

POND MOUNTAIN AND THREE TOP MOUNTAIN GAME LANDS



MANAGEMENT PLAN

2016 – 2026

NC WILDLIFE'S CROWN JEWELS

North Carolina's game land system is based on science-driven management practices and is an exceptional asset for the people of the State of North Carolina. The 2 million acres of NCWRC owned and managed land create HIGH Ecosystem value in flood protection with positive effects on property values and air and water quality, while helping to prevent additional restrictive environmental regulations.

The primary purpose of our game lands is the conservation of North Carolina wildlife species and the provision of public hunting, trapping and fishing opportunities. Our game lands are important players in the preservation of rare, threatened and endangered species. Prescribed burning and early successional habitat management allow for healthy habitats for thriving wildlife. Fields left fallow and disked on alternating years promote natural herbaceous regeneration. Water levels of impounded wetlands are drawn down at appropriate times to create conditions beneficial to waterfowl. Protection of stream buffers ensures that precious fish species are protected and encouraged along with thriving game fishes. Heritage forest land is worked and preserved and rare forestlands are protected.

The game lands also provide broad expanses of public recreational opportunities. North Carolina has more acreage of managed game lands than all states east of the Mississippi, with the exceptions of Florida and Michigan, both of which include lake and ocean frontage as managed land. There is overwhelming public endorsement of conserving the land along with documentation of the economic benefits of doing so. According to the outdoor recreation industry, over \$3.3 billion is spent annually on wildlife related recreation in our state alone. As North Carolina transitions from a traditional economy based on tobacco, furniture and textiles to a global economy driven by knowledge-based enterprises, our managed public game lands help preserve our economy and our way of life.

Game lands include:

- A great treasure in the largest intact and least disturbed bottomland forest ecosystem in the mid-Atlantic Region and some of the oldest cypress-tupelo trees on the East Coast, many at least 800 years old;
- One of the largest, most intact remnants of longleaf pine ecosystems in North Carolina, a high priority wildlife habitat in the Lands Management program. Among the species dependent upon this type of habitat are bobwhite quail, a variety of songbirds, fox squirrels and the federally endangered red-cockaded woodpecker;
- The densest populations of black bear, white-tailed deer and turkey, and the highest density of nesting birds in the state. Most of our 32 black bear sanctuaries are on game lands;
- A system of floating waterfowl blinds, 19 public hunting blinds for disabled sportsmen, 32 public boating access areas, 33 public fishing areas, six wildlife observation platforms, four public WRC shooting ranges with plans to build and manage many more as opportunities occur;
- And some of the finest examples of multiple conservation collaborations in the country.

As in the past, it is anticipated that future projected expenditures will be funded by North Carolina's apportionment of Pittman Robertson Federal Assistance in Wildlife Restoration funding and license receipts, as well as from contributions from various conservation partners. The opportunity provided by these managed public game lands to our mission of conserving North Carolina's wildlife and habitat for future generations is priceless.

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 Pond Mountain and Three Top Mountain Game Lands, 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 the game land to ensure that a comprehensive management program is administered on these game lands. The successful implementation of the plan will depend on the continued feedback and support from all interested parties.

PLAN COLLABORATIVE TEAM MEMBERS

- **Wes Duncan**, Conservation Technician I, Wilkes Depot, Division of Engineering Services and Lands Management
- **Mike Greene**, Conservation Technician I, Wilkes Depot, Division of Engineering Services and Lands Management
- **Mark Hamlett**, Engineer, Division of Engineering Services and Lands Management
- **Kin Hodges**, District 7 Fisheries Biologist, Division of Inland Fisheries
- **Kip Hollifield**, Northern Mountains Land Management Biologist, Division of Engineering Services and Lands Management
- **Josh Hudson**, Master Officer, Division of Enforcement
- **Jim Keeper**, Conservation Technician II, Wilkes Depot, Division of Engineering Services and Lands Management
- **T.R. Russ**, Western Aquatic Nongame Biologist, Division of Inland Fisheries
- **Nick Shaver**, Northern Mountains Technician Supervisor, Division of Engineering Services and Lands Management
- **Dean Simon**, Mountain Ecoregion Wildlife Forester, Division of Engineering Services and Lands Management
- **Gordon Warburton**, Mountain Ecoregion Supervisor, Division of Engineering Services and Lands Management
- **Kendrick Weeks**, Mountain Wildlife Diversity Supervisor, Division of Wildlife Management

EXECUTIVE SUMMARY

Pond Mountain Game Land (PMGL) (2,272 acres) and Three Top Mountain Game Land (TTMGL) (2,289 acres) are located in Ashe County in the mountainous northwestern corner of North Carolina. Both game lands are owned by the State of North Carolina and the North Carolina Wildlife Resources Commission (NCWRC) is the primary custodian. The original purchase for PMGL was made in 2008 with additional tracts added through 2011. The original purchase for TTMGL was made in 1993 with additional tracts purchased through 2010. Both game lands are popular with hunters and wildlife watchers in addition to other outdoor recreational enthusiasts such as hikers. Important game species include deer, wild turkey, and ruffed grouse. Pond Mountain Game Land is 66% forested with oak forests predominant. The remainder of PMGL is open habitat, most of which is an active Christmas tree farm. Three Top Mountain Game Land is 98% forested with oak forests predominant also. Twelve endangered, threatened, or rare species are found on PMGL and 15 on TTMGL. Management goals for both game lands 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 on 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 both game lands, secure funding to accomplish management goals, 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.

TABLE OF CONTENTS

	Page
I. Introduction	
A. Game Land Program Mission Statement	7
B. Game Land Program Management Objectives	7
C. Game Land Program History	7
II. Purpose and Need for Plan	8
III. Regional Context	
A. Mountain Ecoregion/Northern Mountains Work Area	9
B. Regional Conservation Partnerships	9
IV. General Game Land Information	
A. Location	10
B. Physical Attributes	10
C. Climate	11
D. Soil	11
E. Hydrology	11
F. History	12
G. Habitats	13
H. Surrounding Land Use	13
I. Landscape Context	14
J. Purpose	14
K. Unique Values/Public Use	14
V. Goals	18
VI. Measures of Success	18
VII. Habitats	
A. Southern Appalachian Oak Forest	19
B. Northern Hardwood Forest	21
C. Cove Forest	23
D. Early Successional	24
E. High Elevation Rock Outcrops	29
F. Riverine/Aquatic Communities	30

	Page
VIII. Forest Management	
A. Forest Land Class, Types, and Conditions	32
B. Forest Resource Needs	34
C. Timber Harvest	34
D. Tree Planting and Reforestation	35
E. Prescribed Burning	35
F. Annual Forest Management Planning	36
IX. Infrastructure	
A. Infrastructure Assessment	36
B. Road Assessment	36
C. Existing Road Conditions	37
D. Future Road Improvements	38
E. New Road Construction	40
F. Road Maintenance	40
G. Parking Areas	43
H. Gates	44
I. Dams and Impoundment Assessment	44
J. Culvert Assessment	44
K. Culvert Maintenance	45
L. Recreational Facilities	46
M. Recreational Facilities Maintenance	48
X. Public Uses	
A. Hunting/Trapping	50
B. Fishing	51
C. Wildlife Viewing	51
D. Other Outdoor Recreation	51
XI. Information Needs	
A. Current State of Knowledge	54
B. Wildlife/Habitat Inventory and Monitoring Needs	54
C. Wildlife/Habitat Management Needs	55
D. User Group Needs	55
XII. Financial Assets and Future Needs	
A. Current Assets	56
B. Current Costs	56
C. Funding Needs	57
XIII. Acquisition Plan	58

	Page
XIV. Regulations/Enforcement	63
XV. Partnerships	63
XVI. References	64
XVII. Appendices	
1. Maps	66
2. Land Classification	79
3. Natural Heritage Articles of Dedication	82
4. Game Lands Use Evaluation Procedure	95
5. Summary of Public Input	104

DRAFT

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

A comprehensive game land management plan is needed for Pond Mountain (PMGL) and Three Top Mountain Game Land (TTMGL) to implement the NCWRC Strategic Plan and accomplish game land program objectives in a timely and efficient manner. In addition, the NCWRC created the North Carolina Wildlife Action Plan (NCWAP) which provides direction for those species which are not typically hunted or fished (N.C. Wildlife Resources Commission 2005). This plan is currently undergoing revision, which is expected to be complete by 2015. Finally, both game lands 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 game lands.

The PMGL/TTMGL 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 both game lands. 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. Our staff will review and amend the plan as needed.

REGIONAL CONTEXT

Mountain Ecoregion/Northern Mountains Work Area

Both PMGL and TTMGL lie within the NCWRC Mountain Ecoregion and 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 mi² of the work area lies within the Blue Ridge physiographic province (Griffith et al., 2002). The remaining 2,690 mi² are contained within the Piedmont physiographic province. The work area contains portions or all of the following river basins: Broad (998 mi²), Catawba (1,594 mi²), French Broad (1,433 mi²), New (753 mi²), Roanoke (15 mi²), Watauga (205 mi²), and Yadkin (1,901 mi²). 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., Paolet 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 LAND INFORMATION

Location

Both PMGL (2,272 acres) and TTMGL (2,289 acres) are located in Ashe County in the northwest corner of the work area (Appendix 1, Map 2). West Jefferson, North Carolina, is about 3.5 miles east of TTMGL and 12.5 miles southeast of PMGL and is the nearest town to these properties. Several public roads, maintained by the North Carolina Department of Transportation (NCDOT), are adjacent or near both game lands.

Approximately 1,990 acres of PMGL have been dedicated by the N.C. Natural Heritage Program as the Pond Mountain Game Land Dedicated Nature Preserve (Appendix 1, Map 3). Approximately 2,182 acres of TTMGL have been dedicated by the N.C. Natural Heritage Program as the Three Top Mountain Game Land Dedicated Nature Preserve (Appendix 1, Map 4) (Appendix 3).

Physical Attributes

Pond Mountain Game Land is located along Pond Mountain. The topography at the top of Pond Mountain is relatively gentle and currently contains a large Christmas tree farm. The slopes of the mountain are more steep and rugged and are drained by small, fast flowing tributary streams. Elevation on PMGL ranges from 4,000 – 4,900 ft. (Appendix 1, Map 5).

Three Top Mountain Game Land is generally steep and rugged throughout, and is drained by small fast flowing tributary streams. The game land lies along Three Top Mountain with the crest of the mountain containing several large rock outcrops and cliffs. Three Top Mountain Game Land is part of a larger area that is considered the Amphibolite Mountains due to the unique geological features found there (N.C. Natural Heritage Program, 1999). These mountains contain many rare plant species (N.C. Natural Heritage Program, 1999). Elevations at TTMGL range from approximately 3,000 – 4,900 ft. (Appendix 1, Map 6).

Climate

The climate for both game lands is classified as humid continental (“Köppen-Geiger Climate Zones of the Continental United States”, 2013). Normal mean monthly temperature in Boone is 49°F (State Climate Office of North Carolina, 2014). Minimum mean monthly temperature occurs in January (19.6°F) and maximum mean monthly temperature occurs in July (76.4°F) (State Climate Office of North Carolina, 2014). Average monthly precipitation ranges from a low of 3.17” in October to a high of 5.18” in March (State Climate Office of North Carolina, 2014). Average annual precipitation is 51.5” and is generally well distributed throughout the year (State Climate Office of North Carolina, 2014). Snowfall averages 34.6” annually (Boone, North Carolina, 2014). Average annual last spring frost date is April 30 and first average annual fall frost date is October 8 (Ray’s Weather Center, 2014).

It should be noted that these climate and weather parameters are for Boone, NC (elevation 3,360 ft.). Elevations on both PMGL and TTMGL are significantly higher than this, thus average temperatures are likely lower and average rainfall and snowfall greater on both game lands than in Boone.

Soil

Three soil types have been identified on PMGL and 9 on TTMGL (Soil Survey Staff, 2014). The soils on PMGL can generally be classified, however, as stony loam (80%) and loam (20%) (Appendix 1, Map 7), while on TTMGL the soils can generally be classified as stony loam (90%) and loam (10%) (Soil Survey Staff 2014) (Appendix 1, Map 8). Only 20% of the soils on both game lands are rated as highly erosive (Soil Survey of Ashe County, 1985); however the potential for soil erosion should always be evaluated, especially on exposed slopes, when disturbing the soil or making management decisions.

Hydrology

Both PMGL and TTMGL lie within the New River basin, which includes 753 square miles in North Carolina. Due to the location of the game lands as well as steep topography, streams on both game lands are generally small and fast flowing. Pond Mountain Game Land contains headwater tributaries of Big Horse Creek (1.8 mi.), Little Horse Creek (0.9 mi.), and Big Laurel Creek (2.8 mi.). Three Top Mountain Game Land contains tributaries of Buffalo Creek (1.5 mi.), North Fork New River (2.6 mi.), and Three Top Creek (2.5 mi.).

History

Pond Mountain Game Land

Prior to acquisition by the State of North Carolina a large Christmas tree farm was located on the Pond Mountain property. The original purchase of PMGL occurred in 2008. The former owners desired to continue to operate the farm until all the trees reached harvest age and approximately 540 acres of Christmas trees are currently being grown and harvested on the game land. The former owners will continue to operate the tree farm through a lease agreement that expires at the end of 2016.

The Dale Shepherd tract was the initial purchase that led to the establishment of Pond Mountain Game Land. This approximately 1,800 acre tract was purchased in stages from 2008-2011 as funds became available. Funding for this tract was provided by private donations and grants from the Natural Heritage Trust Fund (NHTF) and Clean Water Management Trust Fund (CWMTF). Blue Ridge Conservancy (BRC) (formerly Blue Ridge Rural Land Trust) facilitated many aspects of the purchase of this tract through negotiations with the land owners and by acquiring and holding portions of the tract until the State could secure funding. The adjacent 200 acre J.C. Johnson tract was simultaneously purchased in stages from 2009-2010 with private donations and a grant from the NHTF. Blue Ridge Conservancy also played an integral role in the acquisition of this tract.

After completing these initial purchases, PMGL was opened for public use in fall 2011. In 2012 BRC acquired the adjacent 280 acre Braun tract with grants from the Clean Water Management Trust Fund (CWMTF) and Acres for America, a private donation, and a donation from BRC. Blue Ridge Conservancy subsequently transferred ownership of the property to the State of N.C. Pond Mountain Game Land currently contains 2,272 acres.

Three Top Mountain Game Land

Prior to Acquisition by the State of North Carolina, the Three Top Mountain property was owned by a group of investors that planned to develop an 1,100-acre ski resort on the mountain. A number of lots were sold in the planned resort before the investors encountered financial difficulties. The property was offered for sale, and with assistance from The Nature Conservancy (TNC) and a grant from the NHTF, the property was acquired by the State in 1993. This acquisition was the cornerstone of TTMGL.

Seven subsequent purchases adjacent the original tract were made from 1995-2002 and enhanced the original purchase. These 7 acquisitions were largely facilitated by TNC, with funding provided by private donors and grants from the NHTF. The original Three Top Mountain property contained a number of small privately owned lots imbedded in

the main property at the time of the initial acquisition. In addition, another failed development (Creekview Ridge Estates) was one of the 7 subsequent purchases and also contained several small privately owned lots. None of the lots in the original tract or Creekview Ridge Estates have ever been developed. Many of them have been acquired by the State since the initial purchases through donation and purchase using NCWRC funding. The Nature Conservancy facilitated acquisition of many of these lots. At present several undeveloped lots continue to remain as small inholdings in the game land.

The Hufnagel and Miller tracts were purchased in 2009 and 2010, respectively. These tracts were adjacent the original tract and provided an additional public access to the game land. Blue Ridge Conservancy assisted with these acquisitions and funding was provided by a private donor and a grant from the NHTF. Three Top Mountain Game Land currently contains 2,289 acres.

Habitats

Approximately 66% of PMGL is forested, 23% is in Christmas trees, and 10% is comprised of grassy areas and other early successional habitat. In general, the forest types on the game land are as follows: cove (12%), oak (70%), northern hardwoods (14%), and other (4%) (N.C. State University 2008). A dense herbaceous groundcover occurs in many locations with rhododendron present in the understory along some of the streams. Major habitat types defined by the NCWAP and found on PMGL include early successional, oak forests, northern hardwoods, and cove forests (N.C. Wildlife Resources Commission, 2005) (Appendix 1, Map 9).

Three Top Mountain Game Land is almost completely forested (98%). The remainder of the game land is comprised of rock outcrops, pasture/hay, early successional and developed open space such as roads. In general, the forest types on the game land are as follows: cove (8%), oak (83%), and northern hardwoods (9%) (N.C. State University 2008). A dense herbaceous groundcover occurs in many locations with rhododendron present in the understory along some of the streams. Major habitat types defined by the NCWAP and found on PMGL include oak forests, northern hardwoods, cove forests, and rock outcrops (N.C. Wildlife Resources Commission, 2005) (Appendix 1, Map 10).

Each of the habitat types will be discussed in greater detail in subsequent sections for both game lands.

Surrounding Land Use

Land use surrounding both PMGL and TTMGL is similar. An analysis of SEGAP data indicates the following conditions within a 5 mile radius of these game lands: row crops – 2%, developed – 7%, forested – 71%, grass/forb – 6%, shrub/scrub – 7%, and pasture/hay – 7% (N.C. State University 2008). Review of 2012 aerial photography reveals that residential, agricultural, and

non-industrial private forests dominate the landscape immediately surrounding both game lands. Agricultural use in the immediate vicinity of the game lands is dominated by Christmas tree plantations, pasture, and land used for hay production. The views on many of the ridges surrounding these game lands are outstanding. Although several resort type subdivisions were planned for the area, few have come to fruition. This is likely due to the downturn in the economy and the rural conditions that exist in Ashe County. Most residences in the vicinity of both game lands are constructed on flatter terrain at the bottom of the ridges and can be characterized as rural single family dwellings.

Landscape Context

Both PMGL and TTMGL lie within the Blue Ridge physiographic province (Griffith et al., 2002). Both game lands serve as an important conservation corridors enhancing the connectivity among public lands managed primarily for conservation purposes such as the Cherokee, Pisgah, and Jefferson National Forests, Thurmond Chatham, Mitchell River, Buffalo Cove, South Mountains, Johns River, Sandy Mush and Green River Game Lands, New River, Elk Knob, and Grayson Highlands State Parks, Doughton Park, Phoenix Mtn., Bluff Mtn., Long Hope Valley, and Snake/Rich Mtn. State Natural Heritage Areas, and various private tracts in the area that are managed for conservation purposes. In a broader sense PMGL and TTMGL 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 George Washington National Forest to the north.

Purpose

The purpose of PMGL and TTMGL is to manage habitats and communities to benefit aquatic and terrestrial wildlife resources on the property. These game lands provide opportunities for public hunting, fishing, trapping, wildlife viewing, and other wildlife based recreational activities. These are the primary public uses of these game lands. Both game lands 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. Finally, game lands provide a sustainable yield of forest products as allowed by topography, NHP dedications, and other factors. All forestry conducted on game lands is directed by wildlife management objectives.

Unique Values/Public Use

An abundance of natural resources are located on PMGL and TTMGL. Both game lands are located at elevations of 4,000-5,000 ft. Most lands situated at this elevation have excellent natural values and biodiversity. These game lands are no exception to this and these features make both game lands destinations for outdoor recreation.

The N.C. Natural Heritage Program has established 2 State Natural Heritage Areas that include these game lands (North Carolina Natural Heritage Program 2014). Pond Mountain State

Natural Heritage Area includes PMGL as well as an additional 913 acres of immediately adjacent land. Pond Mountain State Natural Heritage Area has an R-rating of exceptional and a C-rating of high (North Carolina Natural Heritage Program 2014). Three Top Mountain State Natural Heritage Area includes TTMGL as well as 4,083 acres of surrounding property and this area has R and C ratings indicating exceptional values.

Three Top Mountain Game Land serves as an important reservoir for a number of endangered, threatened, or rare species. Roan Mountain Bluet (*Houstonia montana*) and Spreading Avens (*Geum radiatum*) are federally endangered and have been documented on the game land (North Carolina Natural Heritage Program 2014). Bluebells (*Campanula rotundifolia*) is state endangered and is documented on the game land (North Carolina Natural Heritage Program 2014). An additional 11 species found on TTMGL are considered significantly rare or species of special concern at the state level (North Carolina Natural Heritage Program 2014) (Table 1). In addition, many common species of both flora and fauna occur on the game land.

Scientific Name	Common Name	EO-Status	State Status	Federal Status	S_Rank	G_Rank
<i>Plethodon welleri</i>	Weller's Salamander	Current	SC		S2	G3
<i>Desmognathus organi</i>	Northern Pigmy Salamander	Current	SR	FSC	S2	G3
<i>Crotalus horridus</i>	Timber Rattlesnake	Current	SC		S3	G4
<i>Juncus trifidus</i>	Highland Rush	Current	SR-D		S1	G5
<i>Trichophorum cespitosum</i>	Deerhair Bulrush	Current	SR-D		S2S3	G5
<i>Houstonia montana</i>	Roan Mountain Bluet	Current	E	E	S2	G2
<i>Micranthes caroliniana</i>	Carolina Saxifrage	Current	SR-T	FSC	S3	G3
<i>Aconitum reclinatum</i>	Trailing Wolfsbane	Current	SR-T		S3	G3
<i>Geum radiatum</i>	Spreading Avens	Current	E	E	S2	G2
<i>Rhytidium rugosum</i>	Golden Tundra-moss	Current	SR-P		S2	G5
<i>Carex roanensis</i>	Roan Sedge	Current	SR-T		S2	G2G3
<i>Meehanian cordata</i>	Meehanian	Current	SR-P		S2	G5
<i>Campanula rotundifolia</i>	Bluebells	Current	E		S1	G5
<i>Juncus trifidus</i>	Highland Rush	Current	SR-D		S1	G5
<i>Cetraria arenaria</i>	Sand-loving Iceland Lichen	Current	SC-V		S2	G4

Table 1. Endangered, threatened, and rare species present on Three Top Mountain Game Land (North Carolina Natural Heritage Program 2014).

