

Pee Dee River Game Land
Management Plan
2017



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.

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Executive Summary

Game Land Program Mission Statement

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.

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 and as directed by wildlife management objectives.

Purpose and Need for the Plan:

The plan will help identify goals and objectives for managing and conserving the wildlife and other natural resources on the Pee Dee River Game Land using current scientific knowledge and management techniques. The management plan will guide game land staff as they develop specific management strategies for identified feature species while integrating a sustainable yield forest and open land management program that creates, enhances and maintains quality habitat for native wildlife and plant communities. The Plan will also incorporate the recreational needs of the game land users into its management goals and objectives. The North Carolina Wildlife Action Plan states five goals as part of its core plan. Those goals have been modified and adapted to assist with the development of the Pee Dee River Game Land Management Plan. Those 5 goals are 1) Identify key species in the Pee Dee River Drainage Ecosystem used to base conservation and management decisions on. 2) Identify, conserve and enhance habitats and the communities they support, 3) Identify and state conservation priorities and list challenges and conservation threats for PDRGL, 4) support educational efforts to improve understandings of

wildlife resources among general public and conservation stake holders and 5) to support and improve existing regulations and programs aimed at conserving habitats and communities.

Regional Context

Information on ecoregion: The Pee Dee River Game Land lies astride the boundary between the Upper Coastal Plain Sandhills and the heavier clay soils of the Piedmont in Richmond County, west of the city of Rockingham. Both the Howell and Diggs tracts are bounded on their western sides by the Pee Dee River, which flows generally south from its headwaters in the NC foothills to its mouth near Georgetown, SC. The topography of this part of the state is highly variable, ranging from flat floodplains to steep slopes within relatively short distances.

Historically much of this region was in subsistence and commercial-scale agriculture including large expanses of cotton, and accompanying the boom in cotton production methods was a growth in textile mills. But Boll Weevil infestations in the early 20th century, and the market collapses of the Depression years, led to the abandonment of large amounts of cropland, with little attention paid to soil conservation. As a result, highly erodible soils on slopes turned into gullies in short order. Erosion control measures were undertaken in the 1930's under the Works Progress Administration and the Soil Erosion Service, and in many instances met with considerable success at checking further damage. However, many of these areas were degraded to the point that row-crop agriculture was impossible, and a new use for the land was found in the form of tree plantations during the middle part of the 20th century. For the most part, the Southern Piedmont and Upper Coastal Plain still support vast acreages of planted pine, primarily loblolly, for fiber and sawtimber production. However, in recent years, a small but potentially growing number of housing developments along the Pee Dee have diminished the value of properties for timber production.

The textile industry, long a staple of North Carolina's manufacturing economy, began to decline in the late 20th century due in large part to the "globalization" of manufacturing in general. Cheaper labor overseas led manufacturers to shift production to foreign countries, leading to a near-collapse of textile manufacturing in the area by the turn of the 21st century. Despite efforts by local and regional recruiters, manufacturing in the area remains largely stagnant.

Role and importance of Pee Dee River Game Land: Due in large part to its location along the Pee Dee River and the transition zone between sand and clay soils, the 2,260-acre Pee Dee River Game Land and surrounding privately-held tracts contain a remarkable mix of flora normally found in either mountain or coastal plain communities. On the Diggs tract, these include four State-listed "significantly rare" species: Cumberland spurge, Piedmont aster, Huger's carrion-flower, and cypress-knee sedge (Sorrie, 2001). In general, plant and animal species diversity is high, possibly as a result of the number of steep drains found on the tract. As a whole, the Pee Dee River along its traverse through Anson and Richmond Counties is a state-level significant

natural area and contains some of the best examples of riverine habitat types remaining on the Pee Dee in North Carolina (Sorrie, 2001). The two State-owned tracts comprising Pee Dee River Game Land provide anchor points for further acquisition efforts for conserving these unique and highly-variable lands and maintaining water quality. Numerous freshwater mussel, game and non-game fish species are known from the river, and both Shortnose Sturgeon (federally endangered) and Robust Redhorse (state endangered) are documented in the mainstem of the Pee Dee south of the US 74 bridge (Sorrie, 2001). Limited but ongoing development efforts near the river increase the urgency to protect as much of the remaining available land in the public trust, or via conservation easements and the like with private landholders, as reasonably possible. Partners in acquisition projects for these at-risk areas have included the Land Trust for Central North Carolina, the Greater Uwharries Conservation Partnership, the Conservation Fund, the NC Natural Heritage Program, the Clean Water Management Trust Fund, the Cole Foundation, and the US Fish and Wildlife Service.

Adjacent lands – Use & Management; As stated previously, development pressures, particularly on the upper end of the Game Land's Howell tract, have led to an increased wildland-urban interface. However, the predominant land use in the area remains wood and fiber production in the form of longer-rotation (25-30+ years) loblolly pine plantation. Most of this acreage is leased to hunt clubs in large tracts, previously owned by a few corporate wood and fiber producers, but which still exist in large blocks. A substantial amount of the river frontage and associated uplands, particularly in Richmond County, is still owned by Duke Energy Progress, the Gabbro Slopes and Floodplain Significant Natural Area and the Buchanon tract notable among them. It should be noted that recent plans for two mills in the Sandhills region to process wood fuel pellets for overseas consumption (J. Isenhour, NCWRC, pers. communication) may lead to shorter-rotation harvests and a decline in overall biodiversity beyond the limited amount resulting from the longer rotation stand development.

Game Land Specific Information

Location:

These lands lie along the Pee Dee River south of the Blewett Falls Dam in Richmond County near Rockingham, NC (Map 1), and encompass river floodplain habitats, upland pine plantation forest, hardwood bottoms, and mixed forest types, interspersed with openings in the form of dedicated wildlife openings, power and gas line rights-of-way, small scattered forested openings as a result of prescribed burning, and roads and road rights-of-way.

Physical attributes: The unique landforms of the Pee Dee River GL are closely associated with the geology of the region. In this stretch of the Pee Dee River, the Carolina Slate Belt and the Triassic Basins intersect, giving rise to a diverse mix of sandy and clay soils in close proximity (Herbert and McReynolds, 2008; Ecoregions of North Carolina, EPA). (See Figure 1.) Also, and as a result of this, the "fall line" passes through this area, characterized by rocky shoals in the

riverbed. Numerous V-shaped stone structures, unverified but generally believed to be remnants of prehistoric/precolonial Native American fish weirs, are still visible in the Pee Dee River between Richmond and Anson Counties (Lutins, 1992 master's thesis). Slopes on the Howell and Diggs tracts range from 0-2% along river floodplains to 35% on side slopes of drains and high stream terraces; elevations range from 105 feet in the floodplain at the Diggs tract to 450 feet on the Howell tract near Blewett Falls Dam. Both tracts are heavily forested in various vegetative types: a large portion of the Diggs tract is covered in loblolly pine plantations following hardwood and old field conversions in the late 20th and early 21st centuries, but numerous hard wood drains of oak, hickory and tulip (yellow) poplar comprise much of the remaining acreage; the Howell tract is predominantly lower-quality mixed hardwood and pine regenerated following "high-grading" and other timber operations. The Diggs tract also contains a river floodplain wetland complex of beaver ponds and permanently-flooded sloughs that abuts a steep bluff, containing many examples of the diverse plant communities found there. The Howell tract contains degraded wetlands mostly associated with power line rights-of-way from the nearby Blewett Falls Dam hydroelectric station, but which are important local waterfowl areas. The upland parts of this tract are also crisscrossed with high-voltage power line rights-of-way and are in many places severely eroded due to long-term illegal off-road vehicle use predating its acquisition by NCWRC.

Climate: The North Carolina Piedmont has a temperate climate with warm summers and cool winters. The lowest average temperatures occur in January, with highs of 52.6° F. and lows of 28.1° F.; highest averages are in July, with high temperatures of 91.1° F. and lows of 67° F. Average annual rainfall is 49 inches and is fairly evenly distributed throughout the year, with July being the wettest month. (Appendix 1.)

Soils: The Pee Dee River Game Land is characterized by river floodplains abutting fairly steep ridges, dissected frequently by perennial and intermittent streams (Maps 2&3). Floodplains are Riverview and Chewacla soil types, very deep loam soils that are somewhat poorly-drained (Chewacla, primarily on the Howell tract) to well-drained (Riverine on the Diggs tract). Both are occasionally to frequently flooded. The Chewacla soils often extend narrowly into stream drains on both tracts. Slightly upslope from these, sandy and gravelly sand loams predominate, of several different soil types. These include Pacolet gravelly sandy loam and Peawick fine sandy loam types. Further upslope still are Cullen-Wynott sandy loam over clay soils and Ailey sandy loams, particularly prevalent on the Diggs tract. Flatter ridgetops are dominated by Masada and Turbeville sandy loams, very deep and well drained; these are the areas historically in agricultural production of various types prior to acquisition of the Diggs tract by NCWRC. Only the extreme uppermost elevations of the Howell tract contain Turbeville and Masada types. (1999 Soil Survey of Richmond County, North Carolina, Natural Resources Conservation Service.)

Hydrology: Both the Howell and Diggs tracts feature several miles of perennial and intermittent streams plus frontage on the Pee Dee River. On the Howell parcel, 1.1 miles of unnamed tributary streams lie wholly on the property, 0.7 mile of the west side of Cartledge Creek bound it, and the Pee Dee River forms 0.8 mile of the western boundary (Clean Water Management Trust Fund application, 2005). The Diggs tract has 3 miles of frontage on the Pee Dee, 0.6 mile of Solomon's Creek lies wholly within the boundary, and at least four tributaries totaling 5.4 miles are within the boundaries; an additional 0.8 mile of one creek forms part of the southeastern boundary of the property (Clean Water Management Trust Fund application, 2006). Relatively steep slopes generate considerable runoff into the drains in major rain events, sometimes increasing stream flows to several times their normal. Slower infiltration and groundwater storage capacities help maintain at least minimal flows except during severe drought periods. Water releases from the upstream Blewett Falls hydroelectric plant cause major daily fluctuations of the Pee Dee during most of the year; heavy winter rains and tropical weather systems occasionally inundate the river floodplains.

In addition to the stream assets, the river floodplain contains about 100 acres of open, seasonally-flooded, and forested wetlands on the Diggs tract, augmented by impounded areas from beaver activity. On the Howell tract, there are about 11 acres of mostly open seasonal wetlands, mainly occurring near the Pee Dee along a high-voltage power line right-of-way. Both of these features provide habitat for waterfowl, wading birds, and amphibians, and are important locally for those groups. Several populations of rare plants cited in the Natural Area Inventory (Sorrie, 2001) are closely associated with the Diggs wetland complex.

Landscape context: The two tracts currently under State ownership in the Pee Dee River Game Land are representative of this stretch of the upper Pee Dee River basin, and are part of the Pee Dee River "Megasite" as described by Sorrie's *Natural Areas Inventory for Richmond County* (2001). He terms a megasite as a landscape-scale cluster of sites with good natural integrity. The Diggs tracts Marsh Ponds are one such site; on private lands, several others are identified, including Grassy Islands/Smith Lake, Hitchcock Creek/Pee Dee River Slopes, and the Pee Dee Gabbro Slopes and Floodplain. Much of these areas are in Duke Energy Progress' ownership, and ownership of certain parcels are expected to be transferred to the State of North Carolina as Game Lands after hydropower relicensing procedures are completed. Regardless of this, the Pee Dee River area hosts a multitude of unique plant species for Piedmont North Carolina, and is a priority for land conservation efforts.

History of Acquisition: Carolina Power and Light Company (CP&L) began purchasing land on both sides of the Pee Dee River in Anson and Richmond Counties in the 1920's with the intention of possibly constructing a hydroelectric power station near the South Carolina state line around Buchanan Shoals. The decision was made instead to site the project farther upriver, at what became known as the Tillery Dam (aka Hydro Dam) near Mount Gilead in Montgomery County. CP&L continued property acquisition in the area into the late 1920's, with the apparent intent to develop a third hydropower project around the Shoals (*The Albemarle Press*, 1925). The property remained in CP&L's ownership, eventually encompassing almost the entire river frontage and most of the tributary drains south of the Blewett Falls Dam (put into production in

1912); however, falling demand for electricity during the Great Depression curtailed plans for expansion of hydropower resources (Riley, 1958). Most of Carolina Power and Light Company's (by then commonly known as Progress Energy) property in the Piedmont was enrolled in the Game Lands program in 1992. It remained there until around 2003, when the majority of the Pee Dee tracts were sold to private concerns. Of the remaining amount, the 1,660-acre Diggs tract stayed in the program. Under an agreement with Progress Energy, The Conservation Fund acquired the property on behalf of the NCWRC in 2008 while grant funds were secured for State purchase. The project closed in 2009 in two phases and has remained in the Game Lands program.

Negotiations with the Howell and Chalk families for the property near Blewett Falls Dam were underway in 2005. Unfortunately, the Chalk family withdrew its support of the acquisition project for its land (some 800 acres) adjoining the Howell tract. The remaining Howell property acquisition, totaling about 605 acres, closed in 2007 after Clean Water and Natural Heritage Trust Fund monies were secured and it was enrolled in the Game Lands program soon thereafter. Refer to the Articles of Dedication (P. 56).

Purpose of the Pee Dee River Game Land: The Pee Dee River Game Land has two primary complementary functions. It provides wildlife-oriented outdoor recreational opportunities to the North Carolina citizenry, and it conserves and protects unique components of the landscape of the Pee Dee River watershed. Predating inclusion into the Game Lands program, both tracts have been popular with hunters and, to a lesser extent, trappers for many years, and that continues to be a primary draw for most users. With improvements to the access road to make it all-weather capable and the completion of a public boating access area at the site of a historical, unimproved access above a rocky shoal of the river, the Diggs tract now attracts a considerable number of boaters and anglers as well. A limited amount of horseback riding also occurs on both tracts, and local trail runners make use of the highly-variable topographic challenges afforded by Game Land roads and firebreaks. Other visitors seek merely to enjoy the relative wildness for viewing and photographic opportunities for the many migratory waterfowl and songbird species that use the area. Geocaching is gaining in popularity and occurs here also.

As previously stated, the Pee Dee River area of Anson and Richmond Counties is noted for hosting a high diversity of plant species, many at the extent of their ranges or, in some cases, disjunct from their nearest known populations. The Diggs tract, in particular, has documented populations of four state-listed rare plant species, and examples of Piedmont/Mountain Semipermanent Impoundment, Basic Mesic Forest, and Dry-Mesic Oak-Hickory Forest natural communities are found here (Sorrie, 2001). The North Carolina Wildlife Action Plan (NCWAP) identifies the Lower Pee Dee River downstream of Blewett Falls Dam as a priority watershed for freshwater conservation. Numerous NCWAP priority animal species are found seasonally or as residents in this area, helping to make Pee Dee River Game Land important as a focal point for land conservation efforts in the region.

Forest product sales during the lifetime of this management plan are secondary purposes of the area, but are important for restoration of the sites. Approximately 750 acres of planted pine on the Diggs tract, primarily loblolly, will undergo thinnings for forest health and long-term habitat conversion to a mixed forest type including longleaf and shortleaf pine, more closely associated with historic vegetation cover.

Goals for the Pee Dee River Game Land include:

- Restoration of the historic fire-maintained ecosystem of the Southern Piedmont
- Maintain and expand rare plant populations and communities
- Enhance habitat for wildlife species identified in the North Carolina Wildlife Action Plan
- Provide hunting opportunities for sportsmen
- Provide access to the Pee Dee River for anglers and boaters
- Provide wildlife viewing opportunities for the public
- Manage forests for wood and fiber production concurrent with habitat restoration activities

Specific measures of success for the Pee Dee River Game Land:

- Number of acres prescribe burned each year
- Number of acres of pine plantation thinned (habitat restoration)
- Number and increase of rare plant populations
- Deer and wild turkey harvest reported
- Implementation of updated forest inventory information for forest management
- Number of acres of land added

Habitat Types

Habitat types are discussed with closely associated target species listed for each habitat along with a “desired future condition” (DFC). Management strategies and needs are developed to help achieve desired future condition.

Open Land (total acres 79)

Current extent

- Wildlife openings (41 acres): dedicated openings for food plots, ranging in size from less than one-half acre to 28 1/2 acres. The two larger openings primarily serve as dove fields on the Diggs tract; there are two others on the Howell tract of one acre or less in size.
- Linear wildlife openings (37 acres): road and power line rights-of-way that are kept in early successional vegetation either by NCWRC personnel or third parties. The Howell tract has extensive right of way areas that are maintained by Duke Energy contract crews

and are either mowed or sprayed with herbicide to suppress woody growth. The main linear opening feature on the Diggs tract is the two-mile-long gravel road to the boating access area on the Pee Dee River. Total width of the road project averages 40-50 feet; road shoulders were planted to native grasses and forbs in spring 2013. Several sediment basins left over from road construction in 2012 were allowed to remain to support amphibian breeding activity. Another road improvement project in early 2014, approximately one-half mile in length, had a similar width and was planted by contract to annual vegetation (for erosion control) and a native warm-season grass/forb mix for long-term stability. Other roadways and fire breaks are considerably narrower but support early successional vegetation due to maintenance practices.

- Other open spaces (1 acre): parking areas are open, ungravelled and lightly vegetated.

Desired Future Condition (DFC)

The open lands are intended to benefit species that utilize early successional habitats and to provide hunting opportunities. Many wildlife species in the Southern Piedmont use fields and open areas for most or a portion of their life history (Mourning Dove, Wild Turkey poults, Timber Rattlesnakes, American Woodcock, Northern Bobwhite, White-tailed Deer). Small openings (one acre or smaller) are not typically planted or actively maintained as food plots at this time, but frequently are incorporated into prescribed burn blocks on a three- to five-year rotation. These serve as shrubby habitat for perching, nesting and escape cover for various bird and small mammal species. The larger openings on the Diggs tract support an array of hunting activities, primarily dove and deer.

There are costs associated with the benefits of open land management. Maintaining open land, and in particular planting annual crops, requires an investment of manpower, money and equipment. Some Wildlife Action Plan priority species, particularly reptiles, can be negatively impacted by planting and maintenance operations such as conventional planting practices, rotational disking and fireline preparation. Future decisions about the amount and type of open land desired for Pee Dee River Game Land should attempt to optimize benefits for traditional user groups and priority species, while minimizing negative impacts and costs.

Due to the limited extent of open land in sizes suitable for plantings, the two dove fields on the Diggs tract should be maintained primarily in annual plantings of seed-producing species such as sunflower, wheat, millet, grain sorghum, and corn, as soil and topography dictate. In areas of these fields that are too steep or poor for crop stand establishment, native species already present can be augmented with overseeding with commercially-available native grass/forb mixtures. These border areas should be burned periodically to help reduce woody plant establishment and to rejuvenate existing vegetation. For the purposes of dove hunting, both spring and early fall seedings can be

used to help ensure a reliable dove food source for the high hunter use period on and shortly after opening day.

Small existing in-stand openings should be maintained with prescribed fire to the extent possible to help reduce management inputs. Many plant species respond well to fire; fire intensity will be key to helping prevent takeover by woody plants. Chemical control may well be the only reasonable option to fire if burning alone does not control saplings since access to some of these openings precludes the use of large mechanized equipment.

Linear openings in large part remain under the purview of Duke Energy Progress' right-of-way management. Close coordination with Duke's personnel will be required to monitor mowing and/or herbicide treatment schedules to reduce impact to ground-nesting species; longer-term commitments from Duke may be possible to rotate treatments to reduce impacts to the total area. Other linear features along roadways, firebreaks and trails should be incorporated into burning plans to help maintain their utility to open-land wildlife species. Road shoulders on roads open to public use should be mowed only annually, in late summer, to reduce impacts to ground-nesters and to provide some revegetation before the end of the growing season.

Target game species:

- Mourning Doves are a migratory species that feed heavily on planted crops and crop residue found in cultivated open land.
- White-tailed Deer forage in fields planted to annual grains and legumes.
- Marsh and Eastern Cottontail Rabbits are dependent on shrubby habitat and frequent old spoil banks and stump piles in open field settings.
- Eastern Wild Turkeys forage for green browse and insects in openings, and may nest in fallow areas with native vegetation.
- Northern Bobwhite are ground-nesting birds closely associated with open and scrub/shrub habitats. (Harrison, 1978.)

Target Non-game species:

- Eastern Kingbirds are flycatchers that forage for flying insects in and adjacent to fields, frequently perching on taller herbaceous or shrubby vegetation as vantage points.
- Mole Kingsnakes live in old fields and thickets and spend much of their time underground or under coarse woody debris. (Dorcas, 2004.)

- Least Shrews live in open grassy areas with scattered brush and nest underground or under debris. (Burt and Grossenheider, 1976.)

Management Strategies:

- For perennial plantings, such as roadsides, native species and ecotypes should be used to the extent possible. Roadways should be incorporated into prescribed burn plans for use as firelines and native groundcover along roads should be allowed to burn where feasible.
- Minimize or eliminate mowing during breeding and nesting seasons to reduce mortality of ground-nesting species.
- Utilize annual and perennial no-till planting operations as much as possible to help reduce reptile and small mammal mortality. Appropriate herbicides should be used judiciously and applied at the lowest rates and frequencies necessary to control unwanted vegetation in row-cropped areas.
- Maintain fallow areas and small openings with prescribed fire to the extent possible and mow woody vegetation as needed to prevent takeover (where accessibility permits). Overseed poorer sites with native perennial grass and forb species to increase ground cover.
- Contact Duke Energy Progress regarding power line right-of-way management to try to coordinate mowing/herbicide schedules to minimize impacts during breeding and nesting seasons. Efforts should be made to enter into agreements to rotate maintenance operations in any given year to preserve part of right-of-way vegetation where power lines cross Game Lands.
- Manage encroachment of nuisance, non-native invasive species to the extent practical in open lands.

