britt Cobb, Secretary

December 22, 2008

Secretary William G. Ross, Jr.
Department of Environment and Natural Resources
1615 Mail Service Center
Raleigh, North Carolina 27699-1615

Mr. Gordon S. Myers, Executive Director
N.C. Wildlife Resources Commission
1701 Mail Service Center
Raleigh, North Carolina 27699-1701

Re: Dedication of Portions of the **Pisgah Game Land**, Burke and McDowell Counties

Dear Secretary Ross and Mr. Myers:

Pursuant to Article 9A, Chapter 113A of the North Carolina General Statutes, this letter of allocation is executed for the purpose of dedicating the State-owned lands hereinafter described as a North Carolina Nature Preserve

These real properties are currently administered by the North Carolina Wildlife Resources Commission as a portion of the Pisgah Game Land and consist of approximately 2,292 acres located in Burke and McDowell Counties and composed of:

1. Pisgah tracts (Primary Area)	742 acres
2. Pisgah tracts (Buffer Area)	1,550 acres

all of which are specifically described in Exhibit A, attached hereto and by reference made a part hereof. The dedicated land shall be known collectively as the **Pisgah Game Land Dedicated Nature Preserve.**

Mailing Address:
1301 Mail Service Center
Raleigh, NC 27699-1301

Telephone: (919) 807-2425
Fax (919) 733-9571
State Courier #51-01-00
e-mail Britt.Cobb@ncmail.net
An Equal Opportunity/Affirmative Action Employer

Location Address:
116 West Jones Street
Raleigh, North Carolina

NAT-059.001

Dedication of the qualified portion of the tract(s) fulfills the terms of any prior grant agreements, including the Natural Heritage Trust Fund and, for the eastern tract associated with the Linville River, the Ecosystem Enhancement Program.

The Governor and Council of State have approved the dedication of the State-owned lands hereinabove described as the Pisgah Game Land Dedicated Nature Preserve to be held in trust by the Custodian for the uses and purposes expressed in the Nature Preserves Act at a meeting held in the City of Raleigh, North Carolina, on the 9th day of September, 2008.

Sincerely,

Britt Cobb

BC

CONSENTED AND AGREED TO:

Secretary William G. Ross, Jr.
Department of Environment and Natural Resources

Gordon S. Myers, Executive Director
Wildlife Resources Commission

EXHIBIT A

PISGAH GAME LAND DEDICATED NATURE PRESERVE

COUNTY: Burke and McDowell Counties

TOPO QUAD: Ashford, Marion East, and Oak Hill 7.5'

SIZE OF AREA: ca. 2,292 acres total
(primary area 742 acres; buffer area 1,550 acres)

OWNER/ADMINISTRATOR: State of North Carolina
Wildlife Resources Commission

LOCATION: The eastern tract is located in western Burke County, approximately 6 miles northwest of Morganton. The tract is east of Linville River, between Pisgah National Forest and Lake James, at the southern base of Shortoff Mountain. Includes approximately 1 mile along eastern side of Linville River and is bounded on the north by Pisgah National Forest - Linville Gorge Wilderness and north, east, and south by private land.

The western tract is located in northeastern McDowell County, approximately 3.5 miles north of Marion. The tract is east of the Catawba River, between Pisgah National Forest and Lake James, northwest of Black Bear Cove. The tract does not quite border the Catawba River, but includes approximately 1.9 miles along Bear Creek and 1 mile along an unnamed tributary to Bear Creek. The tract is bounded on the northeast by Pisgah National Forest - Grandfather Ranger District and north, east, and south by private land.

DESCRIPTION: Each disjunct portion of the Pisgah Game Land has a unique landscape position, resulting in different plant communities and conservation goals specific to each area. However, both portions are located in the Upper Catawba watershed and have steep to moderate slopes representative of southern foothills topography, and each has been significantly impacted by recent logging practices.

Land use practices and natural factors have degraded the majority of the eastern tract. These factors include historical conversion to white pine (*Pinus strobus*) plantations, mortality of native pines due to pine bark beetle damage, and recent timber removal (including "high grading" - selectively removing high quality timber). Extensive degraded upland plant communities include Pine Oak Heath and Chestnut Oak Forest. The highest quality intact plant communities are located along Linville River and include Rocky Bar and Shore and Montane Alluvial Forest.

On the western tract, the highest quality intact plant communities are located along the steepest slopes and include Acidic Cove Forest and alluvial forests along Bear Creek. In the Acidic Cove Forest, the canopy is dominated by eastern hemlock (*Tsuga canadensis*), sourwood(*Oxydendrum arboreum*), and white oak (*Quercus alba*). Shrubs are dominated by mountain laurel (*Kalmia latifolia*) and great laurel (*Rhododendron maximum*). Herbs include galax (*Galax urceolata*), partridgeberry (*Mitchella repens*), and Christmas fern (*Polystichum acrostichoides*). The steep slopes along the upper reaches of Bear Creek feature large, rugged rock outcrops, and the creek runs along and over rock walls in places. In the darkest, most

protected areas along Bear Creek can be found one of the rarest plants in North Carolina, northern Oconee bells (*Shortia galacifolia* var. *brevistyla*), which is listed State Endangered and a Federal Species of Concern.

The most intact and diverse community on the Linville River Tract is the Montane Alluvial Forest located along the Linville River. On the western tract, this community is mostly confined to the slopes along Bear Creek where the flood plain widens and between its confluence with the unnamed tributary draining the southern portion of the property and Black Bear Cove (to the south of the major access road for the site).The canopy is dominated by tulip tree (*Liriodendron tulipifera*), beech (*Fagus grandifolia*), and gray birch (*Betula lenta*). In addition to these species, the understory includes ironwood (*Carpinus caroliniana*), umbrella magnolia (*Magnolia tripetala*), and hemlocks (*Tsuga canadensis* and *T. caroliniana*). Shrubs include strawberry-bush (*Euonymus americana*), great laurel (*Rhododendron maximum*), northern spicebush (*Lindera benzoin*), and invasive exotic shrubs Chinese privet (*Ligustrum sinense*)and multiflora rose (*Rosa multiflora*). The diverse herb layer includes hay-scented fern *(Dennstaedtia punctilobula*), jewel-weed (*Impatiens capensis*), wood-nettle (*Laportea canadensis*), cardinal flower (*Lobelia cardinalis*), Indian tobacco (*Lobelia inflata*), whorled loosestrife (*Lysimachia quadrifolia*), and invasive exotic grass Japanese stilt-grass (*Microstegium vimineum*). Although several invasive species were noted at the time of the survey, they appeared to be suppressed by the dense canopy and could be removed or controlled with relatively little effort. It is expected that any event that would open the canopy, such as natural wind throw or timber harvesting, would stimulate the growth of the invasive species and they would rapidly become a major component of the understory.

Most of the Pine Oak Heath communities on the Burke and McDowell portions of the Pisgah Game Land have been significantly degraded by timber harvest and pine mortality due to pine bark beetle infestations. Only scattered trees remain in the canopy, but the shrub and herb layers are more intact. Extensive areas in the uplands have many large dead pine trees scattered on the on the ground. This community has a dense understory and may benefit from prescribed fire. The canopy is dominated by chestnut oak (*Quercus montana*), scarlet oak (*Q. coccinea*), Virginia pine (*Pinus virginiana*), table mountain pine (*P. pungens*), and sourwood. Shrubs include witch hazel (*Hamamelis virginiana*), mountain laurel, sassafras (*Sassafras albidum*), horse sugar (*Symplocos tinctoria*), and lowbush blueberry (*Vaccinium pallidum*). Herbs include broomsedges (*Andropogon ternarius* and *A. virginicus*), greater tickseed (*Coreopsis major*), wand gayfeather (*Liatris virgata*), bracken fern (*Pteridium aquilinum*), and little bluestem (*Schizachyrium scoparium*). This community contains suitable habitat for the rare species large witch-alder (*Fothergilla major*) and the uncommon beargrass (*Xerophyllum asphodeloides*), both of which occur nearby on the Pisgah National Forest), but these species were not observed during surveys.

The Chestnut Oak Forest on the Pisgah Game Land has been largely degraded by timber harvesting. The canopy is sparse and includes scattered specimens of chestnut oak, red oak (*Q. rubra*), and scarlet oak. Understory trees include red maple (*Acer rubrum*), sourwood, and eastern hemlock. Shrubs include mountain laurel, great laurel, and sassafras.

Other plant communities that occupy small areas on the Pisgah Game Land include Rocky Bar and Shore (along the banks of the Linville River and including a large island) and Piedmont/Mountain Semipermanent Impoundment (a small beaver dam along an unnamed tributary to the Linville River).

Some extensive areas on the eastern tract support dense white pine plantations. These areas have very suppressed herb and shrub layers, and are considered highly degraded compared with their potential natural condition. The canopy is dominated by white pine (*Pinus strobus*), with sweet shrub (*Calycanthus*

floridus) and tulip poplar in the shrub and understory strata. Removal of the white pines would likely increase the diversity of the shrub and herb areas, but would have to be conducted carefully to limit introduction of invasive species and erosion along the channels.

Parts of the uplands that had been clearcut on the eastern tract support dense, young Virginia pine stands. These areas are so shaded and acidic they do not support much natural diversity.

Artificially maintained open areas, including roadsides and wildlife openings support a mix of native grasses and herbs. A network of unimproved wildlife roads create linear canopy openings that transect much of the game land. These areas are dominated by grasses and forbs, but a few trees and shrubs include persimmon (*Diospyros virginiana*) and exotic species such as peach (*Prunus persica*), Chinese bush-clover (*Lespedeza cuneata*), shrubby bush-clover (*L. frutescens*), white sweet-clover (*Melilotus albus*) and Chinese privet (*Ligustrum sinense*). Some of the most common species of herbs include broomsedges, small-head sunflower (*Helianthus microcephalus*), wand gayfeather (*Liatris virgata*), little bluestem (*Schizachyrium scoparium*) and invasive exotic Japanese stiltgrass and Chinese silver grass (*Miscanthus sinensis*). Some of the roadsides are highly eroded, with sparse vegetation and large patches of bare mineral soil visible. Although it would be desirable to stabilize the soil, this should be done with native grasses and herbs.

The western property boundaries along the northern part of the western tract (southern base of Bald Knob) cross ridges with high quality examples of Dry Oak-Hickory Forest. Most of the best examples of this community type are on adjacent US Forest Service land, however. The canopy is dominated by white oak, scarlet oak, southern red oak (*Q. falcata*), northern red oak, post oak, and mockernut hickory (*Carya alba*). The understory includes many of the species listed above, along with dogwood (*Cornus florida*), black gum (*Nyssa sylvatica*), and sourwood. Herbs include broomsedges, pipsissewa (*Chimaphila maculata*), roundleaf thoroughwort, (*Eupatorium rotundifolium*), and little bluestem.

Mesic Mixed Hardwood Forests are most prominent in protected areas that have been logged within the past 60 years. Though relatively young, this community type is in good condition, with trees up to 8" in diameter. The canopy is dominated by red maple, tulip poplar, and white pine. The understory and shrub layers include dogwood, American holly (*Ilex opaca*), and mountain laurel. Herbs include invasive exotic Christmas fern (*Polystichum acrostichoides*) and Japanese stiltgrass.

BOUNDARY JUSTIFICATION: The primary area boundary contains the high quality natural communities, rare plant habitat, and 300-foot riparian buffers along streams where mandated by the Ecosystem Enhancement Program, a primary funding source. The buffer areas include lower quality natural communities and pine plantations which connect and adjoin the primary area.

MANAGEMENT AND USE: The dedicated nature preserve will be managed as the a portion of the Pisgah Game Land, for protection of significant resources, including wildlife habitat, and public hunting. Improvement of wildlife habitat will occur in the buffer areas. Public use will be limited to foot access other than on existing roads.

THIS DEDICATION OF THE PISGAH GAME LAND NATURE PRESERVE IS MADE SUBJECT TO THE FOLLOWING TERMS AND CONDITIONS:

1. As used in this Letter, the terms "natural area" and "nature preserve" shall have the same meaning as contained in North Carolina General Statutes, section 113A-164.3.

2. Pursuant to North Carolina General Statutes 113-164.8, all State-owned lands lying within the above designated area(s) are hereby dedicated as a nature preserve to be known collectively as the Pisgah Game Land Nature Preserve (hereinafter "preserve") for the purposes provided in the North Carolina Nature Preserves Act, as amended, and other applicable law, and said State-owned land, shall be held, maintained, and used exclusively for said purposes.

3. **Primary Custodian**: The primary custodian of the preserve will be the North Carolina Wildlife Resources Commission, which will be responsible for managing the preserve in accordance with State Administrative Code 15 NCAC 12H.300.

4. **Primary Classification**: The primary classifications and purposes of the preserve will be conservation, nature education, wildlife management, hunting, fishing, trapping, and other recreational uses authorized by the Primary Custodian. The ecological significance of the preserve is described in Exhibit A.

5. **Management Areas:** For the purposes of management, the preserve shall be considered to consist of a Primary Area (approximately 742 acres) and a Buffer Area (approximately 1,550 acres), as more particularly described in Exhibit A, attached thereto and by this reference made a part hereof. The Primary Area consists essentially of the rare Montane Alluvial Forest communities and several high-quality common natural communities, including Acidic Cove Forest, Dry Oak-Hickory Forest, and Mesic Mixed Hardwood Forest, and their associated rare species.

   The Primary Area is deemed by the Secretary of the North Carolina Department of Environment and Natural Resources to qualify as an outstanding natural area under statutory criteria for nature preserve dedication (G.S. 113A-164.6) and further serves all of the public purposes for a dedicated preserve as stated in Administrative Rules 15 NCAC 12H.0301(b).

   The Buffer Area, which contributes to the management and protection of the Primary Area, consists of less mature, lower quality natural communities and pine plantations which connect and adjoin the Primary Area.

6. **Rules for Management of the Primary Area(s)**:

   A. Character of Visitor Activity: The principal visitor activities in the preserve shall be hunting, fishing, trapping, walking, research, and observation. These activities shall be regulated by the Custodian to prevent significant disturbance of the preserve. These activities may specifically be regulated by the Custodian to protect and conserve the natural values of the preserve.

      Activities and uses unrelated to those listed above are prohibited except as otherwise provided in these Articles or unless necessary to carry out the purposes of the preserve. Prohibited activities include, but are not limited to: construction; commercial activities and

development; commercial silviculture; agriculture and grazing; gathering of native species of plants or plant products; the removal, disturbance, molestation, or defacement of minerals, archaeological and natural resources, except for research purposes as approved by the Custodian; and those activities specifically restricted in these Articles.

There shall be no fires, except as necessary for ecological management of the preserve or in conjunction with supervised educational activities of the Custodian, or further excepted as herein provided or otherwise expressly permitted.

B. Consumptive Wildlife Uses: Hunting, fishing, and trapping shall be permitted on the preserve subject to regulations and management by the North Carolina Wildlife Resources Commission.

C. Orientation and Guidance of Visitors: The Custodian reserves the right to orient and guide visitors for educational programs, hunting and fishing uses, scientific research, and for preserve management. Exhibits, programs, and printed materials may be provided by the Custodian in service areas. The Custodian may restrict access to visitors in those instances or in such areas that restrictions may be determined necessary to safeguard sensitive environmental resources in the preserve.

D. Disturbance of Natural Resources: The cutting or removal of trees, dead or alive, or the disturbance of other natural resources is prohibited except as necessary for removal of hazards to visitors, control of disease or insect infestations that would damage or reduce the significance of the preserve, restoration after severe storm damage, trail clearance and maintenance, or for purposes of maintenance or restoration of natural communities or rare species populations as stipulated in the preserve management plan and that which is consistent with the purposes of these Articles. Salvage timber cuts which may be necessary due to natural catastrophe will be allowed in both Primary and Buffer Areas, but in a manner that will contribute to the recovery of the prevailing natural conditions of the forest and in consultation with the North Carolina Natural Heritage Program.

The Primary Areas defined along streams within the Linville River section that extend for 300 feet from each edge of the stream are the areas that were protected through deed restrictions imposed by the Ecosystem Enhancement Program. These deed restrictions are recorded in Burke County, NC, Register of Deeds, January 27, 2005, Deed Book 1431, pages 840-847.

E. Wild Fire Control/Prescribed Burning: Wild fires may mimic natural processes historically occurring in an ecosystem on a landscape level. When the extent of a wild fire does not threaten human life or structures, it may be allowed to burn with minimal control. If wild fire control is necessary, firebreaks may need to be established. When possible, existing roads and firebreaks will be utilized for wild fire control. When new firebreaks need to be established, environmentally sensitive areas will be avoided when possible. Old firebreaks which affect the natural hydrology of wetlands will be filled and allowed to revegetate. Planning of firebreak restoration should occur in consultation with the North Carolina Natural Heritage Program.

F. Water Control: The purpose of water control shall be to maintain the preserve's natural water regime. Water levels that have been altered by man may be changed if necessary to restore the preserve to its natural condition. In a preserve with a long history of managed hydrology, water levels may be managed to perpetuate the ecosystems that have evolved around the hydrology or may be restored to natural condition. This decision should be made in consultation with the Natural Heritage Program. Millponds are an example of situations in which water levels have been historically managed.

G. Pollution and Dumping: There will be no storage or dumping of ashes, trash, garbage, hazardous substances, toxic waste, other unsightly or offensive material, or fill material, including dredge spoil in, on, or under the preserve. No underground storage tanks may be placed within the preserve. No surface or ground waters of the preserve may have pollutants added within the preserve.

H. Control of Vegetational Succession: Control of vegetational succession may be undertaken if necessary to maintain or restore a particular natural ecosystem type or to preserve endangered, threatened, rare, or other unusual species. Controls will be done in the manner that best imitates the natural forces believed responsible for maintaining the natural ecosystem type, or that minimizes unnatural effects on non-target portions of the ecosystem. Prescribed burning is particularly essential to ecosystems where natural wild fire historically suppressed woody vegetation and promoted herbaceous diversity.