Pond Mountain Game Land also serves as an important reservoir for a number of endangered, threatened, or rare species. Carolina northern flying squirrel (*Glaucomys sabrinus coloratus*) is federally endangered and is documented on the game land (North Carolina Natural Heritage Program 2014). An additional 9 species found on PMGL are considered significantly rare or

species of special concern at the state level (North Carolina Natural Heritage Program 2014) (Table 2). In addition, many common species of both flora and fauna occur on the game land.

Scientific Name	Common Name	EO-Status	State Status	Federal Status	S_Rank	G_Rank
<i>Plethodon welleri</i>	Weller's Salamander	Current	SC		S2	G3
<i>Glaucomys sabrinus coloratus</i>	Carolina Northern Flying Squirrel	Current	E	E	S2	G5T2
<i>Desmognathus organi</i>	Northern Pigmy Salamander	Current	SR	FSC	S2	G3
<i>Sylvilagus obscurus</i>	Appalachian Cottontail	Current	SR-G	FSC	S3	G4
<i>Catharus guttatus</i>	Hermit Thrush	Current	SR		S2B,S5N	G5
<i>Pooecetes gramineus</i>	Vesper Sparrow	Current	SC		S2B,S2N	G5
<i>Empidonax alnorum</i>	Alder Flycatcher	Current	SR		S2B	G5
<i>Scutellaria saxatilis</i>	Rock Skullcap	Current	SR-T		S1	G3
<i>Anthoxanthum hirtum</i>	Holy Grass	Current	SR-D		S1	G5

Table 2. Endangered, threatened, and rare species present on Pond Mountain Game Land (North Carolina Natural Heritage Program 2011).

Hunting is a popular activity on both game lands with white-tailed deer and wild turkey the two primary big game species. Deer harvest over the past 3 hunting seasons (2011, 2012, and 2013) has averaged 4.4 deer per square mile on TTMGL. The deer herd is generally stable and deer are the most commonly hunted game species on the game land. Pond Mountain Game Land was opened to hunting for the 2011 season. Reported deer harvest on PMGL was 3 in 2011, 11 in 2012, and 16 in 2013. Deer were either likely under reported in 2011 or the harvest was low due to hunter's unfamiliarity with the game land. Deer harvest currently is under a permit system which also limits total take. Wild turkeys are found in fair numbers on both PMGL and TTMGL. Wild Turkey harvest generally averages 2-3 gobblers per season per game land. Black bear are present on both game lands, but only at low numbers. Since 2008, only 3 bears have been harvested on TTMGL. One bear was harvested on PMGL in 2011. Gray squirrel, cottontail rabbit, ruffed grouse, red and gray fox, bobcat, raccoon, and opossum are small game and furbearer species found and hunted for on both game lands.

Birding opportunities are also available on both game lands. Pond Mountain Game Land offers birders the chance to encounter species that prefer both forested and open habitats especially at high elevations, while TTMGL mainly offers forested habitats to birders. Both PMGL and TTMGL offer tremendous opportunities for other outdoor recreational activities. These game lands are popular with hikers, with the summits of both Three Top and Pond Mountains providing spectacular views in all directions. The summit of Pond Mountain is seasonally accessible by vehicle and this opportunity offers those not interested or unable to hike the chance to experience outstanding views. A 4.6 mile designated horse trail is provided on

PMGL, with riding available seasonally from mid-May through August. Horseback riding is prohibited on TTMG due to steep topography and associated erosion concerns as well as and a lack of suitable roads (graveled) available there. Both game lands provide opportunities for cross country skiing and snowshoeing during some winters, however this use is likely very light.

Minimal fishing opportunities exist on PMGL and TTMGL due to the diminutive nature of most streams on the properties. All waters on TTMGL are designated by the NCWRC as Public Mountain Trout Water. Streams on PMGL are not currently designated as Public Mountain Trout Water with the exception of Big Laurel Creek, which is designated as Hatchery Supported Trout Water. Additionally, despite the implication of its name, there are no fishable ponds on PMGL.

The NCWAP (N.C. Wildlife Resources Commission, 2005) 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 is currently in revision and should be completed by 2015. The list of priority species consists of rare and endangered species but also species that are not officially listed but in need of inventory, monitoring, and/or research. Bird surveys have been conducted on PMGL game land since 2010 (SGCN birds detected: Canada warbler, chestnut-sided warbler, Eastern wood-pewee, field sparrow, Northern bobwhite, rose-breasted grosbeak, vesper sparrow, yellow-bellied sapsucker, and yellow-shafted flicker). SGCN amphibians and reptiles found on the property include Weller's salamander, Northern pigmy salamander, and timber rattlesnake. Surveys for small mammals, including bats, are needed on both game lands. Surveys for many taxa are needed on TTMGL.

The entire North Fork New River and its tributaries have the highest water quality rating in North Carolina (HQW/ORW). Big Laurel, Three Top, and Buffalo Creeks are priority watersheds designated in the NCWAP (N.C. Wildlife Resources Commission, 2005). Though few aquatic species are found directly on either game land, protecting the headwaters of the North Fork New River watershed will maintain a high diversity of aquatic species downstream. The North Fork New River is home to 27 native fishes, including several rare species, along with five native crayfish species, the eastern hellbender (*Cryptobranchus alleganiensis alleganiensis*) and two freshwater mussels.

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 both PMGL and TTMGL.
- Manage popular sport fish and game species at appropriate levels through science based land management and sound regulations on both game lands.
- Provide quality habitat for endangered, threatened, and rare species located on both game lands 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 either game land.

MEASURES OF SUCCESS

- Wildlife and fish inventories and monitoring indicate that a wide variety of species are present at appropriate levels on both PMGL and TTMGL.
- Inventories of forest and early successional communities show that progress is being made toward accomplishing maintenance and restoration goals on both game lands.
- Monitoring and surveys and inventories of target sport fish and game species on both game lands indicate that population levels of these species are at appropriate levels.
- Monitoring and surveys on both game lands indicate that populations of endangered, threatened, and rare species found on the game land are stable or increasing.
- Infrastructure is provided and maintained on both game lands at a level that allows the public to reasonably access and enjoy the game land.
- Public use of both game lands is managed so that minimal conflicts among game land users occur.
- Agreements with conservation partners are initiated for both game lands that allow game land goals to be reached more expediently.
- Surveys of user groups indicate general satisfaction with management on the game lands.
- Valid public complaints regarding management of both game lands 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 9 and 10).

Southern Appalachian Oak Forest

- Current Extent and Condition

Southern Appalachian oak forest (SAOF) is the predominant habitat type on both game lands, occupying approximately 46% of the land base on PMGL and 83% of the land base at TTMGL. On both game lands SAOF is generally found on open side slopes, high ridgelines and exposed upper slopes (NatureServe 2007). On exposed high ridges this forest type is subject to ice storms in winter and high winds throughout the year. On both game lands the most common oak species is northern red oak (*Quercus rubra*) and High Elevation Red Oak (HERO) stands are a unique forest type in this region. Chestnut oak (*Quercus prinus*), white oak (*Quercus alba*), and scarlet oak (*Quercus coccinea*) occur in lesser quantities with varying amounts of hickory (*Carya* spp.), red maple (*Acer rubrum*), sugar maple (*Acer saccharinum*), black cherry (*Prunus serotina*), yellow birch (*Betula alleghaniensis*), yellow poplar (*Liriodendron tulipifera*), and other species (NatureServe 2007). At the highest elevations, many sites once dominated by northern red oak (*Quercus rubra*) and HERO forests are currently transitioning to other species common in this habitat type. American chestnut (*Castanea dentate*) was once a prominent species in many of these forests. The understory is generally open with a sparse to moderate herbaceous layer but sometimes contains dense thickets of mountain laurel (*Kalmia latifolia*). On PMGL approximately 32 acres adjacent to SAOF were planted to white pine (*Pinus strobus*) before the State acquired the property. These planted pines will be converted to SAOF and/or other appropriate habitat types over time and will not be discussed separately.

- Desired Future Condition (DFC)

DFC's include oak woodlands on areas accessible and operable for timber harvest, oak savannah development on areas most accessible, operable, and appropriate for prescribed burning rotations, and, to a lesser extent by default, old growth oak stands on primary natural areas and/or areas inaccessible and/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 (as

a goal, averaging a diameter at breast height (DBH) of 16 inches) but a very open understory with a native grass and forb component as the dominant ground cover. Old growth oak stands will have an all age class distribution with large, medium, and small trees dispersed throughout the stand. As a goal, HERO forests will be promoted as a restoration objective and all stand types will be well distributed across the game land to enhance landscape diversity.

- Target Game Species

Target game species include ruffed grouse (*Bonasa umbellus*), white-tailed deer (*Odocoileus virginianus*), wild turkey (*Meleagris gallopavo*), rabbit (*Sylvilagus floridanus*), and black bear (*Ursus americanus*).

- 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 yellow-bellied sapsucker (*Sphyrapicus varius*), Eastern wood-peewee (*Contopus virens*), Northern flicker (*Colaptes auratus*), brown creeper (*Certhia americana*), Canada warbler (*Cardellina canadensis*), rose-breasted grosbeak (*Pheucticus ludovicianus*), wood thrush (*Hylocichla mustelina*), sharp-shinned hawk (*Accipiter striatus*), Weller's salamander (*Plethodon welleri*), Northern pigmy salamander (*Desmognathus wrighti*), Southern ravine salamander (*Plethodon richmondi*), timber rattlesnake (*Crotalus horridus*), Eastern fox squirrel (*Sciurus niger*), and Southern pygmy shrew (*Sorex hoyi winnemana*).

- Management Strategies and Needs

Management strategies will be directed towards HERO restoration and will include timber harvest (primarily shelter-wood cutting but also some clear-cutting may be employed to achieve oak regeneration goals), natural regeneration (but also may include some planting, primarily of northern red oak), herbicide use to control competition with oak regeneration, and prescribed burning to promote oak regeneration (less frequent and less intense for oak woodland development and more frequent and intense on areas selected for oak savannah conditions). Participation in American chestnut restoration efforts will occur as appropriate and feasible. In general, oak woodlands will be emphasized 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 by default in areas that are dedicated primary natural areas restricted from management and/or on areas inaccessible and/or inoperable for active management.

- 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 in Southern Appalachian Oak Forests include gypsy moth, sudden oak death syndrome, hypoxylon canker, oak decline, lack of adequate advanced oak reproduction, loss of HERO forests to successional change to birch-beech-maple stands due to lack of active management, invasive species, incompatible adjacent land uses, and climate change.

Northern Hardwood Forest

- Current Extent and Condition:

Northern hardwood forests are found on about 9% of both PMGL and TTMGL. 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, including areas of spruce reestablishment.

- Target game species

Target game species include ruffed grouse (*Bonasa umbellus*), white-tailed deer (*Odocoileus virginianus*), wild turkey (*Meleagris gallopavo*), rabbit (*Sylvilagus floridanus*), and black bear (*Ursus americanus*).

- 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 wrighti*), 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 in this forest type, timber thinning (with attention to retaining a diverse mix of species beneficial to wildlife, including northern red oak, black cherry, American beech, persimmon, etc.), and clear-cutting techniques and/or cutting openings to create early successional wildlife habitat and establish (plant) spruce where feasible, operable, accessible, and appropriate. Small openings (up to ¼ acre) will be cut and planted/under-planted along with some larger openings up to 1 to 2 acres in size. Some natural regeneration will also be used. Old growth stands may be developed over time by default within streamside management zones/riparian buffers, dedicated primary natural areas restricted from management, and on areas inaccessible and/or inoperable for active management. As a goal, all stand types and conditions will be well distributed across the game land to promote landscape diversity.

- Infrastructure needs

Infrastructure needs will include new logging road construction in some areas and installing new gates to control access as well as culverts, bridges, and fords for crossing streams and creeks. Reconstruction, refurbishing, improvement, culvert replacement, and maintenance of old roads and culverts will also be a significant infrastructure need.

- Management Challenges

Management challenges include incompatible adjacent land uses and climate change.

Cove Forest

- Current Extent and Condition:

Cove forests occupy about 8% of PMGL and 6% of TTMGL. This forest type consists of mesophytic hardwood or hemlock-hardwood forests of sheltered topographic positions (NatureServe 2007). Cove forests are generally found in hollows or small valleys that promote moist conditions and often occur on east or north facing slopes. The part of the cove forests on both game lands that includes the hemlock-hardwood association is limited to about 0.3%. The remainder 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 cove forests on both PMGL and TTMGL not classified as hemlock-hardwood most would be considered rich cove. Characteristic species include buckeye (*Aesculus flava*), ash (*Fraxinus Americana*), basswood (*Tilia Americana*), yellow poplar (*Liriodendron tulipifera*), Silverbell (*Halesia tetraptera*), eastern hemlock (*Tsuga Canadensis*), American beech (*Fagus grandifolia*), Cucumber (*Magnolia acuminata*), and Fraser magnolia (*Magnolia fraseri*) (NatureServe 2007). Rhododendron (*Rhododendron catawbiense*) is the dominant understory in acidic coves and in the hemlock-hardwood association.

- Desired Future Condition

DFC includes ensuring a diverse species and age composition, protecting and promoting hemlock stands where possible, 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.

- Target game species

Target game species include ruffed grouse (*Bonasa umbellus*), white-tailed deer (*Odocoileus virginianus*), wild turkey (*Meleagris gallopavo*), rabbit (*Sylvilagus floridanus*), and black bear (*Ursus americanus*).

- 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 rose-breasted grosbeak (*Pheucticus ludovicianus*), brown creeper (*Certhia americana*), wood thrush (*Hylocichla mustelina*), hairy woodpecker (*Picoides villosus*), Eastern box turtle (*Terrapene carolina carolina*), Weller's salamander (*Plethodon welleri*), and Northern pigmy salamander (*Desmognathus wrighti*).

- Management strategies and needs

Management strategies include identifying, protecting, and treating hemlock stands where possible to reduce loss of this species, retention of variable buffers along either side of creeks, streams, and seeps in this forest type, timber harvest using a mix of thinning (with attention to retaining a diverse mix of species beneficial to wildlife, including American Beech, persimmon, etc.) and clear-cutting techniques to create early successional wildlife habitat where feasible and appropriate, and natural regeneration. Old growth stands may be developed by default over time within streamside management zones/riparian buffers, dedicated primary natural areas restricted from management, and on areas inaccessible and/or inoperable for active management. As a goal, all stand types and conditions will be well distributed across the game land to promote landscape diversity.

- Infrastructure needs

Infrastructure needs will include new logging road construction in some areas and installing new gates to control access as well as culverts, bridges, and fords for crossing streams and creeks. Reconstruction, refurbishing, improvement, culvert replacement, and maintenance of old roads and culverts will also be a significant infrastructure need.

- Management Challenges

Management challenges include invasive species (i.e. hemlock wooly adelgid), incompatible adjacent land uses, and climate change.

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. Early successional habitat currently occupies approximately 34% of PMGL and 1.5% of TTMGL.

Herbaceous

- Current Extent and Condition

Herbaceous ESH is comprised of grasses and forbs and is lacking a significant woody component. Christmas tree plantations occupy about 23% of the land base at PMGL. Christmas trees were present on PMGL when the property was acquired by the State. The Christmas trees are set in conventional rows and have been harvested mostly through selective cutting as the trees matured to commercial size. Some of the trees are

diseased or have become too large to harvest commercially and have been pushed into piles and either burned or left to decompose. The ground cover in the plantations is generally herbaceous and dominated by a variety of native species, non-native grasses, and clover. Harvest of Christmas trees by the former property owner will continue through 2016. At that time commercial harvest of the trees will end and the majority of this acreage will be considered herbaceous habitat. Once the commercial operation ends and/or trees are harvested a unique opportunity to manage the tree farm for a variety of early successional high elevation habitat types will be available.

Additional herbaceous habitat is found on both PMGL and TTMGL. At PMGL an additional 10.1% of the land base outside of the Christmas tree farm is considered herbaceous ESH. Most of this acreage is located adjacent current Christmas tree plantations and was either harvested prior to State acquisition or was never planted to Christmas trees. Some additional herbaceous habitat at PMGL is found along roads and other scattered areas. Currently most of this habitat is comprised of native herbaceous species and non-native grasses. At TTMGL approximately 1.4% of the land base is considered herbaceous ESH. Most of this exists in an approximately 20 acre area that was pastured before State acquisition. The remainder of this habitat at TTMGL is found along a utility ROW, roads, and adjacent rock outcrops.

- Desired Future Condition

DFC includes maintaining most of the open area on PMGL and expanded it in some cases to achieve goals for restoring balds. Some of the open areas at PMGL will be converted to spruce habitat to promote diversity and to provide critical habitat for target wildlife species. Other portions of the open area at PMGL will be maintained as herbaceous ESH with objectives including balds restoration. Areas maintained as 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 target wildlife species. Some portions of the open area at PMGL will be allowed to succeed to and will be maintained as either shrub-scrub or woody ESH; again to provide diversity and to promote target wildlife species. Current areas that are herbaceous ESH at TTMGL will be maintained as such.

- Target game species

Target game species include ruffed grouse (*Bonasa umbellus*), white-tailed deer (*Odocoileus virginianus*), wild turkey (*Meleagris gallopavo*), rabbit (*Sylvilagus floridanus*), and black bear (*Ursus americanus*).

- 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 savannah

sparrow (*Passerculus sandwichensis*), vesper sparrow (*Pooecetes gramineus*), golden-winged warbler (*Vermivora chrysoptera*), timber rattlesnake (*Crotalus horridus*), 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 maintaining herbaceous ESH habitat will include mowing, herbicide application, burning, discing, planting, and the application of soil amendments. Spruce will be established through planting and control of competing vegetation as needed. See “Shrub-Scrub” and “Woody” sections below for management strategies on current open areas that are allowed to succeed to these types of ESH.

- 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 invasive species, incompatible adjacent land uses, lack of days to burn (weather) 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. On both PMGL and TTMGL this habitat type is currently less than 1% of the land base. On PMGL most of this is located adjacent to Christmas tree plantations or other areas where topography or streams have precluded the use of conventional farm equipment. The remainder of the shrub-scrub habitat on both game lands is located along utility ROWs, roadways, forest canopy gaps, etc.

- 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 type in the areas already open. Actual proportions of this habitat will be determined by species needs.

- Target game species

Target game species include ruffed grouse (*Bonasa umbellus*), white-tailed deer (*Odocoileus virginianus*), wild turkey (*Meleagris gallopavo*), rabbit (*Sylvilagus floridanus*), black bear (*Ursus americanus*), and woodcock (*Scolopax minor*).

- 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 vesper sparrow (*Pooecetes gramineus*), golden-winged warbler (*Vermivora chrysoptera*), chestnut sided warbler (*Setophaga pensylvanica*), field sparrow (*Spizella pusilla*), alder flycatcher (*Empidonax alnorum*), timber rattlesnake (*Crotalus horridus*), and least weasel (*Mustela nivalis*). A major target in this type will be birds needing this specialized habitat.

- Management Strategies and Needs

Management strategies will include allowing portions of the current open area at PMGL to succeed to this habitat type. Techniques used to provide and maintain shrub-scrub habitat 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 burning days, invasive species, incompatible adjacent land uses, and climate change, etc.

Woody

- Current Extent and Condition

Woody ESH includes areas with vegetation age classes between 11- 20 years. This habitat type is found in insignificant quantities on both PMGL and TTMGL. 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.

- 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 ruffed grouse (*Bonasa umbellus*), white-tailed deer (*Odocoileus virginianus*), wild turkey (*Meleagris gallopavo*), rabbit (*Sylvilagus floridanus*), black bear (*Ursus americanus*), and woodcock (*Scolopax minor*).

- 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 golden-winged warbler (*Vermivora chrysoptera*), Canada warbler (*Cardellina canadensis*), alder flycatcher (*Empidonax alnorum*), and least weasel (*Mustela nivalis*). A major target in this type will be birds needing this specialized habitat.

- Management Strategies and Needs

Management strategies will include allowing portions of the current open area at PMGL to succeed to this habitat type. Techniques 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 invasive species, incompatible adjacent land uses, and climate change, etc.

High Elevation Rock Outcrops

- Current Extent and Condition

This habitat 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). This habitat type is lacking on PMGL. At TTMGL this habitat is mainly found along the summit of Three Top Mountain, however a few rock outcrops are embedded in forested habitat across the game land. Rock outcrops comprise less than 1% (8 acres) of TTMGL but this is likely a low estimate since the presence and location of much of this habitat can only be verified by ground truthing.