Infrastructure needs:

- Where prescribed fire is used to prepare, enhance or maintain plantings or native vegetation in open areas, equipment for preparing containment lines (when not incorporated into larger burn blocks), fire control, and firing is needed. This equipment includes farm tractor and disk harrow, truck-mounted slip-on pumper unit(s), utility vehicles with spot-suppression low-volume pumps and tanks, drip torches, and hand tools; in some cases, a crawler tractor and fire plow may be on standby in case fire escapes disked lines. Properly trained and outfitted personnel adequate to the burn layout need personal protective equipment including fire-resistant clothing, hard hats, gloves and footwear, and hand radios for on-site communication. Currently, all these assets are available, but the crawler tractor at Troy is a 1986 JD 450E and is in need of replacement with a more suitably-equipped bulldozer with more power.
- Planting operations require farm tractors and implements. Conventional planting involves the use of a heavy disk harrow to break up and cover existing vegetation in

preparation for the seeding operation. In deep soils, a four-wheel drive tractor is preferable to two-wheel drive for the preparation phase; typically a two-wheel drive tractor is adequate for the planting phase. A conventional-type eight-foot wide seed drill with an integral fertilizer box is used; row spacing is dictated by crop type, and is accomplished by modifying the seed box to plant only those rows needed. No-till seeding is done with a no-till drill that eliminates the tillage phase of the operation; however, fertilizer must be applied in a separate operation, using a tractor-mounted broadcast spreader. The Troy Depot's current inventory includes equipment for both conventional and no-till planting; however, the only four-wheel drive tractor was acquired in 2000 and is the only one heavy enough to safely operate with the no-till drill. Two other two-wheel drive tractors were acquired in the mid-1990's; while serviceable, they lack the power and front-end weight necessary to accommodate the no-till drill. Replacement of one of these units with a four-wheel drive 90-100 h.p. tractor would increase versatility and provide redundancy in the event of a breakdown of the other large tractor. A replacement conventional seed drill was delivered in early 2015, and the Lely broadcast spreader was overhauled in that same time frame.

- Vegetation control of unwanted woody vegetation is usually accomplished with the use of a rotary mower attached to a farm tractor. With the small openings and narrow road shoulders maintained on Pee Dee River Game Land, Troy Depot's mower is adequate to the task, but a newer model may be warranted than the current 1989 model Bush Hog mower.
- Herbicides are used for both no-till planting preparation and for crop stand maintenance. A 110-gallon tractor-mounted boom-type broadcast sprayer was purchased in 2007 and has been used extensively for weed control in the dove fields, as well as native grass planting preparation on road shoulders. The addition of a foam marker to the rig has increased its utility; maintenance on all spraying equipment consists of routine cleaning and freeze protection, and both pieces are in good repair at this time.

Threats:

- Non-native invasive plant species, notably kudzu (*Pueraria montana*), privet (*Ligustrum* species), and Johnsongrass (*Sorghum halepense*), occur in and adjacent to openings, and spread rapidly once established. Large-scale mechanical and chemical control efforts are frequently costly, time-consuming and only partially successful. Glyphosate-resistant pigweed (*Amaranthus* spp.) and Bermuda grass (*Cynodon dactylon*) are common cropland weeds in the largest opening on the Diggs tract and present problems in maintaining viable field crops for dove hunting. Shrubby lespedeza (*Lespedeza bicolor*) and Chinese lespedeza (*Lespedeza cuneata/L. sericea*) are common along roadsides and field edges, and discourage establishment and maintenance of native grass plantings. Brown-headed cowbirds, originally native to the U.S. Midwest, can be found in and

around openings and parasitize nests of other birds, causing particular impact to cavity-nesting neotropical migrants.

- Time, budget and personnel constraints can inhibit maintenance of field crops due to timing of field preparation, planting, and herbicide and fertilizer applications vs. land maintenance activities on other Game Lands. Redirection of personnel to other activities during these times negatively affects crop production and vegetation control efforts on Pee Dee River Game Land.
- Alterations of planting schedules and/or methods to reduce mortality during nesting seasons may preclude or delay crop seed availability for dove hunts. Spring planting roughly coincides with nesting times of many nongame species utilizing fallow areas.

Forested Habitat Types (Total Acres 2,123)

The Pee Dee River Game Land is 93 % forested. This type is further divided into 3 distinct more detailed types which are Dry Coniferous Woodlands, Oak Forests, and Flood Plain Forests. Prior to the late 1800's the area in and around the Pee Dee River was comprised of old-growth virgin longleaf, shortleaf, and loblolly pine, with minor components of upland and bottomland hardwoods, and was maintained by somewhat frequent low to medium intensity fires. With the advent of the narrow gauge logging railroad these old-growth stands were all logged by the mid 1930's. Also, beginning after World War II, a program of fire exclusion and suppression was implemented. These two historical periods shaped the 2nd and 3rd growth forests that occur on Pee Dee River Game Land today. Yet despite these periods, the forested habitat types on Pee Dee River Game Land continue to fulfill many important ecosystem functions such as habitat for: rare plants and animals, and many game species such as White-tailed Deer, Northern Bobwhite, Eastern Wild Turkey, Eastern Cottontail Rabbit, and Gray Squirrel.

Current Extent and Condition

- **Dry Coniferous Woodlands (Acres 1,131)** Sites once occupied by longleaf and shortleaf pine but were converted to loblolly pine through silvicultural practices or were allowed to revert to natural loblolly with a minor component of shortleaf through fire exclusion and removal of the original longleaf/shortleaf component. This conversion commenced in the 1930's and continued until the late 1990's. These stands are characterized by 10-60 year old loblolly pine with scattered shortleaf about the same age. Scattered oak and hickory components occur due to exclusion of growing season fire for most of the life of these stands. The extent of ground cover in the form of warm season grasses is very limited due to fire exclusion, heavy stocking, and past subsistence agriculture. Since the late 1990's a portion of these stands have been thinned and put in burning rotations, due to these practices wind disseminated species such as bluestem and others have re-colonized these stands. One stand consisting of 60 acres was converted to longleaf in 2004 by the previous owner. Priority species associated with this

type include: Cooper's Hawk, Chuck-wills Widow, Northern Bobwhite, Four-toed Salamander, Timber Rattlesnake, and Pygmy Rattlesnake. Common game species associated are White-tailed Deer, Eastern Cottontail Rabbit, and Eastern Wild Turkey.

Desired Future Condition: This habitat type should be converted to Oak forest, this type includes the following forest types: dry oak-hickory and dry mesic oak-hickory with ground cover components restored. These forest types are characterized by groundcover components of shrubs and grasses and an overstory of mixed hardwoods and longleaf and shortleaf pine. Where this type occurs on upland sites a savannah like appearance is preferred. This will be achieved in a 20-30 year time frame, by tree removal and subsequent natural and artificial regeneration of longleaf and shortleaf pine, oaks, hickories, and ground cover components. Maintenance of the desired future condition would be achieved by burning these stands on a 3-5 year growing season fire rotation and selective tree harvest when needed.

- **Oak Forests (665 acres)** these stands are characterized by an oak/hickory and pine over story with a somewhat crowded mid-story of hardwoods, and little to no herbaceous ground cover. These sites are confined to steep slopes adjacent to creeks and streams where prior timber harvest was limited due to terrain and or NC BMP guidelines. Priority species associated with this type include: Cooper's Hawk, Chuck-will's Widow, Whip-poor-will, Red-headed Woodpecker, Eastern Fox Squirrel, Spotted Salamander, Timber Rattlesnake, and Eastern Box Turtle.

Desired Future Condition: Approximately 70-80 percent of these stands should be restored to more open-like savannah characteristics in the next 10-30 years. This would be achieved by growing-season and dormant season prescribed fire on a 3-5 year rotation. On sites where prescribed fire cannot be used either by man-power/equipment constraints or by liability issues associated with the WUI; these stands would be maintained by essentially being left alone. The main threat to this type is introduction of non-native pests such as gypsy moth, Chinese privet, and kudzu and to a lesser degree the pathogen responsible for sudden oak death.

- **Flood Plain Forest (327 ac)** these stands are characterized by a mature overstory of oaks, hickories, ash, sycamore and gum species. Groundcover can be dense to sparse with components of river-cane, shrubs, and vines. Due to past logging practices these sites range from severely to moderately degraded, with some converted to loblolly pine plantations and others have had their mature hardwood and loblolly pine component removed by high-grading timber removal. Roughly 25 percent of these sites have retained all of the characteristic components. Priority species associated with this type include: Cerulean Warbler, Bald Eagle, Mississippi Kite, Kentucky Warbler, Star-nosed Mole, Rafinesque's Big-eared Bat, Northern Yellow Bat, Southeastern Bat, Eastern Woodrat, Mabee's Salamander, Dwarf Salamander, and Timber Rattlesnake.

Desired Future Condition: Pristine flood plain forests are characterized by mature bottomland Hardwood (oaks, hickories, sycamore, ash and gum) with interspersed canopy gaps with a healthy and diverse understory of cane (*A. gigantean*), herbaceous plants and shrubs. Due to the degraded status of these stands, restoration is of the utmost priority. Restoration efforts will include invasive plant species (privet and kudzu) control, loblolly plantation conversion to mixed pine/hardwood and late winter/early spring prescribed fire on a 5-10 year rotation (Gagnon 2009). Major threats to this habitat type include: invasive plants, high-grade logging, and frequent flooding.

Infrastructure needs:

- Prescribed Fire Program: prescribed fire is a critical tool in maintaining all forest habitat types found on Pee Dee River Game Land. A successful prescribed burning program requires the development and maintenance of an extensive network of fire breaks, gates to limit access to remote areas via firebreaks, trained and properly equipped personnel and specialized equipment. Equipment needs include dozers for firebreak development and fire control, farm tractors with specialized disk for maintaining firebreaks, slip-on pumper units for mop-up and spot-over containment, 2-way radios for communications during prescribed burns and a cache of hand tools. Man-power needs for the burning program historically included the wildlife forester, assistant wildlife forester, permanent wildlife technicians, and a burn-crew of four 6 month temporary technicians.
- Timber Sale Program: the timber sale program is vital to the restoration and maintenance of forested habitat types on Pee Dee River Game Land. Each year approximately 500 -800 acres of the Pee Dee River Game Land are evaluated to determine silvicultural needs to improve timber stands and wildlife habitat. Man-power needs are also met for this program by the wildlife forester, assistant wildlife forester.
- Forest Inventory and Management: an accurate and up to date forest inventory is vital to the successful management of the forested habitat types on Pee Dee River Game Land. Also cutting-edge forest management software and hardware is needed to keep inventory data updated and to plan prescription needs. These tools are especially needed to help meet restoration goals.

Wetlands (total acres 110)

Current extent

There are approximately 100 acres of open, seasonal, and forested wetlands on the Diggs tract and ten on the Howell tract. The large open wetlands present on all tracts are primarily a result of beaver activity in the floodplain portions of the properties, although some of the acreage is seasonally flooded by rainfall or, in rare instances, flood events

from the Pee Dee River. They constitute relatively important local areas for rare plant conservation, amphibian, reptile and waterfowl habitat and are frequently used by sportsmen for waterfowl hunting. There is a small (0.5-2 acre) upland seasonal wetland site in a mature stand of loblolly pine on the Diggs tract on a boundary that was ditched many years before NCWRC purchase. This is a particularly important site for amphibians due to its rarity across the landscape.

The status of small isolated wetlands in the floodplains or uplands is not well known. The wetlands are characterized by the unique coexistence of Coastal Plain and Piedmont vegetation types and co-occurrence of common and rare plant species from the two regions.

Threats

The development of new, smoke-sensitive areas on the borders of the game land threatens to limit prescribed burning. This is a significant threat whereby activities outside of PDRGL beyond the Wildlife Resources Commission's control could impact our most important management tool and thus degrade habitat. It is critical to maintain a strong working relationship with the NC Forest Service and ensure that new regulations governing prescribed fire do not diminish our capacity for burning.

Timber management should be done in a manner to achieve the desired future conditions. A timber harvest regime that maximizes short-term revenues will be unsustainable and will compromise desired habitat conditions.

Invasive species are a present and future threat. The most significant current invasive species threat is fire ants. Most of the current problems with non-native plants are localized and many of these species do not spread as rapidly or thoroughly in a well-managed longleaf forest. One of the more significant potential threats is from cogon grass which has the potential to out-compete native plant communities and significantly alter fire behavior.

Incompatible land uses adjacent to PDRGL threatens ecological connectivity of game land blocks.

The PDRGL has highly erodible soils. Certain activities, like off-road vehicle use, have the potential to cause erosion problems while other uses, such as horseback riding, need to be carefully managed.

Pee Dee River Game Land Streams and Rivers

Current Extent and Condition

The Pee Dee River Game Land (PDRGL) borders 1 mile of the Pee Dee River at the Howell Tract and 2.9 miles at the Diggs Tract (Map 1). The Pee Dee River below Blewett Falls Hydroelectric Dam flows for 15 miles before entering South Carolina. Stream flow in this reach is highly regulated by releases from the dam. There are no other dams downstream and the Pee Dee River enters the Atlantic Ocean near Georgetown, South Carolina. As part of the Federal Energy Regulatory Commission (FERC) operating license issued in 2015 Duke Energy will provide higher minimum flows downstream from Blewett Falls Dam. The minimum flows are 1,200 cfs from June 1 – January 31, 2,400 cfs from February 1 – May 15, and 1,800 cfs from May 16 – May 31. This means that the flows do not drop below these thresholds, but water levels can be much higher during power generation and flood events. The minimum flow ensures that aquatic habitat (especially spring spawning areas) is not dewatered during non-power generation periods.

The habitat in this section of the Pee Dee River is transitioning from Piedmont to the Coastal Plain physiographic regions (fall line) and a variety of habitats are present. These include pools, shoals, and islands with side channels. Dominant substrates include bedrock, boulders of various sizes, and cobble intermixed with sand and gravel. Sand, silt, and woody debris are found near the banks of the river.

Smaller creeks in the Pee Dee Game Lands include several unnamed tributaries (perennial and intermittent), a portion (about .6 mile) of Cartledge Creek, and the downstream most kilometer of Solomons Creek. The small creeks are tea-colored due to the tannins that leach from decaying vegetation into the water. Stream bottoms are typically sandy with snags and woody debris.

There are 45 species of game and non-game fish, including 5 Wildlife Action Plan priority species, which have been collected in the mainstem of the Pee Dee River from Blewett Falls Dam downstream to the state line. Numerous migratory fish species are present in the spring, because the Pee Dee River flows unimpeded to the coast. There are 19 species of freshwater mussels, including 11 NC Wildlife Action Plan priority species, which have been documented from the mainstem of the Pee Dee River. Twenty-one species of fish and 1 freshwater mussel species have been collected from Cartledge Creek (Buck Wall Rd, SR 1142). Solomons Creek has been sampled at Old Cheraw Hwy (SR 1103) for freshwater mussels and 3 species have been collected. No Wildlife Action Plan priority species have been collected in these two creeks.

Desired Future Condition (DFC)

The desired future condition for waterways on the PDRGL is to maintain and/or improve biological diversity and to ensure that sedimentation is minimized.

Target Sportfish:

Fisheries for American Shad and Striped Bass occur each spring during the spawning runs of these species. Anglers in this section of the river also capture resident species such as Largemouth Bass, White Perch, Channel Catfish, Flathead Catfish, Blue Catfish, and sunfish.

Target Non-game species:

Wildlife Action Plan priority fish in the area (mainstem Pee Dee River and/or tributaries) include: Snail Bullhead, Highfin Carpsucker, Thinlip Chub, Notchlip Redhorse, Shorthead Redhorse, V-lip Redhorse, Robust Redhorse, Carolina Redhorse, Sandhills Chub, and Shortnose Sturgeon. Priority freshwater mussels are the Carolina Slabshell, Pod Lance, Variable Spike, Roanoke Slabshell, Yellow Lampmussel, Eastern Lampmussel, Eastern Pondmussel, Tidewater Mucket, Creeper, Eastern Creekshell, and Carolina Creekshell.

Management Strategies:

The most important management strategies to protect streams and rivers on the PDRGL are to maintain forested riparian corridors and to minimize sedimentation and erosion from roads and firebreaks. To protect water quality, the recommended buffer is 200ft on perennial streams and 100ft on intermittent streams. In addition, road crossings should not impact the connectivity of the streams (e.g. appropriately sized culverts). Techniques for reducing impacts to water quality are published in the NC Department of Transportation's "Best Management Practices for Construction and Maintenance Activities".

Periodic biological surveys are needed to assess the distribution and status of fish, mussels, and crayfish. These surveys will also help to determine the distribution of any non-native aquatic species in the game lands and how are they affecting native species.

Threats:

Invasive species and sedimentation are the major threats to PDRGL streams. Early intervention should be undertaken if any invasive species is identified.

Forest Management

Objective

Application of sound forest management techniques will provide for optimal quantity and quality of wildlife habitat and a sustained yield of forest products in the service of habitat enhancement.

Forest Organization:

Some timber stand data on the Diggs tract was obtained from Duke/Progress Energy when the property was acquired. Those stand types will allow some historical perspective as well as assist us moving forward with updating the timber inventory for Diggs, and creating a similar database structure for Howell. All other forestry related information (such as prescribed burn history) will be maintained in the same database for access by WRC personnel at the forestry and management staff levels.

Endangered Species Consideration:

There are records of the Federally Endangered Shortnose Sturgeon and State Endangered Robust Redhorse in the main stem Pee Dee River. Management considerations for these species have been discussed above, but include maintaining adequate water flow and preventing adjacent land uses from degrading water quality due to erosion or fertilizer/herbicide runoff. Although there are no Federally Listed Endangered plants on the property, there are four State-listed "significantly rare" species: Cumberland spurge, Piedmont aster, Huger's carrion-flower, and cypress-knee sedge. We will treat these State listed species in the same manner we would those with a Federal status. Ground disturbance will be avoided in the vicinity of the plant sites, and plant populations will be periodically inventoried to assess population health.

Forest Inventory:

Timber stand inventory will be maintained using the recently completed F4 database templates and hardware. Continuous updating of the timber stands on the Pee Dee River GL will be accomplished by either the Southern Piedmont Wildlife Forester or by contract. Up to date timber stand inventory will allow the WRC to:

- Determine sustained yield of forest products that will maximize habitat for target game and non-game species
- Plan future timber harvest and foraging sites based on projected volume growth and yields
- Continuously update the forest inventory as management prescriptions are completed.

Forest Management Guidelines for Pee Dee River Game Land

Existing loblolly plantations will slowly be converted to shortleaf pine, longleaf pine or mixed pine/hardwood stands. Commercial thinning operations as well as non-commercial thinning will be employed to maintain open stand structure and allow adequate sunlight to the forest floor. Best Management Practices will be followed and Natural Heritage dedication language guides restoration activities on the Diggs and Howell Tracts.

Prescribed fire and wildfire control

The prescribed burning program uses a combination of dormant and growing season fire to manage the forested lands on Pee Dee River Game Land. Both practices are proven wildlife and forest management tools. They are both cost efficient and effective and are having a positive effect on a large number of acres on Pee Dee River Game Land. Two of the more noticeable effects are the reduction in both the number of damaging wildfires and the amount of pine mortality experienced as a result of our prescribed burning. Some of our wetland drains are beginning to be burned bi-annually to produce higher quality browse and more herbaceous diversity.

Dormant season fires are used to reduce fuel hazards and to prepare an area for growing season fire in the future. They are conducted between December and March.

Growing season prescribed burns start with the onset of green up, which usually occurs by mid-April. Several factors mostly related to weather determine the extent and the amount of growing season fire that can be used during the spring and early summer. Fires during the growing season are used where fuel loads have accumulated for 2 -3 years. This amount of fuel is sufficient to top-kill many mid-story hardwood stems and stimulate herbaceous plants and grasses to flower.

Preparing firebreaks during the prescribed burning season requires a great deal of effort. The burn crews are manned with temporary employees that require close supervision during all aspects of preparing and executing a prescribed burn. Detailed maps and aerial photos are used to navigate crews to the various burn sites. Preparing an area to be burned requires disking or plowing existing firebreaks.

Infrastructure Development & Maintenance

Objectives

The built infrastructure should provide for sufficient access and use for wildlife-related recreation and military training, support management activities, and should not negatively impact sensitive habitats or wildlife resources. Some guiding principles for developed infrastructure on Pee Dee River Game Land are listed below:

- Many visitors come to Pee Dee River Game Land for the wilderness feel and enjoy the opportunity to “get away from it all.” Many of the species found on PDRGL are sensitive to the direct and indirect impacts of roads and other development. Large tracts of forest free from roads and other infrastructure should be maintained.
- 2-wheel drive, all weather access should be provided to popular, key locations on the game land
- Through traffic (i.e. cars driving *through*, not *to* the game land) should be discouraged
- Traffic speeds should be slow (<30mph) for public safety, to support those users who enjoy a slower, scenic drive, and to minimize wildlife-vehicle collisions and reduce road-kill wildlife mortality, particularly in areas with high concentrations of rare amphibians and reptiles
- The aesthetic appeal of the longleaf pine forest should be maintained
- Handicap access should be made to facilities (fishing piers, hunting blinds) where possible
- Erosion related to infrastructure should be avoided, minimized and/or mitigated
- Trails, firebreaks, and roads will not be designated for the exclusive use of particular user groups
- While meeting user and management needs, built infrastructure should leave a minimal footprint on the game land

Roads

Assessments of existing infrastructure throughout the Pee Dee River Game Land were conducted by Engineering and Lands Management Staff in 2013. The infrastructure maps included show the location of existing roads, parking areas, and dams within the Pee Dee River Game Land. The results of the assessments along with the recommendations for maintenance and improvements are discussed by category below.

Existing road conditions

Diggs

The road from the main entrance gate to the Pee Dee River on the Diggs Tract has been completely reworked in the last 3 years. It should only require periodic grading to maintain the two lane gravel surface. From the kiosk gate to the future campground site, the road has been repaired to allow for construction and administrative traffic. This section of road will be closed to the public to benefit wildlife.

Howell

The Howell Tract has decent access from several paved roads. There is also a seasonally open gravel road (Ridge Top Rd) into the middle of the largest parcel with a small

parking area. This gravel road will require periodic grading. Several other firebreaks may be used for administrative access, but are too rough to allow public access. These firebreaks will need to be constantly assessed to monitor erosion on the relatively steep slopes of the Howell tract.

Future Improvements

Several internal trails or firebreaks on Howell are in need of either repair or closure due to their orientation straight up and down the properties steep slopes. Consider closure or gravel surfaces.

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 Management 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 motor grader 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 an erosion-resistant surfacing such as grass or rip rap in ditches.
- If it is determined that a road needs major repairs or upgrade, contact Regional Supervisor and Design Services to schedule an assessment.