I. Control of Populations: Any control of animal or plant populations on the preserve shall be for the purpose of correcting those situations where those populations are significantly affecting natural conditions on the preserve, and in accordance with the Custodian's established regulations for hunting, trapping, or fishing of designated game animals. The Custodian may, in consultation with the North Carolina Natural Heritage Program, apply biological controls, herbicides and pesticides, and other means deemed necessary or appropriate to control or eradicate exotic or native species of plant or animal that are degrading the natural character of the preserve. Because of potential impacts on native species, no exotic flora or fauna shall be introduced into the preserve.

J. Research and Collecting Permits: Any person wishing to engage in scientific research requiring collecting or otherwise affecting anything within the preserve shall first secure written permission from the Custodian.

K. Roads and Trails: New roads shall not be constructed in the Primary Area. When necessary, the Custodian may construct and maintain access limited to staff use for management purposes, such as service paths (single lane vegetated paths) for patrol, right-of-way maintenance, and other management activities, within the Primary Area. Number and width of new paths will be minimized, and sensitive areas avoided when possible. Existing roads that occur within or form a boundary of the Primary Area may be maintained by grading of the roadbed, replacing culverts, or adding stone as needed in order to maintain the integrity of the road for vehicular use. Daylighting of roads within the Primary Area should be minimized, but may be used if necessary to maintain the condition of the road. Access management and construction will be part of the overall management planning process and will include consultation with the North Carolina Natural Heritage Program.

L. Other Structures and Improvements: Structures or facilities shall not be erected by the Custodian within a preserve, except as may be consistent with the purposes of the preserve as stated in this dedication. Site selection shall be consistent with this dedication.

M. Management Plan: The Wildlife Resources Commission, as Primary Custodian of the preserve, shall be required to prepare and submit for approval to the Secretary of the Department of Environment and Natural Resources a management plan for the preserve. The management plan will be part of the larger management plan developed for the gamelands. This plan shall be subject to all the provisions of this dedication and shall additionally be consistent with the management principles set forth in the North Carolina Administrative Code 15 NCAC 12H.0300 and such other regulations as may be established from time to time by the Secretary of the Department of Environment and Natural Resources. In any case where contradictions may arise between this instrument of dedication and other management regulations, the terms of this dedication shall take precedence.

7. **Rules for Management of the Buffer Area(s)**: Primary area rules also apply except that additional forestry and wildlife management activities may be planned and carried out as needed. Construction and maintenance of roads, trails, and other access structures within buffer area(s) of the preserve will be limited to the level necessary to appropriately manage the preserve. These activities will be conducted in accordance with policy of the N.C. Wildlife Resources Commission and general management philosophy as outlined in Commission planning documents, in addition to providing for the buffer functions in relation to the primary area(s). WRC rules and guidelines require the protection and enhancement of wildlife populations and habitat so that hunting, fishing, trapping and other wildlife recreational opportunities are available to citizens of this State. Forest management is primarily conducted to enhance wildlife habitat.

Buffer functions within the dedicated area may include protecting the primary area(s) from indirect detrimental ecological effects, providing additional area for species and ecological processes that require larger areas, and providing important successional stages and disturbance regimes and other habitat diversity for wildlife. Based on these general objectives, the following buffer functions will be addressed in the management plan.

1) Landscape level function of community type and structure. (Buffer area management may involve timber harvest and other forms of stand manipulation, but will not involve forest canopy type conversion over more than limited areas, other than to restore stands to types suited for the site. Introduction of exotic species known to be invasive in natural communities will be avoided.)
2) Maintenance of habitat connectivity and continuity among primary areas.
3) Providing for habitat diversity.
4) Management needs of rare animal and plant species populations occurring within the buffer area; and
5) Protection of soil and hydrologic resources and processes within the primary area and extending into the buffer. (Buffers will be retained along streams, and watersheds of primary areas will be protected from hydrologic alteration.)

8. **Amendment and Modification**: The terms and conditions of this dedication may be amended or modified upon agreement of the Wildlife Resources Commission and Secretary of the Department of Environment and Natural Resources, and approved by the Council of State. Any portion of the

tract dedicated pursuant to this instrument may be removed from dedication in accordance with the provisions of North Carolina General Statutes 113A-164.8.

9. **Permanent Plaque**: The Custodian should erect and maintain a permanent plaque or other appropriate marker at a prominent location within the preserve bearing the following statement: "This Area is Dedicated as a State Nature Preserve."

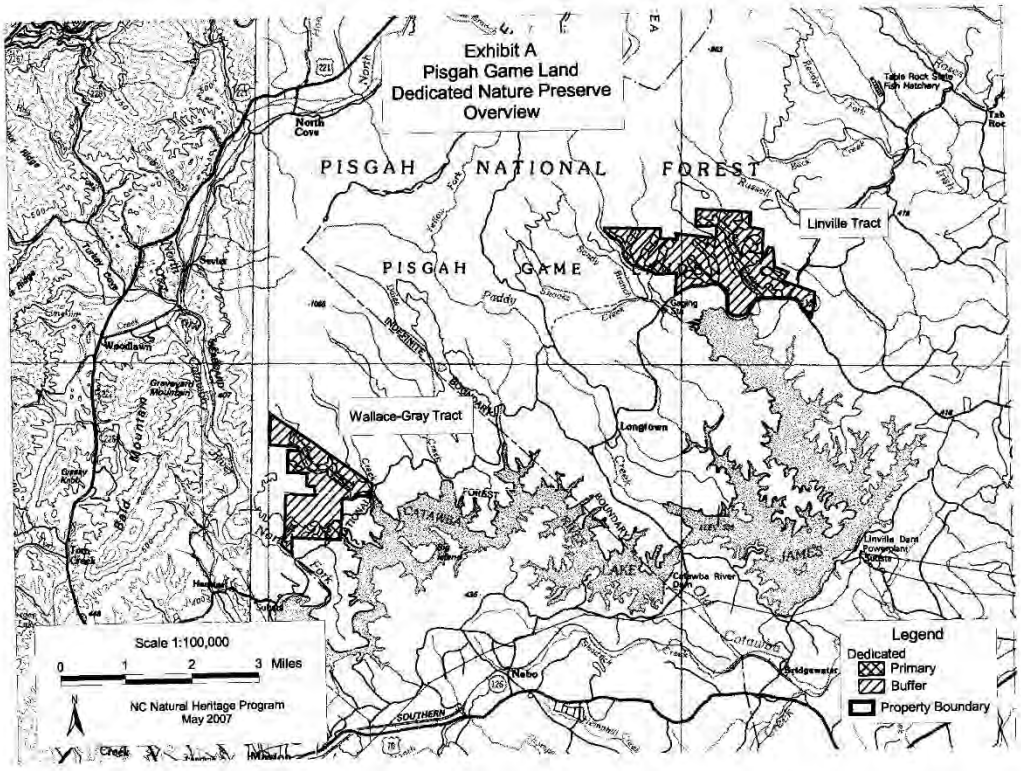


Exhibit A
Pisgah Game Land
Dedicated Nature Preserve
Overview
PISGAH NATIONAL FOREST
PISGAH GAME
Linville Tract
Wallace-Gray Tract
Scale 1:100,000
0 1 2 3 Miles
NC Natural Heritage Program
May 2007
Legend
Dedicated
Primary
Buffer
Property Boundary

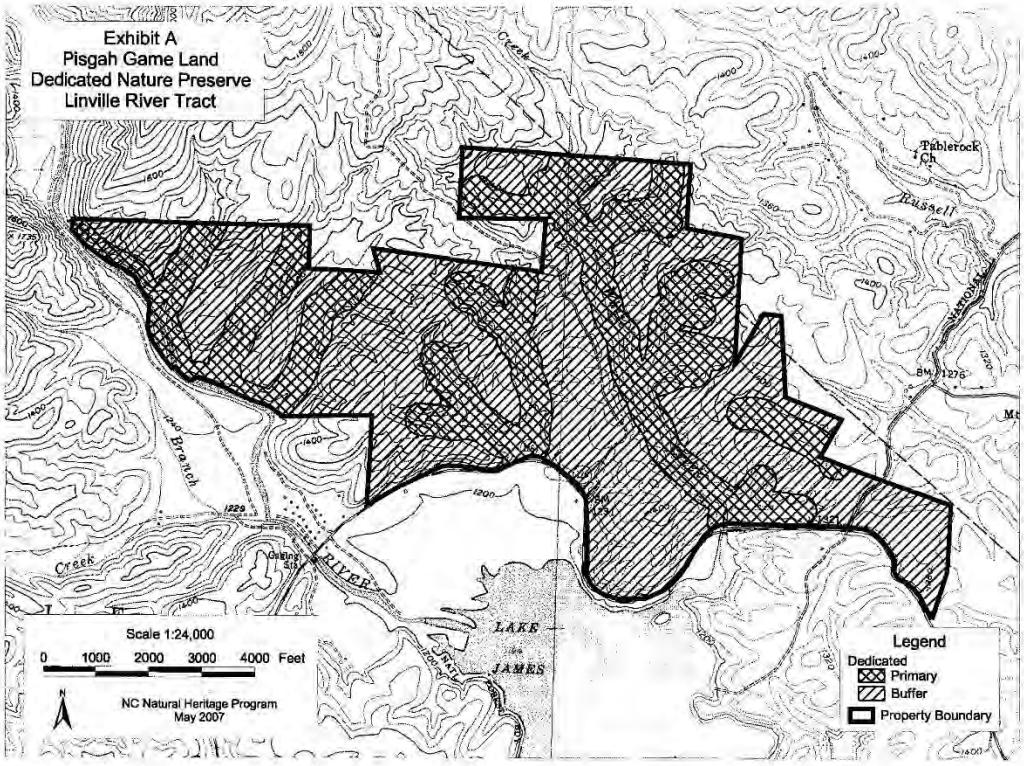


Exhibit A
Pisgah Game Land
Dedicated Nature Preserve
Linville River Tract
Tablerock Ch
Russell
Branch
Creek
RIVER
LAKE
JAMES
Scale 1:24,000
0 1000 2000 3000 4000 Feet
NC Natural Heritage Program
May 2007
Legend
Dedicated
Primary
Buffer
Property Boundary

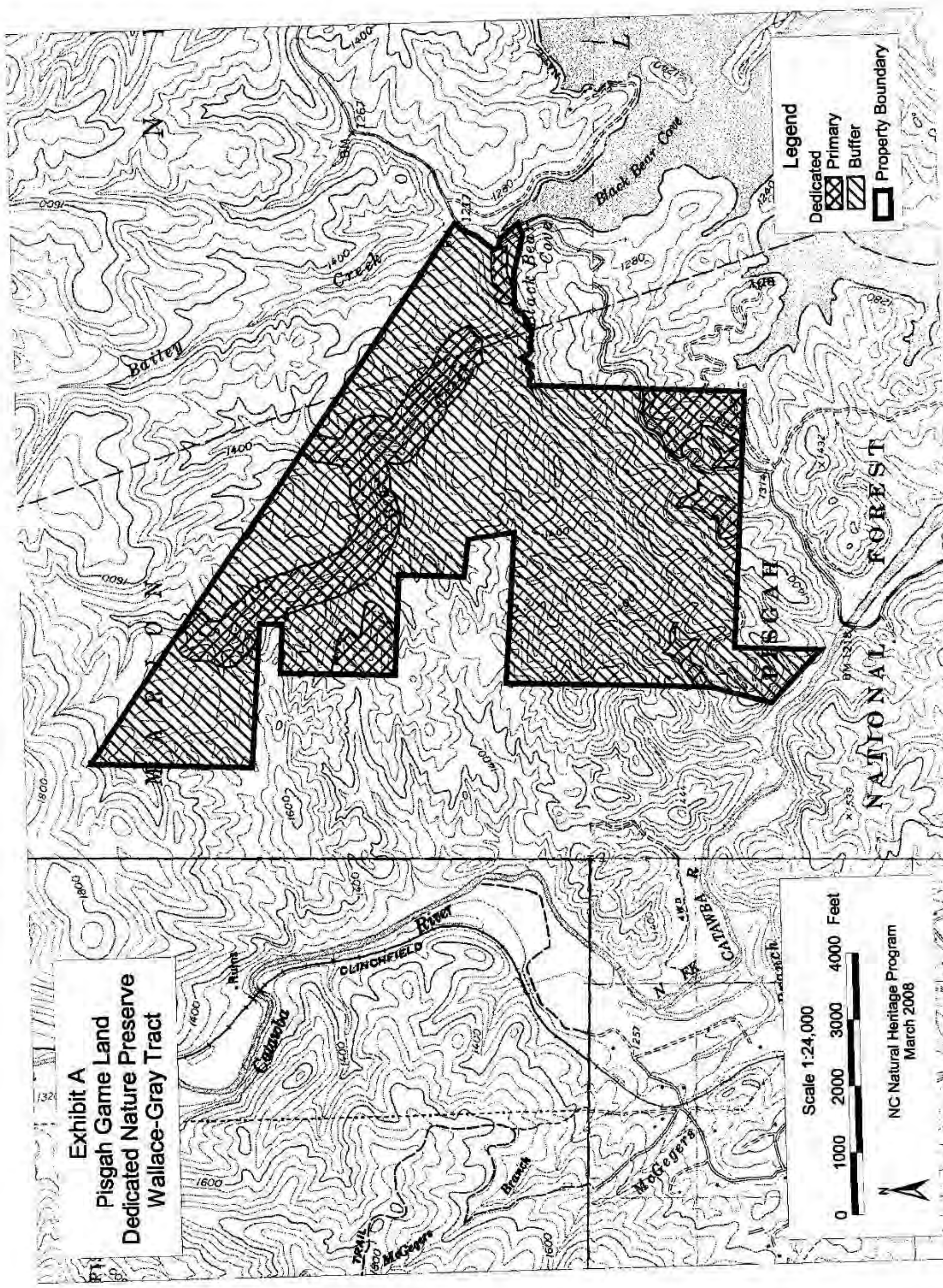


Exhibit A
Pisgah Game Land
Dedicated Nature Preserve
Wallace-Gray Tract
Legend
Dedicated
Primary
Buffer
Property Boundary
Scale 1:24,000
0 1000 2000 3000 4000 Feet
NC Natural Heritage Program
March 2008
Bailey
Creek
Black Bear Cove
PISGAH
NATIONAL
FOREST
CLINCHFIELD
River
Catawba
CATAWBA R
McGregors
Branch

APPENDIX 3 – CONSERVATION EASEMENTS, LITTLE TABLE ROCK MOUNTAIN TRACT

NORTH CAROLINA
AVERY COUNTY } OFFICE OF REGISTER OF DEEDS

THE FOREGOING CERT. OR ANNEXED CERT. OF
Katherine M. Naujoka N.P.
OF SAID CO., & STATE IS CERTIFIED TO BE CORRECT.
FILED FOR REGISTRATION AT 2:07 O'CLOCK P M.
ON THE 11 DAY OF June 2004
AND REGISTERED IN THIS OFFICE IN BOOK 379
AT PAGE 1353.

Tamela T. Baker BY Renee Dillenger
REGISTER OF DEEDS ASSISTANT/DEPUTY

FILED in MITCHELL County, NC
on Jun 11 2004 at 04:07:12 PM
by: PATTY YOUNG
Register of Deeds
BOOK 396 PAGE 632

FILED in Avery County, NC
on Jun 11 2004 at 02:07:15 PM
by: Tamela T. Baker
Register of Deeds
BOOK 379 PAGE 1353

STATE OF NORTH CAROLINA

AVERY COUNTY
MITCHELL COUNTY
McDOWELL COUNTY
SPO File Number 61-D

Prepared by Blane Rice--Return to Miller & Johnson
[redacted]

CONSERVATION EASEMENT
Little Table Rock Mountain

2004004351
MCDOWELL CO, NC FEE $44.00
PRESENTED & RECORDED:
06-16-2004 01:49:36 PM
Patricia A. Reel
REGISTER OF DEEDS
BY: PATRICIA A REEL
REGISTER OF DEEDS
BK:CRP 784
PG:609-619

THIS CONSERVATION EASEMENT DEED, made this 9th day of June, 2004, by the Conservation Trust for North Carolina, a North Carolina nonprofit corporation, Grantor, whose mailing address is PO Box 33333, Raleigh, North Carolina 27636-3333 and the State of North Carolina, Grantee, whose mailing address is State of North Carolina State Property Office, 1321 Mail Service Center, Raleigh, NC 27699-1321. The designations Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine, or neuter as required by context.

WITNESSETH:

WHEREAS, pursuant to the provisions of N.C. Gen. Stat. § 143-214.8 et seq., the State of North Carolina has established the Ecosystem Enhancement Program (formerly known as the Wetlands Restoration Program) within the Department of Environment and Natural Resources for the purposes of acquiring, maintaining, restoring, enhancing, creating and preserving wetland and riparian resources that contribute to the protection and improvement of water quality, flood prevention, fisheries, aquatic habitat, wildlife habitat, and recreational opportunities; and

WHEREAS, The State of North Carolina is qualified to be the Grantee of a Conservation Easement pursuant to N.C. Gen. Stat. § 121-35; and

WHEREAS, the Ecosystem Enhancement Program in the Department of Environment and Natural Resources has approved acceptance of this instrument; and

WHEREAS, the Department of Environment and Natural Resources, the North Carolina Department of Transportation and the United States Army Corps of Engineers, Wilmington District entered into a Memorandum of Agreement, (MOA) duly executed by all parties in Greensboro, NC on July 22, 2003. This MOA recognizes that the Ecosystem Enhancement

1

11/44.00

Program is to provide for compensatory mitigation by effective protection of the land, water and natural resources of the State by restoring, enhancing and preserving ecosystem functions; and

WHEREAS, the acceptance of this instrument for and on behalf of the State of North Carolina was granted to the Department of Administration by resolution as approved by the Governor and Council of State adopted at a meeting held in the City of Raleigh, North Carolina, on the 8th day of February 2000; and

CRP 784 610

WHEREAS, pursuant to the provisions of N.C. Gen. Stat. § 143-214.8, two of the components of the Ecosystem Enhancement Program are (1) restoration and perpetual maintenance of wetlands, riparian areas, and surface waters and (2) land ownership and management; and

WHEREAS, Grantor owns in fee simple certain real property situated, lying, and spanning parts of Grassy Creek Township in Mitchell County, North Cove Township in McDowell County and Toe River Township in Avery County, North Carolina (the "Protected Property"), and being more particularly described as the certain parcel of land commonly known as Little Tablerock Mountain, which is more accurately described on a plat titled "Property of Humpback Mountain Corporation" dated November 25, 1997 and sealed by Jerry L. Ball, PLS Number L-3108. The Protected Property is more particularly described in Exhibit "A" as attached.