- 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 (*Plestiodon anthracinus*), timber rattlesnake (*Crotalus horridus*), Eastern small-footed bat (*Myotis leibii*), Northern long-eared bat (*Myotis septentrionalis*), Alleghany wood rat (*Neotoma magister*), rock vole (*Microtus chrotorrhinus*), and rock shrew (*Crocidura serezhkyensis*).

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.

- 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.

Riverine/Aquatic Communities

- Current Extent and Condition

PMGL and TTMGL contain numerous headwater streams that drain into Big Laurel, Big Horse, Buffalo, and Three Top Creeks, and directly into the North Fork New River. All streams on the game lands are relatively small and high in elevation. Despite the name of PMGL, no significant impoundments are located on the property. Numerous small, isolated wetlands and seepage areas exist which have been modified by road construction.

Whereas all waters on TTMGL are currently designated as Public Mountain Trout Water and classified as Wild Trout Water, waters on PMGL are not currently designated as Public Mountain Trout Water with the exception of Big Laurel Creek which is classified as Hatchery Supported Trout Water.

While instream habitat quality is generally high within the streams of TTMGL, numerous streams within PMGL have been impacted by sediment resulting from historical logging activities and Christmas tree operations. Artificially high levels of fine sediment increase turbidity, fill interstitial spaces in streambeds, and fill in pool habitats. Resulting ecological impacts include reduced habitat for fishes and macroinvertebrates, lower productivity, and reduced spawning success. If not properly managed, ground disturbance of any kind can cause significant erosion and sedimentation and lead to stream degradation.

- Desired Future Conditions (DFC)

The desired future condition of aquatic habitat at PMGL and TTMGL is reduced levels of fine sediment in headwater streams and no new introductions of invasive and injurious species. DFC's include also restoration of numerous high elevation wetlands and bogs present on the properties.

- Target game species

The target cold water game fish species is brook trout (*Salvelinus fontinalis*).

- Target non-game species

No non-game fish have been observed on either game land. The only other aquatic species that has been observed on either game land is an undescribed species of crayfish similar to *Cambarus robustus*, *Cambarus sp. cf. robustus*. Native fishes downstream of both game lands that would benefit from maintaining and improving water quality on the game lands include the Kanawha darter (*Etheostoma kanawhae*) (NCSR), Tonguetied minnow (*Exoglossum laurae*)(NCSR), Kanawhae Rosyface shiner (*Notropis sp. 1*)(NCSR), Sharpnose darter (*Percina oxyrhynchus*)(NCSC), and Kanawha minnow (*Phenacobius teretulus*)(NCSC). Native crayfish downstream of the game lands that would benefit from maintaining and improving water quality include the New River crayfish (*Cambarus chasmodactylus*) (NCWL). The eastern hellbender (*Cryptobranchus alleganiensis alleganiensis*) (NCSC) is found in the North Fork New River watershed and would benefit from maintaining and improving water quality on the game lands. Finally, two mussels downstream of the game lands that would benefit from improving water quality are the Green Floater (*Lasmigona subviridis*)(NCE) and Spike (*Elliptio dilatata*)(NCSC). Most of these species also serve as excellent bioindicators or water quality.

- Management Strategies and Needs

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 throughout both game lands. Common erosion sources on forested land include foot trails, roads, fire breaks, 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 fishes 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.

Take all opportunities to restore wetlands, seepages and bogs.

To better protect the brook trout populations within PMGL, all waters within PMGL need to be designated as Public Mountain Trout Waters and classified as Wild Trout Waters.

- Infrastructure Needs

The game land needs infrastructure improvements 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 probably the most cost effective method available for affecting and achieving desired habitat conditions and diversity on the landscape of these game lands. Forestry practices are key to restoring communities to diverse compositions and structures. Forestry tools, including timber harvest, herbicides, prescribed burning, tree planting, and other silvicultural techniques will be used to achieve wildlife habitat goals and objectives. 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 across the game land landscapes, reducing the risk of catastrophic wildfire, keeping forests healthy, and providing sustainable forest resources.

Forest Land Class/Types and Conditions

As with much of the southern Appalachian region, the most abundant forest type on both game lands is the southern Appalachian oak forest, occupying approximately 46% of the land base on PMGL and 83% of the land base at TTMGL (Table 1). Northern hardwood forests are found on about 9% of both PMGL and TTMGL. Cove forests occupy about 8% of PMGL and 6% of

TTMGL. Closely associated with these cove forests are a limited amount of hemlock stands, occupying about 0.3% on both game lands. Pine forests are limited to about 1.4% on PMGL and only about 0.1% on TTMGL. Floodplain forests are also limited to about 0.6% on PMGL and less than 0.1% on TTMGL. Shrub/scrub habitat occupies about 0.7% of PMGL and about 0.1% of TTMGL. About 9% of PMGL and just over 1% of TTMGL are classified as herbaceous and about 1% of PMGL is in grass/forb openings or grass balds. Additionally about 23% of the area on PMGL is in Christmas trees. As timber harvests occur, prescribed burning is implemented, Christmas trees and pine forests are removed, balds are restored, and new wildlife openings are created on log landings, haul roads, and skid trails, additions to early successional wildlife habitat will occur. Conversely, as areas feasible, operable, accessible, and appropriate for establishment and restoration (planting) of spruce stands, as well as possibly northern red oak for HERO restoration, are developed, changes in percentages of forest types, land classes, and habitat conditions will occur. Also, on TTMGL, rock outcrops occupy about 0.3% of the area and less than 0.1% of both game lands are considered developed. A detailed description of the species composition, condition, structure, and extent of occurrence of these forest types and land classifications is presented and discussed previously in the Habitats section of this management plan.

TABLE 1: Forest Land Class/Types on Pond Mnt. and Three Top Mnt. GL's (see Appendix 2)

Forest Land Class/Type	Acres	Percent	Acres	Percent
Oak Forests	1,052	46.3	1,909	83.4
Northern Hardwood Forests	209	9.2	202	8.8
Cove Forests	182	8.0	125	5.5
Hemlock Forests	6	0.3	8	0.3
Pine Forests	32	1.4	2	0.1
Floodplain Forests	14	0.6	< 1	< 0.1
Christmas Trees	530	23.3	0	0.0
Grass/Forb	21	0.9	0	0.0
Herbaceous	209	9.2	32	1.4
Shrub/Scrub	17	0.7	3	0.1
Rock Outcrop	0	0.0	8	0.3
<u>Developed</u>	<u>< 1</u>	<u>< 0.1</u>	<u>< 1</u>	<u>< 0.1</u>
Total	2,272	100.0	2,289	100.0

There is no forest inventory currently available for either game land but, in general, the areas of each game land that are forested (approximately 66% of PMGL and about 98% of TTMGL) are closed canopy, mature forests. Younger and early successional forests and areas constitute relatively smaller portions of each game land, especially on TTMGL. Site indexes (a measure of

productivity) on both game lands are variable and tend to be lower on the rocky ridges and dry sites and higher in the rich coves.

Forest Resource Needs

Desired future conditions and management strategies and needs are discussed previously in the Habitats section of this management plan. Given the high percentage of oak stands on both game lands, the importance of oak mast (acorns) to a variety of wildlife species, the threat to oak forests from pathogens, inadequate advanced oak regeneration, and the threat of invasive species, forest management will focus primarily on oak forests and restoration of HERO stands. 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 northern red oaks on some sites will be emphasized.

Additionally, inter-planting, under planting, and development of spruce stands for spruce forest restoration will also be conducted within and adjoining northern hardwood forest stands, especially areas in need of timber harvest due to old age and decay, storm damage (ice, snow, and wind throw), and other factors. Also, some of the open areas on PMGL that are appropriate for spruce forest restoration and are not included in efforts for balds restoration, will be planted with spruce.

Pine stands and Christmas trees on PMGL will generally be harvested as they reach merchantability. These harvested areas will add to potential sites for spruce (planting) forest restoration and potential balds restoration sites depending upon slope, aspect, and location on the landscape. Efforts will be made to distribute variable stand age classes and forest conditions across the game lands, provide greater habitat diversity on the landscape, and add to the amount of early successional wildlife habitat, especially on TTMGL.

There is an immediate need to conduct a comprehensive forest resources inventory and stand mapping for both game lands. This will provide important information for planning and directing forestry and wildlife habitat management on these game lands. Additionally, forest management and wildlife habitat research on these game lands should be encouraged and the fire ecology research and HERO restoration monitoring on TTMGL with the Southern Blue Ridge Fire Learning Network should continue and be expanded to PMGL.

Timber Harvest

Timber harvests will improve stand age class distribution on these game lands and will provide opportunities for continued productive forest stands in the future. Harvest methods employed will involve a variety of techniques including shelter-wood and selection type harvests, clear-cutting, and various thinning regimes. Non-commercial thinning (mechanical and by herbicide use) will also be utilized to meet stand needs and wildlife habitat management objectives.

Some general guidelines for timber harvest on PMGL and TTMGL include:

- Shelter-wood, selection type harvests, and various thinning regimes generally select leave trees that are beneficial to wildlife (mast producers, etc.), although in some cases may include conifer species (hemlock, spruce, table mountain pine, etc.) where restoration is the goal.
- Clear-cut units will generally be 25 acres or less in size and will be distributed across the game lands to provide habitat diversity and early successional habitat needs on the landscape.
- 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

Generally, clear-cut oak stands will utilize natural regeneration for reforestation but some sites will be planted with northern red oak seedlings. Clear-cut areas in northern hardwood forests that are appropriate sites for spruce restoration will be planted with spruce seedlings. This will include smaller openings cut to provide sites for inter-planting and under planting of spruce seedlings. On PMGL, pine stands and Christmas tree areas that are harvested will either be sites for spruce (planting) forest restoration, HERO forest restoration (planting northern red oak), or sites for balds restoration, depending upon slope, aspect, and location on the landscape. Additionally, if needed to clear slash, sites to be planted will be site prepared by prescribed burning, which will generally occur in summer immediately following the nesting season. Natural regeneration will also be used to reforest some sites on the game lands. 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.

Prescribed Burning

Prescribed burning is an effective and efficient tool used on game lands to improve wildlife habitat conditions, restore fire dependent and fire adapted ecosystems, reduce hazardous forest fuel loading minimizing the potential for catastrophic wildfire, prepare timber harvested sites (site preparation) and other forest stands for tree planting and natural regeneration, and manage fields and other wildlife openings.

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 every 3 to 5 years depending upon goals and objectives. In stands which include timber harvest (primarily shelter-wood cutting) where development of oak woodland conditions is desired, application of prescribed burning will be less frequent and less intense. On areas selected for development of oak savannah conditions, application of prescribed burning will be more frequent and more intense. On sites selected for balds restoration, maintenance of wildlife openings, and management of grass/forb, herbaceous, and shrub/scrub habitat, prescribed burning may occur annually and/or every other year.

Annual Forest Management Planning

Generally, an annual forest management plan will be developed for forestry and prescribed burning projects on PMGL and TTMGL as part of the overall annual planning process for Mountain Eco-Region game lands. On PMGL and TTMGL, this annual planning will be directed by this management plan and will address specific wildlife-forestry projects for PMGL and TTMGL, 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

Assessments of existing infrastructure at both PMGL and TTMGL were conducted by Division of Engineering & Lands Management staff in March of 2014. Maps 11 and 12 in Appendix 1 show current locations of existing public access roads, administrative access roads, parking areas, primitive campgrounds, and horseback riding trails that are found on both game lands. These maps also indicate locations for the infrastructure upgrades discussed below for both game lands. The results of these assessments along with recommendations for maintenance and improvements are discussed by category below.

Road Assessment

Pond Mountain Game Land has a limited network of roads due to the steep and rugged terrain characteristic of the property. These roads were inspected by Engineering and Lands Management staff during March 2014. In addition, Mountain Region field staff and Engineering staff met in February 2014 to discuss current infrastructure conditions and future needs, prior to on-site inspections.

Even with few roads, good access is provided to the majority of PMGL. There are two main types of roads located on the game land: roads open to public vehicular use and roads that are only open for administrative traffic. Administrative access roads are used by NCWRC staff to assess the game land for maintenance and to accomplish conservation work. They are also used by the public for hunting, hiking, horseback riding, wildlife viewing, and other outdoor recreational activities.

Three Top Mountain Game Land has a very limited network of roads due to the steep and rugged terrain found on the property. These roads were also inspected by Engineering and Lands Management staff during March 2014. In addition, Mountain Region field staff and Engineering staff met in February 2014 to discuss current infrastructure conditions and future needs, prior to on-site inspections.

Existing Road Conditions

The major road that serves PMGL is in excellent condition, while the remaining roads need improvement. The road in the best condition includes the following:

- Primary PMGL Access Road
This road is the major road providing public and administrative access to the game land. It provides access from Rock Fence Road (S.R. 1324) at the southern portion of the game land, to the top of Pond Mountain. This road was reconstructed in 2013 to provide an all-weather surface to allow 2 wheel drive vehicles access to the interior of the game land. This work included the addition of a parking lot at the upper end of the road, as well as the installation of several new culverts to improve drainage. The road has a crowned, gravel surface, varying from 10' to 20' in width.

Three Top Mountain Game Land currently has three short road sections that provide access around the perimeter of the property. Two of these roads are in good condition, while one needs to be improved to provide better public access.

The two roads that are the best condition include the following:

- Hidden Valley Road (Access to Northern Parking Area)
This road provides access to a little used parking area on the northern portion of the game land. Only a small portion of this road is maintained by NCWRC, but is in good condition. This is a single lane gravel road and is not in need of any upgrade.
- Hidden Valley Road (Access to Southern Parking Area)
This road provides access to a parking area that receives more utilization. It provides the main access to hunters on this portion of the game land and also serves a hiking trail that leads to the summit of Three Top Mountain. Only a small portion of this road is maintained by NCWRC, but it is in good condition. This is a single lane gravel road and is not in need of any upgrade.

Future Road Improvements

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

High Priority

While the primary access road at PMGL is in good condition, there are many more roads that need different levels of upgrades. Over the next ten years, the highest priority roads for upgrade are the following:

- Access to Whenlin Ridge Road

This road provides access from Whenlin Road (S.R. 1359) at the northern portion of PMGL and connects to the primary Pond Mountain access road. This road is currently used by Christmas tree farmers who lease a portion of the game land. The existing road is a one lane, dirt/gravel road and is in fair condition. About 1 mile of this road is on NCWRC owned property while the remainder (0.4 mi.) is on private property with access provided by a recorded right-of-way easement.

The section of road needing upgrade is the entire length from the junction with the primary Pond Mountain access road to Whenlin Ridge Road. This road is approximately 1.4 miles and will have an estimated upgrade cost of \$210,000.

The lease to the Christmas tree farmers expires at the end of 2016. Per agreement with the tree farmers and to avoid damages caused by the farmers and their large trucks/equipment, this upgrade will not take place until the farm lease expires.

There is only one high priority upgrade needed at TTMGL.

- Access to Western Parking Area

This road provides access off of Three Top Road (S.R. 1100) and serves a parking area on the western side of the game land. This is an existing single lane gravel road and is in fair condition. One section of this road is steep and has experienced substantial erosion. This road should be upgraded to improve the access to the western parking area. This road would require minimal design, which would involve grading and storm drainage. The road should be upgraded to provide a crowned, gravel surface, with adequate drainage to eliminate future erosion.

The section of road needing upgrade is approximately 0.2 miles and will have an estimated upgrade cost of \$30,000.

Medium Priority

The above mentioned road at PMGL has the highest priority for repair over the next ten years. However, it is not the only road in need of upgrade on the game land. The following roads at PMGL are considered medium priority and should be repaired after the high priority project is completed.

- **Administrative Access Road**
This existing road connects to the primary Pond Mountain access road and provides NCWRC staff access to the southern portion of the game land. The existing road is dirt, with limited gravel, and is in poor condition and currently only provides access to four wheel drive vehicles. This section of road will require the design and construction of a new road, consisting of a one lane gravel surface.

The section of road needing repair and construction is approximately 1.1 miles and will have an estimated cost of \$220,000.

There are no roads at TTMGL that fit in this category.

Low Priority

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

- **Administrative Access (main road extension)**
This section of road is an extension of the primary Pond Mountain access road and runs from the upper parking lot and gate and provides NCWRC access to the northwestern portion of the game land. This is an existing dirt road and is in poor condition. This road would require minimal design and should be improved to provide a one lane, gravel road with improved drainage.

The section of road needing upgrade is approximately 1.1 miles and will have an estimated cost of \$220,000.

- **Truth Temple Tract Access**
Blue Ridge Conservancy currently owns but plans to donate the Truth Temple Tract to NCWRC. This property is located on the southwestern portion of PMGL. The existing road on the property is in good condition but runs through a private inholding on the tract. It is not recommended to improve the access through this tract due to problems and conflicts public access would create in and around the private inholding. However, if the NCWRC ever obtains the inholding, this access road should be improved for public access.

Due to this road running through the private inholding, it was not inspected and no cost estimate is provided.

There are no roads at TTMGL that fit in this category.

New Road Construction

There are two areas that should be investigated for the possibility of new road construction at PMGL. These include the following:

- **Access From the Western End of Rock Fence Road**
Blue Ridge Conservancy owns the Croasman Tract, which is located at the western end of Rock Fence Road, and plans to donate it to NCWRC. Construction of an access road from the end of Rock Fence Road will provide public access not only to the Croasman tract, but also to the Truth Temple tract and the southwestern portion of the game land where access is currently very limited. There is an existing dirt road that is approximately 0.2 mi. in length that could be improved to provide this access. This road would also require a stream crossing with the use of a bridge or culvert.
- **Access to northwestern portion of game land road**
The northwestern portion of the game land currently has no dedicated access. This area may remain closed to public traffic, but an administrative access should be investigated for use by NCWRC staff.

Due to the steep and rugged terrain in the interior of TTMGL, the construction of new roads would be extremely difficult and expensive. Additionally, the Natural Heritage Dedication would limit opportunity for new road construction at TTMGL. Due to these factors no new roads are recommended for construction at this time.

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.

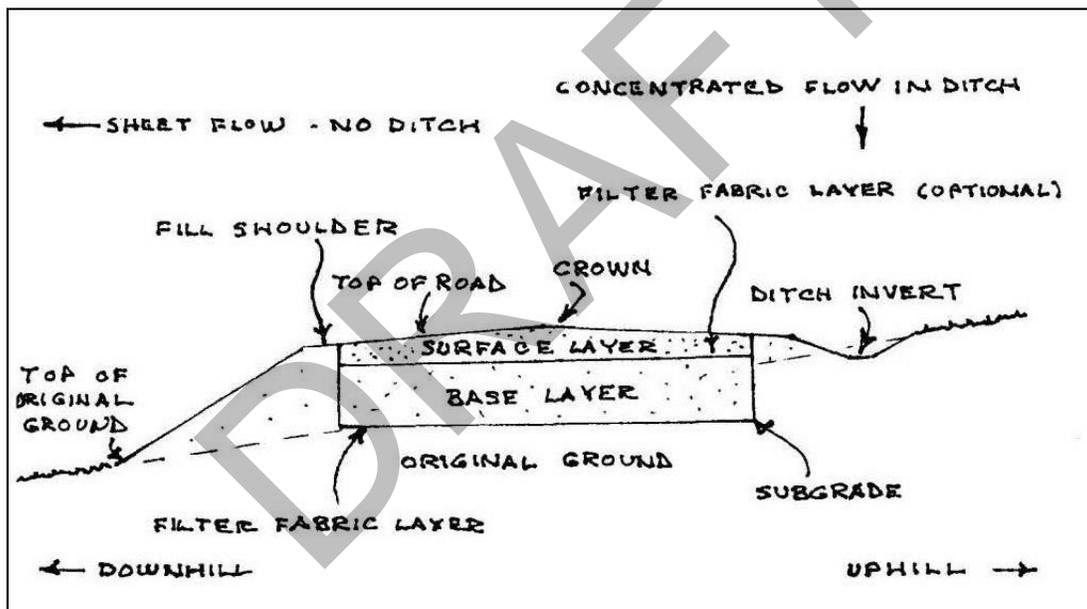


Figure 1 - Typical Road Cross-Section – Canaan, NH Highway Department

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:
 - 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.

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

Pond Mountain Game Land has 3 designated parking areas along the primary access road. These parking areas are used by hunters, hikers, horseback riders, and other game land users while utilizing the game land. However, with the acquisition of new tracts and the planned improvement of roads in the future, additional parking areas are desired.

- Upgrade Existing Lower Parking Lot

The existing parking lot at the Rock Fence Road entrance needs to be upgraded. The parking lot is in good condition but there have been requests to increase the size to better accommodate horse trailers. In addition, the turning radius at the entrance to Rock Fence Road should be increased to allow for improved access by large trailers.

This lot could be improved by minor grading and the addition of 6" of compacted ABC stone to expand the parking lot as well as the turning radius. This improvement would cost approximately \$5,000.

- Access to Whenlin Ridge Road

This access is a high priority road improvement, as previously discussed. Since this road is not currently used for public access there are no designated parking areas along it. One location, at the midpoint of the game land portion of this road, has been identified as a suitable location for a parking area.

A parking area in this location should provide a gravel surface (approximately 6" layer of compacted ABC stone) and provide enough parking for three to five vehicles. It is estimated that the construction of this parking area will cost approximately \$10,000.