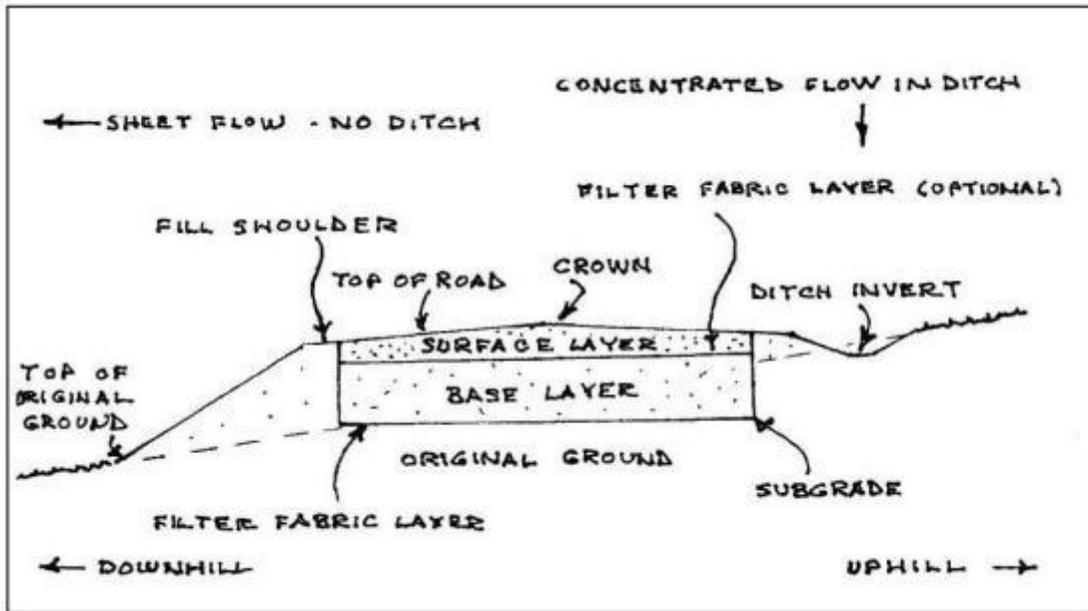


Figure 1 – Typical Road Cross-Section – Canaan, NH Highway Department

Road Safety Features

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

Gates

Gates should be used on game lands for maintenance and habitat conservation. For maintenance purposes, gates should be used to limit access to roads that are unsafe or are in disrepair, or to limit use on roads to certain times a year in order to minimize the wear and deterioration of the road. 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 installed on game lands should be the standard swing gate and painted orange for maximum visibility. No cable gates should be installed, and any existing cables should be replaced.

Troubleshooting

Road Surface Problems

Problem: Longitudinal erosion of the road surface

Possible Causes:

- Flat or U-Shaped road. A crown or super-elevation of the road is needed to shed water laterally off the outer edges of the road surface
- Small ridge of soil or grass growth along the outer edge of the road is preventing water from draining off the road surface. Edge needs to be graded to remove this ridge.
- Water is traveling in a wheel rut. Road needs to be re-graded. 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

- Parking areas require periodic mowing to remain free from encroaching hardwood stems.

Drainage Structure Assessments

Culvert Assessments

As mentioned in the Roads Summary section, the Pee Dee River Game Land has a limited road network. During the road investigations and based on information provided by DELM staff, several culverts were identified as needing repair or upgrade. Problems with culverts should be noted and reported to an

engineer as soon as possible as a lack of culvert maintenance could lead to road failures and flooding. The estimated cost to replace culverts ranges from \$1,000 to \$10,000 depending on the pipe size, length, and stream conditions. Replacement culverts should maximize potential for passage of aquatic organisms.

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.

Any culvert upgrade consisting of a single pipe 36” and greater or a crossing utilizing multiple lines of pipe should include design considerations for fish passage. Specific considerations can be obtained by contacting the Division of Inland Fisheries, Habitat Conservation Program - Technical Guidance section.

Recreational Facility Assessments

The Pee Dee River Game Land provides a variety of opportunities for public recreation. This section will review existing recreational facilities and describe sites identified for potential new development.

Boating Access Areas

Two Boating Access Areas (BAA) exist on the State owned portion of the Pee Dee River Game Land. One on Diggs and one on Howell. Renovations to the Diggs BAA were completed several years ago along with improving the access road to the river. To maintain this BAA it should only require periodic mowing and trash pickup. The Howell BAA is in fair condition and should only require periodic mowing and trash pickup as well. This location needs to be assessed as a possible BAA upgrade in the future.

Non-Traditional Uses

Geocaching: Geocaching is a recreational activity, in which participants use a GPS receiver or mobile device to hide and locate hidden containers, or caches, located somewhere outdoors. While this activity has not become popular on the Pee Dee River game land as of yet, there is a good possibility that it could grow as a potential non-traditional use given the size of the game land. There are no major infrastructure elements required for this non-traditional use, but it would be beneficial to the participants to provide parking areas near the start/end of the geocaching trails if there is sufficient demand.

Hiking: Currently, there are no designated hiking trails on the Pee Dee River Game Land. Foot travel is allowed and encouraged throughout the entire game land. Hiking is becoming a more popular activity and will continue to be a demand on the game land. It is recommended that staff works on a long term plan for trails, which can be used for both hunter access and recreational hikers. The extensive network of roads and firebreaks provide good access to most of the game land. Conflicts among different user groups should also be evaluated to avoid conflicts between different users.

Camping: The Pee Dee River game land currently does not allow camping. However, a 25 acre canoe campground is being developed in conjunction with the City of Rockingham. Work is slated to begin on the campground in late 2017 and should be completed by mid-2018. The campground will be accessible from the river and will be maintained by the City of Rockingham.

Horseback Riding: Horseback riding is growing in popularity. The Pee Dee River Game Land is currently used for horseback riding. However, there are no designated horseback riding trails on the game land. Since this is a growing activity, staff should work on a long term plan to identify potential locations for trails. Special care and considerations should be taken due to potential damage to roads, trails, and native habitat that can be caused by horse traffic.

Dog Trials/Training

Dog training has become more popular in recent years. There are companies that have agreements with NCWRC to use the game lands for training purposes. A plan needs to be developed that identifies areas

of the game land where this activity can take place and signage or some other method of designation could be installed to delineate areas for this use. The plan could also include the addition of amenities that may aid in this use as needed.

Recreational Facility Maintenance

Maintenance of recreational facilities is critical to the overall operation of the game land program. Typical use of the game lands is dispersed, however, recreational facilities concentrates users on a specific area or feature. This concentration of users, whether it is a boating access, fishing access, shooting range, or other use, results in a need to ensure the facility is safe and functional. Routine site visits for inspection and maintenance will accomplish this goal. Site visits should consist of two actions: (1) Inspection for safety issues and functionality; (2) Actual maintenance activities.

1. Inspections should examine the following items
 - a. Safety inspection items:
 - Facility components
 - Decking
 - Handrails
 - Structural supports (piles, substructure, and floats)
 - Fasteners (bolts, screws, and nails)
 - Slip or trip hazards
 - Uneven walking surfaces
 - Mud on walking surfaces
 - Ponded water on walking surfaces
 - Drop offs
 - Overhead
 - Dead trees or limbs
 - Overhead utilities
 - b. Functionality Inspection Items
 - Parking
 - Surface condition (ruts, potholes, gravel)
 - Delineation (wheel stops, paint)
 - Ramp
 - Blockages (sediment, wood)
 - Surface condition
 - Pier/Dock
 - Bollards
 - Wooden components
 - Bumpers
 - Shooting range
 - Berms
 - Target area
 - Benches
 - Shelter (roof, structure, and floor)
 - Signage
 - Kiosk (entrance, regulation and information)
 - ADA
 - 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.

Parking

Parking is divided into Staff/Visitor, Game Land Hunter/User parking and Lake User Access. Parking plays an important role in managing access, providing for special needs and minimizing negative impacts to sensitive environmental plant and animal communities. Parking will be designed and located to help user's access game lands for public recreation.

Public Fishing Area (PFA) Parking

River access to the Pee Dee River through the Diggs Tract is facilitated by a concrete boat ramp and small parking area. The ramp is ADA accessible. Floodplain forest habitat surrounding the parking area preclude the space from being enlarged. There is overflow parking a short distance up the hill from the ramp. Alternatives should be explored to provide additional parking near the river.

Boundary

Boundary on the Pee Dee River Game Land is posted in 2 manners. The portion of the GL owned by the WRC is marked with 2 orange bands and a Game Land sign. The portion owned by Duke Energy is marked with the Game Land signs only. Boundary is routinely inspected and is scheduled to be freshened up every 5 years. Both in house personnel and contractors are used to maintain the boundary.

Firebreaks

The Pee Dee River Game land is prescribed burned on a 3-5 year return interval. There are 21 designated burn units with over 35 miles of firebreaks on the area. The average burn unit is 60 acres with 1.4 miles of firebreak. Firebreaks are maintained with crawler dozers and farm tractors with disk harrows. They are 8 to 15 feet wide with limited ability to turn around and no public parking. Approximately 1/5 of the

firebreaks are prepared for prescribed burning each year. They are closed to vehicular use however foot travel is encouraged and are used extensively by hikers, hunters and military personnel.

Current status: The prescribed burning program has been in place since the early 2000's on the Pee Dee River Game Land. Most of the firebreaks were established prior to NCWRC ownership. Limited disturbance has left most of the firebreaks in stable condition. They are wide enough to allow single lane traffic in most locations, there are limited places to turn vehicles around.

There are some isolated spots that need stabilization to prevent soil movement during heavy rain events.

Future needs: Firebreaks may need to be developed as new parcels are incorporated into the prescribed burning program. Precautions to prevent soil movement into streams will be taken. Where needed culverts will be installed. Existing firebreaks will be monitored for stabilization needs. Where necessary firebreaks may be widened and improved to facilitate access and safety.

Role in meeting habitat needs, species management and game land access for recreation: Firebreaks are critical to the prescribed burning program. They help define a designated burn unit, provide means of controlling the spread of a fire and are used by visitors to access remote sections of the game land.

Public Uses

Owing to its large size and scenic landscapes, PDRGL is currently used by a diverse community of visitors ranging from those seeking traditional outdoor pursuits such as hunting, fishing, and wildlife observation, to newly emerging activities such as recreational horseback riding. A primary management goal for PDRGL is to provide a diverse range of quality natural resource based recreation opportunities, within financial and environmental constraints.

The primary user groups on PDRGL fit broadly into the following major use categories:

Hunting /Fishing: The largest group of visitors to PDRGL includes those users pursuing opportunities to hunt, fish, or trap wildlife. Though visitation from this user group has declined in recent years, hunters and fisherman remain the largest group of visitors to PDRGL. Recent declines in the number of people interested in this type of outdoor recreation have been attributed to changes in societal and cultural values, as well as to the diminishing availability of useable ground. Providing opportunities to pursue this type of outdoor activity will remain a primary focus of PDRGL.

Wildlife Observation/Sightseeing: A broad and diverse user group that includes individuals interested in viewing or photographing rare species and/or habitats, as well as visitors interested in experiencing the high quality scenic integrity of PDRGL. This user group has grown in recent years, and increases in this type of outdoor recreation will likely continue in the future.

Research/Education: Because of the increasing rarity of habitat types and species that are still found on PDRGL, this historically small user group has grown in recent years. As recognition of the significance of PDRGL continues to grow, so too will the presence of this user group.

Horseback Riding: One user group that has grown dramatically in recent years. No plans exist to create designated horseback trails.

Possible Future User Groups: The North Carolina Wildlife Resources Commission recognizes that there may be other user groups interested in utilizing the landscapes and resources of PDRGL. To this end, a land use committee composed of Game lands staff from around the state have developed a document to guide the inclusion of newly emerging, non-traditional game lands user groups.

Financial Assets and Future Needs

Current staffing and available equipment are not sufficient to meet immediate needs for maintaining the infrastructure and management needs of the game land. The Troy crew consists of one Conservation Technician II, one Conservation Technician I, and an 11 month seasonal employee. Older pieces of equipment will need to be replaced as they begin to age and become outdated.

Current assets:

- Personnel – Current Troy Depot personnel include one Conservation Technician II, one Conservation Technician I and an 11 month seasonal employee
- Equipment- Several 2WD farm tractors, one 4WD farm tractor, conventional and no till seed drills, assorted disk harrows, boom mower.
- Structural – Troy Depot (Office, 1 bay shop, fenced outdoor equipment storage)

Future needs:

With emphasis on increasing user base of game lands new groups will expect higher level of maintenance to game land infrastructure. In the next 10 years we anticipate the following needs:

- Personnel – Add one full time Conservation Technician 1 or one additional 11 month seasonal employee to assist with all operations in a growing work area.
- Equipment – Equipment needs (vehicles): 90-100hp 4wd farm tractor and one V8 truck to be used as pumper truck. Equipment needs (implements): 4 row corn planter, 3 point hitch broadcast spreader, Fire plow, Root rake, and Dozer winch
- Funding for acquisition of 7600 acres over 10 years to help meet partnership goals of connecting game land parcels
- Funding for contract boundary work
- Funds to make road improvements
- Funds to purchase gravel, culverts and gates
- Funds to install BAA
- Funds for research and surveys
- Funds to complete forest inventory and mapping on 2,260+ acres
- Funds to create and distribute paper maps of game lands

Acquisition Plan

History: Carolina Power and Light Company (CP&L) began purchasing land on both sides of the Pee Dee River in Anson and Richmond Counties in the 1920's with the intention of possibly constructing a hydroelectric power station near the South Carolina state line around Buchanan Shoals. The decision was made instead to site the project farther upriver, at what became known as the Tillery Dam (aka Hydro Dam) near Mount Gilead in Montgomery County. CP&L continued property acquisition in the area into the late 1920's, with the apparent intent to develop a third hydropower project around the Shoals (*The Albemarle Press*, 1925). The property remained in CP&L's ownership, eventually encompassing almost the entire river frontage and most of the tributary drains south of the Blewett Falls Dam (put into production in 1912); however, falling demand for electricity during the Great Depression curtailed plans for expansion of hydropower resources (Riley, 1958). Most of Carolina Power and Light Company's (by then commonly known as Progress Energy) property in the Piedmont was enrolled in the Game Lands program in 1992. It remained there until around 2003, when the majority of the Pee Dee tracts were sold to private concerns. Of the remaining amount, the 1,660-acre Diggs tract stayed in the program. Under an agreement with Progress Energy, The Conservation Fund acquired the property on behalf of the NCWRC in 2008 while grant funds were secured for State purchase. The project closed in 2009 in two phases and has remained in the Game Lands program.

Negotiations with the Howell and Chalk families for the property near Blewett Falls Dam were underway in 2005. Unfortunately, the Chalk family withdrew its support of the acquisition project for its land (some 800 acres) adjoining the Howell tract. The remaining Howell property acquisition, totaling about 605 acres, closed in 2007 after Clean Water and Natural Heritage Trust Fund monies were secured and it was enrolled in the Game Lands program soon thereafter.

Partners: Several of the partners are capable of responding more rapidly to opportunities as they arise than the State is able to do. The Nature Conservancy, for example, will often make the initial purchase from the landowner and hold the property until the NCWRC's funding sources are available. Once grant or other funding is secured, the property is transferred to NCWRC. Funding sources used on NCWRC acquisition projects since 1999 include the Clean Water Management Trust Fund, Natural Heritage Trust Fund, Army Compatible Use Buffer program, NCWRC timber receipts, mitigation funds, USFWS Section 6 Endangered Species funds, The Cole Foundation, and Nature Conservancy funds.

Acquisition Priorities: The primary goals of the PDRGL land acquisition program are to:

- Protect rare habitats in good, or restorable, condition around PDRGL, particularly parcels that are key to the conservation of rare species
- Avoid incompatible land uses on our boundary which may negatively impact game land activities, particularly prescribed burning
- Maintain or restore habitat connectivity between disconnected blocks of PDRGL
- Enhance access or opportunity for traditional user groups

Partnership acquisition priorities are formed with input from the NCSCP Land Protection Working Group, Reserve Design working group and the RCW working groups as well as individual Partner needs. Parcels falling within NCWRC's larger priority acquisition area are then evaluated for:

- Presence of Endangered species
- High Biodiversity and Wildlife Habitat Assessment rating
- Proximity to and shared boundary with existing NCWRC property
- Presence of high quality aquatic resources
- Presence of high quality intact habitats or those that are capable of being restored
- Benefits to making existing GL blocks easier to controlled burn
- Benefits to GL user access

Future Needs: There is still a great need to continue the PDRGL land acquisition program. Private land surrounding PDRGL is for the most part heavily fragmented and extremely difficult to keep adequate amount of controlled fire in the woods. Buffering high quality habitat with habitat that has restoration potential not only protects water quality, but improves overall connectivity of habitats.

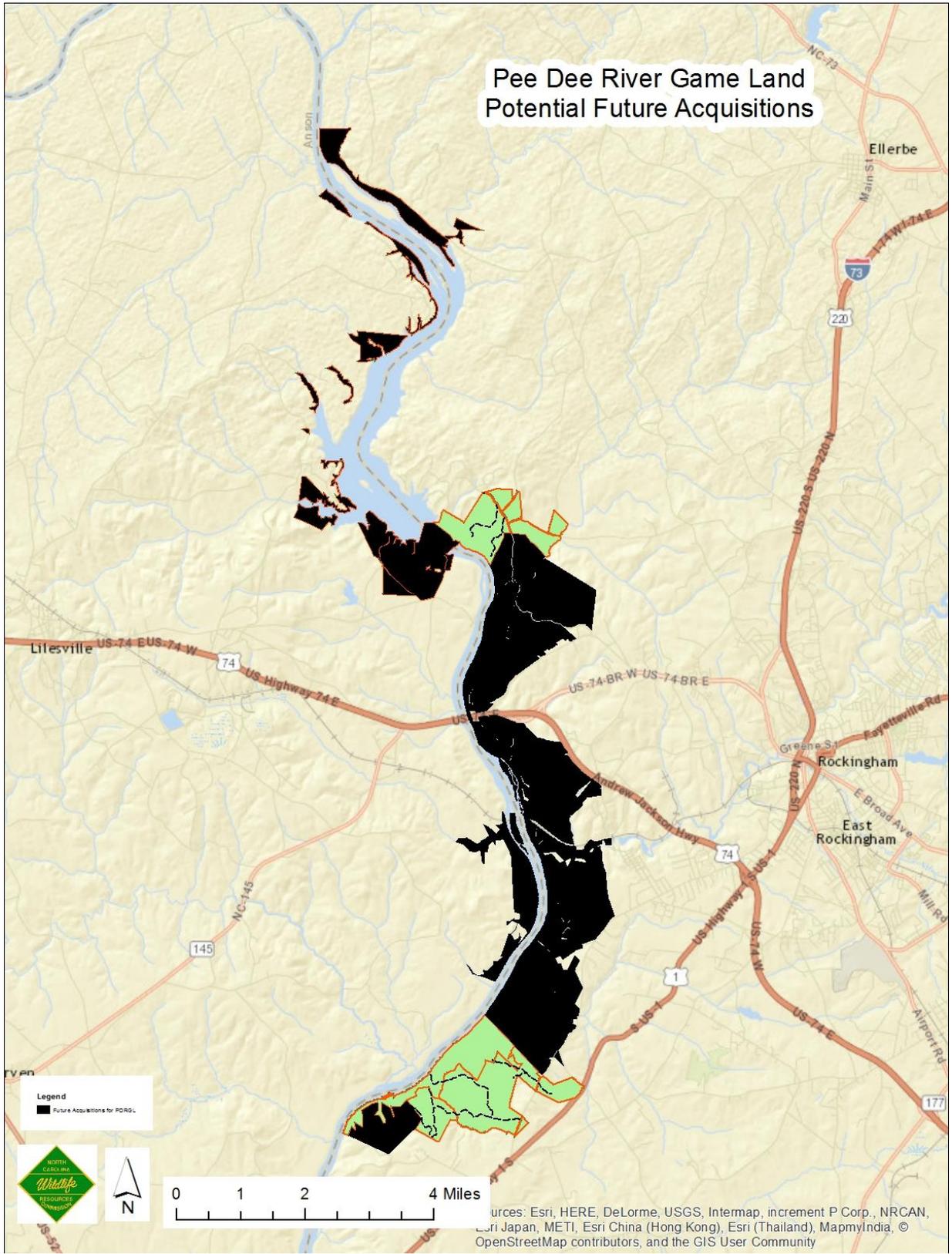
The ambitious acquisition plan for the PDRGL for the next 10 years includes the following parcels totaling roughly 7655 acres. Of that, approximately 3023 acres (1535 acres currently in Game Land and 1488 acres not in Game Land) will be transferred to the Wildlife Resources Commission from Duke Energy (formerly Progress Energy) as part of the FERC relicensing process. The remainder of the parcels in the map below would create a continuous habitat corridor connecting the Diggs Tract to the south with the Howell Tract to the north. As with all acquisition plans, funding availability and Agency priorities will determine how much of the plan will be accomplished.

Information Needs

The State Wildlife Action Plan (WAP) contains a wealth of information on habitat and species specific information and research needs. The 2015 revision of the original 2005 plan is in Agency draft review and further information about the plan can be found at the following link: <http://www.ncwildlife.org/plan>

As the WAP is released, more specific links related to the species and habitats mentioned in the Pee Dee River GL Management Plan will be added to this document.

Priority Acquisition Map



Regulations and Enforcement

Regulations specific to game lands are in place to help manage natural resources. They are developed by NCWRC staff members, state legislatures, county officials and the general public. Wildlife Enforcement Officers (WEO) are responsible for enforcing the all statutes and regulations that pertain to the state owned game land program. Each game land has its unique needs for special regulations that are in place to help manage its natural resources. There is also a permit system in place to allow game land managers the ability to permit the use of local or specialized resources within the existing framework of statutes and regulations. The Lands and Use Committee developed a set of guidelines to assist field staff in permitting the use of or the harvesting of resources from game lands.

Enforcement Issues and specific regulations: Managing the illegal removal of wildlife and forest products is one of the many problems that occur on PDRGL. Regulations have been developed to help WEO prosecute cases where collectors have removed wildlife species for resale to the pet trade. Amphibians and reptiles are vulnerable to collectors and can be over harvested if not regulated. The use of ATVs on game lands is prohibited. WEO play an important role reducing the amount of illegal use of ATVs which have a detrimental effect on game land roads, fields and feed & cover plots.