WHEREAS, Grantor is willing to grant a Conservation Easement over the Protected Property, thereby restricting and limiting the use of the included areas of the Protected Property to the terms and conditions and purposes hereinafter set forth, and Grantee is willing to accept such easement.

NOW, THEREFORE, in consideration of the mutual covenants, terms, conditions, and restrictions hereinafter set forth, Grantor unconditionally and irrevocably hereby grants and conveys unto Grantee, its successors and assigns, forever and in perpetuity, a Conservation Easement of the nature and character and to the extent hereinafter set forth, over all of the Protected Property, referred to hereafter as (the "Easement Area"), for the benefit of the people of North Carolina, and being all of the those tracts of land more particularly described on Exhibit "A", which is incorporated herein by reference.

The purposes of this Conservation Easement are to maintain, restore, enhance, create and preserve wetland and/or riparian resources in the Easement Area that contribute to the protection and improvement of water quality, flood prevention, fisheries, aquatic habitat, wildlife habitat, and recreational opportunities; to maintain permanently the Easement Area in its natural condition, consistent with these purposes; and to prevent any use of the Easement Area that will significantly impair or interfere with these purposes. To achieve these purposes, the following conditions and restrictions are set forth:

I. DURATION OF EASEMENT

This Conservation Easement shall be perpetual. It is an easement in gross, runs with the land, and is enforceable by Grantee against Grantor, their personal representatives, heirs, successors, and assigns, lessees, agents, and licensees. CRP 784 611

II. GRANTOR RESERVED USES AND RESTRICTED ACTIVITES

The Easement Area shall be restricted from any development or usage that would impair or interfere with the purposes of this Conservation Easement. Unless expressly reserved as a compatible use herein, any activity in, or use of, the Easement Area by the Grantor is prohibited as inconsistent with the purposes of this Conservation Easement. Any rights not expressly reserved hereunder by the Grantor have been acquired by the Grantee. The following specific uses are prohibited, restricted, or reserved as indicated:

A. Future Conveyance. Grantor recognizes and acknowledges that all rights not conveyed but reserved herein shall be conveyed by General Warranty Deed to the State of North Carolina upon request by the State. The Wildlife Resources Commission will provide management of the Protected Property after all governmental approvals have been obtained. The Grantor retains all rights to the following recitals for the duration of time until the General Warranty Deed conveyance to the Grantee occurs.

B. Recreational Uses. Grantor expressly reserves the right to undeveloped recreational uses, including hiking, birdwatching, hunting and fishing, and access to the Easement Area for the purposes thereof. Usage of motorized vehicles in the Easement Area is prohibited, except as they are used for management, maintenance, or stewardship purposes, or on existing roads. Hiking foot trails may be constructed to support the permitted recreational and educational uses of the Easement Area permitted by this Conservation Easement. Such trails must be constructed of a pervious surface and in accordance with best management practices to minimize soil erosion and water quality impacts, may not be more than six feet wide and shall be located in a manner acceptable to the Grantee.

C. Educational Uses. The Grantor reserves the right to engage in educational uses in the Easement Area not inconsistent with this Conservation Easement, and the right of access to the Easement Area for such purposes including organized educational activities such as site visits and observations. Educational uses of the property shall not alter vegetation, hydrology or topography of the site.

D. Vegetative Cutting. Except as related to the removal of diseased or damaged trees and vegetation that obstructs, destabilizes or renders unsafe the Easement Area, or except as necessary to control invasive and/or exotic species all cutting, removal, mowing, harming, or destruction of any trees and vegetation in the Easement Area is prohibited.

E. Industrial, Residential and Commercial Uses. All are prohibited in the Easement Area.

F. Agricultural Use. All agricultural uses within the Easement Area including any use for cropland, waste lagoons, or pastureland are prohibited.

G. **New Construction.** There shall be no building, facility, mobile home, antenna, utility pole, tower, or other structure constructed or placed in the Easement Area.

H. **Roads and Trails.** There shall be no construction of roads, trails, walkways, or asphalt or concrete paving in the Easement Area. Existing roads or trails located in the Easement Area may be maintained in order to minimize runoff, sedimentation and for access to the interior of the Protected Property for management, maintenance, stewardship purposes, or undeveloped recreational and educational uses of the Easement Area. These roads shall not be paved or covered with asphalt, but gravel or permanent vegetation may be used to stabilize or cover the road surfaces. Two parking areas, each measuring approximately 14 feet in width by 26 feet in length are permitted within the Easement Area provided that the following conditions are met: 1) the parking areas are located adjacent to existing roads; 2) no trees are removed to create these parking areas; and 3) gravel or permanent herbaceous vegetation are utilized to stabilize the soil and minimize the potential for erosion occurring from these parking areas. Existing access gates may be improved, replaced, or maintained and new access gates may be constructed to control access to the Easement Area.

I. **Signs.** No signs shall be permitted in the Easement Area except interpretive signs describing restoration activities and the conservation values of the Easement Area, signs identifying the owner of the Protected Property and the holder of the Conservation Easement, signs giving directions, or signs prescribing rules and regulations for the use of the Easement Area may be allowed.

J. **Dumping or Storing.** Dumping or storage of soil, trash, ashes, garbage, waste, abandoned vehicles, appliances or machinery, or other material in the Easement Area is prohibited.

K. **Grading, Mineral Use, Excavation, Dredging.** There shall be no grading, filling, excavation, dredging, mining, or drilling; no removal of topsoil, sand, gravel, rock, peat, minerals, or other materials.

L. **Water Quality and Drainage Patterns.** There shall be no diking, draining, dredging, channeling, filling, leveling, pumping, impounding or related activities, or altering or tampering with water control structures or devices, or disruption or alteration of the restored, enhanced, or created drainage patterns. In addition, any activity by the Grantor diverting, causing, allowing or permitting the diversion of surface or underground water within or out of the Easement Area is not allowed. All removal of wetlands, polluting or discharging into waters, springs, seeps, or wetlands, or use of pesticide or biocides is prohibited. In the event of an emergency interruption or shortage of other water sources, water from within the Easement Area may temporarily be used for good cause shown as needed for the survival of livestock and agricultural production.

M. **Subdivision and Conveyance.** No further subdivision, partitioning, or dividing of the Easement Area is allowed. Unless agreed to by the Grantee in writing, any future conveyance of the Easement Area and the rights as conveyed herein shall be as a single block of property. Any future division of the remaining fee simple rights shall be subject to this Conservation Easement.

N. Development Rights. No development rights that have been encumbered or extinguished by this Conservation Easement shall be transferred pursuant to a transferable development rights scheme or cluster development arrangement or otherwise.

O. Disturbance of Natural Features. Unless otherwise noted, any change, disturbance, alteration or impairment of the natural features of the Easement Area or any intentional introduction of non-native plants, trees and/or animal species is prohibited.

III. GRANTEE RESERVED USES

The Grantee, authorized representatives of the Grantee and their successors or assigns shall have the right to enter the Easement Area and shall have the right of reasonable ingress and egress to the Easement Area over the Protected Property, at all reasonable times to undertake any activities to restore, manage, maintain, enhance, and monitor the wetland and riparian resources of the Easement Area, in accordance with a long-term management plan. These activities include planting of trees, shrubs and herbaceous vegetation, installation of monitoring wells, utilization of heavy equipment to grade, fill, and prepare the soil, modification of the hydrology of the site, and installation of natural and manmade materials as needed to direct in-stream, above ground, and subterraneous water flow.

The Grantor may request permission to vary from the above restrictions for good cause shown, provided that any such request is consistent with the purposes of this Conservation Easement. The Grantor shall not vary from the above restrictions without first obtaining written approval from the Ecosystem Enhancement Program, whose mailing address is 1619 Mail Services Center, Raleigh, NC 27699-1619.

IV. ENFORCEMENT AND REMEDIES

A. Enforcement. To accomplish the purposes of this Conservation Easement, Grantee is allowed to prevent any activity within the Easement Area that is inconsistent with the purposes of this Easement and to require the restoration of such areas or features of the Easement Area that may have been damaged by such activity or use. Upon any breach of the terms of this Conservation Easement by Grantor, Grantor's their successors or assigns, that comes to the attention of the Grantee, the Grantee shall, except as provided below, notify the Grantor in writing of such breach. The Grantor shall have ninety (90) days after receipt of such notice to correct the conditions constituting such breach. If the breach remains uncured after ninety (90) days, the Grantee may enforce this Conservation Easement by appropriate legal proceedings including damages, injunctive and other relief. The Grantee shall also have the power and authority, consistent with its statutory authority: (a) to prevent any impairment of the Easement Area by acts which may be unlawful or in violation of this Conservation Easement; (b) to otherwise preserve or protect its interest in the Property; or (c) to seek damages from any appropriate person or entity. Notwithstanding the foregoing, the Grantee reserves the immediate right, without notice, to obtain a temporary restraining order, injunctive or other appropriate relief if the breach of the term of this Conservation Easement is or would irreversibly or otherwise materially impair the benefits to be derived from this Conservation Easement. The Grantor and Grantee acknowledge that under such circumstances damage to the Grantee would be irreparable and remedies at law will be inadequate. The rights and remedies of the Grantee

provided hereunder shall be in addition to, and not in lieu of, all other rights and remedies available to Grantee in connection with this Conservation Easement.

B. Inspection. The Grantee, its employees and agents, successors and assigns, have the right, with reasonable notice, to enter the Easement Area at reasonable times for the purpose of inspection to determine whether the Grantor, their successors or assigns are complying with the terms, conditions and restrictions of this Conservation Easement.

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C. Acts Beyond Grantor's Control. Nothing contained in this Conservation Easement shall be construed to entitle Grantee to bring any action against Grantor Grantor's their successors or assigns for any injury or change in the Easement Area caused by third parties, resulting from causes beyond the Grantor's control, including, without limitation, fire, flood, storm, and earth movement, or from any prudent action taken in good faith by the Grantor under emergency conditions to prevent, abate, or mitigate significant injury to life, damage to property or harm to the Property resulting from such causes.

D. Costs of Enforcement. Beyond regular and typical monitoring, any costs incurred by Grantee in enforcing the terms of this Conservation Easement against Grantor, Grantor's their successors or assigns including, without limitation, any costs of restoration necessitated by Grantor's acts or omissions in violation of the terms of this Conservation Easement, shall be borne by Grantor.

E. No Waiver. Enforcement of this Easement shall be at the discretion of the Grantee and any forbearance by Grantee to exercise its rights hereunder in the event of any breach of any term set forth herein shall not be deemed or construed to be a waiver by Grantee. No delay or omission by Grantee in exercise of any right or remedy shall impair such right or remedy or be construed as a waiver.

V. MISCELLANEOUS

A. This Conservation Easement shall be construed to promote the purposes of N.C. Gen Stat. § 143-214.8 et seq., the Ecosystem Enhancement Program.

B. This instrument sets forth the entire agreement of the parties with respect to the Conservation Easement and supersedes all prior discussions, negotiations, understandings or agreements relating to the Conservation Easement. If any provision is found to be invalid, the remainder of the provisions of the Conservation Easement, and the application of such provision to persons or circumstances other than those as to which it is found to be invalid, shall not be affected thereby.

C. Any notices shall be sent by registered or certified mail, return receipt requested to the parties at their addresses shown above or to other address(es) as either party establishes in writing upon notification to the other.

D. Grantor shall notify Grantee in writing of the name and address and any party to whom the Protected Property or any part thereof is to be transferred at or prior to the time said transfer is made. Grantor further agrees to make any subsequent lease, deed, or other legal

instrument by which any interest in the Protected Property is conveyed subject to the Conservation Easement herein created.

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E. The Grantor and Grantee agree that the terms of this Conservation Easement shall survive any merger of the fee and easement interests in the Property or any portion thereof.

F. This Conservation Easement may be amended, but only in a writing signed by all parties hereto, and provided such amendment does not affect the qualification of this Conservation Easement or the status of the Grantee under any applicable laws, and is consistent with the purposes of the Conservation Easement.

G. The parties recognize and agree that the benefits of this Conservation Easement are in gross and assignable provided, however, that the Grantee hereby covenants and agrees, that in the event it transfers or assigns this Conservation Easement, the organization receiving the interest will be a qualified holder under N.C. Gen. Stat. § 121-34 et seq. and § 170(h) of the Internal Revenue Code, and the Grantee further covenants and agrees that the terms of the transfer or assignment will be such that the transferee or assignee will be required to continue in perpetuity the conservation purposes described in this document.

VI. QUIET ENJOYMENT

Grantor reserves all remaining rights accruing from ownership of the Protected Property, including the right to engage in or permit or invite others to engage in only those uses of the Easement Area that are expressly reserved herein, not prohibited or restricted herein, and are not inconsistent with the purposes of this Conservation Easement. Without limiting the generality of the foregoing, the Grantor expressly reserves to the Grantor, and the Grantor's invitees and licensees, the right of access to the Easement Area, and the right of quiet enjoyment of the Easement Area.

TO HAVE AND TO HOLD the said rights and easements perpetually unto Grantee for the aforesaid purposes.

AND Grantor covenants that Grantor is seized of said premises in fee and has the right to convey the permanent Conservation Easement herein granted; that the same are free from encumbrances and that Grantor will warrant and defend title to the same against the claims of all persons whomsoever.

BOOK 396 PAGE 639
BOOK 379 PAGE 1360

IN TESTIMONY WHEREOF, the Grantor has hereunto set his hand and seal, the day and year first above written,

CRP 784 616

The Conservation Trust for North Carolina, a North Carolina Non-Profit Corporation

By: June Small (SEAL)
June Small, President

ATTEST

D. Reid Wilson
D. Reid Wilson, Executive Director/Asst. Secty.

NORTH CAROLINA

COUNTY OF Wake

I, Katharine M. Naujoks, a Notary Public in and for the County and State aforesaid, do hereby certify that D. Reid Wilson personally appeared before me this day and acknowledged that he is the Assistant Secretary of the Conservation Trust for North Carolina, a North Carolina Non-Profit Corporation, and that by the authority duly given as an act of the corporation, the foregoing instrument was signed in its name by its President and attested by ~~herself~~ as its Assistant Secretary.

IN WITNESS WHEREOF, I have hereunto set my hand and Notary Seal this the 9th day of June 2004.

Katharine M. Naujoks
Notary Public

My commission expires:

July 27, 2008

Not

Mitchell County, North Carolina
Each of the foregoing (or annexed) certificate(s) of Katharine M. Naujoks, notary public is certified to be correct. This instrument and this certificate are duly registered at the date and time and in the book and page shown on the first page hereof.