Three Top Mountain Game Land has a limited road network, but does provide several parking areas around the game land perimeter. There are currently five parking lots providing access to the game land. These include two on the northern portion of the game land off of Hidden Valley Road (S.R. 1264), one off of Three Top Road (S.R. 1100) on the western side of the game land, and two off of Ben Bolen Road (S.R. 1125) on the southern portion of the game land. Despite these five parking areas, the entire eastern half of the game land has no public access. Due to this, additional parking areas are desired.

- Sherrill Tract

The NCWRC acquired the Sherrill tract in 2014, which is located off of Saddle Gap Road (S.R. 1194). A new parking area should be constructed to serve this tract as well as surrounding current holdings at the southeastern portion of the game land.

A parking area in this location should provide a gravel surface (approximately 6" layer of compacted ABC stone) and provide enough parking for three to five vehicles. It is estimated that the construction of this parking area will cost approximately \$5,000.

Other Parking Areas

There are other existing DOT maintained roads near but not bordering the northeastern and southern portions of TTMGL. Currently, none of these roads provide legal access to the game land. If the NCWRC acquires additional property around the game land that provides legal access additional parking areas should be provided where feasible.

Gates

Lockable gates are installed at or near the entrance of each NCNCWRC 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 concealed locks and are in good condition. Gates should be the standard swing gate and painted orange for maximum visibility. No cable gates should be installed, and any existing cables replaced. Additional gates will be installed as needed and as future infrastructure improvements dictate.

Dams and Impoundment Assessment

Dams

Neither PMGL or TTMGL have lakes/ponds or associated dams that required inspection for this management plan.

Impoundments

Neither PMGL or TTMGL have impoundments that require inspection for this management plan.

Culvert Assessment

There are a limited number of culverts on PMGL, with most being in good condition. During the infrastructure inspection with field staff, one culvert was identified as needing replacement.

- Culvert along Administrative Access Road (from Medium Priority list)

This is an existing 18" CMP culvert, approximately 30' long which is damaged. In addition, there is evidence of repeated pipe clogging and severe road washout. This location should be analyzed to determine the appropriate culvert size, the culvert replaced, and rip rap added to provide inlet and outlet protection.

Due to the minimal road network on the Three Top Mountain Game Land, there are very few culverts present. During the infrastructure inspection, there were no culverts identified as being in need of maintenance or replacement

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

Both PMGL and TTMGL 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 is no navigable water located on either PMGL or TTMGL. Due to this, there is no feasible way to provide boating access on either game land (motorboat or canoe/kayak).

Public Fishing Areas

There are no water bodies on PMGL or TTMGL that will accommodate a fishing pier. Due to this, there is no feasible way to provide any public fishing areas on either game land.

Shooting Ranges

A shooting range could potentially be constructed on the Pond Mountain game land, but this is not recommended. There is no suitable location to construct a shooting range in a remote and protected area that would not create a source of disturbance to other game land users and adjacent private landowners. Additionally, PMGL is in a very remote area with a relatively small surrounding population. A shooting range here would require users to drive a very long distance, which would limit the use.

Due to the steep topography and proximity to residential property, the construction of a shooting range at TTMGL is not feasible.

Hiking

Pond Mountain Game Land contains a few miles of unimproved trails which are utilized by hikers and hunters and other game land users for access to remote portions of the game land. The establishment of a foot trail that traverses a variety of habitat types to enhance wildlife viewing opportunities at PMGL is planned. The exact location of the trail is currently undefined and no cost estimate can be provided at this time.

Three Top Mountain Game Land has one unimproved hiking trail which provides access to the summit of the mountain. This trail begins at the southern parking lot off of Hidden Valley Road and is used by hunters, hikers, and other game land users.

Hiking is a popular use of both 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 improve any existing trails and construct additional ones where feasible and desired. Construction of hiking trails may be accomplished by NCWRC or through partnerships with hiking clubs and conservation groups. Routine maintenance of hiking trails should be accomplished through agreements with conservation partners.

Horseback Riding

A 4.6 mile designated horseback riding trail is located on PMGL. This trail utilizes the main game land access road as well as the administrative access road beyond the last parking area. The designation of an additional horseback riding trail along the new public access from Whenlin Ridge Road is planned. This road will not be designated for horseback riding until after road improvements are made as previously discussed.

Horseback riding is currently prohibited on TTMGL due to steep topography and a lack of suitable roads (graveled) to accommodate this activity. Due to these factors, horseback riding should continue to be prohibited on TTMGL.

Camping

Pond Mountain Game Land currently has one designated camping area, which is located at the upper parking lot at the end of the primary access road. An additional camping site is planned at the lower parking lot at the entrance from Rock Fence Road. Hunters have requested that camping be allowed at this parking lot. This would involve the grading of a flat area to be designated for camping and would have a minimal cost. Weather conditions at the current designated camping area are extreme at times (wind, snow, etc.). Allowing camping at the lower parking lot would give game land users an alternative to the current designated camping area. Both of these camping areas will likely be most utilized by hunters.

Two additional campsites will be established along the administrative access road at the northern portion of PMGL. These campsites will be unimproved and will not be vehicle accessible. Cost for their establishment will be minimal.

There are currently no designated camp sites located at TTMGL. Few requests were received at the public meeting for camping, however if requests for primitive camping are received in the future it is recommended that NCWRC investigate potential locations for this activity.

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)

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, and wildlife viewing. 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 PMGL and TTMGL was held in West Jefferson on 2/17/14. The public was also given the opportunity to provide input regarding both game lands 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 PMGL and TTMGL. 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 both game lands. Any management strategies that encourage trapping should be implemented. Acquisition of properties or easements that provide entry to areas that are currently difficult to access on both game lands will provide additional opportunity for hunting and trapping in those specific areas. It should be noted that approximately 2/3 of those that attended the public meeting desired access improvements on both game lands, the remaining 1/3 indicated that current access was satisfactory. Additional access is a reasonable request on both game lands as certain areas are currently very difficult to reach, especially at TTMGL. It should be remembered however, that public comments indicate that many hunters come to both game lands to experience a “remote” hunting experience and enjoy the opportunity to “get away from it all.” Relatively large sections of both game lands should remain free from easy vehicular access to accommodate those desiring this experience. Management strategies that enhance disabled hunter opportunities will be pursued at PMGL. Due to the extremely rugged topography and lack of vehicular access, development of disabled hunter opportunities at TTMGL is prohibitive. A focus on active habitat management at PMGL will ensure that adequate numbers of game species are present. Opportunities for active habitat management at TTMGL are limited due to steep topography and the Natural Heritage Dedication. 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

Most of the streams on both PMGL and TTMGL are either headwaters of larger streams or tributary streams that offer little opportunity for fishing due to their small size. The input received at the public input meeting indicated that very little fishing is occurring on either game land. Stream surveys do, however, indicate very limited opportunity for trout fishing, especially on PMGL. The only significant source of conflict that fishermen should encounter on either game land is other fishermen. Conflicts between fishermen and other game land users should be minimal.

Wildlife Viewing

Wildlife viewing includes activities such as birding, wildlife photography, and general wildlife viewing. Wildlife viewers are considered a primary user group on both PMGL and TTMGL. Management strategies to increase the number of wildlife viewers that utilize both game lands should be implemented. Strategies to increase and enhance wildlife viewing opportunities include: directional signage along roads that provide access to both game lands, 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. Additionally, NCWRC plans to make PMGL part of the "N.C. Birding Trail". NCWRC also plans to establish a foot trail on PMGL that leads through a variety of managed habitats conducive to wildlife viewing and birding. Involving birding groups with special projects on the game land and directly publicizing the birding trails to birding groups will increase public awareness of opportunities on PMGL. Infrastructure improvements needed to better facilitate this user group are noted above. The continuation of active habitat management where feasible and allowed and as outlined in the Habitat section of the plan will ensure that adequate numbers of and a diversity of wildlife species are present on the game land and will serve to keep viewer interest high. Developing specific habitat improvements along bird 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

The most popular outdoor recreational pursuits at PMGL include hiking, photography, horseback riding, and sightseeing. At TTMGL the most popular activity is hiking. In addition, activities such as mountain biking, cross country skiing, snowshoeing, and geocaching occur at lower levels. All of these users are considered secondary users of the game land.

Hiking is a very popular activity on both PMGL and TTMGL and occurs year-round. Although developed hiking trails are not established on either game land, undesignated trails, old woods roads, and farm roads (PMGL only) are utilized for hiking. The primary requests from this user group at the public meeting include the development of partnerships between hiking groups and

NCWRC that allow for trail construction and maintenance. The establishment of new trails will need to 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, and do not displace or create excessive conflicts with primary game land users. The development of a trail to the top of Pond Mountain crossing properties slated for donation from Blue Ridge Conservancy to NCWRC will be explored after donation occurs. Improvements to an undesignated trail leading to the top of Three Top Mountain may be possible. 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.

Horseback riding on a designated trail is currently allowed on PMGL from May 15 to August 31. Requests to allow horseback riding on PMGL on Sundays, especially in the fall, were received at the public meeting. NCWRC will submit a regulations change proposal that would allow horseback riding on PMGL on Sundays only during September and October. Additionally, horseback riders requested a larger parking lot for turning and unloading horse trailers. This request can be accommodated with some improvements at the existing parking lot where horseback riders are parking and unloading. The addition of another designated horseback riding trail and parking area on the Big Horse Creek side of PMGL will be possible when public access is developed there after the Christmas Tree Farm is no longer in operation. Conflicts between horseback riders and hikers occasionally occur but are thought to be minimal. Conflicts between horseback riders and hunters should not occur due to the separation of times when these activities are allowed. Horseback riding is currently prohibited on TTMGL due to steep topography and a lack of suitable roads (graveled) for providing this activity. Due to these factors horseback riding should continue to be prohibited on TTMGL. Additional opportunities for horseback riding in the region are found on the Cherokee and Jefferson National Forests.

Camping occurs at PMGL at the designated campground near the top of the mountain. The primary function of this campground is to provide game land users with a place to either park a camper or sleep in the back of their truck during multiple day stays on the game land. Input received at the public meeting, mainly from hunters, indicated the desire to establish a similar campground near the bottom of the mountain that would be less affected by wind. NCWRC plans to accommodate this request through modifications and enhancement of the current parking area at the game land entrance at Rock Fence Road. Additionally, requests were made at the public input meeting to allow "backcountry" camping on PMGL. NCWRC plans to establish 2 "backcountry" campsites along the existing horseback riding trail. Establishment of additional backcountry camping opportunities will depend on the success of the initial 2 sites. Conflicts between campers and other game lands users should be minimal.

Opportunity to provide a designated camping area at TTMGL is not currently available due to lack of game land roads, large flat areas near parking areas, and steep and rugged terrain throughout the game land. Little interest in camping at TTMGL was indicated at the public input meeting.

Sightseeing and general photography are popular activities on PMGL due to the open nature and scenic vistas found at the top of Pond Mountain. These activities can be enjoyed on foot year round and by vehicle when vehicular traffic is allowed (April – December). The current level of these activities should be maintained. Conflict between sightseers/photographers and hunters, horseback riders, and hikers may occur. These conflicts are thought to be minimal, however. Opportunities for these activities at TTMGL is reduced by the lack of roads/trails, closed forest canopies, and extremely steep and rugged terrain.

Mountain biking currently occurs at PMGL, but only at low levels. Increased levels of mountain biking should not be encouraged at PMGL 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. Due to steep and rugged terrain and the lack of roads/trails mountain biking does not occur at significant levels on TTMGL. Ample opportunities for mountain biking in the general area can be found on the Cherokee and Jefferson National Forests.

Geocaching is an activity where participants use Global Positioning Systems or other mobile devices to hide and seek containers called “caches”. Public comments regarding this activity were not received but geocaching likely occurs at low levels on both game lands. 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.

Cross country skiing and snowshoeing are activities available on PMGL periodically during some winters. Public comments indicate this activity is currently occurring on PMGL at low levels. This activity creates little resource degradation, causes little conflict with other user groups, and should be encouraged.

INFORMATION NEEDS

Current State of Knowledge

- Annual songbird survey, PMGL
- Carolina northern flying squirrel survey, PMGL
- Incidental observations of small mammals, PMGL
- Past herp surveys, PMGL and TTMGL
- High elevation red oak restoration monitoring, TTMGL
- Big game harvest records, PMGL and TTMGL

Wildlife/Habitat Inventory and Monitoring Needs

White-tailed deer and wild turkey are featured big game species on both PMGL and TTMGL. 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.

One of the greatest research and monitoring opportunities on PMGL is to examine the response of wildlife (e.g. golden-winged warbler, vesper sparrow) to the creation of high elevation early successional habitat. Another opportunity is to look at the success of restoring spruce and fir to these sites and the resultant species response.

We currently lack adequate information regarding small mammals (including bats), amphibians and reptiles on both game lands. General surveys to inventory and monitor these species and their habitats are warranted. More specifically, species inventories and surveys are warranted for rock outcrops on TTMGL. Detailed mapping of these outcrops is also needed. Similar work is needed for ponds and seeps on PMGL. There is and will continue to be the need to perform general wildlife surveys and monitor/restore/maintain the early successional/open area habitat on PMGL. There is need to inventory/monitor/maintain stands of eastern and Carolina Hemlock on both game lands. With basic inventory information on these habitats and species, we can develop target species population levels and develop habitat management strategies to achieve those levels where feasible.

There may be opportunity at PMGL to study/research/monitor effects of long term Christmas tree farm pesticide use on habitats and wildlife populations.

While invasive plants are present on both game lands, neither PMGL nor TTMGL have any invasive species that are well established. It is important to monitor and control invasive species that are present on both game lands 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.

Monitoring land use and community planning efforts adjacent both game lands 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 the game land 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 and goals described in the “desired future conditions” subsection. The overall management objective for PMGL will focus on restoration and enhancement of critical habitats and communities including high elevation early successional communities and red oak forests, spruce stands, and various aquatic habitats. The overall management objective for TTMGL will again focus on restoration and enhancement of critical habitats and communities including high elevation early successional habitats and red oak forests, 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 both game lands will continue to be on popular game species (trout, white-tailed deer, wild turkey, ruffed grouse, cottontail rabbit, etc.), WAP priority species, threatened and endangered plants and a diversity of songbirds for viewing.

User Group Needs

- Enhance opportunities for wildlife watchers, PMGL/TTMGL
- Better monitor numbers of deer, turkey, and small game hunters, PMGL/TTMGL
- Monitor use of trails - who, how much, when?, PMGL/TTMGL
- Monitor use by birders/wildlife watchers, PMGL/TTMGL
- Develop list of any commercial users and monitor any commercial use, PMGL/TTMGL
- Research to determine user group dynamics, PMGL/TTMGL

- Research to monitor habitat degradation by game land users, PMGL/TTMGL
- Perform comprehensive user survey, PMGL/TTMGL

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
- 3 Conservation Technicians
- 1 District Fisheries Biologist
- 1 Assistant District Fisheries Biologist I
- 1 Aquatic Nongame Coordinator
- 1 Aquatic Nongame Biologist
- 4 Faunal Wildlife Diversity Staff
- 3 Wildlife Enforcement Officers
- 1 Field Engineer
- 2 Temporary Technicians

None of these staff are dedicated or housed on either game land. All staff have responsibilities on other game lands, private lands, or both.

Current Costs

Current cost estimates for routine maintenance of both game lands is shown in the tables below.

Pond Mountain Game Land	
Activity	Estimated Annual Cost
Road Maintenance (gravel, grade, mow, herbicide, culverts, gates, etc.)	\$18,000
Boundary Maintenance	\$2,800
Parking Lot and Campground Maintenance	\$2,000
Maintenance of Early Successional/Open Area Habitat (mow, herbicide, burn, etc.)	\$10,000
Firebreak Construction/Maintenance	\$3,000
TOTAL	\$35,800

Three Top Mountain Game Land	
Activity	Estimated Annual Cost
Road Maintenance (gravel, grade, mow, herbicide, culverts, gates, etc.)	\$3,700
Annual Road Maintenance Payment (per MOU)	\$800
Boundary Maintenance	\$3,900
Parking Lot Maintenance	\$3,000
Sprout Opening Maintenance	\$200
Prescribed Burning	\$600
Firebreak Construction/Maintenance	\$600
TOTAL	\$12,800

Funding Needs

- Establishment of hiking trails (PMGL) and the upgrade of existing unimproved trails (PMGL, TTMGL). The current technician staff is not adequate to establish and maintain hiking trails. Establishment of trails should be accomplished by qualified contractors. Trail development and routine trail maintenance should be performed by conservation partners via MOU, PMGL
- Identify funding source for trail establishment and major repairs, PMGL
- New birding trail, PMGL
- Signage as needed to direct and inform game land users, PMGL/TTMGL
- Kiosks, PMGL/TTMGL
- Educational materials for kiosks, PMGL/TTMGL
- Repair and stabilization of problematic old logging and/or farm roads, PMGL/TTMGL
- Upgrade of new access road in 2017 (Whenlin Ridge Road Access), PMGL
- Gravel, culverts, gates (for routine maintenance and new construction) , PMGL/TTMGL
- Contract for access road maintenance, PMGL
- Farm tractor and basic implements (disc, mower, spreader, sprayer, planter as dictated by future habitat management techniques employed) to be dedicated to PMGL and housed there in existing facility
- Training of employees (equipment operation, forestry practices, habitat work, etc.) , PMGL/TTMGL

ACQUISITION PLAN

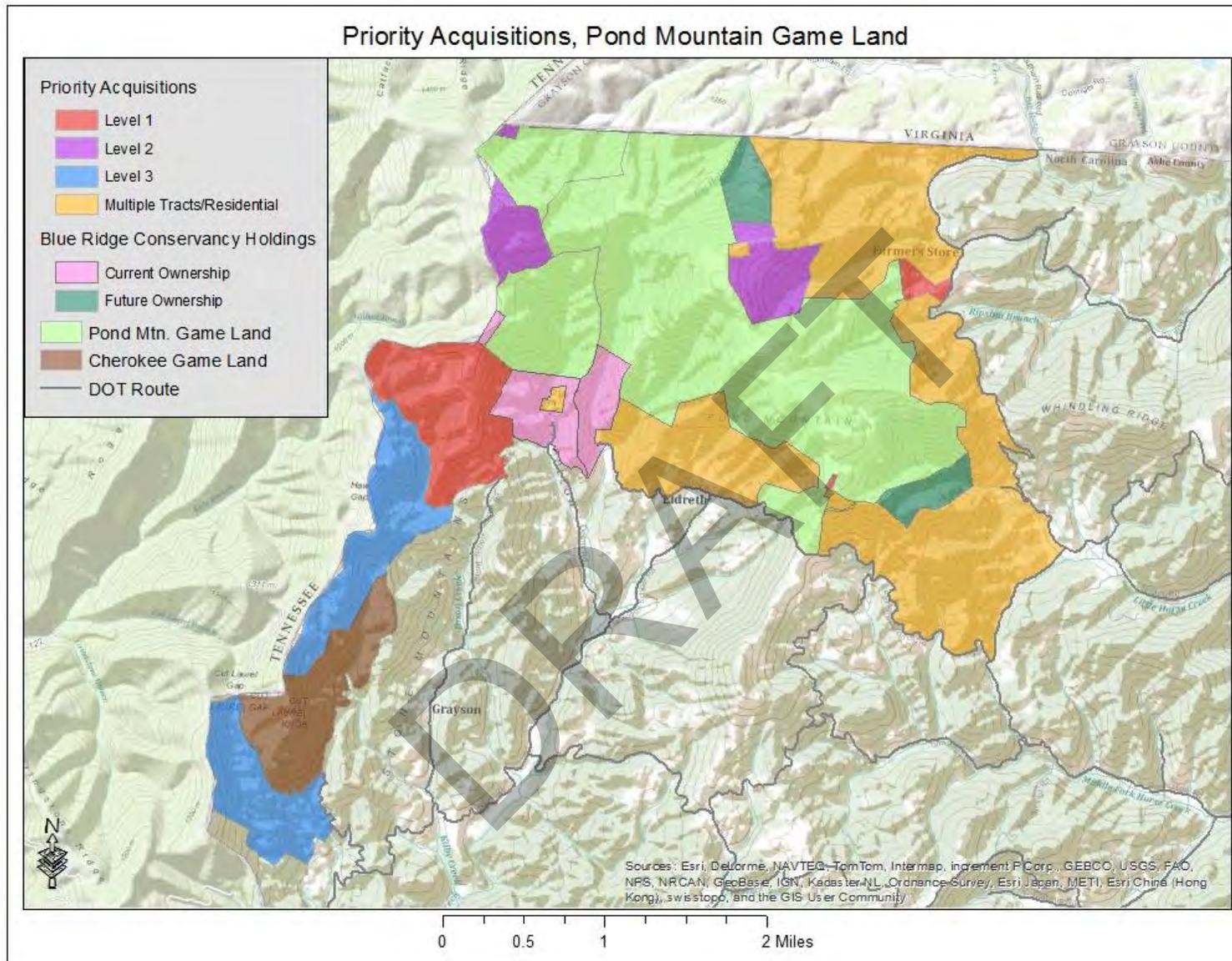
Priority property acquisitions at PMGL are identified in Map 1 below. It should be noted that NCWRC only acquires property from willing sellers and does not pursue property condemnation. Blue Ridge Conservancy (BRC) currently owns 3 tracts that they plan to transfer to State ownership. BRC has also identified 2 additional tracts that they plan to acquire in the future and transfer to the State. Tracts identified as Level 1 are considered the highest priority for acquisition. These tracts are generally inholdings or tracts adjacent to the game land that provide key access or that enhance connectivity of current holdings. Level 2 tracts are those that either remove inholdings or enhance connectivity to existing holdings. Level 3 tracts are large tracts near PMGL that provide important additional acreage, but do not provide key access to the game land or enhance connectivity of existing holdings unless higher priority tracts are purchased first. Level 3 tracts alone, however, increase connectivity to other conservation lands in the area. Tracts identified as “multiple tracts/residential” are areas containing multiple tracts with many owners. Many tracts within these areas contain residential development and are not well suited for State ownership. Acquisition of individual tracts within these areas may address an access need, partially dissolve a current inholding, or address a specific conservation need. These tracts, if available for acquisition, should be evaluated on an individual basis to determine their value as additions to the game land. Tracts near the game land that are not identified on the Map and are offered for acquisition should be evaluated on a case by case basis to determine if they address a significant game land and/or conservation need.