Partnerships and Collaboration

Partnership with the Greater Uwharrie Conservation Partnership (GUCP) has played a vital role in conserving and protecting the natural resources in the greater Pee Dee region. The GUCP has helped to identify conservation priorities, conducted outreach to private landowners and the general public, provided funds and other assistance to acquire land, provide assistance with controlled burning and control of invasive plants, and facilitated communication and collaboration among partners.

Other partnerships that are important to Pee Dee River Game Land include the NC Prescribed Fire Council, America's Longleaf initiative, and the South Atlantic Landscape Conservation Collaborative, among others. It is important the WRC continue working with partnerships. Restoring and managing wildlife and plant communities or ecosystems is a collaborative effort the NCWRC and its partners continue to work on. NCWRC collaborates with a large number of agencies and organizations outside of formal partnership. One notable example is collaboration with the NC Department of Environment and Natural Resources on wetland restoration and enhancement projects.

References

Edited by Joseph M. Herbert and Theresa E. McReynolds. *Woodland Pottery Sourcing in the Carolina Sandhills*. Research Report No. 29 [draft], Research Laboratories of Archaeology, The University of North Carolina at Chapel Hill. 2008.

<http://www.nc-climate.ncsu.edu/cronos/normals.php?station=313784> (Hamlet climatological data; "Appendix 1")

<http://www.lutins.org/thesis/#4.17> Lutins, A. Prehistoric Fishweirs in Eastern North America. 1992. Master's thesis.

http://www.epa.gov/wed/pages/ecoregions/ncsc_eco.htm ecoregion map showing intersection of Carolina slate belt, Triassic basin and Sandhills Citation: Griffith, G.E., Omernik, J.M., Comstock, J.A., Schafale, M.P., McNab, W.H., Lenat, D.R., and MacPherson, T.F., 2002, Ecoregions of North Carolina, U.S. Environmental Protection Agency, Corvallis, OR, (map scale 1:1,500,000)

United States Department of Agriculture Natural Resources Conservation Service, *Soil Survey of Richmond County, North Carolina*. 1999.

http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CB8QFjAA&url=http%3A%2F%2Fwww.nrcs.usda.gov%2FInternet%2FFSE_MANUSCRIPTS%2Fnorth_carolina%2FrichmondNC1999%2FrichmondNC1999.pdf&ei=3SWMVeHnO4P3-QHLhIOoBw&usg=AFQjCNFnQ7JIWce5jotoo90K87jG5Kcgkg&bvm=bv.96782255,d.cWw&ad=rja

Miller, J.H., E.B. Chambliss, and N. Loewenstein. *A Field Guide for the Identification of Invasive Plants in Southern Forests*. United States Department of Agriculture Forest Service, Southern Research Station General Technical Report SRS-119, 2010.

Dorcas, M.E. *A Guide to the Snakes of North Carolina*. 2004, Belk Printing Technologies, Charlotte, NC.

Burt, W.H. and R.P. Grossenheider. *A Field Guide to the Mammals*, Third Edition. 1976, Houghton Mifflin Co., Boston, MA.

Harrison, C. *A Field Guide to the Nests, Eggs and Nestlings of North American Birds*. 1978, Collins, New York, NY.

Conant, R. *A Field Guide to Reptiles and Amphibians of Eastern and Central North America*, Second Edition. 1975, Houghton Mifflin Co., Boston, MA.

Radford, A.E., H.E. Ahles, and C.R. Bell. *Manual of the Vascular Flora of the Carolinas*. 1976. University of North Carolina Press, Chapel Hill, NC.

North Carolina Wildlife Resources Commission. *North Carolina Wildlife Action Plan*. 2005. Raleigh, NC.

Bivins, J.D., publisher. *The Albemarle Press*. "Improvements Bring About Removal Swift Island Bridge (*sic*)", 24 Dec 1925, p. 1. Albemarle, NC.

Riley, J. *Carolina Power & Light Company, 1908-1958; a corporate biography, tracing the origin and development of electric service in much of the Carolinas*. 1958. Raleigh, NC.

Clean Water Management Trust Fund. Grant application, December 2005 cycle. NC Wildlife Resources Commission.

Clean Water Management Trust Fund. Grant application, June 2006 cycle. NC Wildlife Resources Commission.

Appendices

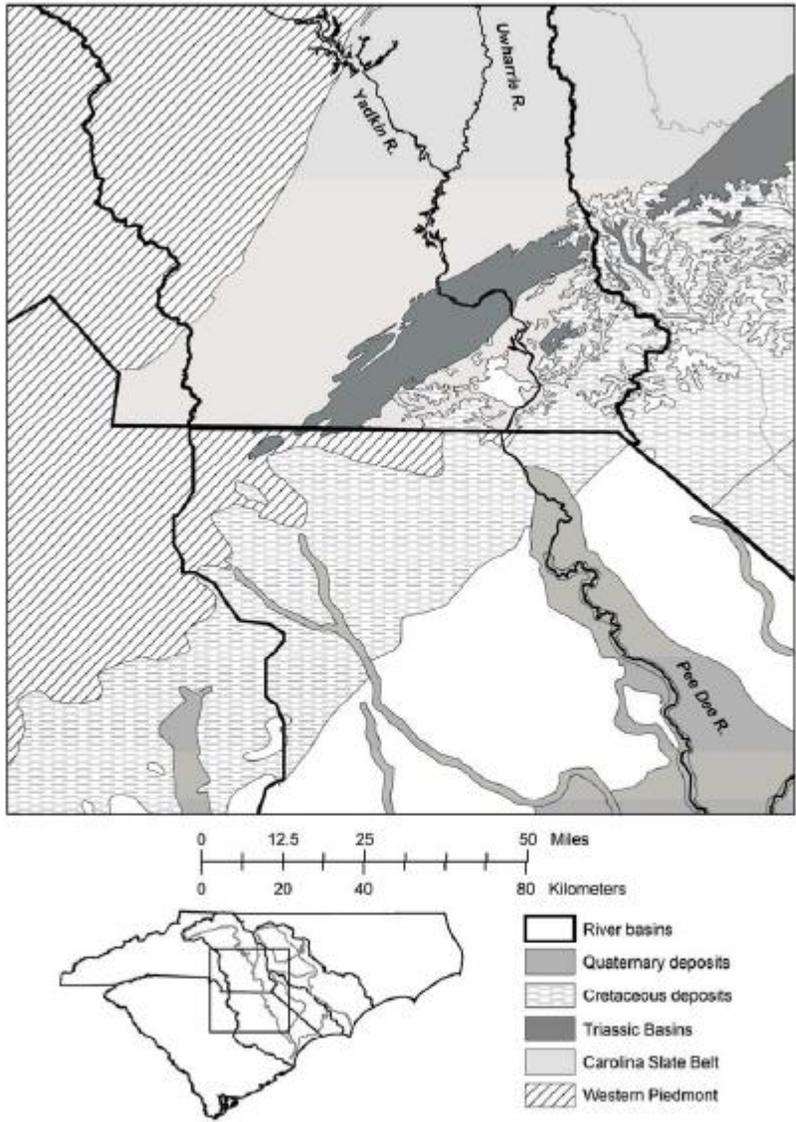
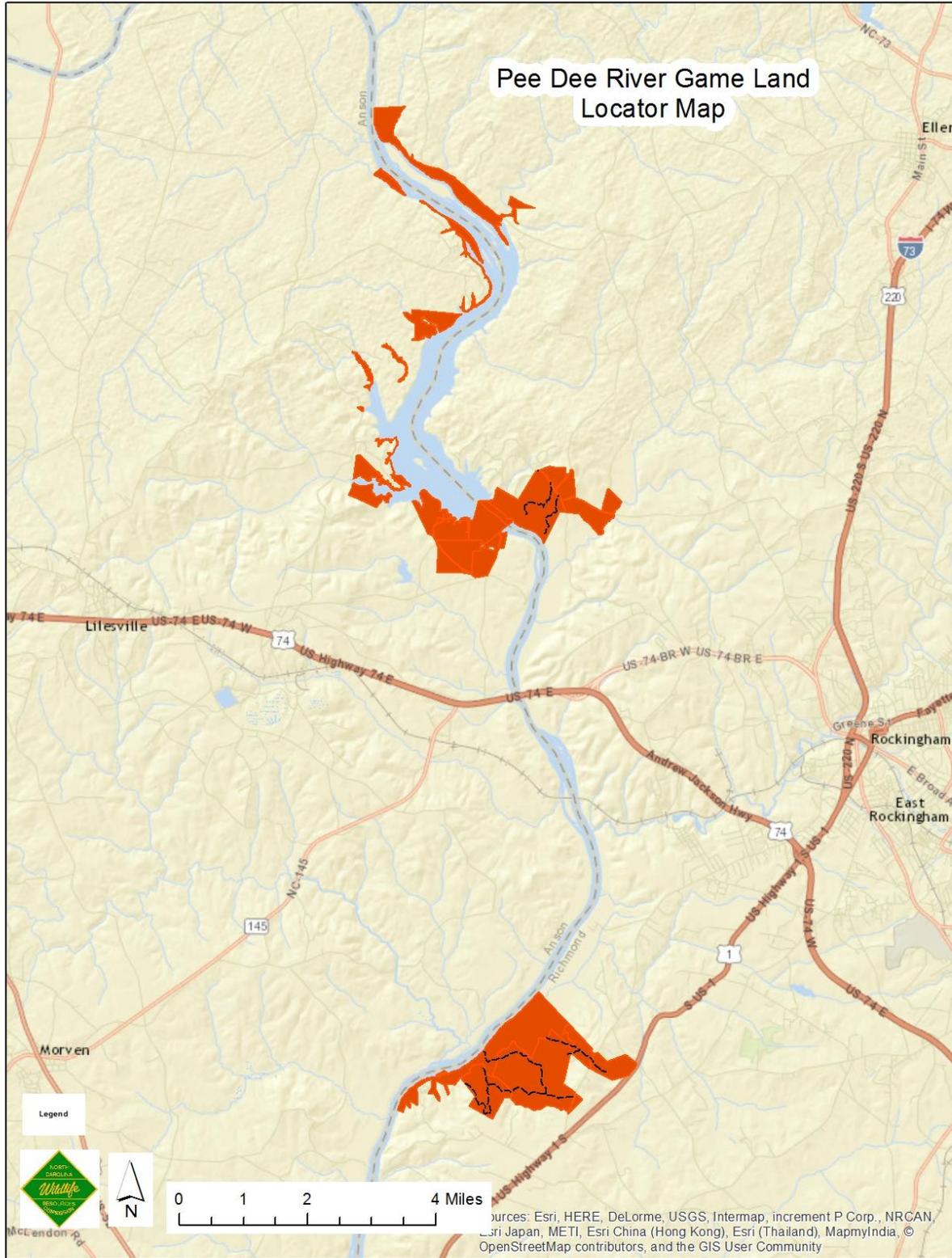


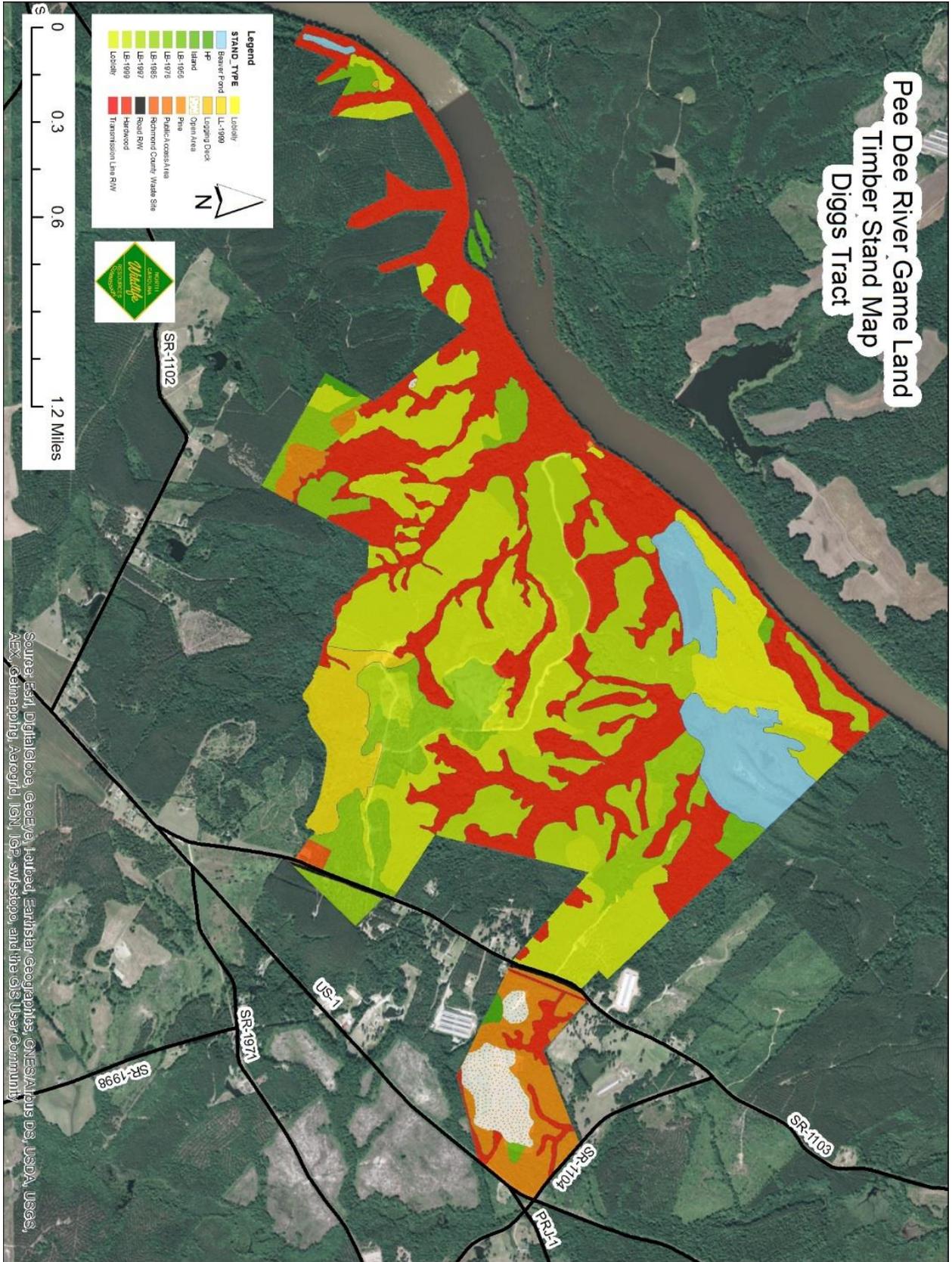
Figure 2.7. The Yadkin-Pee Dee River basin (North Carolina Geological Survey 1998a; South Carolina Geological Survey 2005; United States Department of Agriculture 1998; United States Geological Survey 2002).

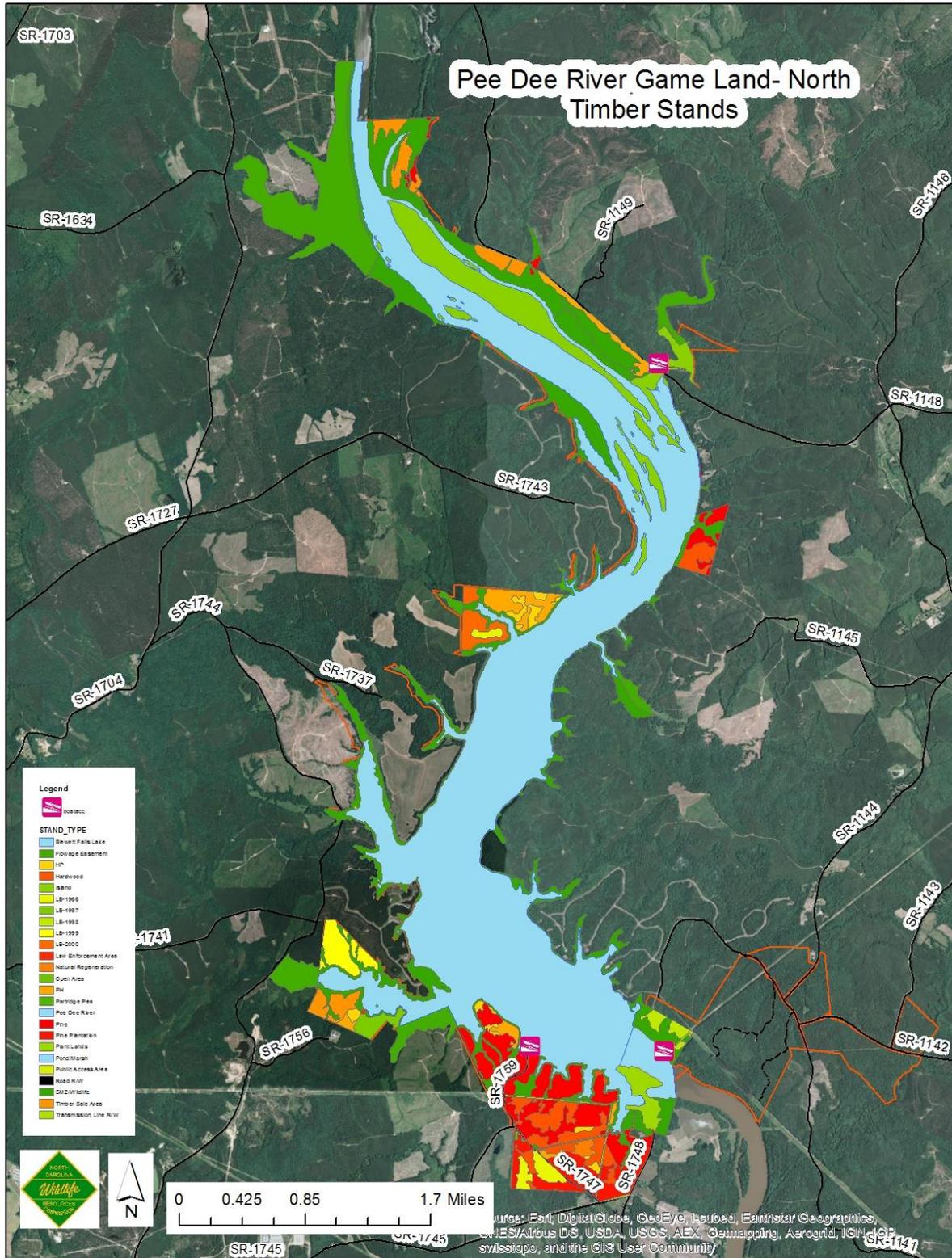
Figure 2- Geology of the Yadkin- Pee Dee River basin