Patty Young, Register of Deeds

By: Patty Young
~~Assistant/Deputy~~ Register of Deeds

My commission expires:

EXHIBIT A

CRP 784 617

BOOK 379 PAGE 1361

BEGINNING on a concrete monument, a corner to those lands of Henredon Furniture, Inc. (see Deed Book 131, Page 282, Mitchell County Registry) and Unimin Corporation (see Deed Book 171, Page 1,007); thence running with the Unimin Corporation line North 44° 46 Min. 59 Sec East 759.18 feet to a 2" iron stake; thence South 66° 01 Min. East 106.82 feet to a 2" iron; thence South 87° 52 Min. 59 Sec East 181.31 feet to an iron set at a 28" marked Oak; thence North 81° 35 Min. 41 Sec. East 536.37 feet to a 2" iron; thence South 84° 11 Min. East 315.64 feet to a 2" iron at a 4" marked Hickory; thence North 69° 34 Min. 49 Sec. East 400.87 feet to an iron; thence South 58° 24 Min. East 149.73 feet to a 2" iron; thence North 88° 31 Min. 10 Sec. East 422.47 feet to an iron set at a 26" marked Oak; thence South 56° 55 Min. East 186.22 feet to an iron set at a stump; thence South 42° 09 Min. East 202.02 feet to an iron; thence South 63° 17 Min. 42 Sec East 502.26 feet to an iron set at a 36"marked Oak; thence South 76° 53 Min. East 145.33 feet to an iron at a 36".Oak; thence North 87 ° 34 Min. East 143.22 feet to an iron in or near the Mitchell County/McDowell County boundary; thence North 02° 00 Min. East 132.01 feet to a concrete monument in or near the Mitchell County/Avery Country boundary; thence crossing into Avery County and running North 50° 41 Min. East 304.70 feet to an iron; thence North 67° 09 Min. East 222.20 feet to an iron; thence North 01° 52 Min. East 297.50 feet to an iron; thence N 17 deg 28 min E 228.07 feet to an iron; thence North 63° 39 Min. East 127.39 feet to an iron; thence South 47° 04 Min. East 69.70 feet to an iron; thence North 59° 24 Min. 00 Sec. East 427.80 feet to an iron; thence North 41° 00 Min. 00 Sec East 430.80 feet to an iron; thence North 69° 26 Min. 00 Sec. East 577.10 feet to an iron; thence South 71° 42 Min. East 328.02 feet to an iron; thence North 68° 54 Min. East 113.20 feet to an iron; thence North 84° 00 Min. 23 Sec. East 374.89 feet to an iron set at a marked Lynn Snag at a spring, a corner to those lands owned now or formerly by CSX Railroad; thence running with the railroad line and crossing into McDowell County, South 03° 43 Min. 25 Sec. West 1,494.68 feet to an iron, a corner to the United States of America U.S. Forest Service; thence running with the Forest Service line South 45° 16 Min. 12 Sec. East 905.74 feet to an iron set in the center line of an existing woods road; thence continuing with the Forest Service line South 24° 02 Min. West 218.00 feet to an iron; thence South 75° 21 Min. 00 Sec. West 655.60 feet to N.P.S. Monument #211; thence South 61° 46 Min. West 313.06 feet to N.P.S. Monument #210; thence South 62° 25 Min. West 167.30 feet to N.P.S. Monument #209; thence South 72° 00 Min. 30 Sec. West 844.41 feet to N.P.S. Monument #208; thence South 32° 05 Min. 00 Sec. West 404.47 feet to N.P.S. Monument # 207; thence South 07° 34 Min. 30 Sec. West 557.06 feet to N.P.S. Monument #206; thence South 07° 15 Min. 00 Sec. West 474.23 feet to N.P.S. Monument #205; thence South 07° 40 Min. West 188.60 feet to N.P.S. Monument #204; thence South 07° 37 Min. West 330.50 feet to N.P.S. Monument #203; thence South 08° 39 Min. West 183.53 feet to N.P.S. Monument #202; thence3 South 05° 44 Min. West 290.78 feet to N.P.S. Monument #201; thence South 06° 25 Min. 30 Sec. West 437.98 feet to N.P.S. Monument #200; thence South 28° 42 Min. West 42.03 feet to an iron located in or near the McDowell County/Mitchell County line, in the boundary of those lands of Robert Lee Queen (described in Book 148, Page 98, Mitchell County Registry); thence running with the Queen line South 87° 40 Min. 24 Sex. West 628.29 feet to an iron, a corner to Billy Ray Pendley; thence running with the Pendley line South 87° 40 Min. 24 Sec. West 354.27 feet to an iron, a corner to Joseph B. Gourlay; thence running with the Gourlay line South 87° 26 Min. West 278.86 feet to an iron at the Eastern edge of an old woods road; thence crossing the road and running South 87° 59 Min. West 29.68 feet to an iron in the boundary of Kathy R. Smith (see Deed Book 276, Page 771, Mitchell County Registry); thence running with the Kathy Smith line South 87° 40 Min. West 174.32 feet to an iron found at a 24" marked Poplar, a corner to C.A. Hensley (see Mitchell County Deed Book 155, Page 420); thence running with the Hensley line North 09° 05 Min. East 70.33 feet to a 10" marked Spanish Oak; thence North 08° 06 Min. West 116.05 feet to a 18" marked Chestnut Oak; thence North 34° 41 Min. West 117.16 feet to an iron set in the center of a 14" Chestnut Oak stump; thence North 67° 57 Min. West 311.94 feet to a spike set in the center of a double 18" White Oak; thence North 86° 36 Min. West 190.34 feet to an iron set at two 6" marked Spanish Oaks; thence South 28° 11 Min. West 99.72 feet to a marked 14" Spanish Oak; thence South 14° 46 Min. West 74.92 feet to an iron set in the centerline of an old road; thence running with the old road South 09° 28 Min. East 59.58 feet to an iron; thence continuing with the old road South 23° 26 Min. East 62.43 feet to an iron; thence South 05° 33 Min. West 120.71 feet to an iron; thence leaving the old road and running South 63° 20 Min. West 48.10 feet to an iron set at a down 10" Oak; thence South 30 ° 32 Min. West 129.05 feet to a 28" Spanish Oak; thence South 32° 45 Min. West 85.39 feet to a 6" Dogwood; thence South 19° 12 Min. East 91.16 feet to an iron set at a 10" Poplar; thence South 22° 30 Min. East 39.34 feet to a 10" Poplar; thence South 29° 25 Min. East 105.65 feet to an iron set at a 24" marked Walnut; thence South 29° 25 Min. East 57.58 feet to a point in the centerline of NCSR 1128; thence running with the centerline of NCSR 1128, South 32° 17 Min. West 40.98 feet to a point; thence South 15° 08 Min. West 55.81 feet to a point; thence South 03° 44 Min. West 59.87 feet to a point; thence South 00° 41 Min. 20 Sec. East 442.76 feet to a point; thence South 02° 44 Min. West 60.33 feet to a point; thence South 15° 52 Min. West 57.46 feet to a point; thence South 37° 28 Min. West 45.53 feet to a point thence South 60° 40 Min. West 42.45 feet to a point; thence South 79° 42 Min. West 25.46 feet to a point; thence North 83° 23 Min. West 36.99 feet to a point; thence North 65° 28 Min. West 40.00 feet to a point; thence N 51 deg 18 min W 39.96 feet to a point; thence North 37° 16 Min. West 107.89 feet to a point at the intersection of the Humpback Mountain Subdivision Road;

West 175.05 feet to a stake, a corner to Lot 4; thence running with the boundary of Lot 4, North 49° 15 Min. West 152.99 feet to a stake, a corner to Lot 5; thence running with the boundary Lot 5, North 49° 15 Min. West 149.61 feet to a stake, a corner to Lot 6; thence running with the boundary of Lot 6, North 49 15 Min. West 153.23 feet to a stake, a corner to Lot 7; thence running with the boundary of Lot 7, North 49° 14 Min. West 149.82 feet to a stake thence continuing with the boundary of Lot 7, South 41° 48 Min. West 201.96 feet to a stake near the Eastern edge of the Humpback Mountain Subdivision Road; thence running along the edge of Humpback Mountain Subdivision Road, North 43° 43 Min. West 147.55 feet to a point; thence North 37° 20 Min. West 339.32 feet to a point; thence North 35° 16 Min. West 110.90 feet to a point; thence North 32° 09 Min. West 145.98 feet to a point; thence North 33° 45 Min. West 66.78 feet to a point; thence North 37° 45 Min. West 75.93 feet to a point; thence North 41° 53 Min. East 87.90 feet to a point; thence North 33° 10 Min. East 76.92 feet to a point; thence North 03° 33 Min. East 67.82 feet to a point; thence North 05° 19 Min. West 58.34 feet to a point; thence North 12° 48 Min. West 38.99 feet to a point; thence North 04° 12 Min. West 65.60 feet to a point; thence North 10° 30 Min. West 169.82 feet to a point; thence North 22° 54 Min. West 49.21 feet to a point; thence N 72° 14 Min. West 60.24 feet to a point; thence N 52 deg 10 min W 60.86 feet to a point; thence North 56° 54 min. West 26.32 feet to a point; thence North 79° 15 Min. West 57.35 feet to an point; thence North 20° 44 Min. West 35.05 feet to a point; thence North 39° 18 Min. West 44.61 feet to a point; thence North 27° 32 Min. West 57.24 feet to a point; thence North 16° 44 Min. West 51.63 feet to a point; thence North 61° 45 Min. West 56.95 feet to a point; thence North 18° 23 Min. West 50.44 feet to a point; thence North 44° 03 Min. East 86.22 feet to a point; thence North 01° 59 Min. East 39.35 feet to a point; thence North 89° 58 Min. East 86.32 feet to a point; thence South 63° 33 Min. East 100.67 feet to a point; thence North 32° 56 Min. East 102.12 feet to a point; thence North 40° 02 Min. East 106.87 feet to a point; thence north 11° 40 Min. West 214.63 feet to a point; thence North 32° 05 Min. East 102.95 feet to a point; thence North 11° 13 Min. West 42.13 feet to a point; thence North 15° 20 Min. West 58.02 feet to a point; thence North 27° 38 Min. West 58.62 feet to a point; thence north 68° 13 Min. West 29.39 feet to a point; thence North 70° 06 Min. West 62.13 feet to a point; thence North 68° 13 Min. West 60.71 feet to a point; thence North 14° 41 Min. West 9.79 feet to a point; thence North 44° 06 Min. West 17.99 feet to a point; thence North 29° 58 Min. East 171.14 feet to a point; thence North 11° 17 Min. East 33.63 feet to a point; thence North 12° 10 Min. East 102.54 feet to a point; thence North 27° 51 Min. East 125.25 feet to a point; thence North 21° 03 Min. West 104.47 feet to a point; thence North 07° 43 Min. East 100.26 feet to an iron at the edge of the road, thence leaving the road and running North 59° 10 Min. West 77.82 feet to an iron; thence North 67° 05 Min. West 247.10 feet to an iron; thence North 35° 05 Min. West 323.63 feet to an iron at the edge of a right of way leading to the Humpback Mountain Subdivision reservoir site; thence North 51° 20 Min. West 32.00 feet to a point in the centerline of a road in a 30' wide right of way leading from the Humpback Mountain Subdivision property to the Humpback Mountain Property Owners' reservoir site; thence running down and with the centerline of said right of way South 09° 58 Min. West 147.88 feet to a point; thence South 18° 08 Min. West 186.82 feet to a point; thence South 08° 50 Min. West 195.80 feet to a point; thence leaving the road and running South 54° 03 Min. West 44.89 feet to an iron in the boundary of Hemedon Furniture, Inc. (see Mitchell County Deed Book 131, Page 282); thence North 01° 12 Min. West 178.14 feet to an iron; thence North 06° 46 Min. East 266.43 feet to an iron; thence North 12° 39 Min. East 111.84 feet to an iron; thence North 01° 21 Min. West 233.15 feet to an iron; thence North 23° 48 Min. 00 Sec. East 462.31 feet to the point of **BEGINNING**, containing 545.41 acres as shown on a survey plat prepared by Jerry L. Ball, RLS, L-3108 on 25 November 1997 with map number 97147-11.

THERE IS EXCEPTED AND RESERVED FROM THIS CONVEYANCE a 1.11 acre tract or parcel of land shown on said survey plat as the Humpback Mountain Property Owners, Inc. reservoir site and more particularly described as follows:
BEGINNING at the southernmost point of said reservoir site shown on said survey plat and running North 50° 38 Min. West 110.00 feet to a point; thence North 50° 38 Min. West 40.00 feet to a point in the centerline of a road and 30' right of way leading form said reservoir tract to the Humpback Mountain Subdivision property; thence North 50° 38 Min. West 70.00 feet to a point; thence North 39° 22 Min. East 220.00 feet to a point; thence South 50° 38 Min. East 220.00 feet to a point; thence South 39° 22 Min. West 220.00 feet to the point of **BEGINNING**, containing 1.11 acres.

THERE IS EXCEPTED AND RESERVED FROM THIS CONVEYANCE a perpetual, non-exclusive, easement and right of way for the use of Humpback Mountain Property Owners, Inc. in and to that certain private road and 30' wide right of way shown on said survey plat leading from said 1.11 acre reservoir tract to the lands of Humpback Mountain Subdivision for purposes of ingress, egress and regress to and from said

EXHIBIT A

CRP 784 619

BOOK 379 PAGE 1363

ALSO CONVEYED HEREWITH is a perpetual and non exclusive easement and road right of way leading to and from NCSR 1128 and the hereinabove described property over and upon Laurel Ridge Road as shown on the map Book I, page 333 Mitchell County Registry, and the connector road running from Laurel Ridge Road with the Sarvis and Gourlay lines as shown on said map to the southern boundary of the above described tract at the terminus of the easement as shown at Map Book I, page 332 of the Mitchell County Registry, together with right of ingress, egress and regress for purposes of maintenance inspection, improvement and repair of said roadway.

EXCEPTING AND RESERVING from the above conveyance a perpetual, non-exclusive easement and right of way to Holston Land Company, Inc. and United States of America (Blue Ridge Parkway), for the use of the presently existing woods road, said easement of record in Book 270, page 630, McDowell County Registry, and further shown on survey plat by Jerry L. Ball, RLS #L-3180 dated 25 November 1997, Map No. 97147-11.

Patricia A. Reel
Register of Deeds

McDowell County
Register of Deeds

21 South Main Street, Suite A • Marion, NORTH CAROLINA 28752
Telephone 828-652-4727 • Fax 828-652-1537 • E-Mail register@mcdowell.main.nc.us

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Filed For Registration: 06/16/2004 01:49:36 PM

Book: CRP 784 Page: 609-619

Document No.: 2004004351

EASEMENT 11 PGS 44.00

Recorder: PATRICIA A REEL

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tate of North Carolina, County of McDowell

he foregoing certificates of KATHERINE M NAUJOKS Notary(ies) Public is(are) certified to be correct this 16TH of UNE 2004.

ATRICIA A. REEL, REGISTER OF DEEDS

Patricia A. Reel

y: _____
EGISTER OF DEEDS

****

DO NOT REMOVE!

his certification sheet is a vital part of your recorded document. Please retain with original document and submit hen re-recording.

2013004805
AVERY CO, NC FEE $50.00
PRESENTED & RECORDED:
11-21-2013 04:14:03 PM
RENEE DELLINGER
REGISTER OF DEEDS
BY: RENEE DELLINGER
REGISTER OF DEEDS

BK: RE 480
PG: 667-687

2013005837
MCDOWELL CO, NC FEE $50.00
PRESENTED & RECORDED:
11-20-2013 10:37:49 AM
TONIA R HAMPTON
REGISTER OF DEEDS
BY: TONIA R HAMPTON
REGISTER OF DEEDS

BK: CRP 1116
PG: 764-784

CONSERVATION EASEMENT
Humpback Mountain

Lettie

Prepared by: Conservation Trust for North Carolina and Clean Water Management Trust Fund (RMH)
After Recording Return to: Clean Water Management Trust Fund; 1651 Mail Service Center, Raleigh, NC 27699-1651,

J.L. Lattimore

NORTH CAROLINA | **MCDOWELL & AVERY COUNTIES**

McDOWELL CO. PIN:
1820.00-11-6620
AVERY CO. PIN:
182000249301

CWMTF PROJECT NO. 2010-017
SPO FILE NO. 6-AL

THIS DEED OF CONSERVATION EASEMENT ("Conservation Easement") is made, given, granted and executed on this the 20th day of November, 2013 by and between **CONSERVATION TRUST FOR NORTH CAROLINA**, a nonprofit corporation organized and existing under the laws of the State of North Carolina, with an address at P.O. Box 33333, Raleigh, NC 27636-3333 ("Grantor" or "CTNC"), and the **STATE OF NORTH CAROLINA,** with its address c/o State Property Office, 1321 Mail Service Center, Raleigh, NC 27699-1321 ("Grantee" or "State"), acting by and through the **NORTH CAROLINA CLEAN WATER MANAGEMENT TRUST FUND,** an independent State agency with an address at 1651 Mail Service Center, Raleigh, North Carolina 27699-1651 ("Fund").

RECITALS and CONSERVATION PURPOSES

A. Grantor is the sole owner in fee simple of that certain real property containing 522 acres more or less, known as the Humpback Mountain tract, described in Deed Book 737, Page 233 of the McDowell County Registry, and Book 367, page 2657 of the Avery County Registry and more particularly described in Exhibit A. It is further described as Tax parcel #1820.00-11-6620 in McDowell County and 1820.00-24-9301 in Avery County.

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B. Grantor is a non-profit organization "established for the purpose of promoting the preservation of ecologically valuable lands, natural and wildlife habitat, and lands with significant natural and open space values in the State of North Carolina for charitable, scientific, educational and aesthetic purposes."

C. The State has enacted the Uniform North Carolina Conservation and Historic Preservation Agreements Act (the "Act"), Chapter 121, Article 4 of the North Carolina General Statutes ("NCGS"), which provides for the enforceability of restrictions, easements, covenants or conditions "appropriate for retaining land or water areas predominantly in their natural, scenic or open condition . . . ."

D. The Fund is authorized by NCGS Chapter 113A, Article 18 to finance projects and to acquire land and interests in land, including conservation easements for riparian buffers for the purposes of providing environmental protection for surface waters and urban drinking water supplies.

E. Grantor and Grantee have agreed to set aside 248 acres more or less of the Property (as described in Exhibit B and hereinafter referred to as the "Easement Area"), for the purpose of creating a Conservation Easement to preserve, enhance, restore, and maintain the natural features and resources of the Property, to provide habitat for native plants and animals, to improve and maintain water quality, and to control runoff of sediment (hereinafter the "Conservation Values"). The Easement Area shall be conveyed together with the right of ingress, egress and regress over, upon and across the Property to and from the Easement Area.

F. Grantor and Grantee recognize that the Easement Area is located adjacent to Harris Creek and unnamed tributaries of White Oak Branch, North Fork of the Catawba and Honeycutt Creek. Harris Creek and its tributaries and the Easement Area have been deemed by the State to qualify as a riparian buffer addressing the cleanup and prevention of pollution of the State's surface waters, and the establishment of a network of riparian buffers. Moreover, Grantor and Grantee recognize that the Property has other Conservation Values including fish and wildlife conservation, open space and scenic values.

G. Grantor has received or will receive a grant from the Fund, identified as Grant Contract No. 2010-017 (the "Grant Contract"), entered into between the Grantor and the Fund and effective as of December 20, 2010, in consideration of which the Grantor has agreed to convey this Conservation Easement. The terms and conditions of said Grant are hereby incorporated by reference. It is on file and available for public inspection in the offices of the Grantor, the Fund.

H. Grantor, Grantee and Fund (collectively referred to herein as the "Parties") hereto intend that the Conservation Values of the Easement Area will be preserved and managed in a manner that will protect the quality of waters of Harris Creek and its tributaries, and otherwise promote the public purposes authorized by NCGS Chapter 113A, Article 18, and as set forth in the Grant Agreement. The Parties further acknowledge that the State will accept this Conservation Easement by the recording of same in the official land records of Avery and

McDowell Counties.