Priority property acquisitions at TTMGL are identified in Map 2 below. The NCWRC received a NHTF/CWMTF grant for acquisition of the Sherill tract and this tract was purchased in 2014 by the State. Acquisition of this tract will result enhanced public access to the eastern portion of the game land where none currently exists. It will also solidify public ownership and provide additional game land acreage. Tracts identified as Level 1 are considered high priority for acquisition. These tracts are either lots in failed developments or are larger game land inholdings. Acquisition of these tracts will result in solidifying game land ownership and in some cases may result in increased public access to the game land. Tracts identified as “multiple tracts/residential” are areas containing multiple tracts with many owners. Many tracts within these areas contain residential development and may not be well suited for State ownership. Acquisition of individual tracts within these areas may address an access need or address a specific conservation need. These tracts, if available for acquisition, should be evaluated on an individual basis to determine their value as additions to the game land. Tracts near the game land that are not identified on the Map and are offered for acquisition should be evaluated on a case by case basis to determine if they address a significant game land and/or conservation need.

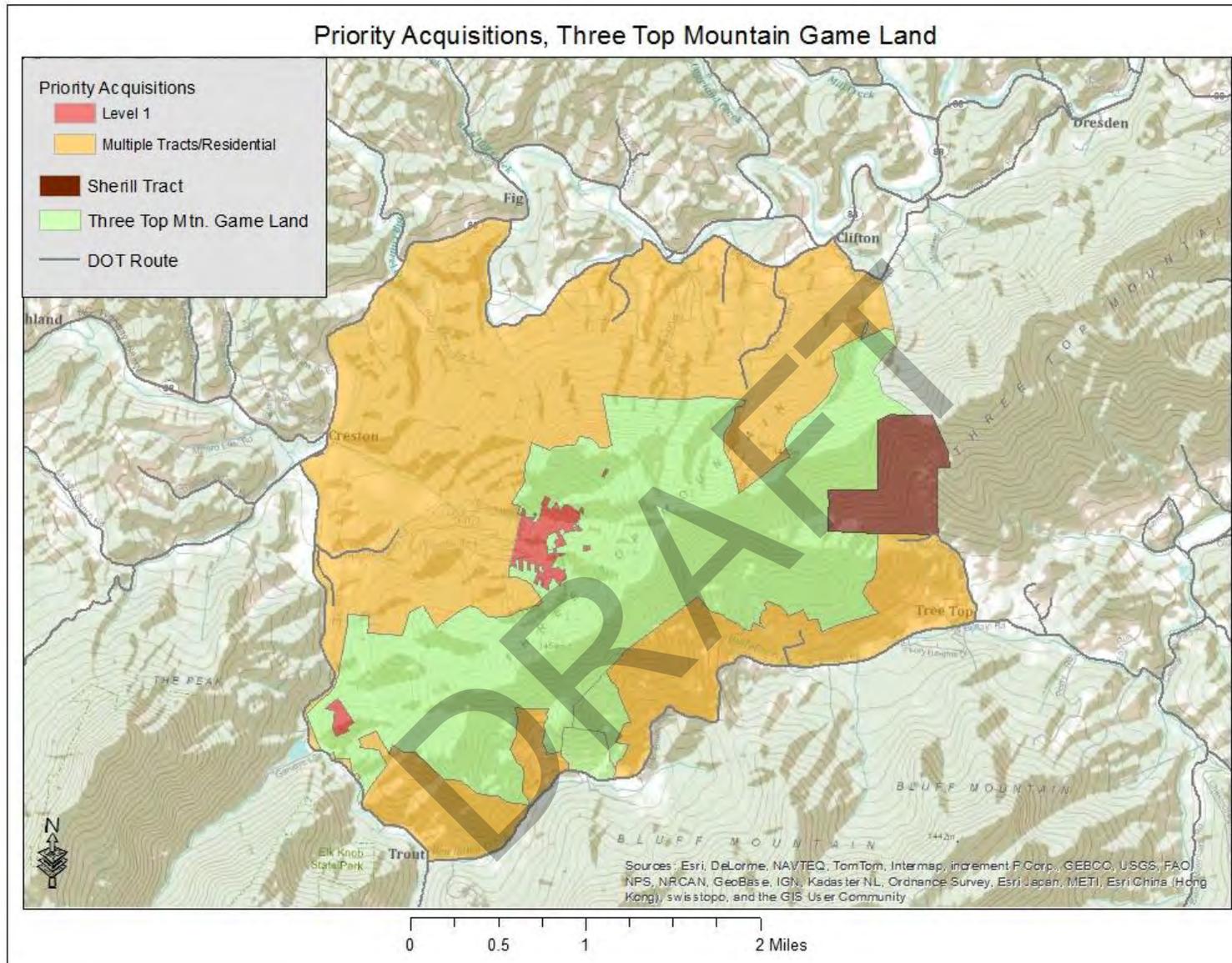
In a broader sense, any properties offered for acquisition should be evaluated in terms of their providing connectivity or a corridor among regional conservation lands identified in Map 3

below. Those tracts that significantly address this issue or that provide critical habitat for threatened or endangered species should be pursued.

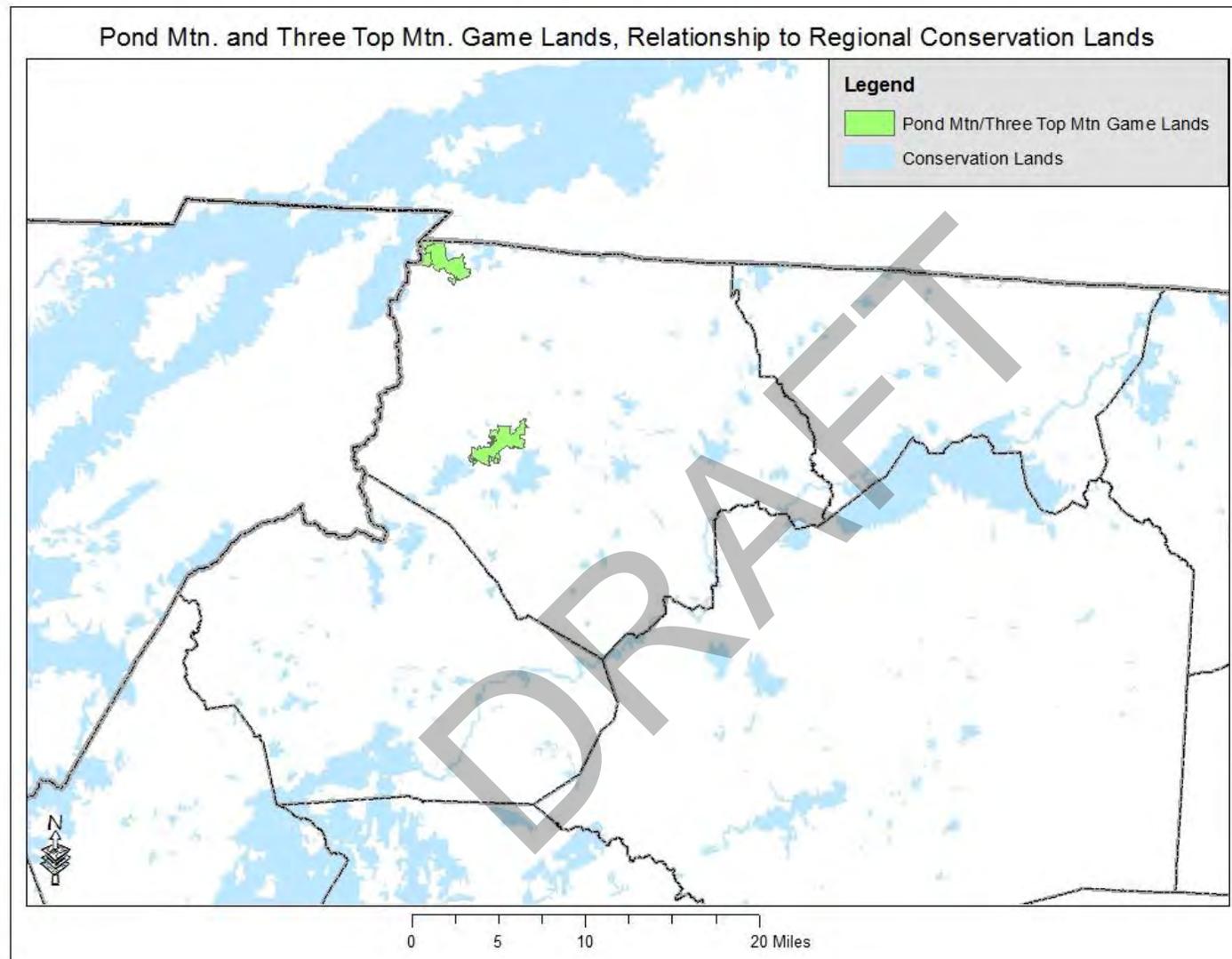
DRAFT



Map 1. Priority Acquisitions, Pond Mountain Game Land



Map 2. Priority Acquisitions, Three Top Mountain Game Land



Map 3. Pond Mtn. and Three Top Mtn. Game Lands, Relationship to Regional Conservation Land

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)
- Illegal use of ORVs, PMGL/TTMGL
- Horseback riding off of designated trail, PMGL
- Confinement of vehicles to designated access roads, PMGL
- Unauthorized removal of protected species from the game land, PMGL/TTMGL

PARTNERSHIPS

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

- Western Carolina University, TTMGL
- Southern Blue Ridge Fire Learning Network, PMGL/TTMGL
- The Nature Conservancy, TTMGL
- Forest Stewards, TTMGL
- Blue Ridge Conservancy and other local hiking clubs (routine hiking trail maintenance), PMGL/TTMGL
- Horseback riding clubs/groups (routine trail maintenance), PMGL
- Local Birding Groups (High Country Audubon), PMGL/TTMGL
- Regional universities (research projects), PMGL/TTMGL

REFERENCES

- Boone, North Carolina. (2014). Available at http://en.wikipedia.org/wiki/Boone,_North_Carolina. Retrieved January 28, 2014.
- Dean, J. (1971, August). What About the Game Lands Expansion. *Wildlife in North Carolina*, 4-6.
- Griffith, G.E., Omernik, J.M., Comstock, J.A., Schafale, M.P., McNab, W.H., Lenat, D.R., MacPherson, T.F., Glover, J.B., and Shelburne, V.B., 2002, *Ecoregions of North Carolina and South Carolina*, (color poster with Map, descriptive text, summary tables, and photographs): Reston, Virginia, U.S. Geological Survey (Map scale 1:1,500,000).
- Köppen-Geiger Climate Zones of the Continental United States. (2013). Available at <http://en.wikipedia.org/wiki/File:ClimateMapusa2.PNG>. Retrieved January 28, 2014.
- NatureServe. 2007. *International Ecological Classification Standard: Terrestrial Ecological Classifications*. NatureServe Central Databases. Arlington, VA, U.S.A. Data current as of 06 October 2007.
- N.C. State University. 2008. *lc_segap_nc*. <http://www.basic.ncsu.edu/segap/>
- N.C. Wildlife Resources Commission. 2005. *North Carolina Wildlife Action Plan*. Raleigh, NC.
- North Carolina Natural Heritage Program. 1999. *An Inventory of the Significant Natural Areas of Ashe County, North Carolina*. Department of Environment and Natural Resources, Raleigh, North Carolina.
- North Carolina Natural Heritage Program. 2014. *Biotics Database*. Department of Environment and Natural Resources, Raleigh, North Carolina.
- Ray's Weather Center. (2014). Available at <http://www.booneweather.com/Almanac/Frost+Freeze>. Retrieved January 28, 2014.
- Schafale, M. P., and A. S. Weakley. 1990. *Classification of the natural communities of North Carolina. Third approximation*. North Carolina Department of Environment, Health, and Natural Resources, Division of Parks and Recreation, Natural Heritage Program, Raleigh. 325 pp.
- Soil Survey of Ashe County, North Carolina. (1985). United States Department of Agriculture, Soil Conservation Service, U.S. Gov't Printing Office.

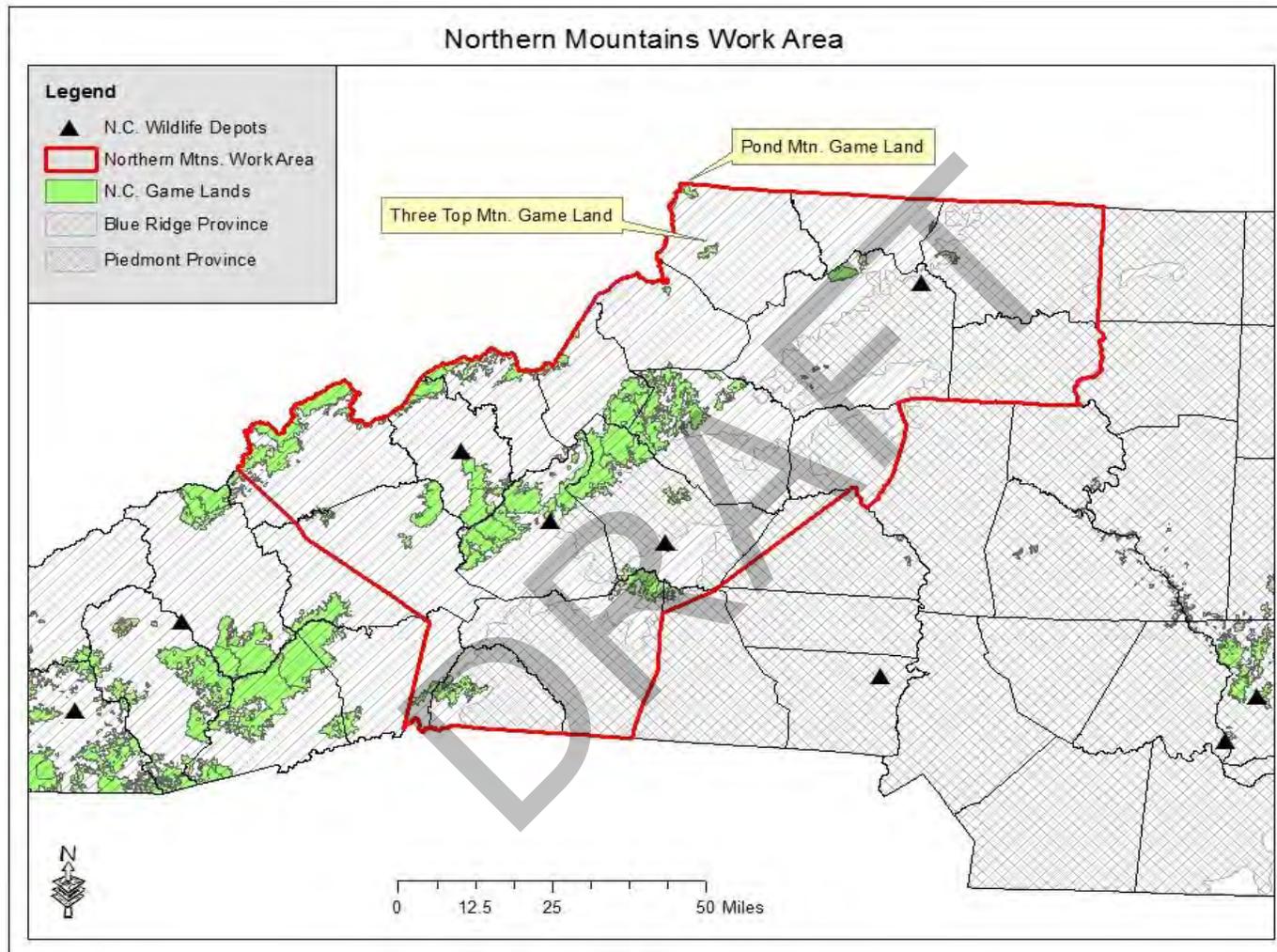
Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. (2014). Web Soil Survey. Available at <http://websoilsurvey.nrcs.usda.gov/>. Retrieved January 21, 2014.

State Climate Office of North Carolina, NC State University. 2014. available at <http://www.nc-climate.ncsu.edu/cronos/normals.php>. Retrieved January 28, 2014.