Maps

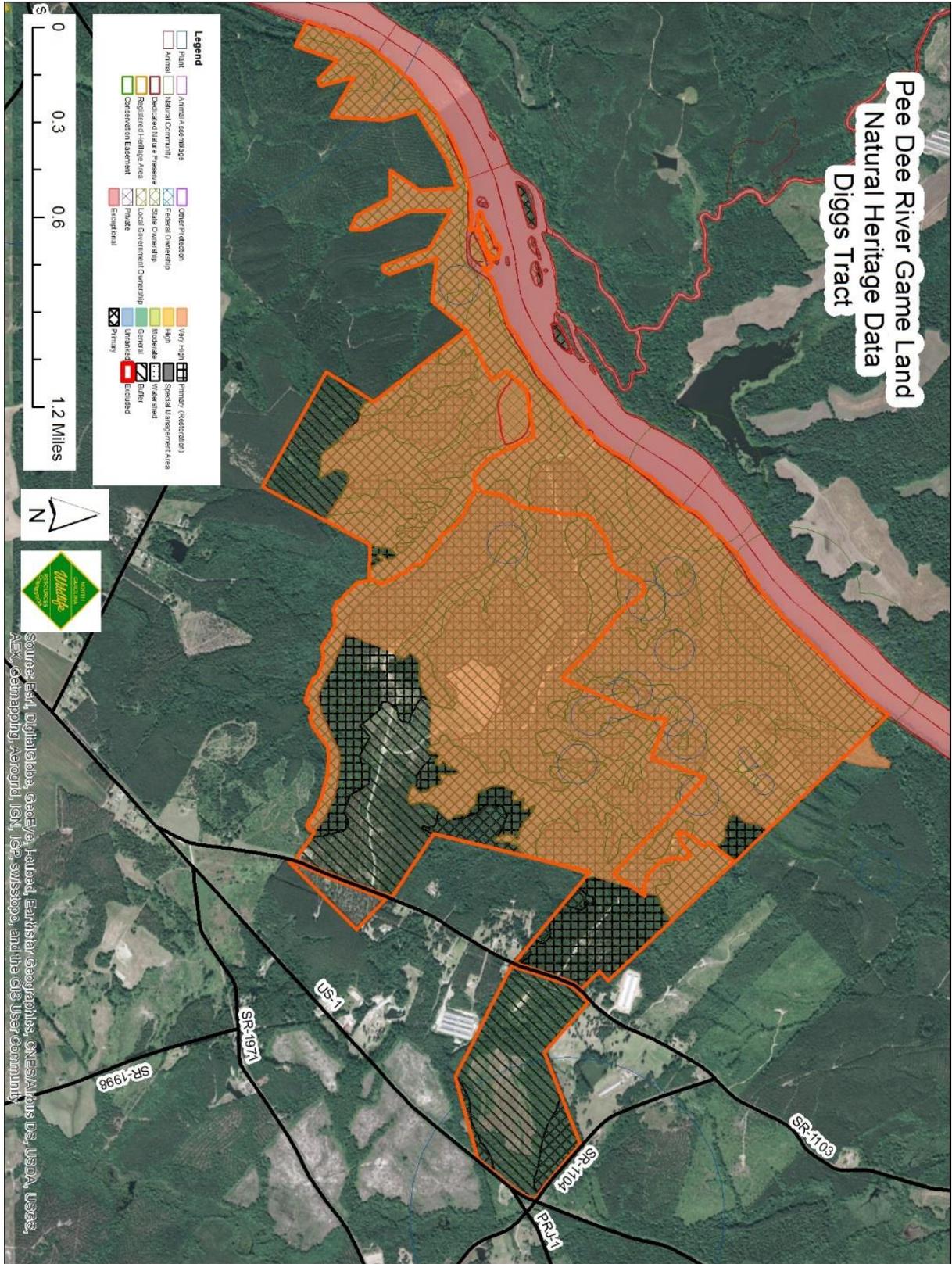


Pee Dee River Game Land Timber Stand Map Diggs Tract

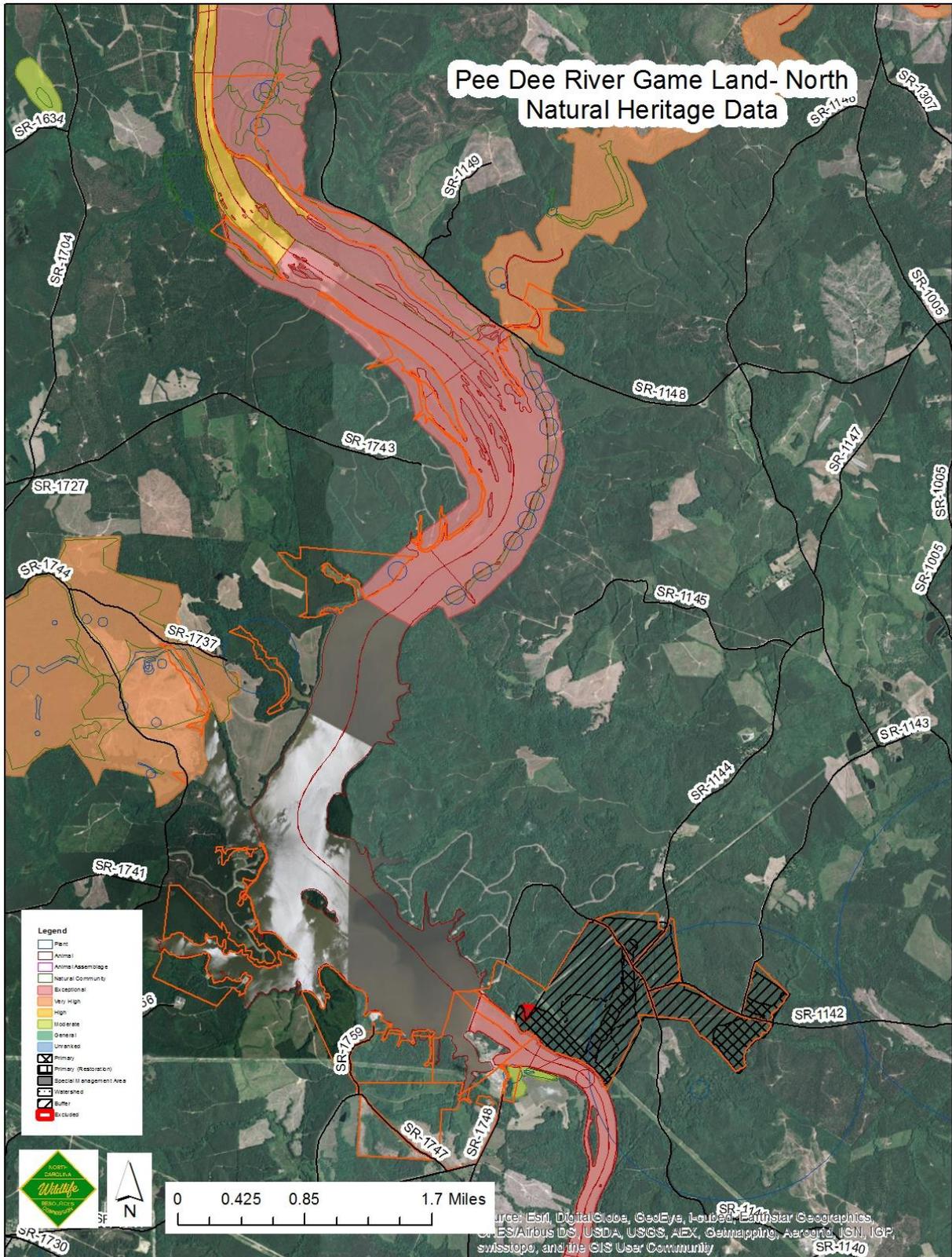


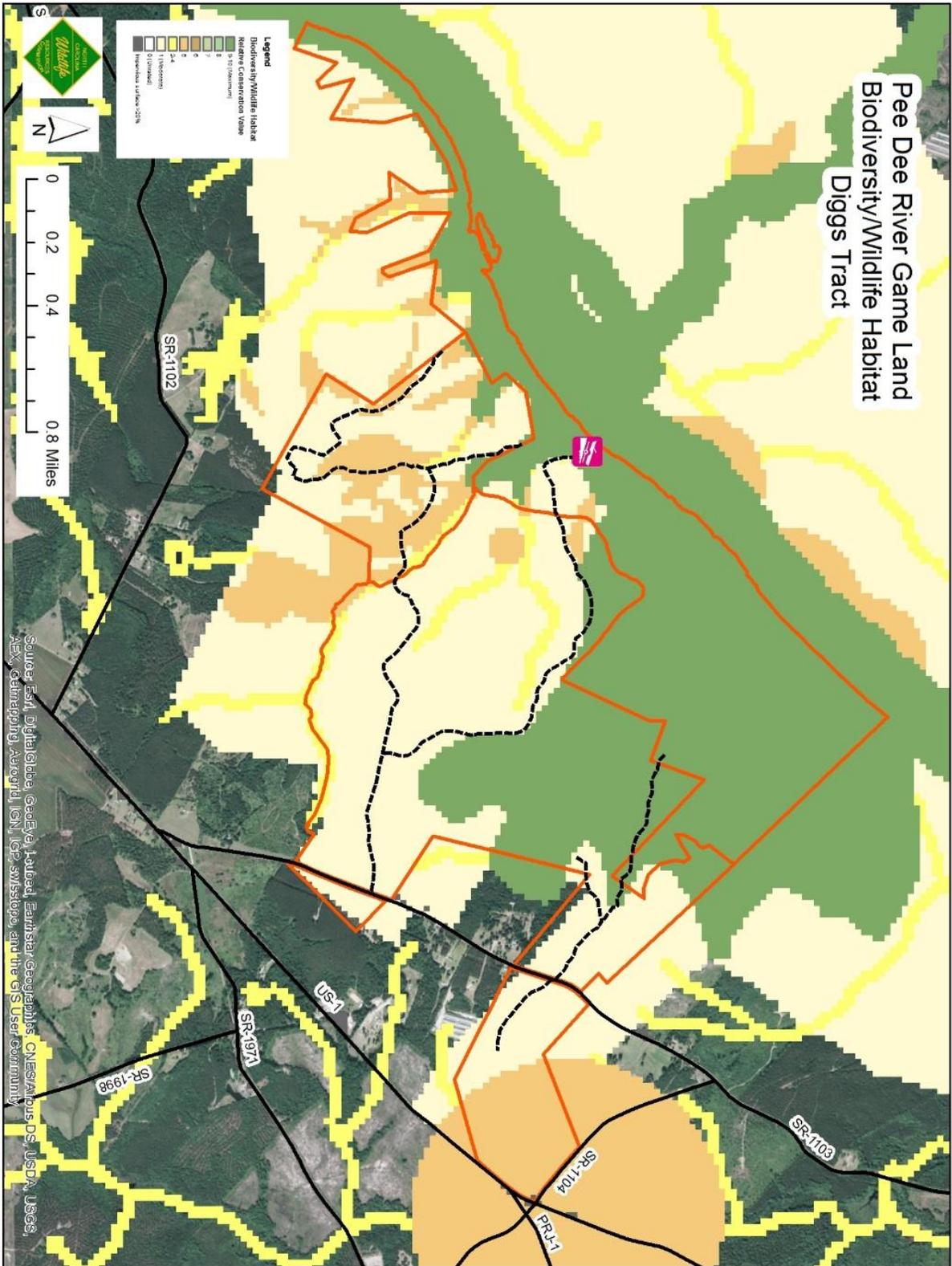


Pee Dee River Game Land Natural Heritage Data Diggs Tract



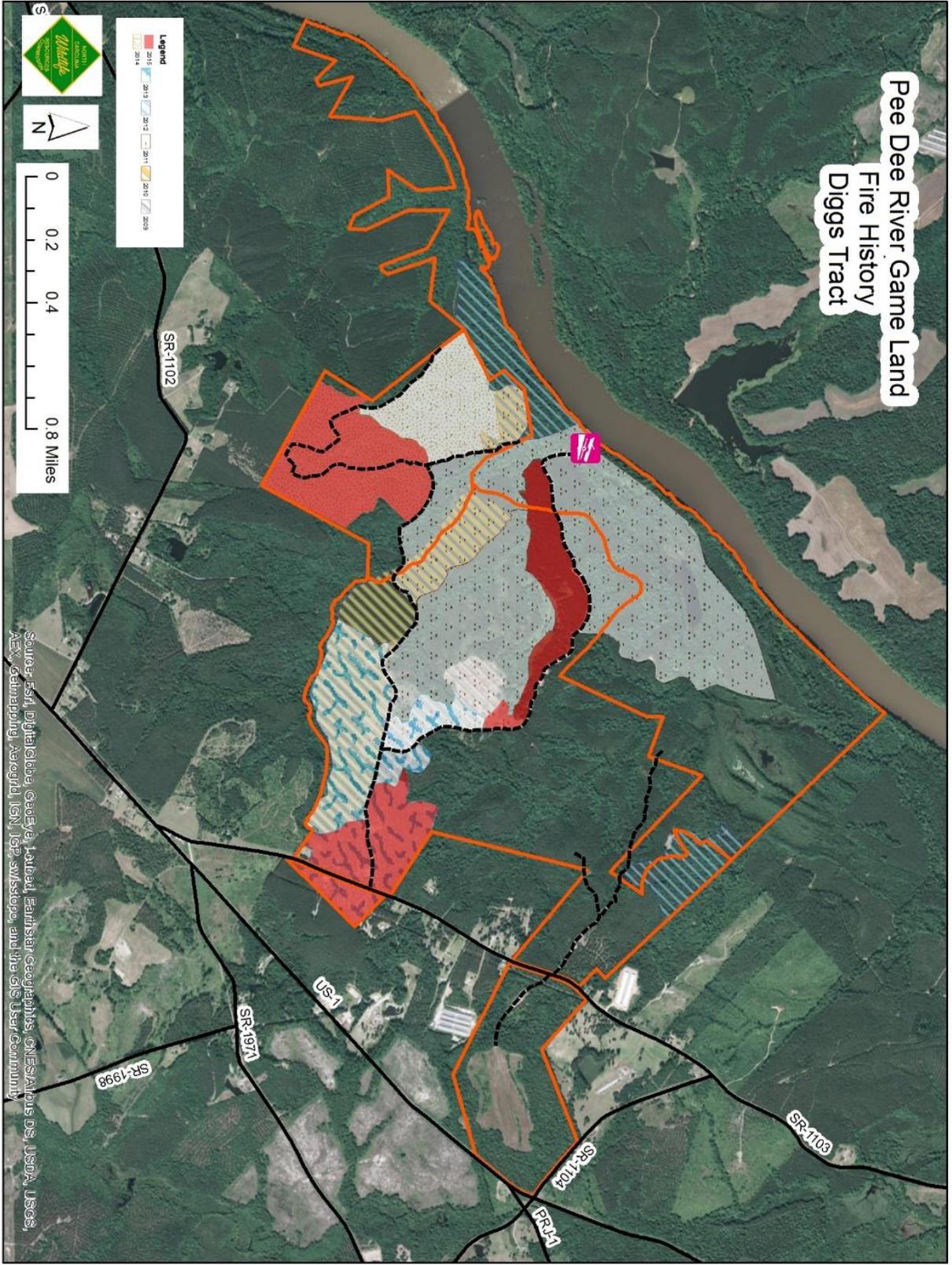
Source: Esri, DigitalGlobe, GeoEye, TerraView, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, ISP, Swisstopo, and the GIS User Community



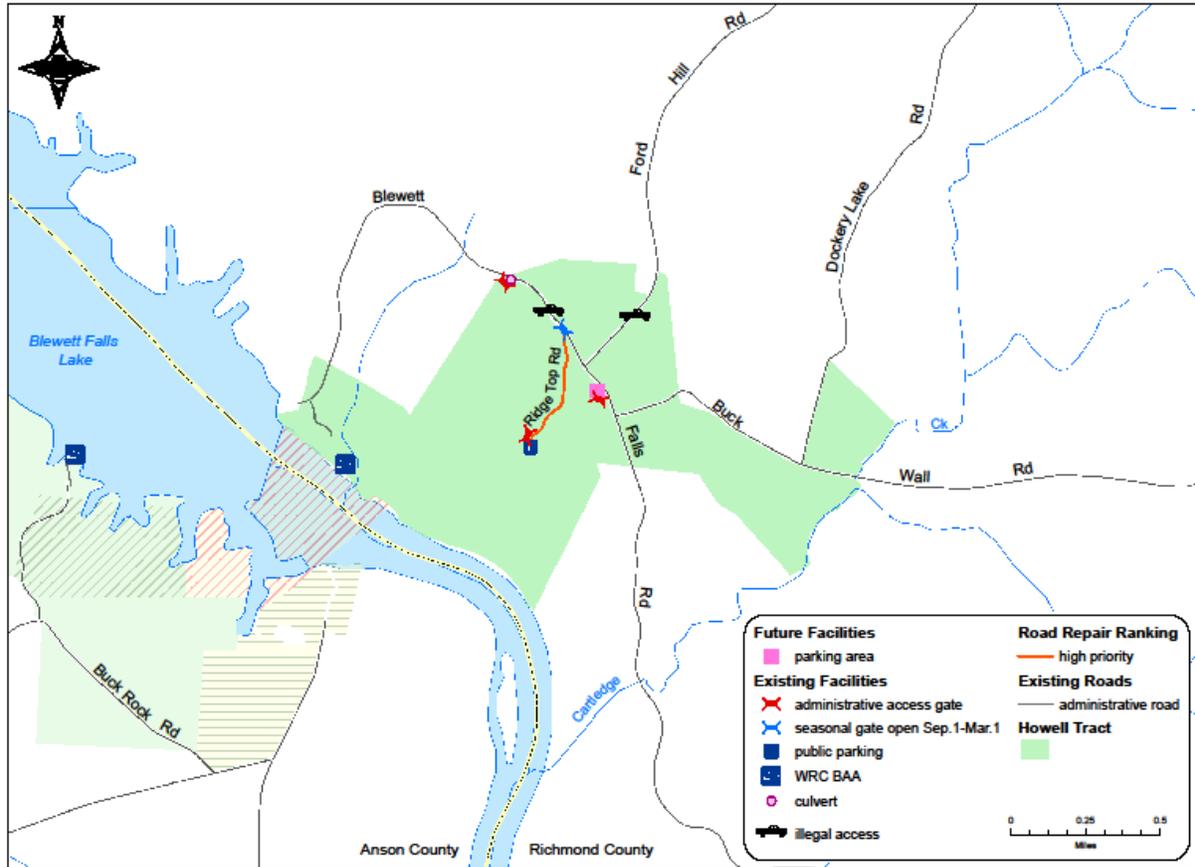




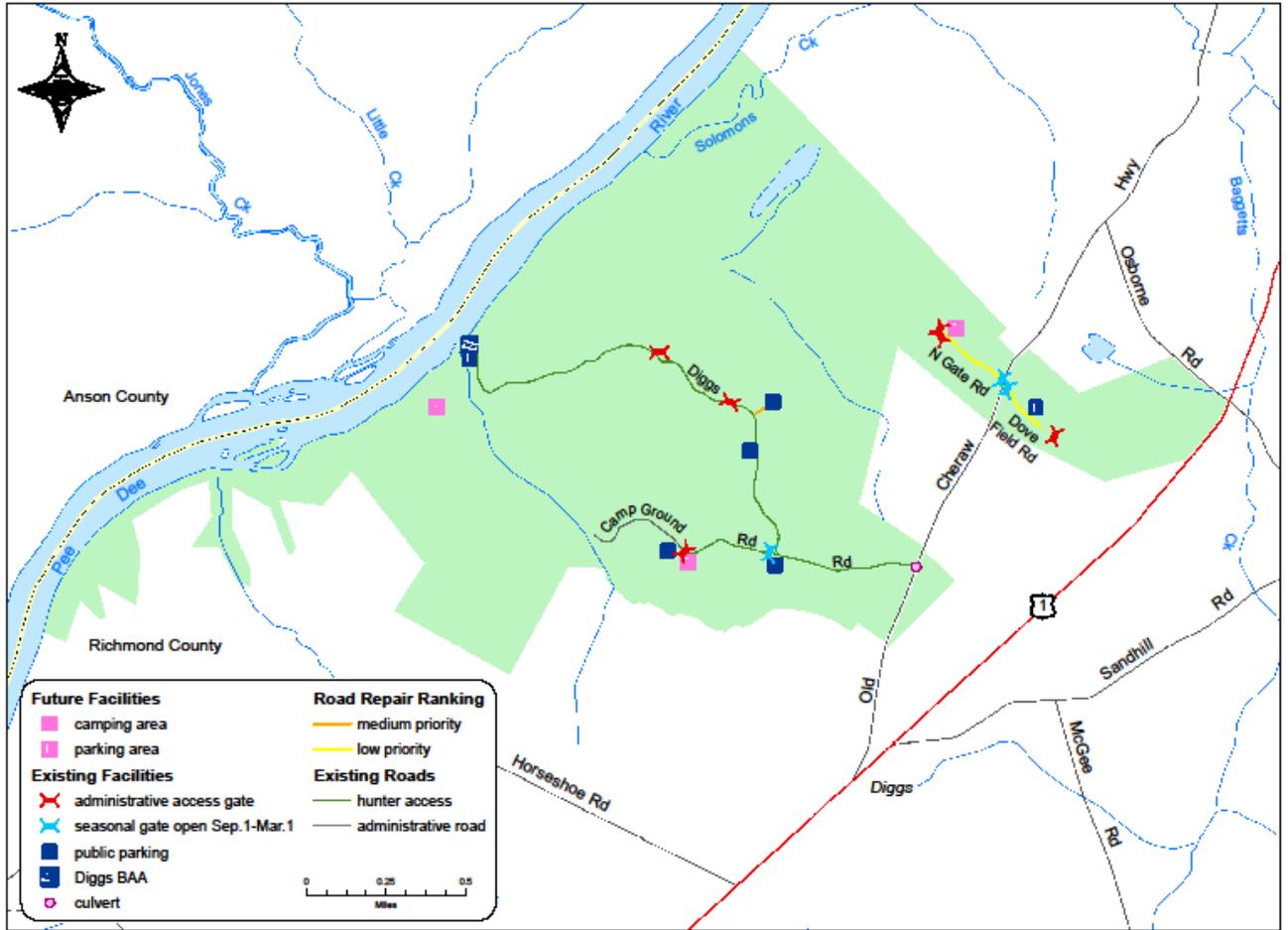
**Pee Dee River Game Land
Fire History
Diggs Tract**

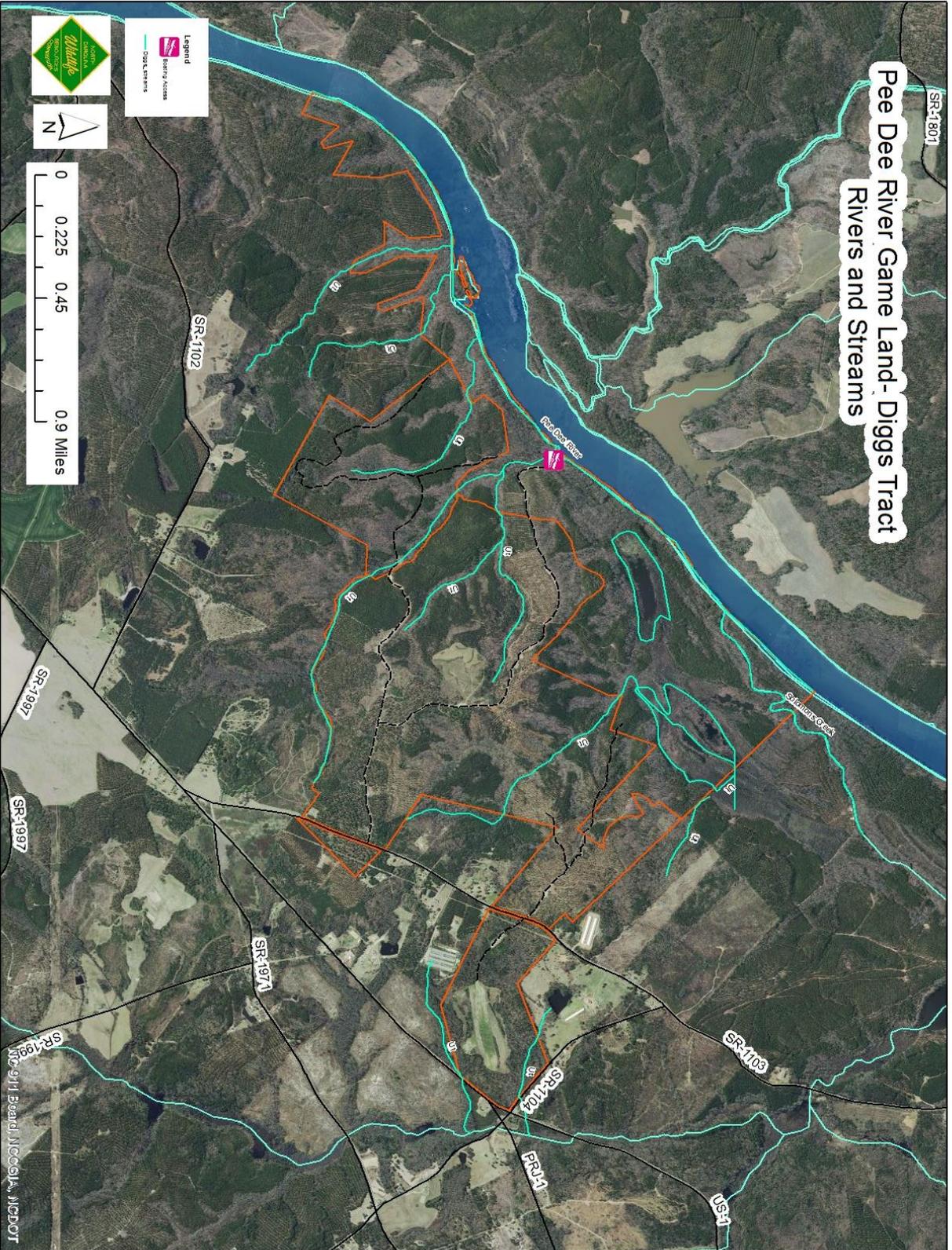


PEE DEE RIVER GAME LAND - HOWELL TRACT
 Southern Piedmont Ecoregion, Richmond County