I. The characteristics of the Easement Area, its current use and state of improvement are described in a Baseline Documentation Report (the "BDR") that is on file in the offices of the Parties, and available for public inspection. An abbreviated description of present conditions and characteristics of the Easement Area is attached hereto as Exhibit "C" and by reference incorporated herein. The Parties acknowledge that the BDR is the appropriate basis for monitoring compliance with the objectives of preserving the Conservation Values, and that it is not intended to be replaced by Exhibit C nor to preclude the use of other evidence (e.g., surveys, appraisals) to establish the present condition of the Easement Area if there is a controversy over such present condition.

J. The Parties, on behalf of themselves, their successors and assigns, agree that this Conservation Easement shall be held exclusively for conservation purposes set forth by the Grant Contract, this Conservation Easement, the Act or its successor statutes, and as specified in Section 170(h)(4)(A) of the Internal Revenue Code ("Code") or its successor statutes.

NOW, THEREFORE, in consideration of the premises and the mutual benefits recited herein, together with other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged by the Parties, the Grantor hereby unconditionally and irrevocably gives, grants and conveys forever and in perpetuity to the Grantee, its successors and assigns, and the Grantee hereby accepts, this Conservation Easement of the nature and character and to the extent hereinafter set forth in, over, through and across the Property, together with the right and easement to preserve and protect the Conservation Values; also together with the right of ingress, egress and regress over, upon and across the Property to and from the Easement Area.

The purposes of this Conservation Easement are to provide environmental protection for surface waters and to protect the wildlife and natural heritage values, and it shall be so held, maintained and used therefore. It is the further purpose of this Conservation Easement to prevent any use of the Easement Area that will significantly impair or interfere with the preservation of said Conservation Values. Grantor intends that this Conservation Easement will restrict the use of the Easement Area to such activities as are consistent with the Conservation Values described in the Recitals.

ARTICLE I. DURATION OF EASEMENT

This Conservation Easement shall be perpetual. It is an easement in gross, runs with the land, and is enforceable by Grantee against Grantor, its representatives, successors, assigns, lessees, agents and licensees.

ARTICLE II. RIGHTS RESERVED TO GRANTOR

Unless and until such time as this Conservation Easement is terminated as set forth herein, Grantor shall manage the Property pursuant to the terms of this Conservation Easement, and shall retain all rights expressly reserved herein below, including the right to engage in or permit others to engage in uses of the Easement Area that are not inconsistent with the conservation purposes of this Conservation Easement. All rights reserved by the Grantor are

reserved for Grantors, their representatives, successors and assigns, and are considered to be consistent with the conservation purposes of this Conservation Easement. Except for the specific restrictions and prohibitions made applicable herein to the Easement Area, Grantor shall continue to own and may use the Property in any lawful manner.

Grantor expressly reserves the following rights:

A. Passive Recreational Use. Grantor will permit others to engage in passive recreational uses of the Easement Area, and as provided herein, so long as such uses require only minimal surface alteration of the land, and related alterations, construction, improvements, maintenance, activities and uses pose no threat to the Conservation Values.

B. Public Use and Access. Grantor will allow public access and use of the Easement Area for the purpose of hiking and associated recreational activities, including conducting educational tours, scientific study, animal/plant observation, walking, biking, fishing and hunting pursuant to all applicable law, rules and regulations, and any other purposes consistent with these accepted uses and maintaining the Conservation Values. All improvements shall be subject to the terms and conditions set forth herein and by the aforementioned Grant Contract.

C. Hiking Trails. Grantor reserves the right to construct and maintain unpaved trails on the Easement Area. All new trails must be located at a minimum distance of fifteen (15) feet from the top of the bank and tributaries of Harris Creek and unnamed tributaries of White Oak Branch, North Fork of the Catawba and Honeycutt Creek, unless such locations are physically impracticable. In the construction and maintenance of the trails and when required by the terrain, boardwalks, ramps and handrails are permitted herein. If required, all trails and associated improvements may be constructed so as to comply with the rules and regulations of the Americans with Disabilities Act of 1990, Title III regulations, ADA Standards for Accessible Design, 28 CFR Part 36, revised July 1994 and amendments thereto ("ADA"). The Grantor may also construct and maintain park benches, litter receptacles, interpretive kiosks and trail/feature signs along the trails. All necessary care shall be taken to complete the construction of such features in a manner so as not to cause or allow sedimentation of or damage to Harris Creek and unnamed tributaries of White Oak Branch, North Fork of the Catawba and Honeycutt Creek and the Conservation Values of the Property/Easement Area either during or after construction.

D. Roads and Parking Areas. There shall be no construction of roads nor asphalt or concrete paving in the Easement Area. Existing roads or trails located on the Easement Area may be maintained in order to minimize runoff/sedimentation and for access through the Easement Area and Property for management, maintenance, stewardship purposes, or undeveloped recreational and educational uses of the Property and Easement Area. These roads shall not be paved or covered with asphalt, but gravel or permanent vegetation may be used to stabilize or cover the road or trail surfaces. Existing access gates may be improved, replaced, or maintained, and new access gates may be constructed to control access to the Property and the Easement Area.

E. Early Successional Habitat Areas. The Parties agree and acknowledge that the Grantor reserves the right to maintain areas of early successional habitat for the purpose of

providing habitat diversity for wildlife species, and that this may include the planting of various grasses, forbs and herbaceous vegetation.

F. Native Community Restoration. The Parties hereto agree and acknowledge that the Grantor reserves the right to perform all activities necessary to restore the native plant and animal communities on the Easement Area. All necessary care shall be taken to complete the construction of such features in a manner so as not to cause or allow sedimentation or damage to the Conservation Values of the Easement Area either during or after construction.

Notwithstanding the foregoing, all amenities and improvements to be located on the Easement Area must comply with the terms set forth herein and in the aforementioned Grant Agreement. **The total cleared, and not re-vegetated, pervious and impervious surface areas associated with all aforesaid improvements, including, but not limited to, the trails, boardwalks, ramps, steps, observation/viewing platforms, pedestrian bridges and early successional habitat shall not exceed ten percent (10%) of the total area of the Easement Area.** Furthermore, the Parties have no right to agree to any activity that would result in the termination of this Conservation Easement.

ARTICLE III. PROHIBITED AND RESTRICTED ACTIVITIES

Any activity on, or use of, the Easement Area inconsistent with the purposes of this Conservation Easement is prohibited. The Easement Area shall be maintained in its natural, scenic, wooded and open condition and restricted from any development or use that would impair or interfere with the conservation purposes of this Conservation Easement.

Except for those rights specifically reserved to Grantor in Article II and without limiting the generality of the foregoing, the following activities and uses are expressly prohibited or restricted.

A. Industrial and Commercial Use. Industrial and commercial activities and any right of passage for such purposes are prohibited on the Easement Area.

B. Agricultural, Grazing and Horticultural Use. Agriculture, grazing, horticultural and animal husbandry operations are prohibited on the Easement Area.

C. Disturbance of Natural Features, Plants and Animals. There shall be no cutting or removal of trees, or the disturbance of other natural features within the Property/Easement Area except as noted in Article II above and for the following: (a) as incidental to boundary marking, fencing, signage, (b) selective cutting and prescribed burning or clearing of vegetation and the application of mutually approved herbicides and pesticides for fire containment, insect and disease control, storm-related damage, human safety, restoration of hydrology, wetlands enhancement, maintenance of early successional habitat and/or control of non-native plants; (c) hunting and fishing pursuant to applicable local, state and federal rules and regulations; and (d) removal of damaged trees and debris caused by storm and fire and posing a threat to life or Conservation Values of the Property/Easement Area.

D. Construction of Buildings and Recreational Use. There shall be no constructing or placing of any building, mobile home, asphalt or concrete pavement, billboard or other advertising display, antenna, utility pole, tower, conduit, line, pier, landing, dock or any other temporary or permanent structure or facility on or above the Easement Area except for the following: placement and display of no trespassing signs, local, state or federal traffic or similar informational signs, boundary fencing, entry signs, signs identifying the Conservation Values and cultural and historic significance of the Easement Area, and/or signs identifying the Grantor as owner of the Property, the Grantee as holder of this Conservation Easement, and the sources of funding for the acquisition of the Conservation Easement; signs proclaiming that the Easement Area will remain in its protected state, educational and interpretative signs, identification labels or any other similar temporary or permanent signs, reasonably satisfactory to the Fund.

E. Mineral Use, Excavation, Dredging. There shall be no filling, excavation, dredging, mining or drilling; no removal of topsoil, sand, gravel, rock, peat, minerals or other materials, and no change in the topography of the land in any manner except as necessary for the purpose of combating erosion or incidental to any conservation management activities otherwise permitted in the Easement Area.

F. Wetlands and Water Quality. Except as set forth in Article II above, there shall be no pollution or alteration of water bodies and no construction or other activities that would be detrimental to water quality or that would alter natural water levels, drainage, sedimentation and/or flow in or over the Easement Area or into any surface waters, or cause soil degradation or erosion, nor any diking, dredging, alteration, draining, filling or removal of wetlands, except activities to restore natural hydrology, for wetlands enhancement, or to enhance or improve water quality as permitted by state and any other appropriate authorities.

G. Dumping. Dumping of soil, trash, ashes, garbage, waste, abandoned vehicles, appliances, or machinery or other materials on the Easement Area is prohibited.

H. Conveyance and Subdivision. The Easement Area or any underlying property interest within the Easement Area may not be subdivided, partitioned nor conveyed away from the Property except in its current configuration as an entity or block.

I. Mitigation. There shall be no use of the Easement Area or any portion thereof to satisfy compensatory mitigation requirements under 33 USC §1344 or NCGS §143-214.11 or any successor or replacement provision of the foregoing.

ARTICLE IV. ENFORCEMENT AND REMEDIES

A. Enforcement. To accomplish the purposes of this Conservation Easement, Grantee is allowed to prevent any activity on or use of the Easement Area that is inconsistent with the purposes of this Conservation Easement, and to require the restoration of such areas or features of the Easement Area that may have been damaged by such activity or use. Upon any breach of the terms of this Conservation Easement by Grantor that comes to the attention of the Grantee, the Grantee shall, except as provided below, notify the Grantor in writing of such

breach. The Grantor shall have ninety (90) days after receipt of such notice to correct the conditions constituting such breach. If the breach remains uncured after ninety (90) days, the Grantee may enforce this Conservation Easement by appropriate legal proceedings including damages, injunctive and other relief. The Grantee shall also have the power and authority, consistent with its statutory authority: (a) to prevent any impairment of the Easement Area by acts which may be unlawful or in violation of this Conservation Easement; (b) to otherwise preserve or protect its interest in the Easement Area; or (c) to seek damages from any appropriate person or entity. Notwithstanding the foregoing, the Grantee reserves the immediate right, without notice, to obtain a temporary restraining order, injunctive or other appropriate relief if the breach of the term of this Conservation Easement is currently impairing or would irreversibly or otherwise materially impair the benefits to be derived from this Conservation Easement. The Grantor and Grantee acknowledge that under such circumstances damage to the Grantee would be irreparable and remedies at law will be inadequate. The rights and remedies of the Grantee provided hereunder shall be in addition to, and not in lieu of, all other rights and remedies available to Grantee in connection with this Conservation Easement, including, without limitation, those set forth in the Grant Agreement under which this Conservation Easement was obtained.

B. Right of Entry and Inspection. Grantee, its employees and agents and its successors and assigns, and the Fund, have the right, with reasonable notice, to enter the Property and Easement Area at reasonable times for the purpose of inspecting the Easement Area to determine whether the Grantor, Grantor's representatives, successors or assigns are complying with the terms, conditions and restrictions of this Conservation Easement.

C. Termination and Proceeds of Property Rights Created. This Conservation Easement gives rise to a property right that is immediately vested in the Grantee at the time of recordation, with a fair market value that is equal to the proportionate value that the Conservation Easement bears to the value of the Property as a whole on the date of the recording of this Conservation Easement. This proportionate value shall remain constant.

1. Eminent Domain. Whenever all or part of the Property is taken by exercise of eminent domain by public, corporate or other authority, or by negotiated sale in lieu of condemnation, so as to abrogate the restrictions imposed by this Conservation Easement, the Grantor shall immediately give notice to Grantee and the Fund, and shall take all appropriate actions at the time of such taking or sale to recover the full value of the taking and all incidental or direct damages resulting from the taking. The Grantee, its successors and assigns, shall be entitled to a portion of the proceeds of such sale, exchange, involuntary conversion of the Property, or any damage award with respect to any judicial proceeding according to Grantee's proportional interest in the value of the Property as determined under Treasury Regulations §1.170A-14(g)(6)(ii) or any successor regulation. "Proceeds of Sale" shall mean the cash value of all money and property paid, transferred or contributed in consideration for, or as otherwise required as a condition to the sale, exchange or involuntary conversion of the Conservation Area, or any damages otherwise awarded as a result of judicial proceeding, *minus* the Grantor's expenses from such transaction or proceeding. As allowed by NCGS §146-30(a), Grantee shall use its share of the Proceeds of Sale in a manner consistent with the conservation purposes set forth herein. Notwithstanding the foregoing, all Proceeds of Sale shall be distributed among the

Parties according to each Party's respective contribution to the purchase price of the Property and this Conservation Easement. For the purposes of determining any distribution of proceeds pursuant to this section, Grantor's proportionate contribution to the purchase price shall be deemed to be 51%, and Grantee's proportionate contribution to the purchase price shall be deemed to be 49%.

2. Changed Conditions. If a subsequent, unexpected change in conditions surrounding the Property makes impossible or impractical the continued use of the Property for conservation purposes, and the Conservation Easement is extinguished by judicial proceeding, the Grantee, its successor and assigns, shall be entitled to a portion of the proceeds of any sale, exchange, involuntary conversion of the Property, or any damage award with respect to any judicial proceeding according to Grantee's proportional interest in the value of the Property as determined under Treasury Regulations §1.170A-14(g)(6)(ii) or any successor regulation. "Proceeds of Sale" shall mean the cash value of all money and property paid, transferred or contributed in consideration for or as otherwise required as a condition to the sale, exchange or involuntary conversion of the Property, or any damages otherwise awarded as a result of judicial proceeding, *minus* the Grantor's expenses from such transaction or proceeding. As allowed by NCGS §146-30(a), Grantee shall use its share of the Proceeds of Sale in a manner consistent with the conservation purposes set forth herein. Notwithstanding the foregoing, all Proceeds of Sale shall be distributed among the Parties according to each Party's respective contribution to the purchase price of the Property and this Conservation Easement. For the purposes of determining any distribution of proceeds pursuant to this section, Grantor's proportionate contribution to the purchase price shall be deemed to be 51%, and Grantee's proportionate contribution to the purchase price shall be deemed to be 49%.

D. Changed Conditions. When a change in conditions gives rise to the extinguishment of this Conservation Easement or a material term or provision hereof by judicial proceeding, the Grantee, its successor and assigns, and CTNC shall be entitled to a portion of the proceeds of such sale, exchange, involuntary conversion of the Easement Area, or any damage award with respect to any judicial proceeding. Such portion shall be equal to the fair market value of the Grantee's, its successors and assigns, and CTNC's interest in the Property on the date of the recording of this Conservation Easement. Grantee and CTNC shall use its share of the Proceeds of Sale in a manner consistent with the conservation purposes set forth herein.

E. Acts Beyond Grantor's Control. Nothing contained in this Conservation Easement shall be construed to entitle Grantee to bring any action against Grantor for any injury or change in the Easement Area resulting from the acts of third parties not authorized by Grantor, or from causes beyond the Grantor's control, including, without limitation, fire, flood, storm, and earth movement, or from any prudent action taken in good faith by the Grantor under emergency conditions to prevent, abate, or mitigate significant injury to life, property damage or harm to the Easement Area resulting from such causes.

F. Costs of Enforcement. Any costs incurred by Grantee in enforcing the terms of this Conservation Easement against Grantor, including, without limitation, any costs of restoration necessitated by Grantor's acts or omissions in violation of the terms of this Conservation Easement, shall be borne by Grantor.

G. No Waiver. Enforcement of this Conservation Easement shall be at the discretion of the Grantee and any forbearance by Grantee to exercise its rights hereunder in the event of any breach of any term set forth herein shall not be deemed or construed to be a waiver by Grantee of such term or of any subsequent breach of the same or of any other term of this Conservation Easement or of Grantee's rights. No delay or omission by Grantee in exercise of any right or remedy shall impair such right or remedy or be construed as a waiver.

ARTICLE V. TITLE

The Grantor covenants and represents and warrants: (a) that the Grantor is the sole owner and is seized of the Property in fee simple and has good right to grant and convey the aforesaid Conservation Easement; (b) that there is legal access to the Property and the Easement Area and, that the Easement Area is free and clear of any and all encumbrances, except those permitted exceptions shown on the attached Exhibit "D," none of which would nullify, impair or limit in any way the terms or effect of this Conservation Easement; (c) Grantor shall defend its title against the claims of all persons whomsoever, and (d) Grantor covenants that the Grantee, its successors and assigns, shall have the right to monitor and defend the terms of the aforesaid Conservation Easement.

ARTICLE VI. MISCELLANEOUS

A. Stewardship of the Conservation Easement. Pursuant to the terms of the Grant Contract, and regardless of whether the Grantee of this Conservation Easement is the State, CTNC hereby covenants and agrees that it will monitor and observe the Easement Area for so long as it retains title to the fee interest in the Property, to assure compliance with the purposes and provisions of this Conservation Easement and the provisions of the Grant Contract, and that it will report on the condition of the Easement Area, or provide for such reporting, to the State and the Fund no less frequently than once a year; and further will report immediately to the State and the Fund any observed and/or known violations of this Conservation Easement or the Grant Contract. Termination of the Conservation Easement in accordance with Article II hereof shall terminate this stewardship obligation.