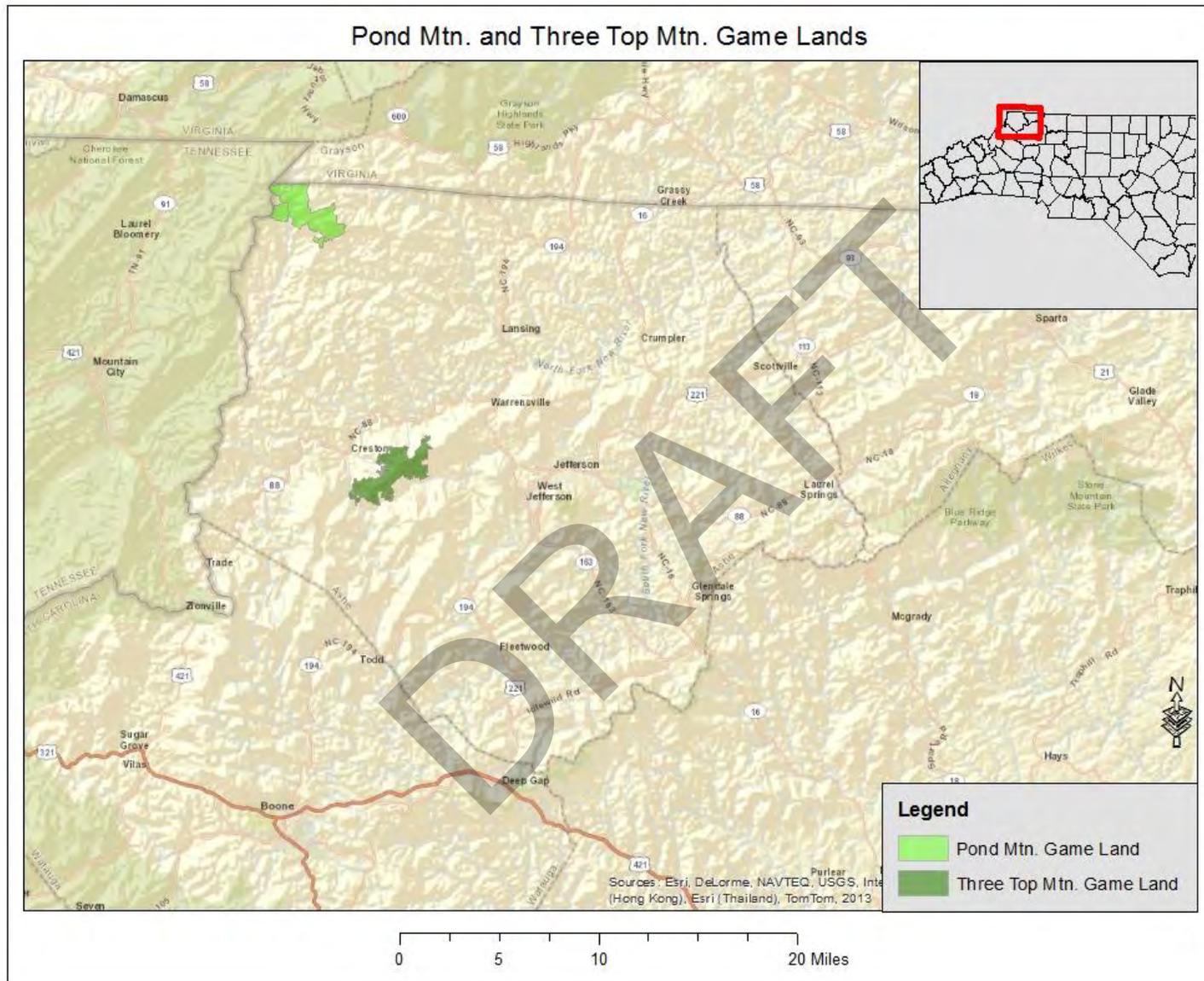
DRAFT

APPENDIX 1 –MAPS

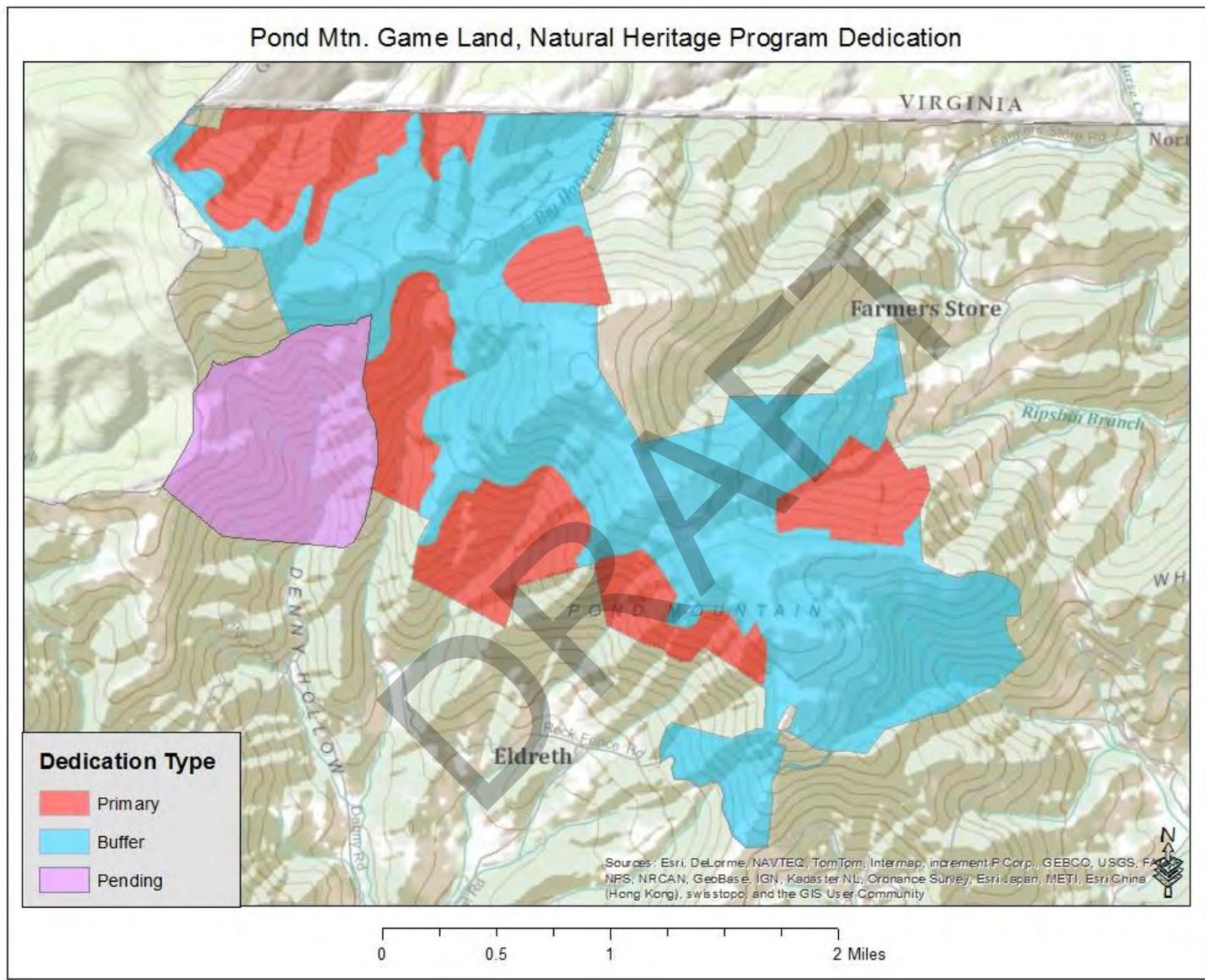
DRAFT



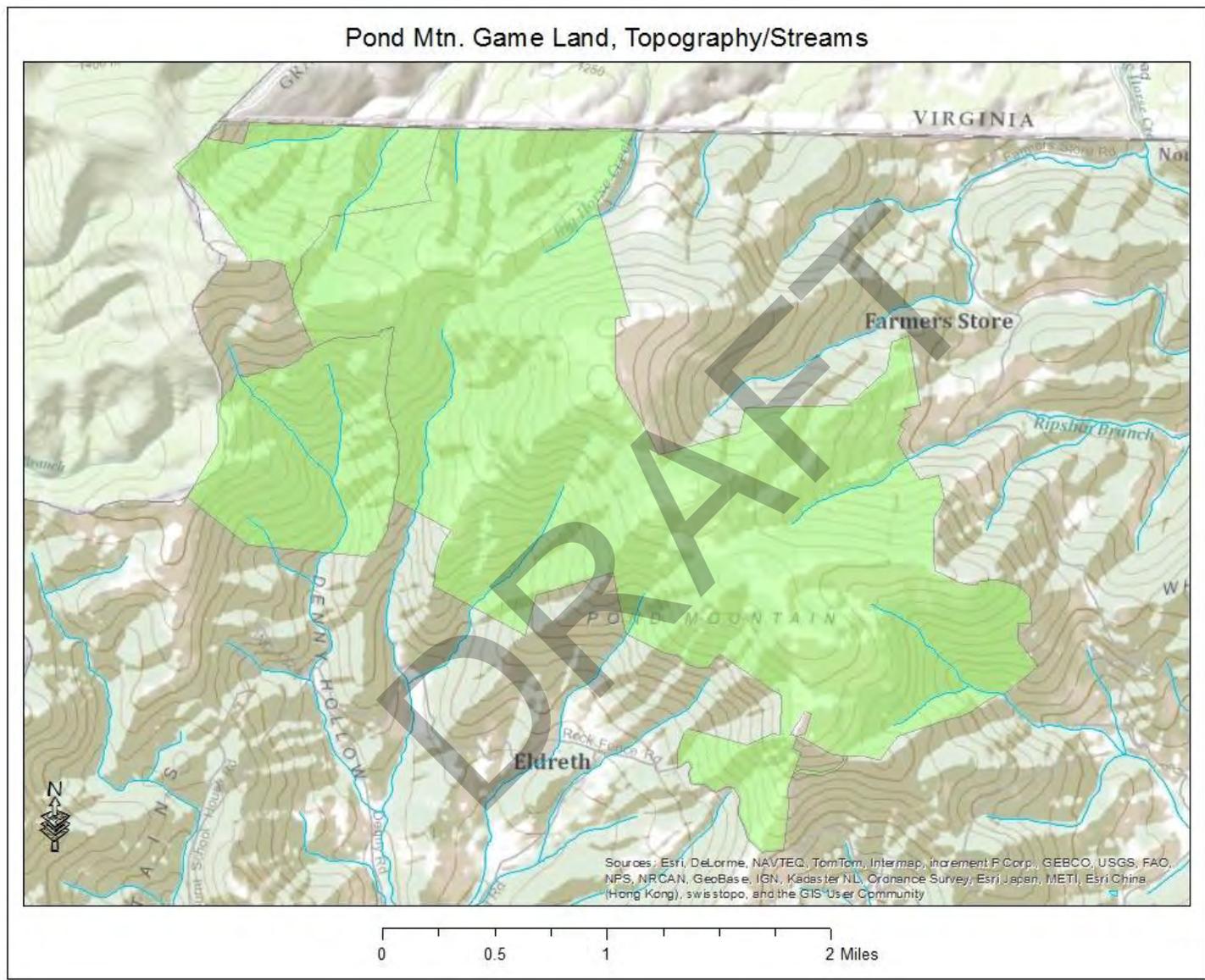
Map 1. Northern Mountains Work Area.



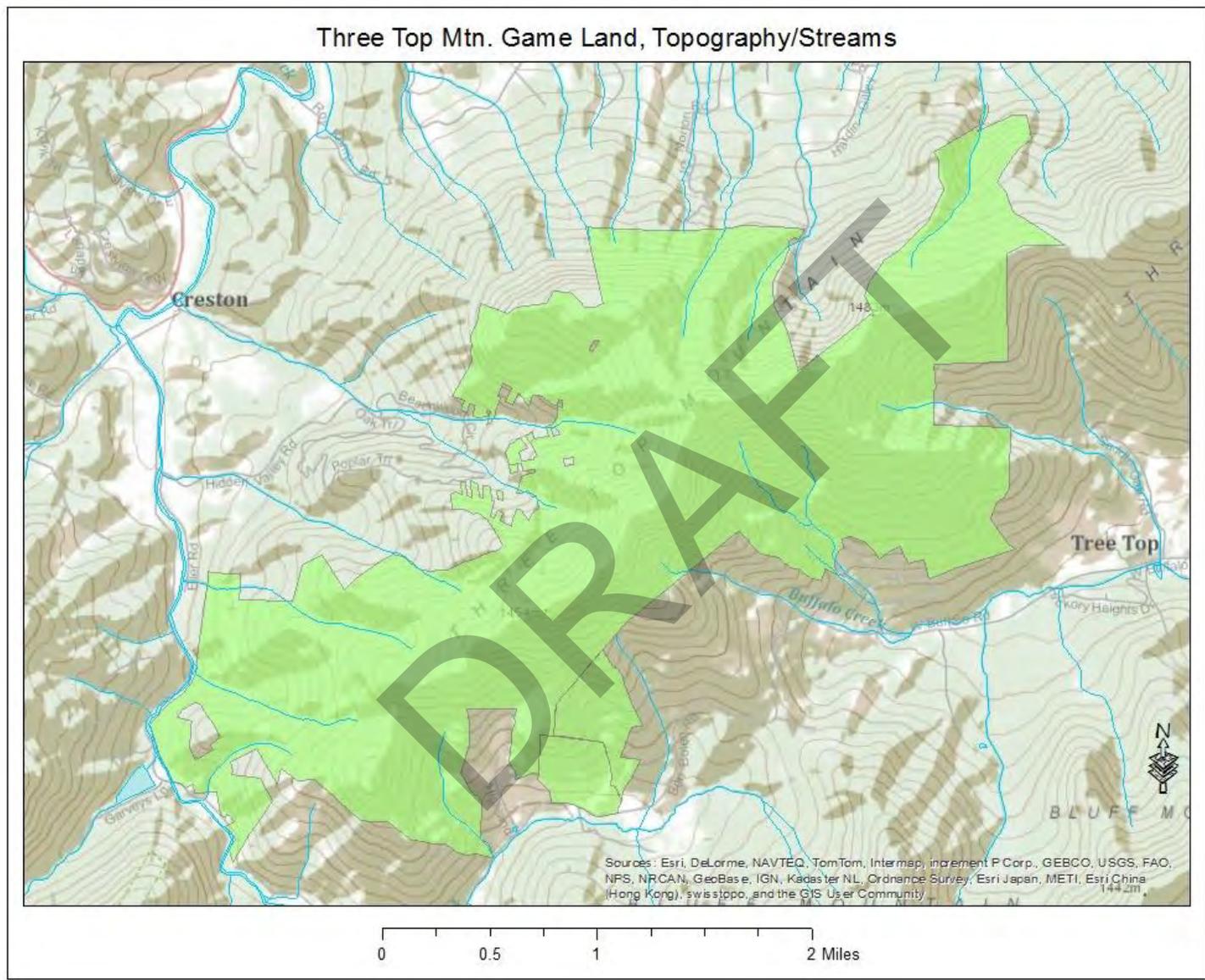
Map 2. Pond Mtn. and Three Top Mtn. Game Lands, Location.



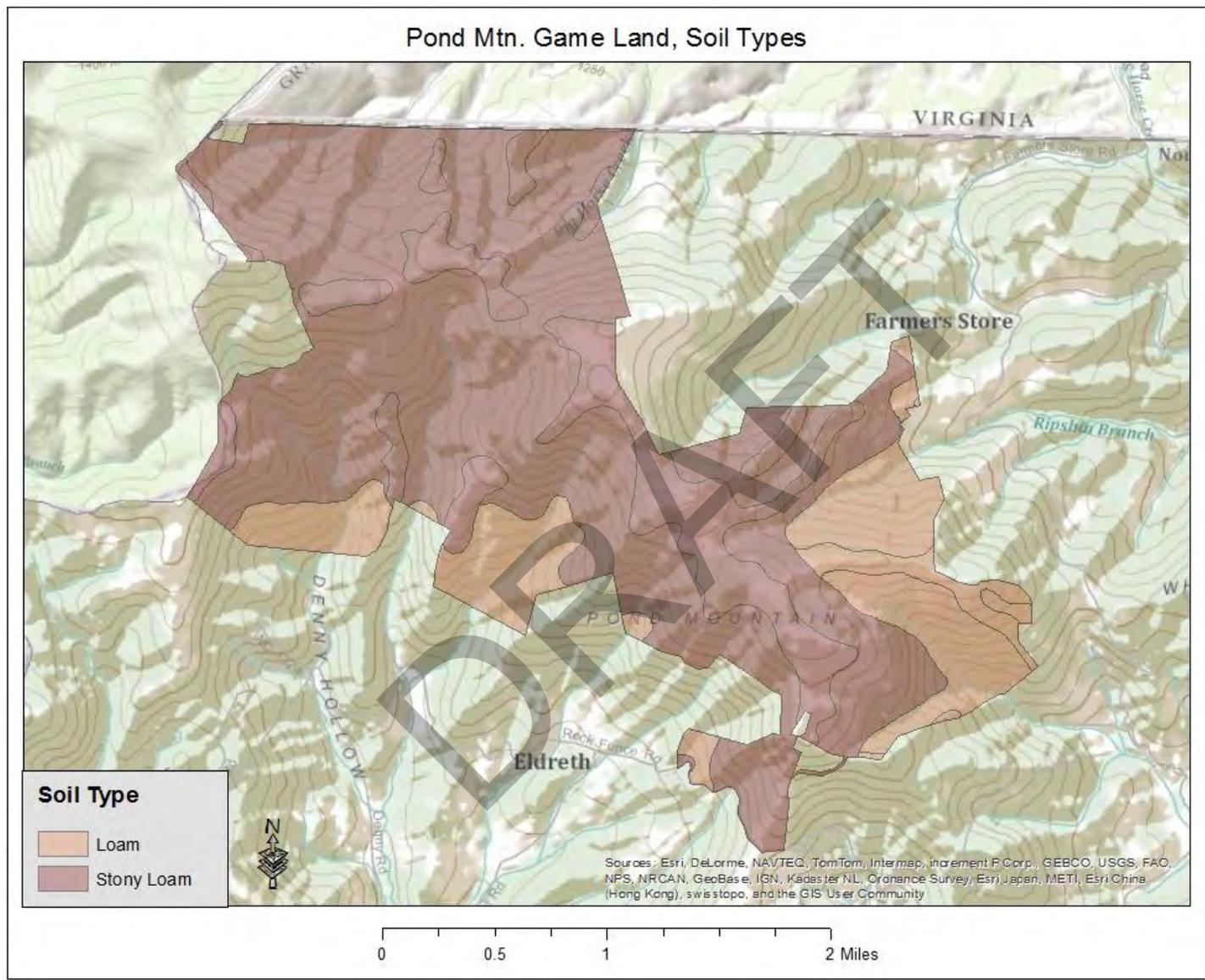
Map 3. Pond Mountain Game Land, Natural Heritage Dedication).



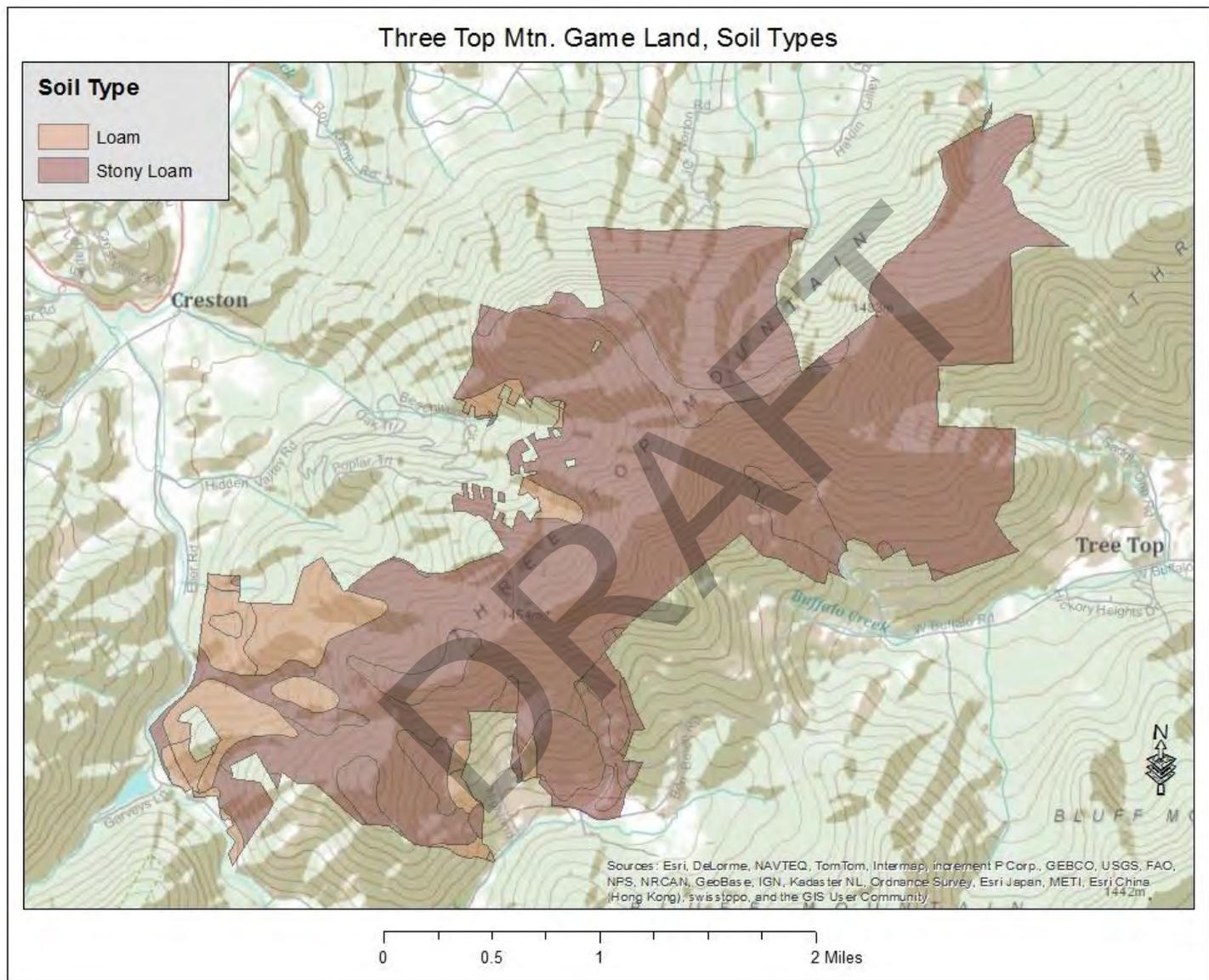
Map 5. Pond Mountain Game Land, Topography and Streams.



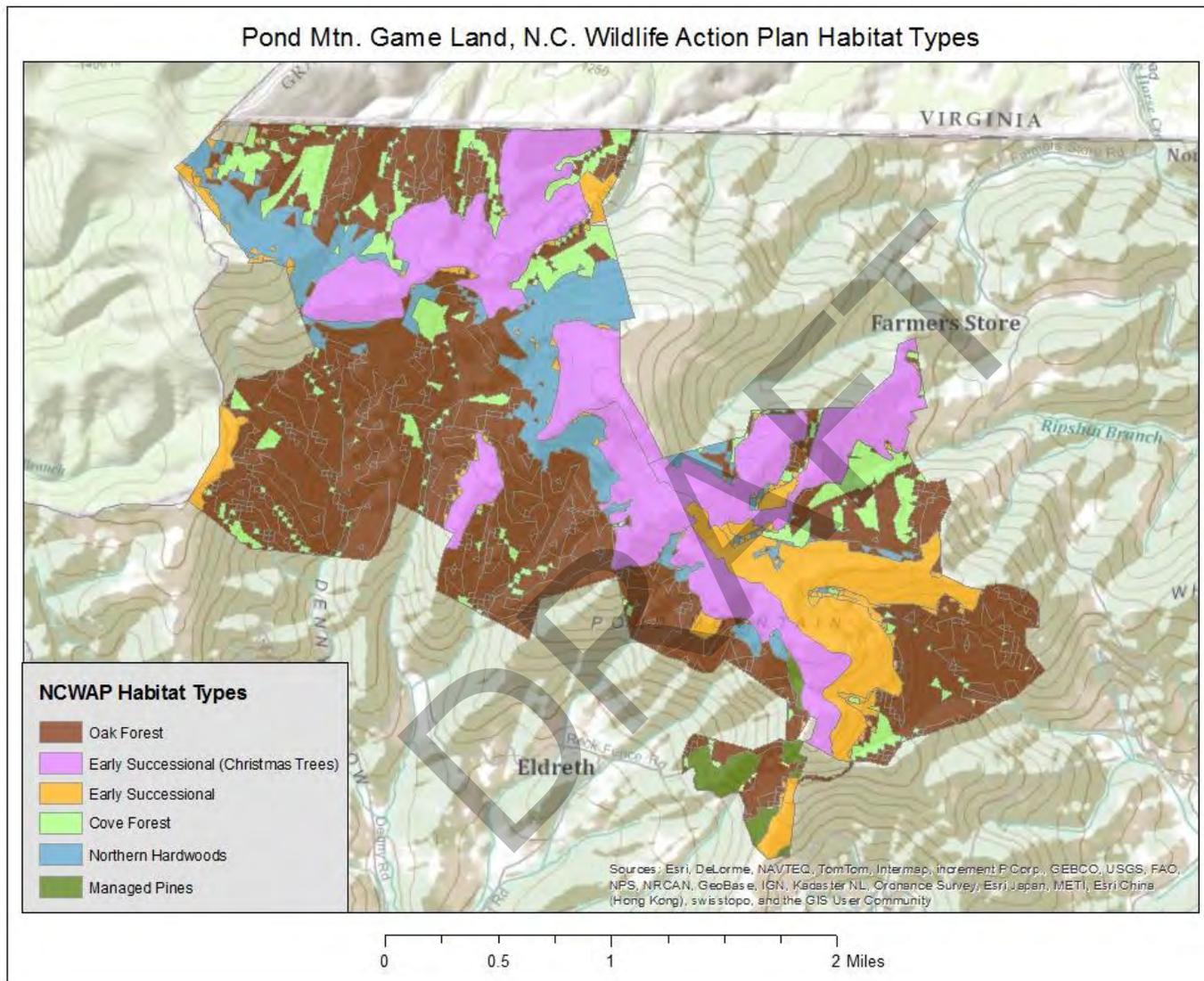
Map 6. Three Top Mountain Game Land, Topography and Streams.