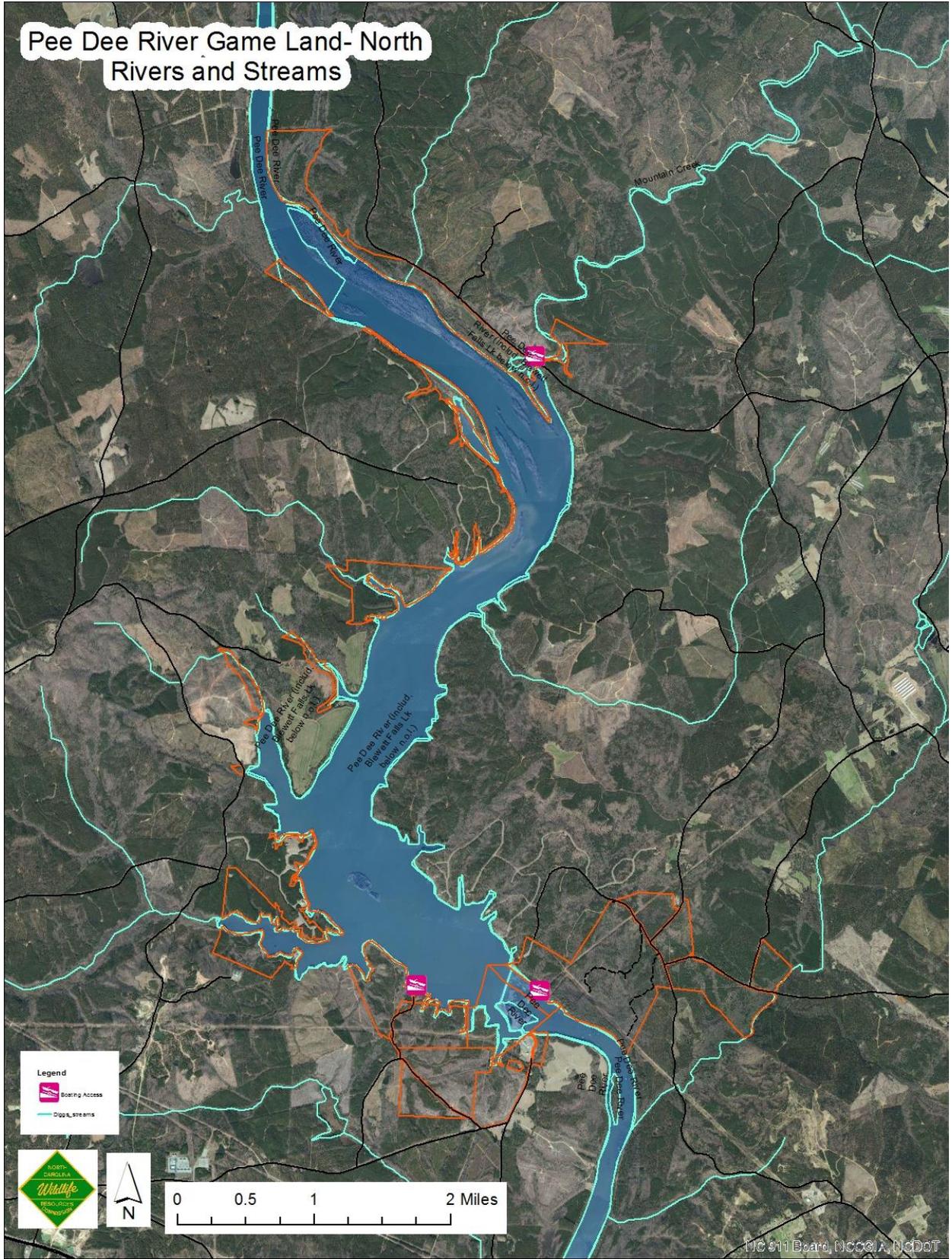


PEE DEE RIVER GAME LAND - DIGGS TRACT
 Southern Piedmont Ecoregion, Richmond County





Pee Dee River Game Land- North Rivers and Streams





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 **Pee Dee River Game Land**, Richmond 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 January 19, 2010. The articles were amended to reflect additions of property to the preserve.

This real property is currently administered by the North Carolina Wildlife Resources Commission as a portion of the Pee Dee River Game Land and consists of approximately 2,286 acres located in Richmond County, and composed of:

- | | | |
|----|--|-------------|
| 1) | Pee Dee River Game Land tract (Primary Area) | 1,583 acres |
| 2) | Pee Dee River Game Land (Buffer Area) | 703 acres |

all of which are specifically described in Exhibit A, attached hereto and by reference made a part hereof. The dedicated land shall be known collectively as the Pee Dee River 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 and the Clean Water Management Trust Fund.

The Governor and Council of State have approved the dedication of the State-owned lands hereinabove described as the Pee Dee River Game Land Dedicated Nature Preserve to be held in trust by the Custodian for the uses and purposes expressed in the Nature Preserves Act at a meeting held in the City of Raleigh, North Carolina, on the 15th of November, 2013.

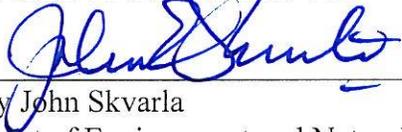
Sincerely,



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

PEE DEE RIVER GAME LAND DEDICATED NATURE PRESERVE (NORTHERN SEGMENT)

COUNTY: Richmond County

PHYSIOGRAPHIC PROVINCE: Piedmont

TOPOGRAPHIC QUADS: Rockingham, Lilesville

SIZE OF AREA: ca. 614 acres total (171 acres primary; 443 acres buffer)

OWNER/ADMINISTRATOR: State of NC, Wildlife Resources Commission

LOCATION: Located on the Pee Dee River just below Blewett Falls Dam. The property is intersected by Blewett Falls Road and Buck Wall Road, and by a broad powerline.

DESCRIPTION: The northern segment of the preserve lies along the state significant Pee Dee River Aquatic Habitat and Cartledge Creek, rising from flat floodplains to hilly terrain drained by small creeks, with elevations ranging from 140 to 470 feet. The adjacent aquatic habitat supports a diverse assemblage of rare fish and mussel species. These include the federally listed shortnose sturgeon (*Acipenser brevirostrum*) and two fishes which are Federal Species of Concern: the Carolina redbhorse (*Moxostoma* sp. 3) and the robust redbhorse (*Moxostoma robustum*). Rare mussels present include several which are State Threatened: eastern lampmussel (*Lampsilis radiata*), the alewife floater (*Anodonta implicata*), creeper (*Strophitus undulatus*), eastern pondmussel (*Ligumia nasuta*), and Roanoke slabshell (*Elliptio roanokensis*).

It supports high-quality Dry Oak-Hickory Forest communities in the uplands, with white oak (*Quercus alba*), southern red oak (*Q. falcata*), mockernut hickory (*Carya alba*), shortleaf pine (*Pinus echinata*), and scattered loblolly pine (*P. taeda*) in the canopy. Understory trees include dogwood (*Cornus florida*) and black cherry (*Prunus serotina*); common shrubs include sparkleberry (*Vaccinium arboreum*) and deerberry (*Vaccinium stamineum*). The herb layer is sparse. Drier ridges support chestnut oak (*Q. montana*), scarlet oak (*Q. coccinea*), mockernut hickory, sourwood (*Oxydendrum arboreum*), and Virginia pine (*Pinus virginiana*).

On lower slopes and particularly along creeks, soils are mesic and contain more nutrients. These areas support more mature Mesic Mixed Hardwood Forest communities. Dominant trees include red oak (*Quercus rubra*), white oak, tulip poplar (*Liriodendron tulipifera*), and beech (*Fagus grandifolia*), with lesser amounts of red maple (*Acer rubrum*), water oak (*Q. nigra*), and winged elm (*Ulmus alata*). Understory trees include ironwood (*Carpinus caroliniana*), dogwood, and holly (*Ilex opaca*). The ground layer is dense with sedges (*Carex* spp.), plus Christmas fern (*Polystichum acrostichoides*), violet wood-sorrel (*Oxalis violacea*), common blue violet (*Viola sororia*), and others. Locally, broad ecotones just above creeks are dominated by longleaf spikegrass (*Chasmanthium sessiliflorum*), a Watch List plant.

Cartledge Creek occurs in a narrow tongue of the Triassic Basin and like other streams in the basin it has an unusually broad floodplain for the size of the stream. Numerous shallow elongate pools, presumably

abandoned channel segments, support small examples of Floodplain Pool communities. They probably serve as important breeding sites for amphibians. The community in the portion of the site is a Piedmont Alluvial Forest. Canopy trees include river birch (*Betula nigra*), swamp chestnut oak (*Q. michauxii*), water oak, cherrybark oak (*Q. pagoda*), sycamore, bitternut hickory (*Carya cordiformis*), green ash (*Fraxinus pennsylvanica*), and red maple. While one oak is 3-3.5 feet dbh, most trees here are less than 2 feet. Understory trees include ironwood, holly, and pawpaw (*Asimina triloba*). Shrubs and vines are numerous: arrowwood (*Viburnum recognitum*), greenbriers (*Smilax* spp), crossvine (*Bignonia capreolata*), and trumpetvine (*Campsis radicans*) are common. Unfortunately, Chinese privet (*Ligustrum sinense*) is common and locally dense and Japanese honeysuckle (*Lonicera japonica*) is common. The herb layer is abundant, with many typical spring ephemerals. Swainson's warbler, a Watch List bird, was noted here and probably breeds.

Downstream from Blewett Falls dam is a broad floodplain terrace of the Pee Dee River. It supports a Piedmont/Mountain Levee Forest community, dominated by sycamore (*Platanus occidentalis*), green ash, river birch, hackberry (*Celtis laevigata*), and boxelder (*Acer negundo*). This forest contains the tallest and oldest trees onsite. Understory trees include black walnut (*Juglans nigra*), southern sugar maple (*Acer floridanum*), pawpaw, and ironwood. A few small trees of silverbell (*Halesia tetraptera*) occur here, a rare species in the lower Pee Dee valley.

Back from the levee forest, in old river meanders, the floodplain has been altered by beaver to form a large marsh and a large forested pool. Trees in the pool are red maple, river birch, green ash, and sweetgum (*Liquidambar styraciflua*). This Semipermanent Impoundment community is undoubtedly a breeding site for amphibians and likely a feeding area for wood ducks and green herons. The open marsh is dominated by soft rush (*Juncus effusus*) with cattail (*Typha latifolia*), sedges, arrow arum (*Peltandra virginica*), black willow saplings (*Salix nigra*), fowl meadow grass (*Glyceria striata*), and smartweeds (*Polygonum* spp.). Green frogs, green treefrogs, and cricket frogs were heard here and otter scat was found.

Blewett Falls Lake is noted for its nesting bald eagles, but also for wintering and migratory birds, such as cormorants, gulls, terns, ducks, geese, and various raptors. During the April and May visits many resident and migratory songbirds were documented, including species which require large tracts of hardwood or mixed forest: hooded warbler, Kentucky warbler, woodcock, yellow-throated vireo, turkey, wood thrush, broad-winged hawk.

BOUNDARY JUSTIFICATION: The primary area boundaries include the high-quality common natural community types and their associated uncommon species. For purposes of providing sufficient protection to a Significant Aquatic Habitat with federally listed species, naturally forested primary areas 300 feet in width are designated as primary areas adjacent to the Significant Aquatic Habitat (in this case, the Pee Dee River Aquatic Habitat) and primary areas 200 feet in width are designated as primary on the perennial channels flowing into the river. The buffer area includes successional forests and cutover areas.

MANAGEMENT AND USE: The dedicated nature preserve will be managed as the Pee Dee River Game Land, for protection of wildlife habitat and public hunting. Within riparian primary areas, existing fields will be allowed to naturally regenerate and forests will be allowed to mature. Control of exotic and invasive species should be implemented.

EXHIBIT A

PEE DEE RIVER GAME LAND DEDICATED NATURE PRESERVE (SOUTHERN SEGMENT)

COUNTY: Richmond TOPO QUAD: Rockingham, Diggs

SIZE OF AREA: ca. 1,672 acres total (1,412 acres primary; including several restoration areas totaling 612 acres; 260 acres buffer)

OWNER/ADMINISTRATOR: State of NC, Wildlife Resources Commission

LOCATION: The southern segment of the preserve lies four miles southwest of Rockingham, on the eastern side of Pee Dee River. At its widest point, the tract reaches US route 1, but the vast majority lies west of Old Cheraw Road.

DESCRIPTION: The southern segment of the preserve is composed of large beaver wetlands, upland deciduous and mixed forest, and a strip of floodplain forest along a major brownwater river. There are four marshy ponds, beaver created and maintained, and essentially unaltered by human disturbance.

Three of them feature a central zone of open water bordered by a broad zone of cattail-shrub-willow marsh, while the fourth is dominated by coarse sedges. The fourth is remarkable in the dominance of a coarse species of sedge (*Carex comosa*) which is rare in the piedmont and more characteristic of the coastal plain. Also here is cypress-knee sedge (*Carex decomposita*), rare in NC and another coastal plain species. These and other typically coastal plain species render these ponds very unusual ecologically. The ponds also attract numerous amphibians, reptiles, and birds for foraging and breeding, including bald eagle, anhinga, and barking treefrog.

Steep slopes rise abruptly from the wetland edge and are deeply dissected by a number of creeks and streamheads. Although most of the adjacent slopes have been clearcut since 1990, remnants of hardwood forest occur in the ravines and on slopes facing the wetlands. Two types of forest communities occur: Basic Mesic Forest deep in ravines where soils are moist and rich in nutrients, and Basic Oak-Hickory Forest higher up where soils are shallower and drier. Typical canopy trees are oaks, hickories, yellow poplar, ash, sweetgum, beech, and basswood. Each ravine seems to have plant species or some ecological feature that the others do not, so the overall plant diversity is high. This includes several state rare species such as piedmont aster (*Eurybia mirabilis*), Cumberland spurge (*Euphorbia mercurialina*), and Fernald's tick-trefoil (*Desmodium fernaldii*), plus regionally rare plants like yellow lady's-slipper and squawroot. These slopes are critical to the wetlands below in providing clean water, nutrients, and minerals.

Parallel to the river is a strip of natural floodplain forest of very tall hardwood trees, with a dense shrub layer beneath. The mature floodplain forests in combination with the diversity of other community types available support healthy populations of many species of neotropical migrant birds, including wood thrush, prothonotary warbler, and Kentucky warbler.

The aquatic habitat supports a diverse assemblage of rare fish and mussel species. These include the federally listed shortnose sturgeon (*Acipenser brevirostrum*) and two fishes which are Federal Species of Concern: the Carolina redhorse (*Moxostoma* sp. 3) and the robust redhorse (*Moxostoma robustum*). Rare mussels present include several which are State Threatened: eastern lampmussel (*Lampsilis radiata*) and Roanoke slabshell (*Elliptio roanokensis*).

BOUNDARY JUSTIFICATION: The primary area boundaries include the high-quality common natural community types and their associated uncommon species. For purposes of providing sufficient protection to a Significant Aquatic Habitat with federally listed species, naturally forested primary areas 300 feet in width are designated as primary areas adjacent to the Significant Aquatic Habitat (in this case, the Pee Dee River Aquatic Habitat) and primary areas 200 feet in width are designated as primary on the perennial channels flowing into the river. Primary (restoration) areas have been designated on upland slopes planted in pine, some of these areas within the 200-foot protected zone along the tributaries; careful and gradual removal of the planted pines in these areas will facilitate restoration of natural hardwood communities within these areas. The buffer area includes successional forests and cutover areas.

MANAGEMENT AND USE: Erosion from recently clearcut slopes is potentially a problem, since only a very narrow buffer was left along creeks and streamheads. It is recommended that in the future, buffers be widened between timber harvests and streams and between harvests and the beaver ponds.

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

1. As used in this Letter, the terms "natural area" and "nature preserve" shall have the same meaning as contained in North Carolina General Statutes, section 113A-164.3.
2. Pursuant to North Carolina General Statutes 113-164.8, all State-owned lands lying within the above designated area(s) are hereby dedicated as a nature preserve to be known collectively as the Pee Dee River Game Land Nature Preserve (hereinafter "preserve") for the purposes provided in the North Carolina Nature Preserves Act, as amended, and other applicable law, and said State-owned land, shall be held, maintained, and used exclusively for said purposes.
3. **Primary Custodian:** The primary custodian of the preserve will be the North Carolina Wildlife Resources Commission, which will be responsible for managing the preserve in accordance with State Administrative Code 15 NCAC 12H.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 1,583 acres) and a Buffer Area (approximately 703 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 Basic Mesic Forest, Basic Oak-Hickory Forest, Dry Oak-Hickory Forest, Mesic Mixed Hardwood Forest, Floodplain Pool, Piedmont Alluvial Forest, Piedmont/Mountain Levee Forest, and Semipermanent Impoundment natural community types and the rare species they contain. The adjoining aquatic habitat supports a diverse assemblage of species, including the Federally Endangered shortnose sturgeon (*Acipenser brevirostrum*), several fish species which are Federal Species of Concern, and numerous rare mussels, including five which are State Threatened. The Primary Area is deemed by the Secretary of the North Carolina Department of Environment and Natural Resources to qualify as an outstanding natural area under statutory criteria for nature preserve dedication (G.S. 113A-164.6) and further serves all of the public purposes for a dedicated preserve as stated in Administrative Rules 15 NCAC 12H.0301(b).

The Buffer Area, which contributes to the management and protection of the Primary Area, consists primarily of successional forests.

6. **Rules for Management of the Primary Area(s):**
 - A. **Character of Visitor Activity:** The principal visitor activities in the preserve shall be hunting, fishing, trapping, walking, research, and observation. These activities shall be regulated by the Custodian to prevent significant disturbance of the preserve. These activities may specifically be regulated by the Custodian to protect and conserve the natural values of the preserve.

Activities and uses unrelated to those listed above are prohibited except as otherwise provided in these Articles or unless necessary to carry out the purposes of the preserve. Prohibited activities include, but are not limited to: construction; commercial activities and development; commercial silviculture; agriculture and grazing; gathering of native species of plants or plant products; the removal, disturbance, molestation, or defacement of minerals, archaeological and natural resources, except for research purposes as approved by the Custodian; and those activities specifically restricted in these Articles.

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

- B. Consumptive Wildlife Uses: Hunting, fishing, and trapping shall be permitted on the preserve subject to regulations and management by the North Carolina Wildlife Resources Commission.
- C. Orientation and Guidance of Visitors: The Custodian reserves the right to orient and guide visitors for educational programs, hunting and fishing uses, scientific research, and for preserve management. Exhibits, programs, and printed materials may be provided by the Custodian in service areas. The Custodian may restrict access to visitors in those instances or in such areas that restrictions may be determined necessary to safeguard sensitive environmental resources in the preserve.
- D. Disturbance of Natural Resources: The cutting or removal of trees, dead or alive, or the disturbance of other natural resources is prohibited except as necessary for removal of hazards to visitors, control of disease or insect infestations that would damage or reduce the significance of the preserve, restoration after severe storm damage, trail clearance and maintenance, or for purposes of maintenance or restoration of natural communities or rare species populations as stipulated in the preserve management plan and that which is consistent with the purposes of these Articles. Salvage timber cuts which may be necessary due to natural catastrophe will be allowed in both Primary and Buffer Areas, but in a manner that will contribute to the recovery of the prevailing natural conditions of the forest and in consultation with the North Carolina Natural Heritage Program.

Specifically, a component of management planning will address restoration of areas (identified as Primary (Restoration) Areas on the Exhibit A map). Restoration will minimally involve the gradual and careful removal of planted and successional pines to encourage the regeneration of a more natural mix of hardwoods and shortleaf pine, recognizing that many of these restoration areas are within 200-feet of tributaries draining into the Pee Dee River Significant Aquatic Habitat and are therefore particularly sensitive to disturbance. Ridge top locations may be restored to longleaf pine. Planting of desired tree species may be done if seed sources are not sufficient for natural regeneration. Restoration treatments will be planned to minimize invasion of exotic and undesired weedy native species. Because of the sensitivity of the resources, management planning for this area should be conducted in consultation with the North Carolina Natural Heritage Program.

- E. Wild Fire Control/Prescribed Burning: Wild fires may mimic natural processes historically occurring in an ecosystem on a landscape level. When the extent of a wild fire does not threaten human life or structures, it may be allowed to burn with minimal control. If wild fire control is necessary, firebreaks may need to be established. When possible, existing roads and firebreaks will be utilized for wild fire control. When new firebreaks need to be established, environmentally sensitive areas will be avoided when possible. Old firebreaks which affect the natural hydrology of wetlands will be filled and allowed to revegetate. Planning of firebreak restoration should occur in consultation with the North Carolina Natural Heritage Program.
- F. Water Control: The purpose of water control shall be to maintain the preserve's natural water regime. Water levels that have been altered by man may be changed if necessary to restore the preserve to its natural condition. In a preserve with a long history of managed hydrology, water levels may be managed to perpetuate the ecosystems that have evolved around the hydrology or may be restored to natural condition. This decision should be made in consultation with the Natural Heritage Program. Millponds are an example of situations in which water levels have been historically managed.
- G. Pollution and Dumping: There will be no storage or dumping of ashes, trash, garbage, hazardous substances, toxic waste, other unsightly or offensive material, or fill material, including dredge spoil in, on, or under the preserve. No underground storage tanks may be placed within the preserve. No surface or ground waters of the preserve may have pollutants added within the preserve.
- H. Control of Vegetational Succession: Control of vegetational succession may be undertaken if necessary to maintain or restore a particular natural ecosystem type or to preserve endangered, threatened, rare, or other unusual species. Controls will be done in the manner that best imitates the natural forces believed responsible for maintaining the natural ecosystem type, or that minimizes unnatural effects on non-target portions of the ecosystem. Prescribed burning is particularly essential to ecosystems where natural wild fire historically suppressed woody vegetation and promoted herbaceous diversity.
- I. Control of Populations: Any control of animal or plant populations on the preserve shall be for the purpose of correcting those situations where those populations are significantly affecting natural conditions on the preserve, and in accordance with the Custodian's established regulations for hunting, trapping, or fishing of designated game animals. The Custodian may, in consultation with the North Carolina Natural Heritage Program, apply biological controls, herbicides and pesticides, and other means deemed necessary or appropriate to control or eradicate exotic or native species of plant or animal that are degrading the natural character of the preserve. Because of potential impacts on native species, no exotic flora or fauna shall be introduced into the preserve.
- J. Research and Collecting Permits: Any person wishing to engage in scientific research requiring collecting or otherwise affecting anything within the preserve shall first secure written permission from the Custodian.