B. Subsequent Transfers of the Fee. Grantor agrees for itself, its successors and assigns, that in the event it transfers the Property, or any portion thereof including the Easement Area described herein, to notify the Fund in writing of the names and addresses of any party to whom the Property is to be transferred at or prior to the time said transfer is consummated. Grantor, for itself, its successors and assigns, further agrees to make specific reference to this Conservation Easement in a separate paragraph of any subsequent lease, deed, or other legal instrument by which any interest in the Property is conveyed. The Grantor shall not convey the Property or any interest therein, and shall not incur, assume, or suffer to exist any lien upon or with respect to the Property without disclosing to the prospective buyer the Conservation Easement and the obligations of the owner of the Property and limitations on use of the Easement Area.

C. Subsequent Transfers of the Conservation Easement. The Parties hereto recognize and agree that the benefits of this Conservation Easement are in gross and assignable

with any such assignee having all the rights and remedies of Grantee hereunder. The Parties hereby covenant and agree, that in the event this Conservation Easement is transferred or assigned, the transferee or assignee of the Conservation Easement will be a qualified organization as that term is defined in Section 170(h)(3) of the Code, as amended or any successor section, and the regulations promulgated there under which is organized or operated primarily for one of the conservation purposes specified in Section 170(h)(4)(A) of the Code, and a qualified holder as that term is defined in the Act or any successor statute. The Parties further covenant and agree that the terms of the transfer or the assignment will be such that the transferee or assignee will be required to continue to carry out in perpetuity the conservation purposes that the contribution was originally intended to advance as set forth in the Recitals. Grantee, its successors or assigns, hereby covenants and agrees that subsequent to any transfer as provided for herein, it will continue to monitor and observe the Easement Area in perpetuity for such purposes set forth by this Conservation Easement and Grant Agreement, and to report to the Fund and the State any observed violations on the Easement Area.

D. Existing Responsibilities of Grantor and Grantee Not Affected. Other than as specified herein, this Conservation Easement is not intended to impose any legal or other responsibility on the Grantee, or in any way to affect any existing obligation to the Grantor as owner of the Property. Among other things, this shall apply to:

1. Taxes. The Grantor shall continue to be solely responsible for payment of all taxes and assessments levied against the Property so long as it is the fee owner of the Property. If the Grantee is ever required to pay any taxes or assessments on its interest in the Property, the Grantor will reimburse the Grantee for the same.

2. Upkeep and Maintenance. The Grantor shall continue to be solely responsible for the upkeep and maintenance of the Property for so long as it is the fee owner of the Property to the extent it may be required by law. The Grantee shall have no obligation for the upkeep or maintenance of the Property/Easement Area.

3. Liability and Indemnification. If the Grantee is ever required by a court to pay damages resulting from personal injury or property damage that occurs on the Easement Area, the Grantor shall indemnify and reimburse the Grantee for these payments, as well as reasonable attorneys' fees and other expenses of defending itself, unless the Grantee has committed a deliberate act that is determined to be the sole cause of the injury or damage. In addition, Grantor warrants that Grantee shall be maintained as an additional insured on Grantor's liability insurance policies covering the Easement Area.

E. Conservation Purpose. Grantor and Grantee, for itself, its successors and assigns, agree that this Conservation Easement shall be held exclusively for conservation purposes set forth by the Grant Contract, this Conservation Easement and as specified in Section 170(h)(4)(A) of the Code. Further, this Conservation Easement shall be construed to promote the

purposes of the Act and such purposes of this Conservation Easement as are defined in Section 170(h)(4)(A) of the Code.

F. Recording. Grantee shall record this instrument and any amendment hereto in timely fashion in the official records of Avery County and McDowell County, North Carolina, and may re-record it at any time as may be required to preserve Grantee's rights.

G. Notices. All notices, requests or other communications permitted or required by this Agreement shall be sent by registered or certified mail, return receipt requested, addressed to the Parties as set forth above, or to such other addresses such party may establish in writing to the other. All such items shall be deemed given or made three (3) days after being placed in the United States mail as herein provided. In any case where the terms of this Conservation Easement require the consent of any party, such consent shall be requested by written notice. Such consent shall be deemed denied unless, within ninety (90) days after receipt of notice, a written notice of approval and the reason therefore has been mailed to the party requesting consent.

H. Amendments. Grantor and Grantee, or their successors in interest in the Easement Area, are free to jointly amend this Conservation Easement to meet changing conditions, provided that no amendment will be allowed that is inconsistent with the purposes of this Conservation Easement or affects the perpetual duration of this Conservation Easement. Such amendment(s) require the written consent of both Grantor and Grantee and shall be effective upon recording in the public records of Avery County and McDowell County, North Carolina.

I. Environmental Condition of the Property. The Grantor warrants, represents and covenants to the Grantee that to the best of its knowledge after appropriate inquiry and investigation: (a) the Easement Area described herein is and at all times hereafter will continue to be in full compliance with all federal, state and local environmental laws and regulations; (b) as of the date hereof there are no hazardous materials, substances, wastes or environmentally regulated substances (including, without limitation, any materials containing asbestos) located on, in or under the Easement Area or used in connection therewith; (c) that there is no environmental condition existing on the Property that may prohibit or impede use of the Easement Area for the purposes set forth herein; and (d) the Grantor will not allow such uses or conditions.

J. Indemnity. The Grantor agrees to the fullest extent permitted by law to defend, protect, indemnify and hold harmless Grantee from and against all claims, actions, liabilities, damages, fines, penalties, costs and expenses suffered as a direct or indirect result of any violation of any federal, state, or local environmental or land use law or regulation or of the use or presence of hazardous substance, waste or other regulated material in, on or under the Easement Area.

K. Entire Agreement. The Recitals set forth above and the exhibits, if any, attached hereto are incorporated herein by reference. This instrument including the Grant Agreement sets forth the entire agreement of the Parties with respect to this Conservation Easement and

supersedes all prior discussions, negotiations, understandings or agreements relating to the Conservation Easement. To the extent that this Conservation Easement is in conflict with the Grant Agreement, the terms of the Conservation Easement shall control.

L. Document Under Seal. The Parties intend this document to be an instrument executed under seal. If any party is an individual, partnership or limited liability company such party hereby adopts the word "SEAL" following his/her signature and the name of the partnership or limited liability company as his/her/its legal seal.

M. Interpretation. This Conservation Easement shall be construed and interpreted under the laws of the State, and any ambiguities herein shall be resolved so as to give maximum effect to the conservation purposes sought to be protected herein. Further, this Conservation Easement shall be construed to promote the purposes of the Act, which authorizes the creation of conservation agreements for purposes including those set forth herein, and such conservation purposes as are defined in Section 170(h) (4) (A) of the Code. If any provision of this is found to be invalid, the remainder of the provisions of this Conservation Easement, and the application of such provision to persons or circumstances other than those as to which it is found to be invalid, shall not be affected thereby.

N. Parties. Every provision of this Conservation Easement that applies to the Grantor or to the Grantee shall likewise apply to their respective heirs, executors, administrators, successors and assigns.

O. No Extinguishment Through Merger. The Parties agree that except for conveyance of the fee interest in the Property to the State pursuant to Article II herein above, the terms of this Conservation Easement shall survive any merger of the fee and easement interest in the Property. Further, the Parties agree that should Grantee, or any successor in interest to Grantee, acquire title to all or a portion of the fee interest in the Property subject to this Conservation Easement (a) said owner shall observe and be bound by the obligations and the restrictions imposed upon the Easement Area by this Conservation Easement, and (b) this Conservation Easement shall not be extinguished through the doctrine of merger in whole or in part in view of the public interest in its enforcement, unless and until it is terminated as set forth in Article II herein above.

P. Subsequent Liens. No provisions of this Conservation Easement shall be construed as impairing the ability of Grantor to use the Property as collateral for borrowing purposes, provided that any mortgage or lien arising there from shall be subordinated to this Conservation Easement. The Property owner shall not convey the Property or any interest therein, and shall not incur, assume, or suffer to exist any lien upon or with respect to the Property Area, without disclosing to the prospective buyer the Conservation Easement and the obligations of the Conservation Easement and limitations on use of the Easement Area.

Q. Gender. The designations Grantor, Grantee, State and Fund, as used herein shall include the Parties, their heirs, administrators, successors and assigns, and shall include the singular, plural, masculine, feminine or neuter as the context may require.

R. Restrictions Considered Cumulative. The prohibitions and restrictions in this

Conservation Easement shall be considered cumulative and any prohibition and restriction which is interpreted to be more specific or more restrictive than another prohibition or restriction shall not serve as a limitation on the meaning, interpretation or enforceability of the less specific or restrictive provision.

TO HAVE AND TO HOLD unto the State by and through the Fund, its successors and assigns, forever. The covenants agreed to and the terms, conditions, restrictions and purposes imposed as aforesaid shall be binding upon Grantor, Grantor's representatives, successors and assigns, and shall continue as a servitude running in perpetuity with the Property/Easement Area.

IN WITNESS WHEREOF, Grantor by authority duly given, have hereunto caused these presents to be executed in such form as to be binding, the day and year first above written.

(Remainder of this page intentionally left blank. Signature pages follow.)

RE 480 680

CRP BK 1116 PG 777

GRANTOR:
CONSERVATION TRUST FOR NORTH CAROLINA
a North Carolina non-profit corporation

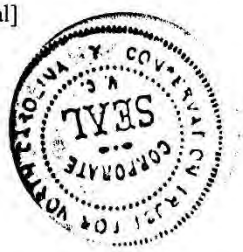
BY: D. Reid Wilson

NAME: Daniel Reid Wilson

TITLE: Executive Director

ATTEST: [signature]
(Asst.) Secretary

[Corporate Seal]



NORTH CAROLINA
COUNTY OF Wake

I certify that the following person(s) personally appeared before me this day, and:

- ☐ I have personal knowledge of the identity of the principal(s);
- ☒ I have seen satisfactory evidence of the principal's identity, by a current state or federal identification and with the principal's photograph in the form of North Carolina Driver License;
- ☐ A credible witness has sworn to the identity of the principal(s);

each acknowledging to me that he/she is the Executive Director of CONSERVATION TRUST FOR NORTH CAROLINA, a North Carolina nonprofit corporation and that by authority duly given and as the act of the corporation he/she voluntarily executed the foregoing instrument for the purposes therein expressed and in the capacity indicated: Daniel Reid Wilson (names/capacities of principals). Witness my hand and official stamp or seal, this 18 day of November, 2013.

[signature]
NOTARY PUBLIC

My Commission Expires: 5/21/17

A. Keith Smith
Typed or Printed Name of Notary

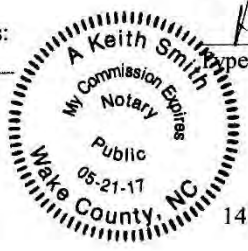


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EXHIBIT A

LEGAL DESCRIPTION OF PROPERTY
Humpback Mountain
Toe River Township, Avery County, North Carolina Deed Book 367, Page 2657 and North Cove Township, McDowell County, North Carolina Deed Book 737, Page 233

Legal Description Of A 522.75 Acre Tract Of Land Located In Toe River Township, Avery County and In North Cove Township, McDowell County. Being That Property Described in Deed Book 367, Page 2657, Avery County Registry And Also Described in Deed Book 737, Page 233, McDowell County Registry And More Particularly Described As Follows:

BEGINNING on an aluminum disk found, US Forest Service Corner 4, Tract M-121d, as noted on an unrecorded survey and plat by McMahan & Associates, P.A. for "United States Of America", dated August 28, 2005, Atlas Sheet 12-23; said aluminum disk being in the line of the Blue Ridge Parkway, Sheet 2K-9 of Drawing No. PKY-BR (2K-2050), having local coordinates of N=799,839.03 ft., E=1,120,810.20 ft, an elevation of 3575.72 ft. and being located N 03°40'27" W, a horizontal distance of 2900.49 ft. from NCGS Control Monument "Cavern" having grid coordinates of N=796,944.50 ft, E=1,120,996.07 ft, an elevation of 3360.00 ft., a combined scale factor of 0.99978139, NAD83/2002 datum; and runs from the POINT OF BEGINNING with the line of the US Forest Service Tract M-121d, N 85°40'27" W a distance of 421.43 ' to a 3/4" rebar found on the east side of a 12' gravel road; thence continuing the same course a distance of 41.02' to a 3/4" rebar found on the west side of the 12' gravel road; thence the same course a distance of 764.49', a total distance of 1226.94' to an aluminum disk found, US Forest Service Corner 3, Tract M-121d, a corner in the line of The State Of North Carolina property described in Deed Book 384 Page 568, Avery County Registry, Deed Book 404 Page 905, Mitchell County Registry and Deed Book 802 Page 001, McDowell County Registry; said aluminum disk being located N 01°11'35" E, a distance of 78.08' from an aluminum disk, US Forest Service Corner 2, Tract 121d and also being a corner of the State Of North Carolina property as mentioned above; thence with the line of the State Of North Carolina property, N 05°21'36" E a distance of 1495.72' to a concrete monument found, the northeast corner of the State Of North Carolina property and being a corner of the Unimin Corporation property described in Deed Book 171 Page 1007, Morrison/Kaolin Plant Site, Tract I, Parcel A, Avery County Registry; thence with the line of the Unimin Corporation, N 05°35'06" E a distance of 187.46' to a 1/2"rebar found; thence the same course N 05°35'06" E a distance of 551.63' to a 1" iron rod set at the intersection of a marked and painted line; thence N 44°15'40" E, continuing with the Unimin Corporation line, a distance of 5538.41' to a 5/8" rebar set at the intersection of a marked and painted line; thence N 22°16'49" W, with the Unimin Corporation line, a distance of 3177.01' to a 5/8" rebar set at a 6" chestnut oak witness at the intersection of a marked and painted line; thence N 00°10'03" E, with the Unimin Corporation line, a distance of 3002.24' to a 5/8" rebar set; thence the same course N 00°10'03" E a distance of 9.88' to a 28" chestnut oak tree, marked for a corner, a total distance of 3012.12'; thence N 83°56'26" E, continuing with the Unimin Corporation line, a distance of 15.00' to a 5/8" rebar set; thence the same course N 83°56'26" E a distance of 195.02', a total distance of 210.02', to a 5/8" rebar set, a Unimun

Corporation corner ; thence N 69°54'49" E a distance of 308.18' to a 5/8" rebar set in the line of the Blue Ridge Parkway, Sheet 2K-3 of Drawing No. PKY-BR (2K-2050) , being a corner of the Unimin Corporation property described in Deed Book 171 Page 1007, Morrison/Kaolin Plant Site, Tract I, Parcel A ; said rebar being located S 31°49'28" E a distance of 224.30' from a 2" existing iron pipe, a Unimin Corporation corner in the line of the Blue Ridge Parkway; thence with the line of the Blue Ridge Parkway, Sheet No. 2K-3 , S 31°49'28" E a distance of 501.80' to a 5/8" rebar found, Blue Ridge Parkway corner 275; thence S 85°04'02" E a distance of 186.10' to a 5/8" rebar found, Blue Ridge Parkway corner 274; thence S 63°25'13" E a distance of 477.07' to a 5/8" rebar set on line of the Blue Ridge Parkway at the edge of a deep ravine; thence the same course S 63°25'13" E , with the Blue Ridge Parkway, 314.32' , a total distance of 791.39'to an inaccessable point not monumented at time of this survey, being Blue Ridge Parkway corner 273 and also being the southwest corner of the G. Gregory Andrews property described in Deed Book 394 Page 1896, Avery County Registry ; thence with the south line of the Andrews property, S 68°40'16" E a distance of 261.32' to an inaccessable point not monumented at time of this survey in the line of the Blue Ridge Parkway, Sheet No. 2K-4 of Drawing No. PKY-BR,(2K-2050) and also being the southeast corner of the Andrews property; thence with the line of the Blue Ridge Parkway, S 11°03'13" W a distance of 50.00' to an inaccessable point not monumented at time of this survey, the Blue Ridge Parkway corner 268 of Sheet 2K-4 of Drawing No. PKY-BR (2K-2050); thence with the Parkway line , S 33°06'47" E a distance of 278.44' to an inaccessable point not monumented at time of this survey, the Blue Ridge Parkway corner 267; thence continuing with the Parkway line, S 32°09'17" E a distance of 88.56' to an inaccessable point not monumented at time of this survey in said line, being Corner 8 of the US Forest Service, Tract 121-F described in Deed Book 89 Page 15, McDowell County Registry; thence with the line of the US Forest Service, Tract 121-f, S 03°22'26" W a distance of 638.42' to a 5/8" rebar set on line at the edge of the deep revine; thence the same course S 03°22'26" W a distance of 506.69', a total distance of 1144.78', with the US Forest Service line to a 5/8" rebar set at the edge of the ravine, Corner 7 of the US Forest Service , Tract 121-F in the line of the Blue Ridge Parkway; thence S 50°57'13" W , with the Parkway line, a distance of 23.76' to a concrete monument found, Blue Ridge Parkway corner 259; thence with the line of the Blue Ridge Parkway with Sheet Nos. 2K-4 thru 2K-9 of Drawing No. PKY-BR (2K-2050), the following courses and distances: S 21°10'17" W a distance of 181.43'to a 5/8" rebar set, Blue Ridge Parkway corner 258; thence S 21°23'10" W a distance of 411.60' to a concrete monument found, Blue Ridge Parkway corner 257; thence S 70°45'43" W a distance of 241.25' to a concrete monument found, Blue Ridge Parkway corner 256; thence S 69°48'45" W a distance of 182.80' to a concrete monument found; thence S 68°22'18" W a distance of 7.80' to a 1" square rebar found in the east edge of a creek, Blue Ridge Parkway corner 255; thence N 85°37'09" W a distance of 222.83'to a concrete monument found, Blue Ridge Parkway corner 254; thence N 79°59'05" W a distance of 54.01' to a concrete monument found, Blue Ridge Parkway corner 253; thence S 09°33'41" E a distance of 193.91' to a concrete monument found, Blue Ridge Parkway corner 252; thence S 05°36'12" E a distance of 264.20' to a concrete monument found, Blue Ridge Parkway corner 251; thence S 04°49'48" E a distance of 471.04' to concrete monument found, Blue Ridge Parkway corner 250; thence S 43°23'04" E a distance of 510.28' to a concrete monument found, Blue Ridge Parkway corner 249; thence S 43°49'34" E a distance of 92.88' to a concrete monument found, Blue Ridge Parkway corner 248; thence S 16°49'20" E a distance of 199.78' to a concrete monument found, Blue Ridge Parkway corner 247; thence S 15°16'50" E a distance of 132.11' to a concrete monument found, Blue Ridge Parkway corner