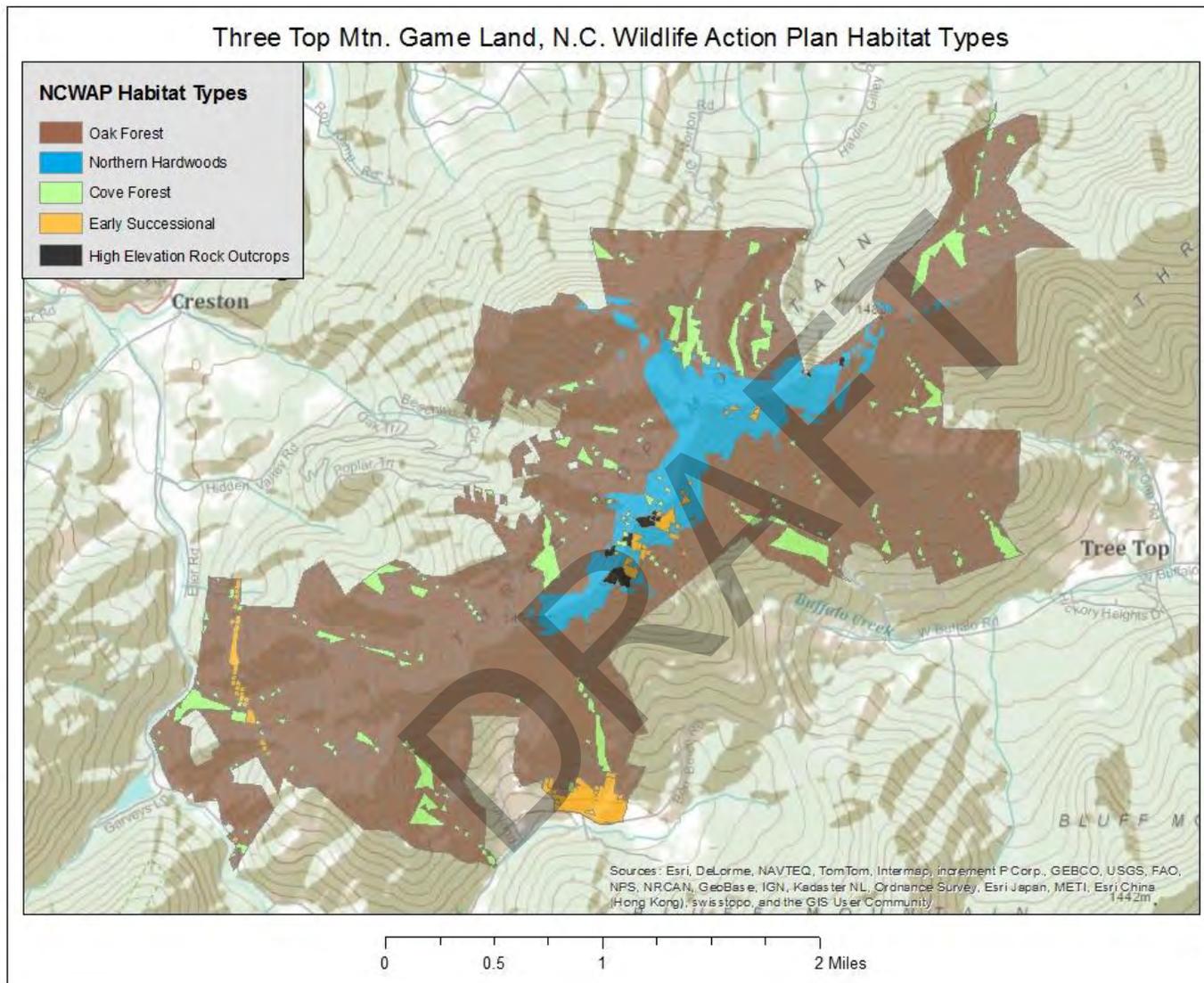
Map 7. Pond Mountain Game Land, Soil Types (Soil Survey of Ashe County, 1985).



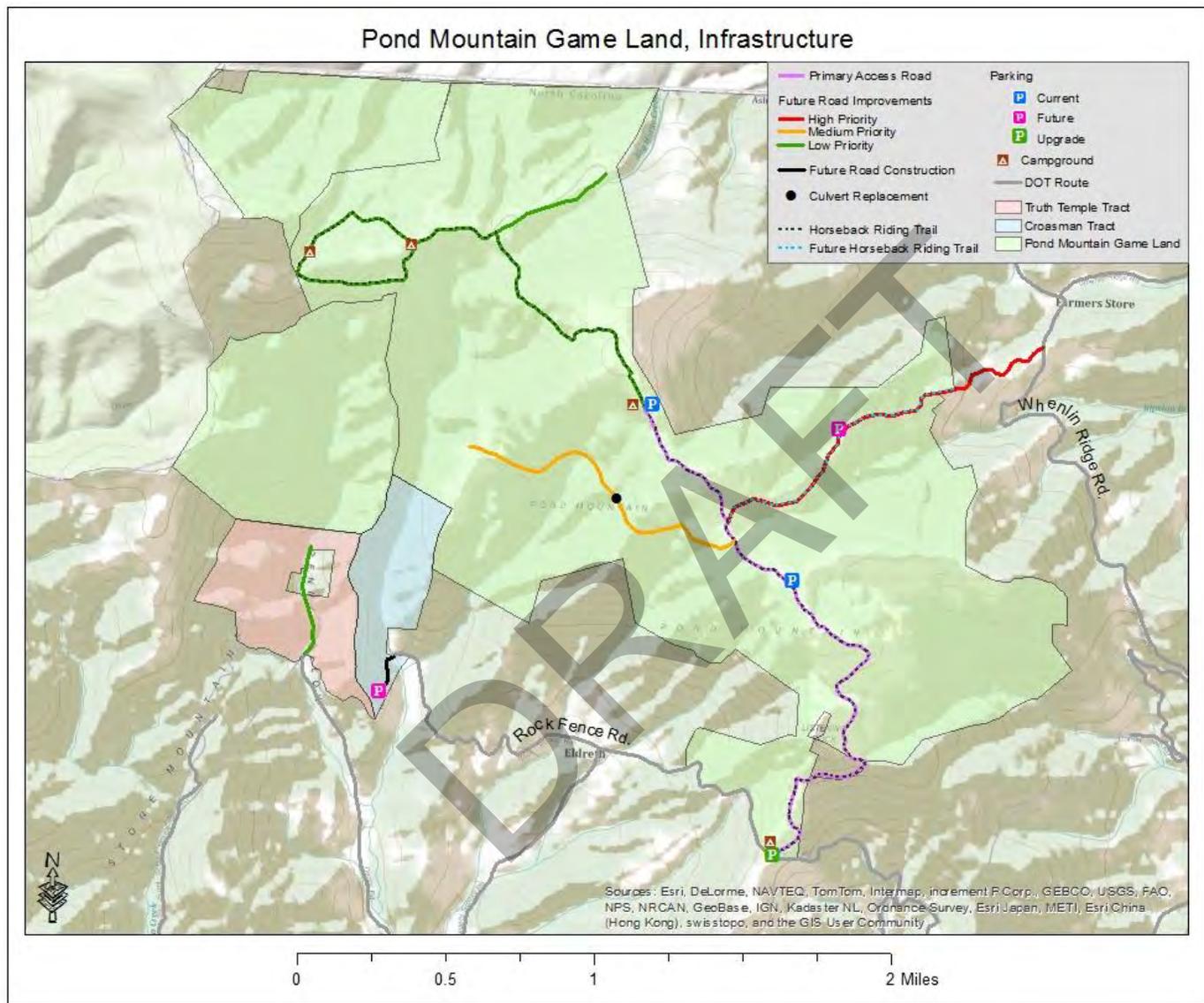
Map 8. Three Top Mountain Game Land, Soil Types (Soil Survey of Ashe County, 1985).



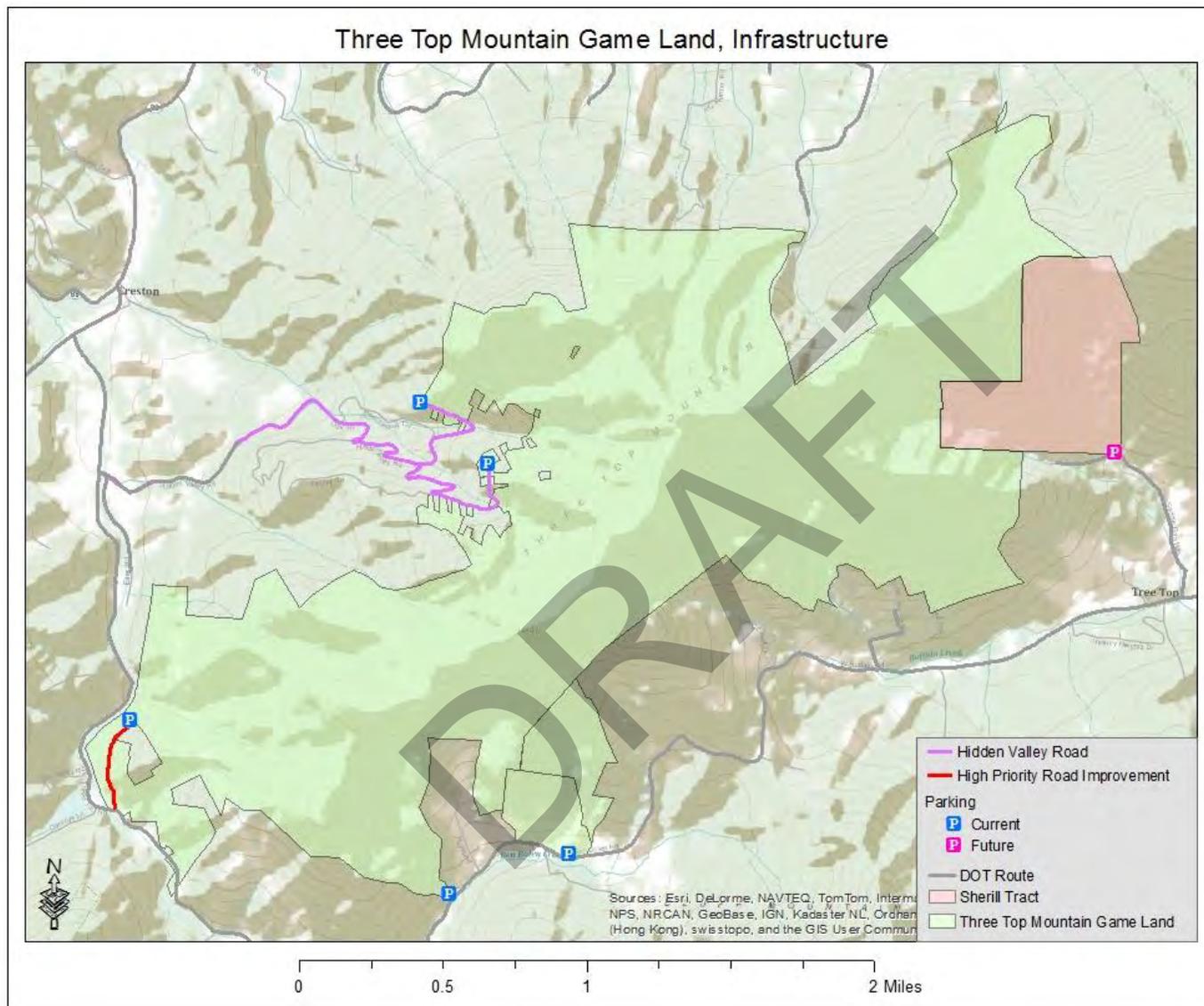
Map 9. Pond Mountain Game Land, N.C. Wildlife Action Plan Habitat Types (N.C. State University 2008) (N.C. Wildlife Resources Commission 2005).



Map 10. Three Top Mountain Game Land, N.C. Wildlife Action Plan Habitat Types (N.C. State University 2008) (N.C. Wildlife Resources Commission 2005).



Map 11. Pond Mountain Game Land, Infrastructure.

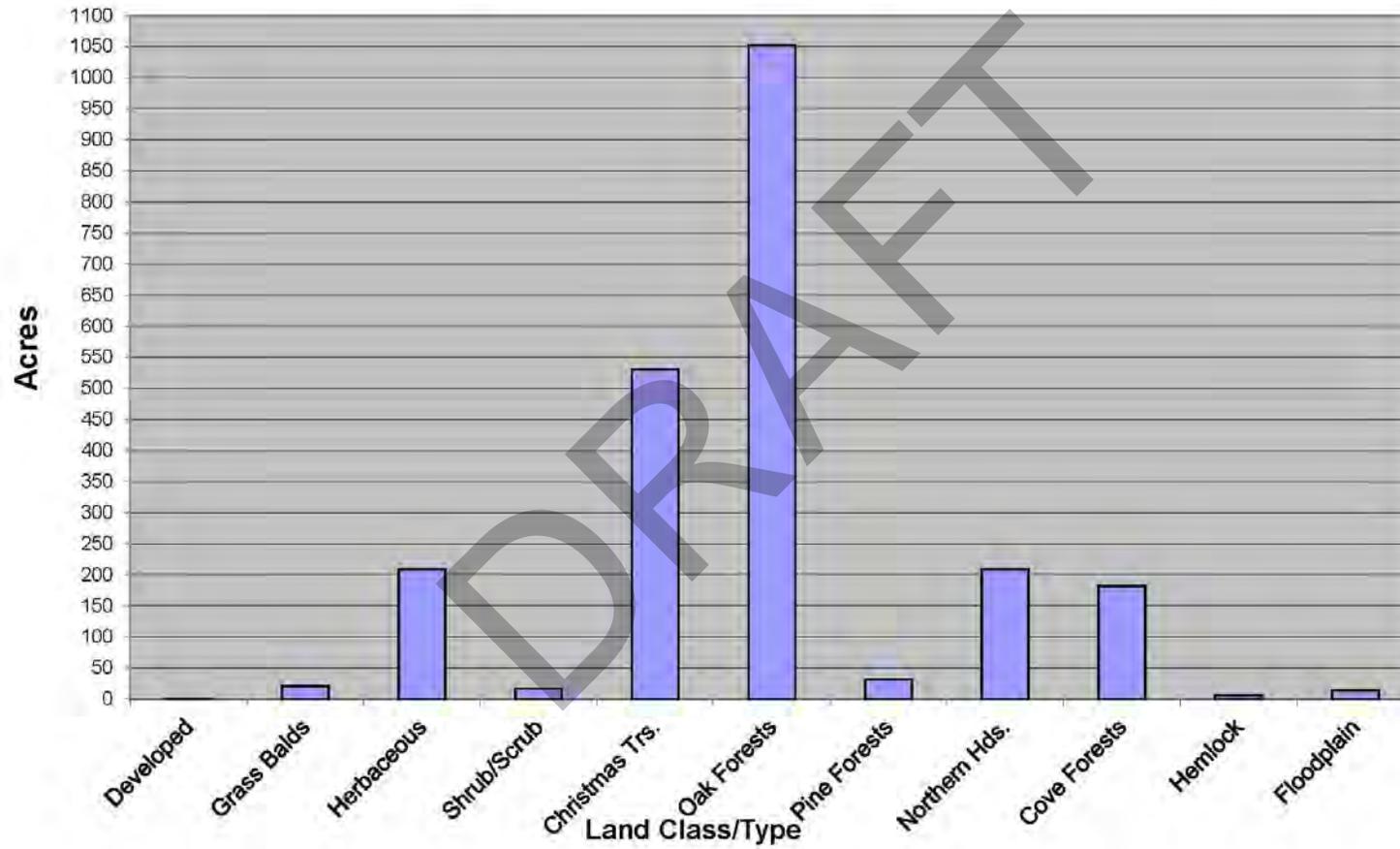


Map 12. Three Top Mountain Game Land, Infrastructure

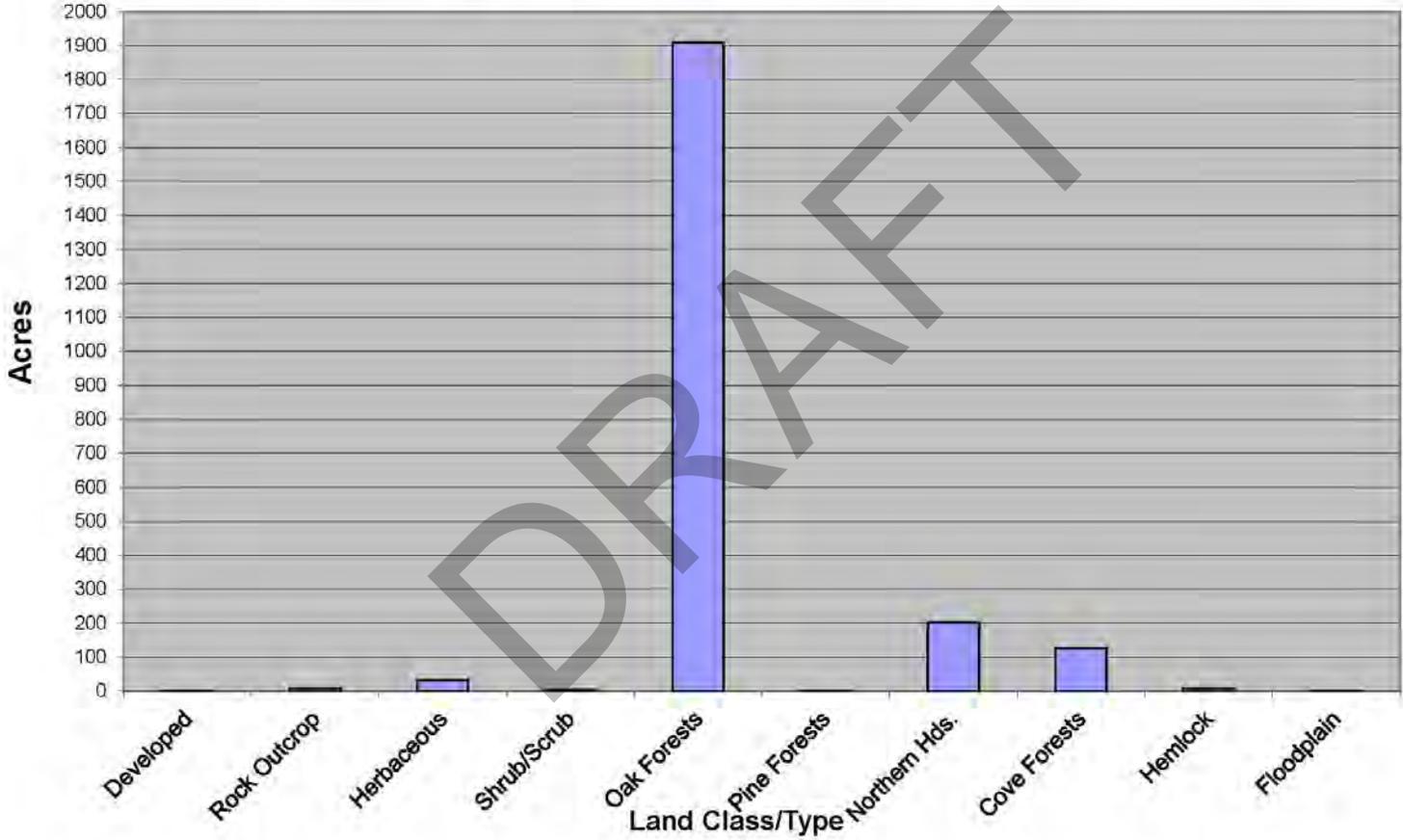
APPENDIX 2 –LAND CLASSIFICATION

DRAFT

Land Class/Type Distribution on Pond Mountain Game Land



Land Class/Type Distribution on Three Top Mnt. Game Land



APPENDIX 3 – NATURAL HERITAGE ARTICLES OF DEDICATION

DRAFT



North Carolina
Department of Administration

Pat McCrory, Governor

Bill Daughtridge, Jr., Secretary

February 10, 2014

Secretary John Skvarla
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 **Three Top Mountain Game Land**, Ashe County

Dear Secretary Skvarla 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 articles of dedication replace the articles of dedication dated April 5, 2006. The articles were amended to reflect additions of property to the preserve, correction of buffer area boundary on prior-designated lands, and acreage calculation correction.