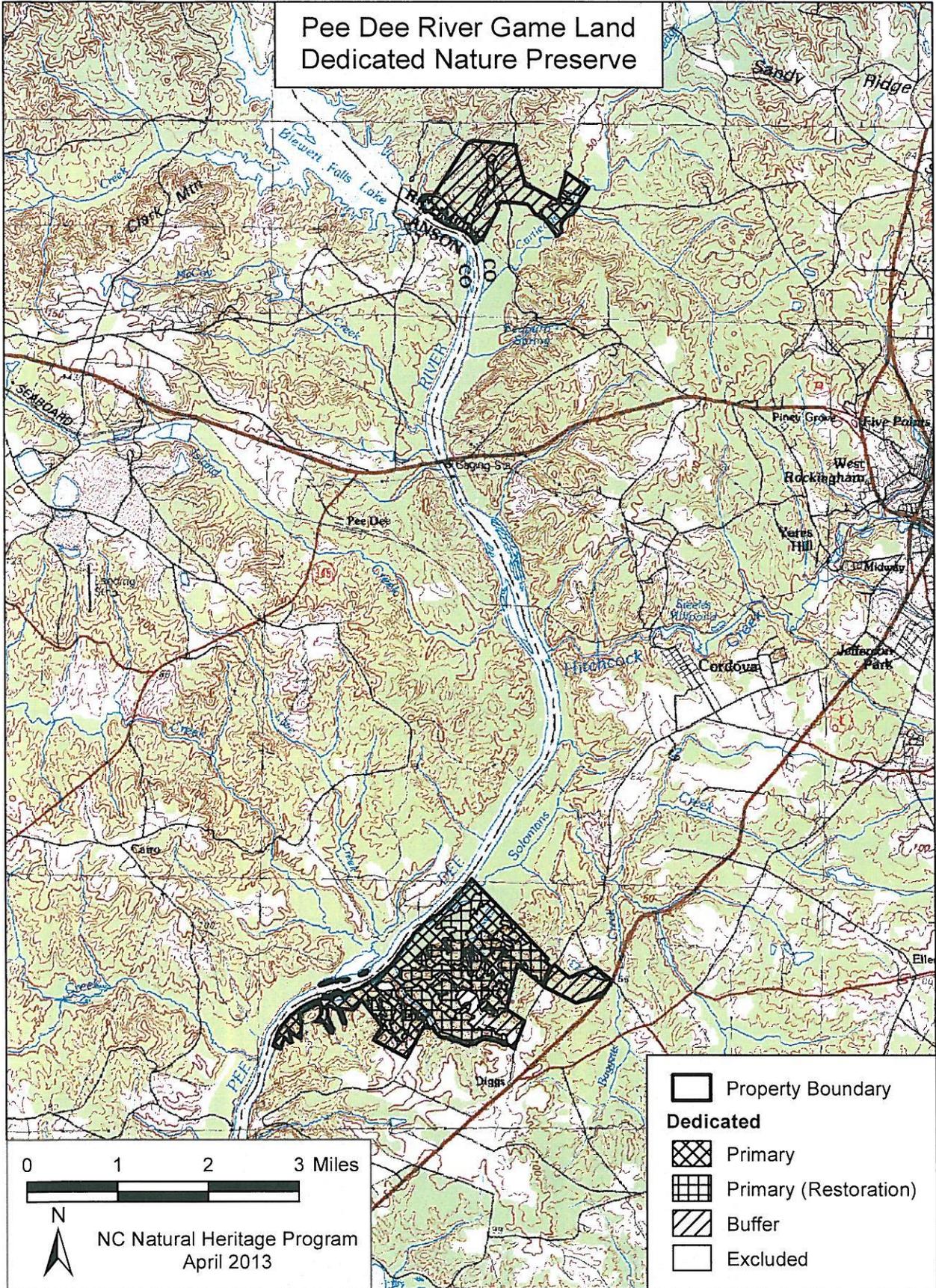
- K. Roads and Trails: New roads shall not be constructed in the Primary Area. When necessary, the Custodian may construct and maintain access limited to staff use for management purposes, such as service paths (single lane vegetated paths) for patrol, right-of-way maintenance, and other management activities, within the Primary Area. Number and width of new paths will be minimized, and sensitive areas avoided when possible. Existing roads that occur within or form a boundary of the Primary Area may be maintained by grading of the roadbed, replacing culverts, or adding stone as needed in order to maintain the integrity of the road for vehicular use. Daylighting of roads within the Primary Area should be minimized, but may be used if necessary to maintain the condition of the road. Access management and construction will be part of the overall management planning process and will include consultation with the North Carolina Natural Heritage Program.
- L. Other Structures and Improvements: Structures or facilities shall not be erected by the Custodian within a preserve, except as may be consistent with the purposes of the preserve as stated in this dedication. Site selection shall be consistent with this dedication.
- M. Management Plan: The Wildlife Resources Commission, as Primary Custodian of the preserve, shall be required to prepare and submit for approval to the Secretary of the Department of Environment and Natural Resources a management plan for the preserve. The management plan will be part of the larger management plan developed for the gamelands. This plan shall be subject to all the provisions of this dedication and shall additionally be consistent with the management principles set forth in the North Carolina Administrative Code 15 NCAC 12H.0300 and .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.

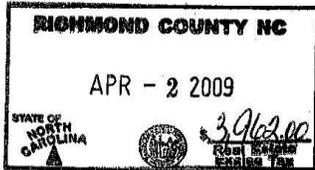
7. **Rules for Management of the Buffer Area(s):** Primary area rules also apply except that additional forestry and wildlife management activities may be planned and carried out as needed. Construction and maintenance of roads, trails, and other access structures within buffer area(s) of the preserve 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.

Pee Dee River Game Land Dedicated Nature Preserve





Filed: 04/02/2009 04:08:49 PM
Linda W. Douglas, Register of Deeds
Richmond County, NC

Linda W. Douglas
Tax: \$3,962.00

Prepared by: F. Brent Neal/ssl

State of North Carolina

Richmond County

SPECIAL WARRANTY DEED

Stamps - \$ 3,962.00

THIS SPECIAL WARRANTY DEED, made this 23 day of March, 2009, from **The Conservation Fund**, a Maryland non-profit corporation, with its principal mailing address being 1655 North Fort Meyer Drive, Suite 1300, Arlington, Virginia 22209 (GRANTOR) to **The State of North Carolina**, the body politic, with its principal mailing address being The State Property Office, 1321 Mail Service Center, Raleigh, North Carolina 27699-1321 (GRANTEE)

Richmond County Tax Appraisal Dept.
114 East Franklin Street
Rockingham, NC 28379

WITNESSETH:

THAT, the GRANTOR, for a valuable consideration to it paid by the GRANTEE, the receipt and sufficiency of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey to the GRANTEE, its successors and assigns, in fee simple those certain tracts or parcels of land lying in Wolf Pit Township, Richmond County, North Carolina, which are particularly described on EXHIBIT A attached hereto and incorporated herein by reference (herein collectively referred to as the "Property") together with all appurtenant and other easements pertaining thereto. The conveyance is subject to those matters set forth on EXHIBIT B attached hereto in incorporated herein by reference (hereinafter collectively referred to as "Exceptions").

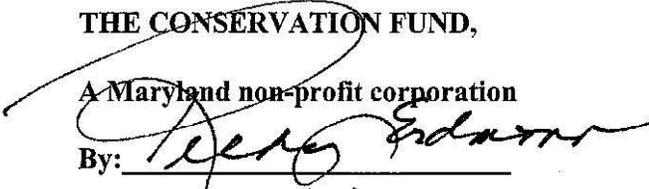
TO HAVE AND TO HOLD the property, subject to those matters set forth on EXHIBIT B,
together with all privileges and appurtenances thereto belonging, to the GRANTEE, its successors and
assigns, in fee simple forever.

GRANTOR covenants with GRANTEE that the GRANTOR has done nothing to impair such title
as GRANTOR received; and that the GRANTOR will warrant and defend the title against the lawful
claims of all persons or entities claiming by, under, or through the GRANTOR, except for the Exceptions
set forth on EXHIBIT B.

IN WITNESS WHEREOF, GRANTOR has caused this SPECIAL WARRANTY DEED to be
signed in its name, by its duly authorized officer, all as of the day and year first above written.

THE CONSERVATION FUND,

A Maryland non-profit corporation

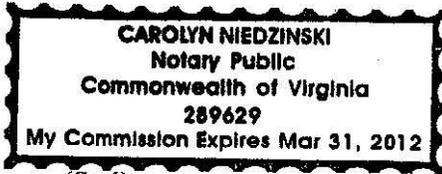
By: 

Name Richard L. Edman

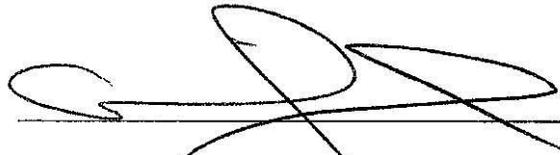
Title Exec VP

Commonwealth
STATE OF Virginia
COUNTY OF Arlington

I, a Notary Public of the aforesaid County, State of Virginia, certify that certify that Richard L. Erdmann, personally appeared before me this day and acknowledged that he is Executive Vice President of THE CONSERVATION FUND, a Maryland non-profit corporation and acknowledged, on behalf of THE CONSERVATION FUND, a Maryland non-profit corporation, the due execution of the foregoing instrument. Witness my hand and official stamp or seal this 20th day of March, 2009.



(Seal)



Notary Public
My commission expires: 3/31/12

EXHIBIT A

BEING all of the real property acquired by THE CONSERVATION FUND from CAROLINA POWER & LIGHT CO., dba PROGRESS ENERGY CAROLINAS, INC. by deed dated April 28, 2008 and recorded on April 30, 2008 in Book 1466, Page 29, Richmond County Registry, SAVE AND EXCEPT that portion of the acquired real property lying to the North of a line dissecting the property from southeast to northwest, said line BEGINNING at a southeastern corner which has coordinates of Latitude 79 degrees, 51 minutes, 27.38 seconds West and Longitude 34 degrees, 51 minutes, 31.28 seconds North and running from the BEGINNING in a northwest direction approximately 6,878 feet to the TERMINATION Point on the eastern bank of the Pee Dee River, said TERMINATION Point having coordinates of Latitude 79 degrees, 52 minutes, 29.97 seconds West and Longitude 34 degrees, 52 minutes, 15.68 seconds North.

The real property being conveyed consists of all of Tract A, Tract B, Tract C, Tract D, Tract E and the southern portion of Tract J, Deed Book 1466, Page 29, Richmond County Registry, said Tract being purchased containing approximately 939 acres.

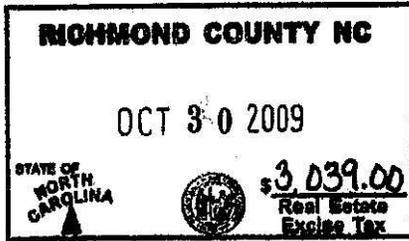
BEING all of those tax parcels identified by Richmond County tax parcel identification numbers (PIN) 7430 00 63 5856 and the southern portion of those tax parcels identified by Richmond County tax parcel identification numbers (PIN) 7441 00 00 7896 and 7440 00 15 7744.

BEING State Project Number 077-AG.

EXHIBIT B

Title to the property is conveyed subject to the following EXCEPTIONS:

1. All matters of record affecting the Property, including but not limited to restrictions, road, railroad, utility, or other rights of way and/or easements of record.
2. All matters that would be revealed by a current survey of the property.
3. Ad valorem taxes for 2009 and subsequent years not yet due and payable.
4. Riparian rights of others, rights of others in and to any submerged lands within the property, and/or the continued uninterrupted flow of the Pee Dee River or any creeks or streams adjoining or crossing the property.
5. All present and future environmental and zoning laws, ordinances, resolutions, orders, and regulations of all municipal, county, state or federal government having jurisdiction over the property and the use thereof.
6. All building codes, regulations, ordinances, and restrictions heretofore or hereafter adopted by a public agency, insurance and rating codes and regulations, and any other laws, regulations, or ordinances affecting the property or its use adopted by any authority having jurisdiction over the Property and the use thereof.
7. All recorded leasehold interests, if any, in and to the Property.
8. If the Property remains encumbered by the North Carolina Wildlife Resources Commission (NCWRC) Game Lands Program as set forth in that Agreement between Carolina Power & Light Company and the NCWRC dated 14 April 1992, then said conveyance is subject to the rules and regulations established by the NCWRC governing The Game Lands Program.
9. The terms and conditions of the RESERVATION OF DISTRIBUTION EASEMENT as is set forth in that deed from Carolina Power & Light Company, dba Progress Energy Carolinas, Inc. to the GRANTOR dated April 30, 2008 in Book 1466, page 29, Richmond County Registry, said Deed being incorporated herein by reference and to which reference is made for a complete recital of said RESERVED DISTRIBUTION EASEMENT.



Filed: 10/30/2009 12:23:50 PM
Linda W. Douglas, Register of Deeds
Richmond County, NC

Linda W. Douglas, Deputy
Tax: \$3,039.00

Prepared by: F. Brent Neal/ssl

State of North Carolina

Richmond County

SPECIAL WARRANTY DEED

Stamps - \$ 3,039.00

THIS SPECIAL WARRANTY DEED, made this 27th day of October, 2009, from **The Conservation Fund**, a Maryland non-profit corporation, with its principal mailing address being 1655 North Fort Meyer Drive, Suite 1300, Arlington, Virginia 22209 (GRANTOR) to **The State of North Carolina**, the body politic, with its principal mailing address being The State Property Office, 1321 Mail Service Center, Raleigh, North Carolina 27699-1321 (GRANTEE)

WITNESSETH:

Richmond County Tax Appraisal Dept.
114 East Franklin Street
Raleigh, NC 28379 *KA*

THAT, the GRANTOR, for a valuable consideration to it paid by the GRANTEE, the receipt and sufficiency of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey to the GRANTEE, its successors and assigns, in fee simple those certain tracts or parcels of land lying in Wolf Pit Township, Richmond County, North Carolina, which are particularly described on EXHIBIT A attached hereto and incorporated herein by reference (herein collectively referred to as the "Property") together with all appurtenant and other easements pertaining thereto. The conveyance is subject to those matters set forth on EXHIBIT B attached hereto and incorporated herein by reference (hereinafter collectively referred to as "Exceptions"). The Property described on EXHIBIT A is subject, after acquisition by the GRANTEE, to the provisions contained in EXHIBIT C - NOTICE as attached hereto and incorporated herein by reference.

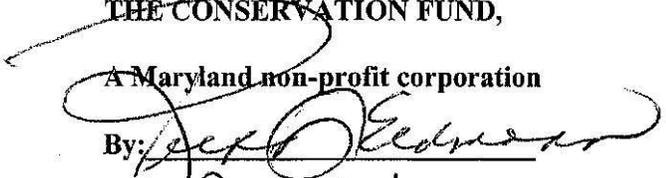
TO HAVE AND TO HOLD the property, subject to those matters set forth on EXHIBIT B, together with all privileges and appurtenances thereto belonging, to the GRANTEE, its successors and assigns, in fee simple forever.

GRANTOR covenants with GRANTEE that the GRANTOR has done nothing to impair such title as GRANTOR received; and that the GRANTOR will warrant and defend the title against the lawful claims of all persons or entities claiming by, under, or through the GRANTOR, except for the Exceptions set forth on EXHIBIT B.

IN WITNESS WHEREOF, GRANTOR has caused this SPECIAL WARRANTY DEED to be signed in its name, by its duly authorized officer, all as of the day and year first above written.

THE CONSERVATION FUND,

A Maryland non-profit corporation

By: 

Name

Richard L. Erdmann

Title

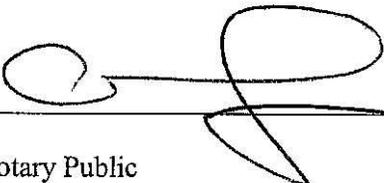
Executive Vice President

Commonwealth

STATE OF Virginia

COUNTY OF Arlington

I, a Notary Public of the aforesaid County, State of Virginia, certify that certify that Richard L. Edmann, personally appeared before me this day and acknowledged that he is Executive Vice President of THE CONSERVATION FUND, a Maryland non-profit corporation and acknowledged, on behalf of THE CONSERVATION FUND, a Maryland non-profit corporation, the due execution of the foregoing instrument. Witness my hand and official stamp or seal this 27th day of October, 2009.



Notary Public

My commission expires:

3/31/12

(Seal)

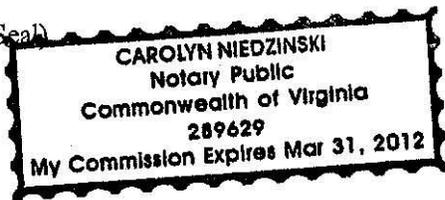


EXHIBIT A

BEING all of the real property acquired by THE CONSERVATION FUND from CAROLINA POWER & LIGHT CO., dba PROGRESS ENERGY CAROLINAS, INC. by deed dated April 28, 2008 and recorded on April 30, 2008 in Book 1466, Page 29, Richmond County Registry, said deed being incorporated herein by reference and to which reference is made for a complete description.

SAVE AND EXCEPT from the above described real property that tract of real property containing approximately 939 acres conveyed by The Conservation Fund to the State of North Carolina by deed dated March 23, 2009 and recorded April 2, 2009 in Book 1499, Page 206, Richmond County Registry, said deed recorded in Book 1499, page 206, Richmond County Registry being incorporated herein by reference and to which reference is hereby made for a description of the excepted property.

BEING all of those tax parcels identified by Richmond County tax parcel identification numbers (PIN) 7441 00 00 7896 and tax parcel identified by Richmond County tax parcel identification numbers (PIN) 7440 00 15 7744.

EXHIBIT B

Title to the property is conveyed subject to the following EXCEPTIONS:

1. All matters of record affecting the Property, including but not limited to restrictions, road, railroad, utility, or other rights of way and/or easements of record.
2. All matters that would be revealed by a current survey of the property.
3. Ad valorem taxes for 2009 and subsequent years not yet due and payable.
4. Riparian rights of others, rights of others in and to any submerged lands within the property, and/or the continued uninterrupted flow of the Pee Dee River or any creeks or streams adjoining or crossing the property.
5. All present and future environmental and zoning laws, ordinances, resolutions, orders, and regulations of all municipal, county, state or federal government having jurisdiction over the property and the use thereof.
6. All building codes, regulations, ordinances, and restrictions heretofore or hereafter adopted by a public agency, insurance and rating codes and regulations, and any other laws, regulations, or ordinances affecting the property or its use adopted by any authority having jurisdiction over the Property and the use thereof.
7. All recorded leasehold interests, if any, in and to the Property.
8. The terms and conditions of the RESERVATION OF DISTRIBUTION EASEMENT as is set forth in that deed from Carolina Power & Light Company, dba Progress Energy Carolinas, Inc. to the GRANTOR dated April 30, 2008 in Book 1466, page 29, Richmond County Registry, said Deed being incorporated herein by reference and to which reference is made for a complete recital of said RESERVED DISTRIBUTION EASEMENT.

EXHIBIT C

NOTICE

The above described tract of real property was acquired (in part) with funds provided by the U. S. Department of the Interior, Fish and Wildlife Service, and will be managed for the purpose of this North American Wetlands Conservation Act grant, in accordance with applicable Federal and State Law. The property may not be disposed of in any manner, or used for purposes inconsistent with the North American Wetlands Conservation Act grant, without the prior approval of the Regional Director - Southeast Region, U. S. Fish and Wildlife Service.

All correspondence and requests concerning this notice shall be forwarded to:

U. S. Department of the Interior
Fish and Wildlife Service
Division of Federal Aid
1875 Century Blvd., Suite 240
Atlanta, GA 30345



Filed: 11/09/2009 10:39:03 AM
Linda W. Douglas, Register of Deeds
Richmond County, NC

Linda W. Douglas, Deputy

Drafted by and Return to:
State Property Office, 1321 Mail Service Center, Raleigh, NC 27699-1321

STATE OF NORTH CAROLINA

COUNTY OF RICHMOND

NOTICE OF FUNDING DISCLOSURE

THIS NOTICE is given by the STATE OF NORTH CAROLINA, C/O State Property Office, 1321 Mail Service Center, Raleigh, NC 27699-1321, owner of the real property in that certain instrument recorded in Deed Book 1499, Page 206(5), Richmond County Registry.

WITNESSETH:

That the property described herein was purchased with the financial participation of the United States Department of the Interior. The following funding disclosure is required to be recorded in the public records in conjunction with the purchase of the property:

This property was acquired (in part) with funds granted by the U.S. Department of the Interior, Fish and Wildlife Service and will be managed for the purpose of this grant, in accordance with applicable Federal and State Law. Property may not be disposed of in any manner, or used for purposes inconsistent with the Program for which it was acquired, without the prior approval of the Regional Director – Southeast Region, U.S. Fish and Wildlife Service.

All correspondence and requests concerning this notice shall be forwarded to: U.S. Department of the Interior, Fish and Wildlife Service, Division of Federal Aid, 1875 Century Blvd. Suite 240, Atlanta, GA. 30345

IN WITNESS THEREOF, the State of North Carolina has caused this notice to be executed in its name on the day and year mentioned above.

State of North Carolina

BY: *Spencer J. Fleggas*

Spencer J. Fleggas, Deputy Secretary
North Carolina Department of Administration

STATE OF NORTH CAROLINA

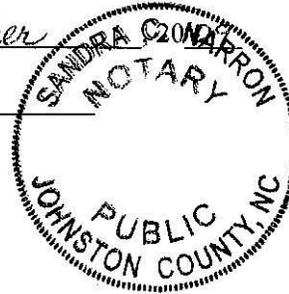
COUNTY OF Johnston

I, Sandra C. Narron, a Notary Public in and for the County and State aforesaid, do here by certify that Speros J. Heggan, personally appeared before me this day and acknowledged the due execution of the foregoing instrument for the purposes therein expressed.