246; thence S 15°16'50" E a distance of 95.52' to a concrete monument found, Blue Ridge Parkway corner 245; thence S 14°34'49" E a distance of 300.83' to a concrete monument found, Blue Ridge Parkway corner 244; thence S 15°52'50" E a distance of 58.99' to a concrete monument found, Blue Ridge Parkway corner 243; thence S 18°41'51" E a distance of 825.64' to a concrete monument found, Blue Ridge Parkway corner 242; thence S 20°23'09" E a distance of 345.73' to a concrete monument found, Blue Ridge Parkway corner 241; thence S 41°19'40" W a distance of 159.75'to a concrete monument found, Blue Ridge Parkway corner 240; thence S 39°08'47" W a distance of 910.15' to a concrete monument found, Blue Ridge Parkway corner 239; thence S 46°28'20" W a distance of 190.34' to a concrete monument found, Blue Ridge Parkway corner 238; thence S 16°56'39" W a distance of 141.65' to a concrete monument found, Blue Ridge Parkway corner 237; thence S 18°02'07" W a distance of 117.37' to a concrete monument found, Blue Ridge Parkway corner 236; thence S 13°50'20" W a distance of 569.22' to a concrete monument found, Blue Ridge Parkway corner 235; thence S 24°19'16" E a distance of 453.55' to a concrete monument found, Blue Ridge Parkway corner 234; thence S 23°54'08" E a distance of 173.61' to a concrete monument found, Blue Ridge Parkway corner 233; thence S 13°25'00" W a distance of 107.85' to a concrete monument found, Blue Ridge Parkway corner 232; thence S 11°07'12" W a distance of 454.01' to a concrete monument found, Blue Ridge Parkway corner 231; thence S 62°22'03" W a distance of 100.62' to a 5/8" rebar set, Blue Ridge Parkway corner 230; thence S 62°25'35" W a distance of 337.31' to a concrete monument found, Blue Ridge Parkway corner 229; thence S 35°50'29" W a distance of 372.33' to a concrete monument found, Blue Ridge Parkway corner 228; thence S 15°43'32" W a distance of 444.23' to a concrete monument found, Blue Ridge Parkway corner 227; thence S 02°25'03" E a distance of 71.74' to a concrete monument found, Blue Ridge Parkway corner 226; thence S 51°49'13" W a distance of 827.73' to a concrete monument found, Blue Ridge Parkway corner 225; thence S 38°07'41" W a distance of 603.17' to a concrete monument found, Blue Ridge Parkway corner 224; thence S 31°47'26" E a distance of 124.00' to a concrete monument found, Blue Ridge Parkway corner 223; thence S 33°33'33" E a distance of 691.65' to a concrete monument found, Blue Ridge Parkway corner 222; thence S 24°51'04" W a distance of 144.04' to a concrete monument found, Blue Ridge Parkway corner 221; thence S 24°30'48" W a distance of 98.84' to a concrete monument found, Blue Ridge Parkway corner 220; thence S 68°32'00" W a distance of 209.93' to a concrete monument found, Blue Ridge Parkway corner 219; thence S 68°51'58" W a distance of 565.64' to a concrete monument found, Blue Ridge Parkway corner 218; thence N 77°17'09" W a distance of 504.70' to a concrete monument found, Blue Ridge Parkway corner 217; thence N 77°50'25" W a distance of 266.92' to a concrete monument found, Blue Ridge Parkway corner 216; thence S 31°30'18" W a distance of 204.56' to the BEGINNING and containing 522.75 acres by coordinates as shown on plat recorded in Plat Book 23 Page 11, McDowell County Registry and Plat Book 43 Page 13, Avery County Registry. Surveyed and platted by Suttles Surveying, P.A. and completed September 26, 2013 and being Map File No. 12914C. This description provided by Suttles Surveying, P.A

EXHIBIT B

LEGAL DESCRIPTION OF CWMTF EASEMENT AREA

Being the stream buffered areas shown on the plat captioned "Boundary survey for the Conservation Trust for North Carolina," prepared by Suttles Surveying, dated 9/26/13 and recorded in Plat Book 43 and Pages 13 of the Avery County and Plat Book 23 and Pages 11 of the McDowell County Registry, reference to which is hereby made for a more complete and accurate description.

This property contains portions of Harris Creek and unnamed tributaries of White Oak Branch, North Fork of the Catawba and Honeycutt Creek. The Easement Area is composed of 300-foot wide buffers located on either side of Harris Creek and any tributaries of White Oak Branch, North Fork of the Catawba and Honeycutt Creek or other water bodies traversing the Property.

EXHIBIT C

SUMMARY BASELINE REPORT

The project property consists of 517 acres, more or less, known as the Humpback Mountain tract. It is described in Deed Book 737, Page 233 of the McDowell County Registry, and Book 367, page 2657 of the Avery County Registry. It is further described as tax parcel #1820-11-6620 and 1821-40-2462 in McDowell County and 182000249301 in Avery County. The property and surrounding areas are depicted on the Spruce Pine USGS 7.5 minute series topographic map.

A professional, recordable survey plat of the property, inclusive of the encumbered conservation easement area and adjoining uplands, was completed by Suttles Surveying, P.A., with offices in Marion, NC and Morganton, NC. This plat is verified and recorded at the Avery County and McDowell County registries on the date the conservation easement was recorded.

The property is accessed from White Rock Road, which is in turn accessed from the Blue Ridge Parkway by turning onto Jacksontown Road, across the Parkway from the entrance to Bear Den Campground. Jacksontown Road becomes Lentz Road, and a right turn onto White Rock Road leads to a gravel parking area and metal gate at the entrance to a NC Wildlife Resource Commission Game Lands area. Humpback Mountain is accessed by traveling through the game lands on a maintained, primitive access road for approximately one mile. The road continues onto the project tract. The property does not contain frontage on any maintained public roadways.

The tract straddles McDowell / Avery county line. Its western section is located in the Toe River Township of Avery County and its eastern section is positioned in the North Cove Township of McDowell County. The parcel also sits on a major watershed dividing line between the Nolichucky sub-watershed (in the French Broad River Basin) and the Armstrong Creek sub-watershed (part of the North Fork Catawba River drainage in the Catawba River Basin). The property contains portions of Harris Creek and unnamed tributaries of White Oak Branch, North Fork Catawba River and Honeycutt Creek. The Easement Area is composed of 300-foot wide buffers located on either side of Harris Creek and any tributaries of White Oak Branch, North Fork Catawba River, Honeycutt Creek and any other water bodies traversing the property.

The site is undeveloped forestland that is surrounded by large parcels of undeveloped lands, comprising a contiguous, unbroken landscape. Continuity with adjoining state and federal conservation lands establish a viable wildlife corridor and wildlife habitat protection for species such as white-tailed deer, black bear, bobcat, and other animals of the region. The entire tract is forested with predominantly Appalachian oak and cove forests. Common wildlife species found on the tract include wild turkey, black bear, white-tailed deer, gray squirrel, ruffed grouse as well as various songbirds, salamanders, butterflies, insects, reptiles, and small mammals. The tract is adjacent to the Little Tablerock Mountain State Natural Heritage Area and is less than 1 mile from both the Linville Caverns and the Catawba River Dolomite State Natural Heritage Areas.

The areas of Avery and McDowell counties where the property is located are mountainous lands with low-density, rural residential development. Most of the area in vicinity of Humpback

Mountain is relatively unbroken forestland on rugged terrain. The property itself is undeveloped forestland, including surface water channels, a primitive access road with some connecting forest trails and old, unmaintained logging trails, and a few maintained, early successional wildlife openings. The property shows signs of timber management throughout. The occurrence of silvicultural activities range from within the last ten years to likely several decades past. There is no obvious evidence of recent fires or deliberate forest regeneration activities such as tree plantings.

Adjoining the entire eastern boundary of the property is National Park Service lands of the Blue Ridge Parkway unit. Outside of the immediate roadway corridor of the Parkway, these federal lands have gone unmanaged for decades resulting in mature, diverse, naturally regenerated forest stands. To the south, the property is bound by state game lands administered by NC WRC. These lands are managed for habitat and forest stand diversity, in terms of age-class, structure and stratification, and overstory composition.

Adjoining the entire western boundary of the property are steep uplands of a large, 3,000 + acre property owned by Harris Mining Company with a mailing address in Connecticut. This tract encompasses almost the entire Harris Creek catchment and a large section of the White Oak Branch catchment. Aerial imagery from 2010 indicate the forested uplands of this adjoining property are generally unmanaged, likely because of the steep, rugged terrain. Two large surface mines impact a section of the middle slopes of the tract, and additional clearings and impactful activities are apparent on the lower reaches of the property.

EXHIBIT D

EXCEPTIONS TO TITLE

1. **Taxes for the year 2014, and subsequent years, not yet due and payable.**

2. **Rights of others thereto entitled in and to the continued uninterrupted flow of White Oak Creek; Big Ridge; Big Stamp Branch; McGimsey Branch; Mudhead Branch; Harris Creek and any other waters, located on the Land.**

3. **Title to that portion of the Land within the right-of-way of Blue Ridge Parkway.**

4. **Rights of others thereto entitled to use of the Easements recorded in Book 150 at Page 46, Book 270 at Page 630 and referred to in Deed Book 300 at Page 110 and Book 126 at Page 72.**

5. **Subject to matters shown on recorded Plat Book** 23 **at Page** 11 **(McDowell County) and Book** 43 **at Page** 13 **(Avery County).**

APPENDIX 4 – GAME LANDS USE EVALUATION PROCEDURE

North Carolina Wildlife Resources Commission
Game Lands Use Evaluation Procedure

I. PURPOSE

The North Carolina Wildlife Resources Commission (NCWRC) is the principal advocate for and steward of the wildlife resources of North Carolina and is the primary custodian of numerous tracts of state-owned lands in the Game Lands Program. As the human population of North Carolina continues to grow at a rapid rate, state-owned Game Lands will be subject to increasing pressure to provide public outdoor recreation opportunities. These uses will include traditional activities such as hunting, fishing, trapping, and wildlife viewing, as well as other outdoor recreation pursuits. While hunting, fishing, trapping and wildlife viewing are the primary public uses of state-owned Game Lands, the NCWRC has always allowed and supported other dispersed and non-developed recreational activities. The funding sources of the NCWRC, however, are focused on natural resources management rather than recreational development and there is no on-site staff stationed at each Game Land. Because of this, the NCWRC must exercise care in providing for recreational activities that may not be compatible with the natural resources for which the lands are valued and the primary management objectives of those lands. This document will establish a process to evaluate such activities as they are considered by NCWRC staff, or are requested by the public, on state-owned Game Lands where NCWRC is the primary custodian. These activities will first be evaluated to determine if they are "appropriate" and second to determine whether they are "compatible" with respect to the following management objectives of the Game Lands program:

1. To provide, protect, and actively manage habitats and habitat conditions to benefit aquatic and terrestrial wildlife resources,
2. To provide public opportunities for hunting, fishing, trapping, and wildlife viewing,
3. To provide for other resource-based game land uses to the extent that such uses are compatible with the conservation of natural resources and can be employed without displacing primary users,
4. To provide an optimally sustainable yield of forest products where feasible and appropriate and as directed by wildlife management objectives.

This document provides a statewide framework for determining appropriate uses of NCWRC-owned or controlled Game Land properties (NCWRC Game Lands). In addition, it provides the procedure for determining if appropriate uses are compatible on a particular property.

II. ENABLING LEGISLATION

Statement of Purpose NCGS § 143-239. The purpose of this article is to create a separate State agency to be known as the North Carolina Wildlife Resources Commission, the function, purpose, and duty of which shall be to manage, restore, develop, cultivate, conserve, protect, and regulate the wildlife resources of the State of North Carolina, and to administer the laws relating to game, game and freshwater fishes, and other wildlife enacted by the General Assembly to the end that there may be provided a sound, constructive, comprehensive, continuing, and economical game, game fish, and wildlife program directed by qualified, competent, and representative citizens, who shall have knowledge of or training

in the protection, restoration, proper use and management of wildlife resources. (1947, c. 263, s. 3; 1965, c. 957, s. 13)

III. APPLICATION OF PROCEDURE

This procedure must be considered within the context of the Game Lands Program Mission Statement (GLPMS):

> "Consistent with the original establishment legislation for the WRC, the mission of the game lands program is to enhance, facilitate, and augment delivery of comprehensive and sound wildlife conservation programs. Inherent in delivery of a lands program consistent with this mission is the feasibility and desirability of multiple uses on lands owned by the state within the system. In addition to hunting, fishing, trapping, and wildlife viewing as primary uses, we recognize the desirability of providing opportunities for other activities on state-owned game lands that are feasible and consistent with the agency's mission, and compatible with these traditional uses." *(From motion made December 5, 2007 by Doug Parsons, Chairman, WRC Use and Lands Committee and unanimously approved).*

This procedure applies to all proposed and existing recreational uses of NCWRC Game Lands. It does not apply to the following circumstances:

A. **Situations where reserved rights or legal mandates provide that certain uses must, or must not, be allowed**. For example, there may be prescriptive purposes or other uses that are specifically required or not allowed in the deed or grant that conveyed the property to the state.

B. **Property management activities**. Property management activities are specified in Federal Assistance Work Plans for lands NCWRC purchases or manages with federal assistance, and are updated every five years. These plans specify wildlife, fish, and forest management activities that are not subject to this procedure when conducted by NCWRC staff or an approved cooperator.

C. **Emergencies**. The Director (or a designee) may temporarily suspend, allow or initiate any use of a property if it is determined necessary to immediately act in order to protect the health and safety of the public or any plant, fish or wildlife population.

D. **Specialized uses**. There are many uses (most of them non-recreational) that require specific authorization from NCWRC in the form of a special use permit, letter of authorization or other permit document. Some of the specialized uses that may be considered include scientific research or collections, educational pursuits, field trial use, use of buildings or other facilities, rights-of-way and other encroachments, telecommunications facilities, military, national defense uses, and public safety training. Requests for specialized uses are covered by other NCWRC policies, procedures, or rule, and are subject to separate review procedures. (*See NC Administrative Code, Title 15A, Chapter 10, Subchapter 10D - Game Land Regulations, Rule .0102; General Statutes 113-264*).

E. **Other NCWRC properties.** The NCWRC owns and/or manages lands outside of the Game Land program (e.g., boat ramps and Wildlife Conservation Areas). The use and

management of those properties are covered by other NCWRC policies, procedures, or rule and are subject to separate review procedures. (*See NC Administrative Code, Title 15A Chapter 10, Subchapter 10E - Fishing and Boating Access Areas, Rule .0104; NC Administrative Code, Title 15A Chapter 10, Subchapter 10J - Wildlife Conservation Area Regulations, Rule .0102; General Statues 113-264*).

If a proposed use falls under one of the above five circumstances, it is exempt from review under this procedure. Any other Game Land use requests, whether originating from the public or from NCWRC staff, must be reviewed under this procedure and with consideration of the following guidance:

- **Natural resources-dependent recreational uses** (see definitions below), when compatible with each other, should be considered the priority general public uses of Game Land properties.
- **Other general public uses** that are not natural resources-dependent recreational uses as described herein, and do not contribute to the fulfillment of property purposes or goals or objectives, as described in the GLPMS, are lower priorities for consideration. These uses may conflict with priority general public uses, and may divert property management resources away from priority general public uses or from the responsibility of the NCWRC to protect and manage fish, wildlife, plants and their habitats. Therefore, procedure and practice have a general presumption against allowing such uses on Game Land properties. Regardless of how often they occur or how long they last, appropriateness and compatibility determinations for each use request must be made, as defined in Section V and VI of this procedure.

IV. DEFINITIONS

A. **Natural resources-dependent recreational use** is a use of a property involving: (1) hunting; (2) fishing; (3) trapping; (4) wildlife or other natural resource observation/ education.

B. **Property managers** are the officials employed by NCWRC who direct the management of a property, or the authorized representatives of such officials.

C. **Professional judgment** is a finding, determination or decision that is consistent with the principles of fish and wildlife management and administration, and that makes use of all available science and resources.

V. DETERMINING APPROPRIATE USE

A property use is appropriate if it meets Criterion A ***or*** if it meets all of Criteria B – F (and G, when applicable).

A. It is a natural resources-dependent recreational use of a property. These are: (1) hunting; (2) fishing; (3) trapping; (4) wildlife or other natural resource observation/education.

B. The NCWRC has jurisdiction over the use and, therefore, authority to allow or not allow the use.

C. The use complies with all laws and regulations (federal, state and local).

D. The use is consistent with NCWRC policies and objectives.

E. The use is consistent with public safety. *If the use creates an unreasonable level of risk to visitors or NCWRC staff, or if the use requires NCWRC staff to take unusual safety precautions to assure the safety of the public or other NCWRC staff, the use is not appropriate.*

F. Proceeds of revenue generating uses, by for-profit entities, will be provided to the NCWRC.

G. The use was evaluated under previous administrative review, was deemed inappropriate, and conditions have changed that would now make the use appropriate.

Property managers and other NCWRC staff shall consider the above criteria and complete Exhibit 1 (appended to this document) for each use subjected to the appropriateness test. The findings shall be forwarded to Regional Supervisors and through the chain of supervision to the Director (or a designee) for concurrence. This will serve to promote consistency in determining appropriate uses of NCWRC Game Lands.