This real property is currently administered by the North Carolina Wildlife Resources Commission as a portion of the Three Top Mountain Game Land and consists of approximately 2,217 acres located in Ashe County and composed of:

- | | | |
|----|---|-------------|
| 1) | Three Top Mountain tract (Primary Area) | 1,242 acres |
| 2) | Three Top Mountain tract (Buffer Area) | 975 acres |

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

Mailing Address:
1301 Mail Service Center
Raleigh, N.C. 27699-1301

Telephone (919) 807-2425
Fax (919) 733-9571
State Courier #51-01-00
e-mail: moses.carey@doa.nc.gov

Location:
116 West Jones Street
Raleigh, North Carolina

An Equal Opportunity/Affirmative Action Employer

Dedication of the qualified portions of the tract fulfills the terms of any prior grant agreements, including those of the Natural Heritage Trust Fund.

The Governor and Council of State have approved the dedication of the State-owned lands hereinabove described as the Three Top Mountain Game Land 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 15th of November, 2013.

Sincerely,



Bill Daughtridge, Jr.

BD

CONSENTED AND AGREED TO:

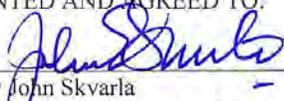
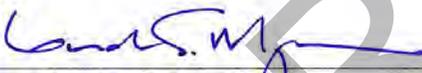

Secretary John Skvarla
Department of Environment and Natural Resources
Gordon S. Myers, Executive Director
Wildlife Resources Commission

EXHIBIT A

THREE TOP MOUNTAIN DEDICATED NATURE PRESERVE

COUNTY: Ashe

PHYSIOGRAPHIC PROVINCE: Blue Ridge

TOPOGRAPHIC QUAD: Warrensville

SIZE OF AREA: ca. 2,217 acres (1,242 acres primary area; 975 acres buffer area)

OWNER/ADMINISTRATOR: State of NC, Wildlife Resources Commission

DESCRIPTION: Three Top Mountain is one of a cluster of mountains in the northwest corner of North Carolina composed primarily of amphibolite or hornblende gneiss. Rising from 3000 feet to about 4900 feet, its topography is characterized by steep slopes, narrow to moderately broad ridges, narrow coves, rugged ridge top crags, and small sheltered cliffs and outcrops. The distinctive rock chemistry, which produces higher pH soils than is typical for the Blue Ridge, combines with the topography and other factors to support distinctive communities and a large number of rare species. The site is rated by the Natural Heritage Program as Nationally Significant for its outstanding combination of species and communities in good to excellent condition, and is among the best of its kind in the nation.

The most significant single feature on the site is the set of High Elevation Rocky Summit communities along the ridge crest. The communities are in excellent condition and represent two rare subtypes of this community type. The largest number of rare species occurs on these rock outcrops. They support one of the largest populations of three rare plant species: the federally listed mountain bluet (*Houstonia montana*), Heller's blazing-star (*Liatris helleri*), and spreading avens (*Geum radiatum*). Other rare plant species present include the Carolina highland rush (*Juncus trifidus* ssp. *carolinianus*), golden tundra-moss (*Rhytidium rugosum*), Roan rattlesnakeroot (*Prenanthes roanensis*), bluebells (*Campanula rotundifolia*), Canada burnet (*Sanguisorba canadensis*), Carolina saxifrage (*Saxifraga caroliniana*), deerhair bulrush (*Trichophorum cespitosum*), fir clubmoss (*Huperzia selago*), and the lichen *Cetraria arenaria*. Also reported to be present is a nesting site for ravens (*Corvus corax*) and high potential for nesting by peregrine falcons (*Falco peregrinus*).

In more sheltered areas on the both flanks of the mountain are a couple of occurrences of the rare Montane Mafic Cliff communities, another rare community in very good condition. One of the cliffs supports another large population of the Carolina saxifrage, as well as uncommon plants such as walking fern (*Asplenium rhizophyllum*).

The remainder of the forest communities included in the preserve is of good quality and often includes unusual variants developed in response to the amphibolite substrate and the northerly location within the Blue Ridge. They include Northern Hardwood Forest, High Elevation Red Oak Forest, and Rich Cove Forest natural community types.

Northern Hardwood Forest is the most abundant community type in the dedicated area. The canopy is well-developed in most places but is wind-battered along the ridge crest. This is the rare Rich Subtype of Northern Hardwood Forest, supported by the base-rich soils formed from the amphibolites. It generally is dominated by combinations of sugar maple (*Acer saccharum*), buckeye (*Aesculus flava*), white ash

(*Fraxinus americana*), and beech (*Fagus grandifolia*), with some black locust (*Robinia pseudo-acacia*). The herb layer is fairly dense and contains species associated with rich soils as well as more typical species of high elevations. The understory and shrub layers are similarly mixed, and include unusual amounts of hop hornbeam (*Ostrya virginiana*) as well as species shared with spruce-fir forests, such as American rowan (*Sorbus americana*) and red elderberry (*Sambucus pubens*).

On the warmer slopes in several parts of the preserve are examples of the High Elevation Red Oak Forest community. A portion of the area occupied by this community is somewhat fragmented by roads built before purchase by the Wildlife Resources Commission. However, this portion is the most mature and is consequently highly significant. Like the Northern Hardwood Forest, this community is the rare Rich Subtype, related to the relatively high pH soils created by the amphibolites. Lower elevation south-facing slopes in a few areas support Montane Oak-Hickory Forest communities, dominated by a mixture of white oak (*Quercus alba*) and other species. One area of mature forest on the south side has nesting cerulean warblers (*Dendroica cerulea*), one of the few locations for this species known in this part of the state.

Smaller areas of Rich Cove Forest are also present in the lower portions of the site. Most of the Rich Cove Forests are younger and have been included in the buffer portion of the dedicated area, but several mature portions are in the primary area. Embedded in the Rich Cove Forest are small areas of Rich Montane Seep communities, with a similar canopy but with an herb layer tolerant of saturated soil conditions. Populations of rare plant species, trailing wolfsbane (*Aconitum reclinatum*) and of meehania (*Meehania cordata*), are present in some of the coves.

A few areas on the north side of the mountain support examples of the rare Carolina Hemlock Bluff community, dominated by Carolina hemlock (*Tsuga caroliniana*).

Wildlife populations include deer, wild turkey, squirrel, raccoon, black bear, and ruffed grouse. This portion of Ashe County supports a small black bear population which may use the site. The forests provide breeding habitat for many species of songbirds, including forest interior neotropical migrant species which will benefit from the unfragmented core portions of the site. Large salamander populations are also present, though no rare species have been found.

The preserve is also significant as part of a larger landscape. Three Top Mountain is nearly connected by buffer lands to the protected core natural area on Bluff Mountain and is connected by forested lands to the unprotected core area at Long Hope Valley. These connections increase the viability of wildlife populations on all three sites.

The preserve contains existing disturbed areas in the form of forest roads, which will be retained under the dedication agreement. The roads are at a fairly high density in the northwestern part of the area, but occur only at low density elsewhere.

BOUNDARY JUSTIFICATION: The primary boundary encompasses the rare species populations, the rare community occurrences, and the mature portions of the more widespread forest communities. It includes the central core area of the large landscape area centered on the mountain ridge. The smaller primary area on the south side encompasses a patch of mature forest which contains the cerulean warbler. The buffer area includes areas downslope from the primary area, which will function to reduce intrusion of edge effects into the primary area, contribute to connection with nearby natural areas, and provide additional habitat for wider ranging animal species. Several privately owned inholdings remain within

the primary and buffer areas. These would qualify for dedication as primary or buffer area if they are acquired.

MANAGEMENT AND USE: The dedicated nature preserve will be managed as the Three Top Mountain Game Land, for protection of wildlife habitat and for public hunting. Improvement of game habitat will occur in the buffer areas and along existing roads in the primary area.

DRAFT

THIS DEDICATION OF THE **THREE TOP MOUNTAIN 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 113A-163.2(3) (4) respectively.
2. Pursuant to North Carolina General Statutes 113-164.8, all State-owned lands lying within the above designated area are hereby dedicated as a nature preserve to be known collectively as the **Three Top Mountain Game Land Nature Preserve** (hereinafter "preserve") for the purposes provided in the North Carolina 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.0300 and .0400.
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 1,242 acres) and a Buffer Area (approximately 975 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 core natural area encompassing High Elevation Rocky Summit, Montane Mafic Cliff, Northern Hardwood Forest, High Elevation Red Oak Forest, Rich Cove Forest, along with their known rare species occurrences.

The Primary Area--composed of the core natural area as described above--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 lower elevation and predominantly younger rich cove and other hardwood forests which tend to be more altered in species composition than forests in 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 infestation 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.
- E. Wild Fire Control: 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.

Within the former Hoo tract (see Exhibit A of the original dedication, dated October 26, 1999), any areas which may be determined, through examination of aerial photographs or topographic maps dated 1966 or later, to have been maintained in the past as crop land or pasture land, may be reclaimed and managed as grass/legume openings or other early successional habitat for the benefit of wildlife. These areas should be identified in the management plan and management should be coordinated with the Natural Heritage Program.

- 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: Construction and maintenance of roads, trails, and other access structures within Primary and Buffer Areas of the preserve will be limited to the level necessary to appropriately manage the preserve. 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.

Portions of existing roads and trails located on the former Hoo and Copley tracts (see Exhibit A of the original dedication, dated October 26, 1999) may be managed as linear wildlife openings. This may include management of native early successional vegetation or the seeding of grasses or legumes which may be deemed appropriate by Wildlife Resources Commission staff biologists as important for providing food and/or cover for native wildlife species occurring on the property. The width of any seeded areas may not exceed twenty feet. Maintenance may include fertilizing and/or mowing, but shall be limited to once annually.

On the former Hoo tract, the vegetation is patchy in terms of quality, with some accessible roadside stands being composed of young saplings. The Wildlife Resources Commission has expressed an interest in maintaining these small patches of younger vegetation as early successional shrub-scrub habitat, both for grouse and for other bird species which might benefit. Opportunities for such management within the larger preserve are limited by accessibility, topography, and habitat quality. Management of linear openings on this portion of the preserve may include reduction of shade by removal of woody vegetation for a distance of up to forty feet from the center line of the existing road, if the stand meets the following criteria. The stand should be defined based on the diameter of the trees within the stand, with a maximum diameter of 8 inches d.b.h. and an average diameter 6 inches d.b.h. The maximum size of any stand selected for harvest is 2 acres, with no more than 10 such openings being created and subsequently managed within the former Hoo tract.

- 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 game lands. 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 .0400. 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.

The Pond Mountain Game Land Articles of Dedication is in progress but not yet finalized.

DRAFT

APPENDIX 4 – GAME LANDS USE EVALUATION PROCEDURE

DRAFT

**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 Statutes 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 not 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. EVALUATION

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: _____

EXHIBIT 2
COMPATIBILITY DETERMINATION

(Use as much space as needed)

Property Name: _____

Requested or Considered Use: _____

DECISION CRITERIA <i>(refer to section VI)</i>	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, CWMIF 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 <i>(insert)</i> :			

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:

DRAFT

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 West Jefferson on 2/17/14. 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 PMGL?

Comment	Responses
Maintain/Manage Open Areas	11
Riparian Areas (Water Quality)	7
Early Successional	6
Ponds/Boggy Areas	4
Food Plots	3
Oak Forests	2
Forested Areas	2
Beech Forests	2
Spruce Forests	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 PMGL?

Comment	Responses
Ruffed Grouse	22
Bear	13
Deer	13
Turkey	7
Songbirds	5
Rabbit	4
Aquatic species	3
Fish	3
Quail	3
T/E species	3

Falcon	2
Mountain lion	2
Northern flying squirrel	2
All species	1
Bobcat	1
Brook trout	1
Elk	1
Golden-winged warbler	1
Native species	1
Rare plants	1
Ring necked pheasant	1
Salamanders	1
Small mammals	1
Squirrel	1
Woodcock	1

3. How do you use PMGL?

Activity	Responses
Hunting	22
Hiking	19
Photography	7
Sightseeing	6
Horseback riding	5
Birding	4
Camping	3
Wildflower viewing	3
Inspiration	2
Cross country skiing	1
Fire ranger	1

Nature study	1
Trapping	1
VFD training	1

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

Approximately 2/3 of those that responded to the question indicated they would like to see additional access provided to PMGL. The other 1/3 of respondents indicated that current access is satisfactory. Several access improvements are indicated below. Portions of the game land will be managed to allow vehicular access while other areas will be maintained for “walk in” access only.

A summary of public input and responses to those that would like to see access improved is below.

Comment	Response
Access is needed on Horse Creek side of game land	NCWRC holds a ROW easement to the game land from S.R. 1359 (Whenlin Ridge Rd.) that will be developed after the Christmas tree farm is no longer in operation. Per agreement with the former owners, NCWRC will not allow public access across this easement until the Christmas tree farm is no longer in operation
Access needed for fire protection and emergency response	NCWRC has provided gate key to local VFD for emergency access

<p>Access is needed from Denny/Burnt Schoolhouse road</p>	<p>Blue Ridge Conservancy plans to donate 2 tracts to the State that will allow the establishment of a public access point in this area. Other access in this area is contingent on acquiring additional target properties</p>
<p>Allow hunters to drive on gated roads or roads closed to vehicular traffic to retrieve harvested game</p>	<p>Allowing this activity can cause unintended resource degradation and create unwanted disturbance to other hunters. There is also no practical way to provide this privilege or ensure that it is not abused.</p>
<p>Provide larger parking lot for turning horse trailers</p>	<p>NCWRC will make improvements to the current parking area for horseback riders to better accommodate turning and unloading. NCWRC will also investigate the potential for constructing another parking area to accommodate horseback riders on the ROW easement from S.R. 1359 (Whenlin Ridge Rd.)</p>
<p>Allow vehicular access to the top of Pond Mountain in winter</p>	<p>Winter vehicular access is not allowed Jan.-Mar. due to the potential for excessive damage to the road during winter weather and freeze/thaw events. NCWRC does not have the funds or manpower to make extensive annual road repairs or to only close the gate during the current closure period when the potential for road degradation is high.</p>

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

A summary of public input and responses is below.

Comment	Response
Acquire more land to add to PMGL	NCWRC will continue to investigate properties that are available for acquisition and conducive for adding to the game land as funding sources allow (see “Land Acquisition” section of plan)
Allow primitive camping sites	NCWRC will establish 2 primitive campsites on the game land that are not vehicle accessible. Continuation of these sites and the addition of others will be contingent on the success of the initial selected sites
Provide a designated campground that is not on the top of the mountain	NCWRC will provide an additional designated campground that is at lower elevation than present campground.
Maintain current open areas	NCWRC will maintain open areas on the game land as outlined in the plan
Initiate a forestry program on the game land	NCWRC plans to initiate a forestry program on the game land as outlined in the plan
Plant food plots on the game land	NCWRC began planting food plots on the game land in 2013 and will continue to do so as outlined in the plan
Provide shelter, picnic area, and toilets	Game lands are managed for dispersed and not concentrated recreational activities. NCWRC is not staffed or funded to provide this service.
Remove permit hunts for deer and bear	Several comments were received asking to remove the permit hunts for deer and bear. NCWRC established the permit hunts to control access and provide a level of safety and security to the Christmas tree farmers while still allowing public hunting on PMGL. There is no biological justification for the permit hunts. Once the tree farm is no longer in operation (2017), NCWRC staff will submit a regulations change proposal that would eliminate the permit hunts.

<p>Retain permit hunts for deer and bear</p>	<p>NCWRC received a few requests to retain the permit hunts for deer and bear at PMGL. NCWRC established the permit hunts to control access and provide a level of safety and security to the Christmas tree farmers while still allowing public hunting on PMGL. There is no biological justification for the permit hunts. Once the tree farm is no longer in operation (2017), NCWRC staff will submit a regulations change proposal that would eliminate the permit hunts (also see above comment).</p>
<p>Provide designated hiking trails on PMGL</p>	<p>All trails on the game land are currently open for public use. Construction of a designated access trail from properties currently owned by Blue Ridge Conservancy will be investigated once the property is transferred to State ownership. NCWRC is currently not staffed or funded to provide a network of designated trails on the game land. Agreements with conservation partners that allow trail establishment and maintenance are welcomed.</p>
<p>Allow ORV use outside of hunting season and limited ORV use for hunting.</p>	<p>ORV use on Pond Mtn. GL would be problematic. The large acreage of open areas would make it difficult to limit riders to trails. Limiting ATV use to suitable roads would be difficult to manage and enforce as well. The game land is relatively small, and ORV use would quickly lead to resource degradation in the form of erosion and disturbance to wildlife. It addition, it would create conflicts with other game land users that prefer a quiet experience while on the game land. See Question 4 above regarding use of ORVs while hunting.</p>

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

A summary of public input and responses is below.

Input	Response
PMGL is hard to find	NCWRC is planning to provide better directional signs to PMGL
Provide designated hiking trails on PMGL	See Question 5 above for response
Allow horseback riding on Sundays, particularly during the fall.	NCWRC will submit a regulation change proposal that allows horseback riding on Sundays during September and October.
Establish more horseback riding trails	NCWRC plans to allow horseback riding on the access road from S.R. 1359 (Whenlin Ridge Rd.) once public access is allowed on that route (see Question 4 above for more details)
Allow mountain biking/establish mountain biking trails	Mountain biking is allowed on PMGL, but does not occur at high levels. Increased levels of mountain biking should not be encouraged due to erosion concerns and potential conflicts with hikers, hunters, and wildlife watchers. High intensity mountain biking should be discouraged since it can degrade wildlife habitat improvements especially in sensitive areas. Ample opportunities for high intensity mountain biking can be found on the nearby Virginia Creep Trail, Cherokee National Forest, and Jefferson National Forest.
Remove/Continue permit hunts for deer and bear	See Question 5 above for response
Provide educational opportunities	NCWRC plans to make PMGL part of the "N.C. Birding Trail". NCWRC also plans establish a trail on the game land that leads through a variety of managed habitats conducive to wildlife viewing and birding. Other educational opportunities will be investigated.
Provide more access to the game land	See Question 4 above for responses

7. What additional comments do you have about PMGL?

Additional unique comments and/or input were not received that have not been addressed above

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

Comment	Responses
Early Successional	4
Forested	2
Rock Outcrops	2
All habitats	1
Riparian Areas (Water Quality)	1
Mature Hardwoods	1
Oak Forests	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 TTMGL?

Comment	Responses
Ruffed Grouse	14
Deer	7
Bear	7
Songbirds	4
T/E species	3
Turkey	5
Brook Trout	2
Native Species	2
Rare Plants	2
Amphibians	1
Den Trees	1
Owls	1
Small Game	1
Woodcock	1
Squirrel	1

3. How do you use TTMGL?

Activity	Responses
Hunting	18
Hiking	13
Birding	1
Nature Study	1
Photography	1
Trapping	1
Wildflower Viewing	1
Fishing	1

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

Approximately 2/3 of those that responded to the question indicated they would like to see additional access provided to TTMGL. The other 1/3 of respondents indicated that current access is satisfactory.

A summary of public input and responses to those that would like to see access improved is below.

Comment	Response
Additional access is needed, especially on eastern portion of game land.	NCWRC has acquired the Sherrill tract that is adjacent the eastern end of the game land. This property will provide a public access location where none currently exists. Additionally, NCWRC will continue to explore land acquisition opportunities that would provide additional public access, especially at the eastern end of TTMGL

Would like road access to the top of the mountain	The DNP agreement with the Natural Heritage Program along with the challenges and costs presented by extremely steep topography does not allow for construction of a road to the top of Three Top Mountain.
Access roads need to be better maintained	Current infrastructure at TTMGL will be reviewed by NCWRC staff. Areas that are currently in need of additional maintenance will be addressed (see Infrastructure section for more details).

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

A summary of public input and responses is below.

Comment	Response
Provide more access points	NCWRC is currently utilizing all legal public access locations at TTMGL. See Question 4 above for additional information.
Provide more early successional habitat	The DNP agreement with the Natural Heritage Program for TTMGL along with steep topography severely restricts opportunities for forest management at TTMGL. NCWRC will actively manage wildlife habitat on the game land as the DNP agreement, topography, staffing, and funding levels allow.
Provide more hiking trails	All trails on the game land are currently open for public use. NCWRC is currently not staffed or funded to provide a network of designated trails on the game land. Additionally, the DNP agreement with the Natural Heritage Program as well as steep topography limits opportunities for providing new hiking trails on the game land. Agreements with conservation partners to establish and maintain trails where allowed and desirable are welcomed.

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

A summary of public input and responses is below.

Input	Response
Provide more access and parking areas	See Question 4 above for response
Provide more designated hiking trails on TTMGL	See Question 5 above for response
Provide more early successional habitat on TTMGL	See Question 5 above for response
Stock ruffed grouse on the game land	Ruffed grouse are currently found on the game land in low densities. Greater densities of ruffed grouse on TTMGL would require a much greater amount of early successional habitat that is currently present on the game land. Stocking ruffed grouse into areas containing poor habitat would not address the problem. See Question 5 above reference the ability of NCWRC to provide more early successional habitat on TTMGL
Better maps and signage for trails is needed	NCWRC plans to install kiosks at TTMGL that will better direct game lands users

7. What additional comments do you have about TTMGL?

Additional unique comments and/or input were not received that have not been addressed above.