WITNESS my hand and Notarial Seal this 26th day of October

Notary Public My Commission Expires: 8-1-2010

Sandra C. Narron



STATE OF NORTH CAROLINA

COUNTY OF RICHMOND

The foregoing certificate of _____, Notary Public, is certified to be correct.

This _____ day of _____, 20____.

Register of Deeds

Gameland Management Plans Comments Report for 2014

Report Date: 06/10/2014

- The biggest thing needed is the ones in charge have a basic understanding of small game habitat do some research you cannot successfully raise rabbit quail squirrels and turkeys In big open pine fields that get burned off yearly or even bi yearly. If something isn't done soon there will be no more small game left. We also need something drastic done about the coyotes. Please feel free to call me I will volunteer my time to help all I can to help promote and protect small game and habitat on the Pee Dee Game lands. Tony Dixon 910-331-5670
- I think there is a great need for the small game habitat. I don't know the ultimate goal of who ever is over all the control burns but that does nothing to help the small game like rabbit who need thick cover to survive around here with all the predator we now have I.e. coyotes foxes hawks owls and eagles. There needs to be some more concern for the small game and a little less over the deer. Deer can survive pretty much anywhere if you look county wide we don't have a shortage of Deer. But as a rabbit hunter I can tell you there isn't but maybe one place in Richmond county games lands that you will find rabbits and that is the cutover in Anson county. In closing I think you all need to stop burning cut down some big trees and make some Brier thickets bigger and a foot ball files with some thick woods near by this not only wood help rabbits but also quail turkey squirrels ect it would give them cover from all the predators. And you guys also need to do something about the infestation o
WRC Response: We strive to provide a diversity of habitats for both game and non-game species alike. Often times we must tailor our management of a particular tract to the funding source and their management requirements. These tracts were purchased with funds intending to improve habitat for the rare plants and animals found on and around the property. Restoring these habitats will benefit a whole suite of wildlife and plant species.
- We note that most of the Pee Dee River Game Land is dedicated, and is subject to the articles of dedication for management of primary, primary (restoration), and buffer areas. Large portions are primary restoration areas, where the intent is eventual removal of the planted and off-site loblolly pine and replacement with hardwood or pine forest that would

naturally occur on the site. The primary areas largely protect the floodplain communities and riparian areas. In the primary areas along the river and tributary creeks, the greatest management concern is the invasive non-native plants which have become dense in portions of these areas. We encourage control or removal of these plants, with treatment needs to be carefully targeted to avoid impact to the native plants. Methods such as mechanical removal, stem or stump treatment with herbicide, and precisely directed herbicide spray are most likely to be successful at the ultimate goal of improving the native natural community.

WRC Response: As personnel and budgets allow, we will address invasive plants in the entire PDRGL. The most difficult to tackle will be the privet in the floodplain forest. All care will be taken to target this plant with treatments and avoid damage to surrounding native vegetation.

- mark boundaries better

WRC Response: Property boundaries are inspected and reposted on a roughly 5 year interval. Unfortunately paint and signs wear off or are removed intentionally.

- Thanks for buying and maintaining the property. I do not have the money to join a club each year and I like the challenge of finding a place as much as getting a shot. If I had an additional comment it would be to purchase more adjacent property for everyone to enjoy. Thanks again for all you do!

WRC Response: We are constantly working on adding additional acreage to the PDRGL.

- i feel that archery only hunting will improve on the quality of the hunting experience and safety.land management practices in the past have been poor at best and need attention especially after timber being harvested in anson county.improving camping opportunities along the lake and river will increase public use if law enforcement is improved. a designated target range is sorely needed in the piedmont region, if possible.

WRC Response: See link below to John Lentz Center near Camp Millstone for the closest Public Shooting Range.

- currently use it alot, i have been using his game land for over 18 years including the tract that was lost in the program. i visit this site several times per week

- More small game and also more road access.
- A lot of the roads to good hunting and dog training places are foot travel only and when you have 6 to 8 beagles it is hard to walk into a place that is several hundred yards from parking. And then if you need truck to catch up dogs or to carry out quarry your just stuck. I think a lot of the roads need to be opened I mean we pay taxes to use this land we should be able to navigate it as needed. Write tickets for misuse or damage of roads and there is more money into budget...

- need more parking areas and cleared trails, allow overnight camping, establish camping areas

- better access, parking areas, overnight camping

WRC Response: Roads are difficult and expensive to maintain on the relatively steep slopes of the PDRGL. And if improperly installed or maintained, they can contribute significantly to stream sedimentation and pollution of the Pee Dee River. The clay soils on the property make wet roads a slippery mess and can be ruined in a matter of days.

Through consultation and a memorandum with the City of Rockingham, we are in the process of building a water access only primitive canoe campground. The campground should be completed in 2016 or early 2017.

- The only thing that would attract more hunting would be the year around food plot. This would provide the land more capacity for wildlife. More wildlife in turn will bring more hunters. I also would like to see the stop of all dog hunting on gamelands. This would take a lot of stress off the doe to produce fawns and give the deer a better chance to get some age on them. If you do not do this require at least a four point limit on harvesting bucks. Larger racked bucks also attract more hunting use.

WRC Response: Dog hunting of deer is a challenging subject. Just as many folks seem to be in favor of it as are opposed to it. We do our best to provide a sporting opportunity for all GL users by segmenting the seasons (archery, primitive firearm, and gun seasons for example). Larger blocks of woods are easier to allow all users to hunt in their desired method. Access is managed to allow some

areas to act as refugia from hunting pressure, but neighboring tracts of private land may effectively shrink that area.

- I WOULD LOVE TO SEE A PUBLIC SHOOTING RANGE MUCH LIKE TO ONE A UWHARRIE. THIS WOULD EXPAND THE USE OF THE LAND TO THOSE WHO DO NOT HUNT OR FISH. SHOOTING SPORTS ARE GROWING RAPIDLY AND CURRENTLY PRIVATE RANGES ARE THE ONLY OPTION. CURRENTLY IT COST \$12 PER PERSON FOR AN HOUR ON THE RANGE AT DEWITT FARMS. NOT TO MENTION THIS WOULD PROVIDE A SAFE LOCATION FOR SHOOTING CENTERFIRE RIFLES. THANK YOU FOR THE OPPERTUNITY TO EXPRESS MY THOUGHTS ON THE FUTURE OF THE LANDS. I LAST YEAR PURCHASED MY 5 YEAR OLD HIS LIFETIME SPORTSMAN LICENSE. I HOPE HE GETS TO ENJOY THESE LANDS AS MUCH AS I HAVE OVER THE PAST 20 YEARS.

WRC Response: The WRC has recently updated the shooting range at the John Lentz Center near Camp Millstone in Richmond County. See the following link for further information:

<http://www.ncwildlife.org/Hunting/BeforetheHunt/ShootingRanges.aspx>

- periodic garbage pickup, monitor for illegal dumping
- A volunteer board of directors that is a diverse pannels of small and big game hunters as well as hikers fishermen ect. I would volunteer my time to this without hesitation.

WRC Response: The Wildlife Resource Commission employs professional foresters, biologists, engineers, and technicians that have been trained to provide and manage habitat and infrastructure for a broad suite of plant and animal communities, as well as Game Land users. Funding sources often determine which species receive the most attention on any particular tract. We strive to provide the broadest possible array of habitat, but realize that every acre will not benefit every target species.

- limit hunting to archery only, improve land management practices, improve law enforcement efforts,

- no designated hiking trails, extreme limited camping areas, poor land management practices
- I have not camped at Blewett in several years, but know of many suitable campsites around the lake. I have read in the regulations that camping is only allowed in a limited few "designated sites". During crowded times (weekends and holidays), finding a site could be difficult- impossible. I have checked out the designated sites and they are nice, but it would be favorable to users if they could use the other equally nice spots around the lake. Thanks.
- I am 58 years old with a hip replaced seven years ago. I have and will always walk these lands. I do not like the long walks up hill but I know it is good for me. If you make the land more accessible people will abuse it unless it is well policed and I know you do not have the staff or fund for that. So, do not open it up or it will be trashed with possible illegal hunting activity being on the rise. The only way I would prefer more access would be to recover a deer you took while hunting but if you allow motorized vehicles access for this there will be those to abuse it.
- I mostly turkey hunt on this property but have some still hunting for deer on it. I would like you to keep the Richmond County side of the Pee Dee Gameland like it is. If you want to accommodate campers please do this near the boat landing in Anson County. They could utilize the landing to fish while they camp nearby. I do not think cutting up the Richmond side to allow camping would provide enough land safely away from campers and enough land for hunting.
- birdwatching, big and small game hunting as well as fishing
- Small game hunter and fishing mostly I do a small amount of Deer hunting. I use the game lands yr round to train field trial dogs and even through open season with rabbit dogs I don't kill most of the time due to the vast shortage of rabbits due to the major over population of coyotes and other predators.
- Small game like quail rabbit squirrels then also turkey. We have enough Deer and they have plenty habitat no need for more deer habitat!!!

- improve habitat by planting various types of food plots for all game and non game animals/birds. retain the hardwoods

- food plots, water, diversified woodlots

WRC Response: Open land will be managed as described above with rotating winter forage, and seed producing crops as well as fallow openings that are mowed periodically to control hardwood sprouts like sweet gum and red maple. Creating new food plots on the PDRGL are not in the plan at this juncture. We feel that with the prescribed fire program working to restore native groundcover that natural forage and cover will increase over time.

WRC final thoughts: We encourage our constituents to visit our Depots or stop us in the field to discuss issues they see can be improved or changed. We hold Public Hearings every year where comments may be made on all management and regulatory items. We may not be able to change the practice in question, but can explain why we are doing what we are doing.



NC DEPARTMENT OF
NATURAL AND CULTURAL RESOURCES

Roy Cooper, Governor
Susi Hamilton, Secretary
Walter Clark, Director, Land and Water Stewardship

February 1, 2018

Brady Beck, Management Biologist
Pee Dee River Game Land

Dear Mr. Beck:

The North Carolina Natural Heritage Program appreciates the opportunity to review the draft Pee Dee River Game Land Management Plan. We also welcome a continued partnership with the NC Wildlife Resources Commission (WRC) as it moves forward to implement the final management plan.

The North Carolina Natural Heritage Program (NHP) appreciates the plan's effort to maintain consistency with the Articles of Dedication, and the incorporation of Natural Heritage data in the plan. It might be helpful to reference the Articles of Dedication in the main body of the text, perhaps under "History" or "Game Land Specific Information" sections.

We support the plan to convert loblolly pine-dominated stands to dry oak-hickory and dry mesic oak-hickory forests where appropriate, with native ground cover components. We appreciate the emphasis on prescribed fire as a management tool, and forest management overall seems appropriate. We also appreciate the attention to invasive exotic species, particularly in the floodplain forest, and endorse the plan to maintain naturally forested riparian corridors, and minimize sedimentation and erosion from roads and firebreaks.

We appreciate the ecosystem management approach that the WRC has historically applied to managing the Game Lands and encourage WRC to continue with this management philosophy, especially as natural habitats across North Carolina are degraded, and habitat fragmentation increases. Maintaining high-quality examples of North Carolina's natural ecosystems is important for native wildlife—including rare species—and for the citizens of our state.

Maintaining the integrity of natural areas and connectivity for wildlife within the Game Lands will provide a much greater opportunity for North Carolina's native diversity to remain viable. Thank you for your contribution to the conservation of our natural resources in North Carolina. Please contact me or other NHP staff if you have any questions, or would like additional information.

Sincerely,

Scott Pohlman

Priority species associated with piedmont oak forests and mixed hardwood/pine stands:

Group	Scientific Name	Common Name	State Status (Federal Status)
Birds ¹	<i>Accipiter cooperii</i>	Cooper's Hawk	SC
	<i>Caprimulgus vociferus</i>	Whip-poor-will	
	<i>Coccyzus americanus</i>	Yellow-billed Cuckoo	
	<i>Colaptes auratus</i>	Northern Flicker	
	<i>Contopus virens</i>	Eastern Wood-pewee	
	<i>Helmitheros vermivorus</i>	Worm-eating Warbler	
	<i>Hylocichla mustelina</i>	Wood Thrush	
	<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker	
	<i>Picoides villosus</i>	Hairy Woodpecker	
	<i>Wilsonia citrina</i>	Hooded Warbler	
Mammals	<i>Mustela frenata</i>	Long-tailed Weasel	
	<i>Scalopus aquaticus</i>	Eastern Mole	
Amphibians	<i>Ambystoma maculatum</i>	Spotted Salamander	
	<i>Ambystoma opacum</i>	Marbled Salamander	
	<i>Hemidactylium scutatum</i>	Four-toed Salamander	SC
	<i>Hyla versicolor</i>	Northern Gray Treefrog	SR
	<i>Plethodon glutinosus sensustricto</i>	Northern Slimy Salamander	
	<i>Scaphiopus holbrookii</i>	Eastern Spadefoot	
Reptiles	<i>Cemophora coccinea copei</i>	Northern Scarletsnake	
	<i>Crotalus horridus</i>	Timber Rattlesnake	SC
	<i>Elaphe guttata</i>	Corn Snake	
	<i>Eumeces laticeps</i>	Broad-headed Skink	
	<i>Lampropeltis calligaster rhombomaculata</i>	Mole Kingsnake	
	<i>Lampropeltis triangulum elapsoides</i>	Scarlet Kingsnake	
	<i>Ophisaurus attenuatus longicaudus</i>	Eastern Slender Glass Lizard	
	<i>Sistrurus miliarius</i>	Pigmy Rattlesnake	SC
	<i>Terrapene carolina</i>	Eastern Box Turtle	
<i>Virginia valeriae valeriae</i>	Eastern Smooth Earthsnake		

Priority species associated with piedmont early successional habitats:

Group	Scientific Name	Common Name	State Status (Federal Status)
Birds	<i>Aimophila aestivalis</i>	Bachman's Sparrow	SC
	<i>Ammodramus henslowii</i>	Henslow's Sparrow	SR
	<i>Ammodramus savannarum</i>	Grasshopper Sparrow	
	<i>Caprimulgus carolinensis</i>	Chuck-will's-widow	
	<i>Caprimulgus vociferus</i>	Whip-poor-will	
	<i>Chordeiles minor</i>	Common Nighthawk	
	<i>Colinus virginianus</i>	Northern Bobwhite	
	<i>Dendroica discolor</i>	Prairie Warbler	
	<i>Dolichonyx oryzivorus</i>	Bobolink	
	<i>Empidonax traillii</i>	Willow Flycatcher	
	<i>Falco sparverius</i>	American Kestrel	
	<i>Icterus spurius</i>	Orchard Oriole	
	<i>Lanius ludovicianus</i>	Loggerhead Shrike	SC
	<i>Scolopax minor</i>	American Woodcock	
	<i>Spiza americana</i>	Dickcissel	
	<i>Spizella pusilla</i>	Field Sparrow	
	<i>Sturnella magna</i>	Eastern Meadowlark	
	<i>Tyrannus tyrannus</i>	Eastern Kingbird	
	<i>Tyto alba</i>	Barn Owl	
Mammals	<i>Cryptotis parva</i>	Least Shrew	
	<i>Microtus pennsylvanicus</i>	Meadow Vole	
	<i>Mustela frenata</i>	Long-tailed Weasel	
	<i>Peromyscus polionotus</i>	Old-field Mouse	SR
	<i>Scalopus aquaticus</i>	Eastern Mole	
	<i>Zapus hudsonius</i>	Meadow Jumping Mouse	
Reptiles	<i>Lampropeltis calligaster rhombomaculata</i>	Mole Kingsnake	
	<i>Lampropeltis getula getula</i>	Eastern Kingsnake	
	<i>Ophisaurus attenuatus longicaudus</i>	Eastern Slender Glass Lizard	
	<i>Terrapene carolina</i>	Eastern Box Turtle	

Priority species associated with piedmont floodplain forest:

Group	Scientific Name	Common Name	State Status (Federal Status)
Birds	<i>Caprimulgus vociferus</i>	Whip-poor-will	
	<i>Coccyzus americanus</i>	Yellow-billed Cuckoo	
	<i>Colaptes auratus</i>	Northern Flicker	
	<i>Contopus virens</i>	Eastern Wood-pewee	
	<i>Haliaeetus leucocephalus</i>	Bald Eagle	T (T)
	<i>Helmitheros vermivorus</i>	Worm-eating Warbler	
	<i>Hycichla mustelina</i>	Wood Thrush	
	<i>Limnolthypis swainsonii</i>	Swainson's Warbler	
	<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker	
	<i>Nyctanassa violacea</i>	Yellow-crowned Night-heron	
	<i>Oporornis formosus</i>	Kentucky Warbler	
	<i>Picoides villosus</i>	Hairy Woodpecker	
	<i>Scolopax minor</i>	American Woodcock	
	<i>Wilsonia citrina</i>	Hooded Warbler	
Mammals	<i>Corynorhinus rafinesquii</i>	Rafinesque's Big-eared Bat	T
	<i>Lasiurus seminolus</i>	Seminole Bat	
	<i>Myotis austroriparius</i>	Southeastern Bat	SC
Amphibians	<i>Ambystoma maculatum</i>	Spotted Salamander	
	<i>Ambystoma opacum</i>	Marbled Salamander	
	<i>Ambystoma talpoideum</i>	Mole Salamander	SC
	<i>Eurycea guttolineata</i>	Three-lined Salamander	
	<i>Hemidactylium scutatum</i>	Four-toed Salamander	SC
	<i>Hyla versicolor</i>	Northern Gray Treefrog	SR
	<i>Plethodon glutinosus sensustricto</i>	Northern Slimy Salamander	
Reptiles	<i>Clemmys guttata</i>	Spotted Turtle	
	<i>Clemmys muhlenbergii</i>	Bog Turtle	T (T)
	<i>Crotalus horridus</i>	Timber Rattlesnake	SC
	<i>Elaphe guttata</i>	Corn Snake	
	<i>Eumeces laticeps</i>	Broad-headed Skink	
	<i>Heterodon platirhinos</i>	Eastern Hog-nosed Snake	
	<i>Lampropeltis getula getula</i>	Eastern Kingsnake	
	<i>Terrapene carolina</i>	Eastern Box Turtle	
	<i>Thamnophis sauritus sauritus</i>	Common Ribbonsnake	

Wildlife Action Plan priority fish and mussels in Richmond and Anson counties.

Group	Common Name	Scientific Name
Fish	Snail Bullhead	<i>Ameiurus brunneus</i>
	Highfin Carpsucker	<i>Carpionodes sp. 2</i>
	Thinlip Chub	<i>Cyprinella sp (cf. zanema)</i>
	Notchlip Redhorse	<i>Moxostoma collapsum</i>
	Shorthead Redhorse	<i>Moxostoma macrolepidotum</i>
	V-lip Redhorse	<i>Moxostoma pappillosum</i>
	Robust Redhorse	<i>Moxostoma robustum</i>
	Carolina Redhorse	<i>Moxostoma sp. 2</i>
	Sandhills Chub	<i>Semotilus lumbee</i>
Mussels	Carolina Slabshell	<i>Elliptio congaraea</i>
	Pod Lance	<i>Elliptio folliculata</i>
	Variable Spike	<i>Elliptio icterina</i>
	Roanoke Slabshell	<i>Elliptio roanokensis</i>
	Yellow Lampmussel	<i>Lampsilis cariosa</i>
	Eastern Lampmussel	<i>Lampsilis radiata</i>
	Eastern Pondmussel	<i>Ligumia nasuta</i>
	Tidewater Mucket	<i>Leptodea ochracea</i>
	Creepers	<i>Strophitus undulatus</i>
	Notched Rainbow	<i>Villosa constricta</i>
	Eastern Creekshell	<i>Villosa delumbis</i>
	Carolina Creekshell	<i>Villosa vaughaniana</i>

Pee Dee River Game Land Financial Summary of Activities

Habitat Activities

Unit																
Project	Description	Activity	Quantity	Unit	Cost	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	Total
H	Firebreaks	Establish firebreaks	1	mi	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	20000
H	Firebreaks	Maintain firebreaks	15	mi	100	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	15000
H	Firebreaks	Install culverts on firebreaks	1	ea	200	200	200	200	200	200	200	200	200	200	200	2000
H	Herbaceous Seeding	Seed or maintain	25	ac	175	4375	4375	4375	4375	4375	4375	4375	4375	4375	4375	43750
H	Nest Structures	Maintain Wood Duck Boxes	45	box	50	2250	2250	2250	2250	2250	2250	2250	2250	2250	2250	22500
H	Population Control	Control feral pig population	1	gl	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	30000
H	Vegetation Control	Prescribe burning	400	ac	10	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	40000
H	Vegetation Control	Mowing/Succession Disking		ac	30	0	0	0	0	0	0	0	0	0	0	0
															<i>Sub-total:</i>	173250

Operation and Maintenance Activities

Unit																
Project	Description	Activity	Quantity	Unit	Cost	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	Total
O & M	Buildings	Maintain building/grounds		blg	4000	0	0	0	0	0	0	0	0	0	0	0
O & M	Signs and Boundaries	Maintain boundary	75	mi	135	10125	10125	10125	10125	10125	10125	10125	10125	10125	10125	101250
O & M	Public Use Facilities	Maintain campground	1	camp	225	225	225	225	225	225	225	225	225	225	225	2250
O & M	Public Use Facilities	Maintain hunter parking areas	5	park	225	1125	1125	1125	1125	1125	1125	1125	1125	1125	1125	11250
O & M	Road and Trails	Maintain Road	5	mi	2500	12500	12500	12500	12500	12500	12500	12500	12500	12500	12500	125000
O & M	Road and Trails	Install or Replace Culverts	10	ea	1000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	100000
O & M	Road and Trails	Maintain Culverts	40	ea	50	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	20000
O & M	Road and Trails	Maintain gates	10	gate	100	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	10000
															<i>Sub-total:</i>	369750

Development Activities and Renovation

Unit																
Project	Description (priority)	Activity	Quantity	Unit	Cost	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	Total
D	Parking Area construction	TBD	2	ea	7,500										7500	15,000
D	New Shop construction	depot shop*	1	ea	250,000					250000						250,000
Totals						0	0	0	0	250,000	0	0	0	7,500	7,500	15,000
Grand Total all Activities																558,000