VI. DETERMINING COMPATIBILITY

Uses that are determined to be appropriate for Game Land properties will then be evaluated for compatibility to determine if the use will be allowed, and under what conditions the use will be allowed on a specified property. Property managers are required to exercise professional judgment in making these determinations. Compatibility determinations are inherently complex and require the property manager to use field experience and knowledge of land management and of the property's resources, particularly its biological resources. When a property manager is exercising professional judgment, the property manager will use available information that may include consulting with others inside and/or outside the NCWRC. At a minimum, the property manager should consider the following questions.

A. Can the use be accommodated without substantially interfering with or detracting from the fulfillment of Game Lands program management objectives (see page 1, section I)?

B. Is the use compatible with the physical and natural resource characteristics of the property (e.g., topography, soils, plant communities, endangered species concerns)? *The use is generally incompatible if it has a high probability of causing erosion, or sedimentation, or disturbance of plant or animal resources.*

C. Is the use compatible with Natural Heritage Articles of Dedication, Clean Water Management Trust Fund (CWMTF) designations, and/or any deed restrictions or other legal limitations placed upon the property, including those specified for land purchased with Pittman-Robertson Wildlife Restoration Act funds?

D. Is there infrastructure present on the property to support the requested use (e.g., graveled

roads, parking areas, facilities)?

E. Is the requested activity not adequately provided for on other nearby public lands? *If a proposed use is available on other nearby lands, the NCWRC may not feel as strong an obligation to consider that use on Game Lands. Even if a use is <u>not</u> adequately provided for on other nearby public lands, the NCWRC still may not feel such an obligation, but should consider the unique nature of the request.*

F. Will the use necessitate facility, infrastructure development or maintenance and is this use manageable within available budget and staff? *If a proposed use diverts management efforts away from the proper and reasonable management of a property or natural resources-dependent recreational use, the use is generally incompatible.*

G. Will the use be manageable in the future within existing resources? *If the use would lead to recurring requests for the same or similar activities that will be difficult to manage in the future, then the use is generally incompatible. If the use can be managed so that impacts to natural and cultural resources are minimal or inconsequential, or if clearly defined limits can be established, then the use may be compatible.*

H. Is the requesting entity capable of providing any funding, labor, or materials for the development of, and maintenance support for, the activity, if applicable (e.g., trail or road maintenance, rehabilitation to areas that may be damaged by the activity)?

I. If a use is not compatible as initially proposed, can it be made compatible by implementing stipulations that avoid or minimize potential adverse impacts?

Property managers shall consider the above questions, and any other information or issues deemed necessary to make a determination based on professional judgment, and complete Exhibit 2 (appended to this document) for each property use subjected to a compatibility determination. The findings shall be forwarded to the Regional Supervisor and through the chain of supervision to the Director (or a designee) for concurrence. This will serve to promote consistency in determining compatible uses of NCWRC Game Lands.

VII. <u>EVALUATION</u>

The Director (or a designee) shall consider each request and the derived appropriateness and compatibility, and then make a determination as to whether the request will be approved or denied. The Director will forward use requests deemed significant in scope to the Commission's Use and Lands Committee, such as those involving: a) rule change, b) revenue generation, c) expenditure of NCWRC funds, or d) substantial alteration to infrastructure or natural resources.

All approved uses will be evaluated periodically by NCWRC field staff to determine whether such activities remain appropriate and compatible. All efforts will be made by field staff to inform participants of approved uses that issues of incompatibility will be grounds for immediate termination of the approved activity.

This is a living document that may be modified and updated as needed.

EXHIBIT 1

APPROPRIATE USE DETERMINATION

Property Name: _____

Requested or Considered Use: _____

DECISION CRITERIA *(refer to section V)*	YES	NO
A. Is the use a natural resource-dependent recreational use of a property?		
If 'NO' above, then consider the following criteria.		
B. Does the NCWRC have jurisdiction over the use?		
C. Does the use comply with laws and regulations (federal, state or local)?		
D. Is the use consistent with NCWRC policies and objectives?		
E. Is the use consistent with public safety?		
F(i). Is the requesting entity a non-profit? F(ii). If NO to F(i), will any proceeds of the use be provided to the NCWRC? (*Describe for-profit entity and supply information on proceeds to be provided to the NCWRC in the Comments section below*)		
G. If the use was evaluated under previous administrative review and deemed inappropriate, have circumstances changed that would now make the use appropriate? (*leave blank if not applicable*)		

To be found appropriate, answers to Criterion A **OR** Criteria B – F (and G, if applicable) must be YES.

Determination (check one below):

_____ Appropriate _____ Not Appropriate

Comments:

Property Manager: _____ Date: _____

Regional Supervisor: _____ Date: _____

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EXHIBIT 2

COMPATIBILITY DETERMINATION

(*Use as much space as needed*)

Property Name: _____

Requested or Considered Use: _____

DECISION CRITERIA *(refer to section VI)*	YES	NO	Comments
A. Use will not interfere with or detract from fulfillment of Game Land program management objectives?			
B. Use is compatible with the physical and natural resource characteristics of the property?			
C. Use is compatible with Natural Heritage Articles of Dedication, CWMTF designations, and/or any deed restrictions or other legal limitations placed upon the property? **OR** (in the absence of the above) do acquisition funding partners otherwise agree to the proposed use?			
D. Infrastructure is present on the property to support the requested use?			
E. Requested activity is not adequately provided for on other nearby public lands?			
F. Use is manageable within available budget & staff?			
G. Will the use be manageable in the future within existing resources?			
H. Is the requesting entity capable of providing any maintenance support for the activity, if applicable?			
I. If the use is not compatible as initially proposed, can it be modified with stipulations that avoid or minimize potential adverse impacts and make the use compatible?			
Other (*insert*):			

To be found compatible, answers to ALL of the above questions must be YES.

Determination (Check one below):

_____ Compatible _____ Not Compatible

Stipulations necessary to ensure compatibility (*e.g., Memorandum of Agreement; performance bond; time, space, or size limitations*):

Justification/Comments:

Property Manager: _____ Date: _____

Regional Supervisor: _____ Date: _____

APPENDIX 5 – SUMMARY OF PUBLIC INPUT

Seven questions were presented to the public for their input at a meeting held in Morganton on 2/19/15. The public was also given the opportunity to provide input to the same questions via the agency website. A summary of input received is below.

1. Which habitats are most important to protect on PGL?

Comment	Responses
Early Successional Habitat	8
Aquatic	4
Diversity of all Habitats	3
Old Growth	3
All of Them	2
Quail and Grouse Habitat	2
Deer and Turkey Habitat	1
Hemlock Forests	1
Low Elevation Pine	1
Rock Outcrops	1
Squirrel Habitat	1
Wildlife Openings	1

2. Considering those that live on land and in water, what species do you think are most important to protect and/or improve on PGL?

Comment	Responses
Grouse	6
Deer	5
Turkey	4
All Species	3
Bear	2
Elk	2
Quail	2
Trout	2
All Native Species	1
Bobcat	1
Early Successional Songbirds	1
Neo-Tropical Migrants	1
Salamanders	1
Small Game	1
Woodcock	1

3. How do you use PGL?

Comment	Responses
Hunting	9
Hiking	8
Fishing	5
Birding	2
Cross Country Ski	1
For Solitude	1
Picnics	1

4. Please explain why you think the current level of access is, or is not, satisfactory on PGL?

Minimal input was received regarding access. A summary of public input and responses to those that suggested specific access improvements is below.

Comment	**Response**
Access to the Little Table Rock Mtn. Tract is challenging because of the location of the parking and access area. It is difficult to find and not very inviting.	The access road leading to the main parking area can be difficult to locate and confusing. Little opportunity to purchase a tract that would offer better access or address the current situation exists since the tract is bordered by the Blue Ridge Parkway on one side and industrial property on the other. NCWRC will install better signage from S.R. 1128 to the parking area and will install a kiosk at the parking area to better guide the public.
Provide more open roads for vehicular traffic	Roads open to vehicular use will be provided where feasible and as detailed in the Infrastructure portion of the management plan.
Access is generally satisfactory, but in some cases users need to leave trails/roads to reach certain locations.	NCWRC cannot provide access to all locations on game lands via roads and trails.

Improve parking on the Roaring Creek Tract	Constraints of the property as well as the topography and natural features on the tract do not allow for the establishment of a designated parking area on the Roaring Creek Tract. NCWRC holds no easements that would allow better vehicular access to the tract. Access to the tract is provided along S.R. 1132 and via USFS property.

5. What suggestions, if any, do you have for changing how PGL is managed and maintained?

A summary of public input and responses is below.

Comment	**Response**
I encourage the Commission to raise license fees to generate more revenue and I encourage the NC General Assembly to provide more funding for management and acquisition of additional properties, especially those that will enhance access and afford managers with greater flexibility.	The NCWRC increased license fees effective 8/1/14. Staff will continue to explore additional means of funding and will utilize funds, as able, to accomplish Game Lands Program goals.
The NCWRC should stock pheasants, grouse, and quail.	Stocking pheasants would be cost and man-power prohibitive and would not result in the establishment of a self-sustaining population of pheasants. Competition with and impacts to native species would also have to be considered. Ruffed grouse are currently found on the State owned tracts of PGL at low densities. Grouse are generally found in greatest abundance in N.C. at elevations over 2,000 ft. This eliminates all but the Little Table Rock Mtn., Roaring Creek, and Rose Creek tracts. Greater densities of ruffed grouse on these tracts would require a much greater amount of early successional habitat (ESH) than is currently present both on the game land and on surrounding properties. The State owned tracts of PGL are very poor

	quail habitat and have very little potential to provide quality habitat for quail due to mountainous terrain with generally infertile, rocky soils. Establishment of significant quantities of ESH is also challenging due to the NHP Dedications on the tracts. Stocking ruffed grouse or quail into areas containing poor habitat would not address the problem.
Lutz Tract - Provide plenty of stream buffer with regard to any proposed management activity. When making improvements to facilitate public use, stream protection should be given first priority.	Water quality is always a primary consideration when making management decisions and infrastructure improvements. The NHP Dedication on the Lutz Tract provides for a 300 ft. buffer on all major streams.
Initiate more prescribed burning and timber management to provide additional ESH	Additional ESH, whether established via prescribed burning, timber management, etc. will be provided as directed by the management plan. The establishment of ESH on the State owned tracts of PGL is restricted by the NHP Dedication. Increases to the NCWRC prescribed burning program are limited by suitable burning days, manpower constraints, and prescribed burning activity planned on other regional game lands.
Roaring Creek Tract - Management actions should not detract from the natural character of the viewshed/landscape.	The NCWRC does not consider conservation activities to have a negative impact on the view shed. Additionally, ecological values have higher priority than visual values on State owned game lands. Disturbance is part of natural ecology and is very evident within the Roaring Creek Valley. The NCWRC plans to manage for golden-winged warblers on approximately 25 acres of the Roaring Creek Tract, which should only enhance the experience of visitors to the tract.
Roaring Creek Tract - The Appalachian Trail Conservancy (ATC) requests that NCWRC work with the ATC and the U.S. Forest Service in advance of any management activity to determine the nature of potential impacts to the Appalachian Trail (AT) and to ensure those impacts are mitigated.	At its nearest point the Roaring Creek Tract is located approximately 0.3 miles from the AT and the tract can only be seen from the AT at a distance of approximately 1 mile. Any management activities on the tract should have no direct impact on the AT. The Roaring Creek Tract is dedicated as a State

	Nature Preserve by the N.C. Natural Heritage Program and any management activities on the tract will be directed by this management plan and by the NHP Dedication. The NCWRC does not feel that consultation with the ATC and U.S. Forest Service in advance of any management activities is warranted.
Roaring Creek Tract - Preserve and manage open areas for priority early successional species, especially golden-winged warbler and Appalachian cottontail.	The NCWRC plans to direct management within the NHP buffer area on the tract toward these priority early successional species.
Roaring Creek Tract - Protect and preserve headwater streams and seeps entering Elk Hollow Branch and Roaring Creek. Provide minimum 100 meter buffers on streams to provide habitat to small mammals and birds and to mitigate stream temperature changes. Increase the amount of hemlock and red spruce along these stream corridors.	Most of the riparian habitat on the Roaring Creek Tract is within NHP dedicated primary area where management activities are very limited. Certain wildlife species require ESH within riparian zones (i.e. woodcock). If ESH is established and/or managed for within riparian areas, stream buffers will be left at widths of no less than those recommended by North Carolina Forest Service Forestry BMPs. In areas where topography and/or site conditions dictate further protection, riparian buffers will exceed these recommendations.
Roaring Creek Tract - The ATC supports the maintenance of openings which complement the high elevation balds located in the surrounding area. These openings provide early successional habitat for a number of wildlife species. The ATC supports silvicultural treatments to improve wildlife habitat as long as BMPs are followed and the treatments do not negatively impact the viewshed.	The NCWRC plans to maintain openings that are present on the Roaring Creek Tract for a variety of early successional species. Silvicultural treatments to enhance wildlife habitat will be directed by this management plan and in accordance to the NHP Dedication. Habitat improvements that enhance wildlife populations and species diversity are higher priority than the viewshed and should not be considered to negatively impact views.
Roaring Creek Tract - work with conservation partners to eradicate invasive species from the property (japanese knotweed, japanese barberry, multiflora rose, oriental bittersweet, and feral hogs.	The NCWRC will work with conservation partners to remove invasive species from the tract.

Use the BMPs that NCDOT uses for its western NC seed mix to establish vegetation to reduce erosion on roads and cut over areas. Consider european species and not only native ones.	The NCWRC will consider all species and seed mixes when addressing erosion issues and realizes that no single seed mix can address all situations and management objectives.
Please keep our game lands, including trails, beautiful and unspoiled by logging.	The primary purpose of State owned game lands is conservation, with diversity of wildlife species and habitat types considered the highest priority. This approach will increase the variety of species encountered by tract visitors. Timber management to enhance wildlife habitat is part of the mission of the Game Lands Program and will be implemented on PGL as directed by this management plan.
Create better habitat for grouse	There is limited opportunity on the State owned tracts of PGL to create quality grouse habitat due to the NHP Dedication. Additionally grouse populations are highest in N.C. at elevations over 2,000 ft. The NCWRC will, however, look for opportunities to create grouse habitat where in compliance with the NHP Dedication and where appropriate.
Identify areas that could be considered for old growth establishment and protect it.	The NCWRC manages for habitat diversity, including old growth habitat.
Create more food plots	NCWRC will continue to maintain existing wildlife openings and will continue to develop more openings as opportunities, funding, and manpower allows.
Plant more soft mast	The NCWRC has engaged in numerous fruit tree and soft mast planting projects over the years on regional game lands. These have generally been unsuccessful due to damage from disease, insects, small mammals, bear, and deer. Soft mast species are best established at the land scape scale through management activities such as prescribed burning and timber harvest rather than by direct planting.

Control water run off so that soil is not eroded and water bodies contaminated	Water quality is always a primary consideration when making management decisions and infrastructure improvements on State owned game lands. Stream buffers will be left at widths of no less than those required by the NHP Dedication or recommended by North Carolina Forest Service Forestry BMPs. In areas where topography and/or site conditions dictate further protection, riparian buffers will exceed these recommendations.
Establish some archery only areas. Consider a 1 buck limit on these areas.	The mission of NCWRC is to provide opportunities for all sportsmen on game lands where feasible and safe to do so. The archery season on PGL is approximately 8 weeks each year. This should provide ample opportunity for archery only hunting. Archery only areas are established on game lands where the discharge of a gun would create safety issues or at the request of the landowner on leased game lands. The relatively small size of the State owned Pisgah tracts are not appropriate for trophy deer management. In addition, reduction of the buck limit from 2 to 1 would have very little impact on the buck age structure on these tracts since very few hunters harvest more than 1 buck from any of these tracts in a season.

6. What would encourage you to start using PGL, or to continue using it more actively?

A summary of public input and responses is below.

Comment	Response
Provide additional access points with more hiking trails.	Opportunity to provide more access points to the State owned tracts of PGL is limited by current ownership and easements. Additional tracts would need to be acquired to increase the current number of access points. The NCWRC is currently not staffed or funded to provide a network of designated hiking trails on the PGL. Agreements with conservation partners that allow trail establishment and maintenance are welcomed.
Game Land boundaries can be difficult to locate.	State owned game lands boundaries are painted with orange paint no less than every 7 years. Online maps of the game land are available that show the general location of the game land boundaries.
Provide more for non-traditional GL users	The NCWRC will continue to explore and provide amenities that encourage non-traditional game lands users, including expansion of the N.C. birding trail, improvements to maps, and the installation of kiosks and other visitor guides. Conservation of natural resources will continue to be the main emphasis of the Game Lands Program.
Establish a longer hunting season	The NCWRC establishes hunting season lengths considering both the biology and population density of species as well as public input. In many cases hunting seasons cannot be increased in length without detriment to the species being hunted.
Improve opportunities to see game.	The NCWRC will provide a diversity of habitat types across the landscape as directed by this management plan. This, in turn, should improve opportunities to observe more game.

Provide more directional signs to game lands and access locations. Provide more information signs	The NCWRC has purchased a supply of and plans to install more directional signs. The NCWRC also plans to install informational kiosks at key locations on the State owned tracts of PGL.

7. What additional comments do you have about PGL?

Comment	**Response**
The NCWRC should trap coyotes.	Predator control is not feasible at the landscape level due to manpower limitations and regulations. NCWRC will continue to promote trapping on game lands.
Segments of the Overmountain Victory National Historic Trail (OVNHT) should be established on suitable portions of the Black Bear, Linville River, Rose Creek, and Roaring Creek tracts.	Segments of the OVNHT are already established on the Black Bear and Rose Creek tracts. The NCWRC will work cooperatively with conservation partners when requested to establish additional trail segments on qualifying properties.
Offer paper maps free or for sale	Maps of all game lands are available for download at no charge at www.ncwildlife.org. Providing paper maps has been discontinued due to high costs.