

IX. Open Space Plans

A. Harris Lake Open Space Plan

1. History of Watershed

The Harris Lake watershed is unusual within Wake County because much of it falls in the transition zone between Long Leaf Pine-Wiregrass Savannah habitat found in the Coastal Plain and the hardwood forest communities of the Piedmont (Bode 1997, Parker 1998). Before European settlers moved to the area, it was probably thousands of acres of grassland savannah with an open canopy of long leaf pine along the drier ridgetops and south facing slopes and hardwoods and loblolly and shortleaf pines on the moister sites.

Long leaf pine forest communities support diverse populations of plants and wildlife, including many now-endangered species. Less is known about the transitional community found in the Harris watershed, although it provided habitat for the federally-listed red-cockaded woodpecker until the late 1980s (LeGrand 1987). Transitional communities such as these are frequently more diverse biologically than either of their "parent" communities.

The reason for the unusual native forest community in this part of the County is that it has relatively "young" Coastal Plain sedimentary rocks overlying the igneous rock found in other parts of the County. Soils from these rocks tend to be sandy rather than the County's more typical clay soils. Streams and creeks in the area contain wide floodplains, many of which were inundated when Big White Oak Creek was dammed by Carolina Power and Light (CP&L) for Harris Lake, built to cool its nuclear reactor (LeGrand 1987).

Long leaf pine forests are dependent on periodic wildfires to maintain their unique mixture of species. In the absence of fire or other types of disturbance, other tree and shrub species will become dominant over the pines and grasses. Before European settlement, fires would have occurred naturally and were probably also set by Native Americans who used the area as hunting grounds (Bode 1997).

European and African-American settlers have greatly changed the native plant communities in the Harris Lake area. The area was first settled by German, Scotch-Irish and Highland Scot immigrant farmers around 1730. The surnames still associated with the area show this early history (e.g., Holleman, Edwards, Stewart, Morrison). These early settlers were primarily subsistence farmers because the hilly topography and unnavigable waterways made it difficult to transport goods to other markets. They raised food crops, and their livestock grazed the woods and fallow fields. They grew small amounts of cotton and tobacco to trade and sell for goods like sugar that they could not produce themselves, and they tapped the long leaf pines for turpentine and tar (Bode 1997). These practices began to change the native forest community. Although they probably set fires to improve the grasses for their livestock, hogs rooting up the pine seedlings and manufacture of turpentine and tar would have begun to reduce the population of long leaf pine.

The first railroad in this area was built in 1869 along the general route of Old Highway 1 between Apex and New Hill (Bode 1997). Although the area remained largely rural, the railroad made it possible for local landowners to transport timber to outside markets so many began logging on a small scale. They also began suppressing forest fires in order to protect the existing trees, further promoting the growth of species other than long leaf pine with a grass understory.

The railroad and increased travel on Old US 1 also led to the growth of a number of the crossroads communities, including New Hill, Bonsal, and Friendship. Most of these villages look much as they did in the early twentieth century, although the opening of new US 1 drew much of the traffic and commerce away (Lally 1994). The village of New Hill, in particular, retains an intact collection of mid-to-late nineteenth and early twentieth century buildings, and the Wake County Historic Preservation Commission has placed it on a priority list for designation as a rural historic district.

The most recent important change in the landscape of the Harris Lake watershed began in the 1960s when CP&L began investigating the area as the site for a nuclear plant. They received approval for the plant in the 1970s and began purchasing land for the exclusion zone around the plant, the lake, and significant buffers around the lake. After CP&L purchased land, it planted the agricultural fields in loblolly pine and began managing all of its land for timber, wildlife, and some recreational use on the lake. More recently they have leased land to the NC Wildlife Resources Commission as gamelands, to NC State University (NCSU) for research and teaching, and to Wake County for a large park.

2. Present Land Use in Watershed

a. Carolina Power and Light

In addition to the lands it has leased to government agencies, CP&L itself manages 22,000 acres around the nuclear plant. Some of this is the land on which the reactor and associated buildings are built. It also includes buffer near the plant, which is off limits to the public and managed as a wildlife refuge and the Harris Energy and Environmental Center on New Hill-Holleman Road. This facility includes an educational building and interpretive trails.

b. Native Forest Communities

NCSU leases 1200 acres of CP&L land for research and teaching. Professor Gary Blank and his students have conducted research on this land's ecological history and present botanical inventory (Bode 1997, Parker 1998). They have used this research to recommend areas for restoration and recreation of the original Piedmont Transitional Long Leaf Pine habitat. Restoration will require burning the forest on a regular basis, however, and the first burn was met by many complaints from the public and a critical press.

c. Hunting and Timber Lands

CP&L presently leases 12,250 acres of land to the NC Wildlife Resources Commission as gamelands, not only in Wake but also in Chatham and Lee counties. Much of the privately-owned land on the east side of the lake along the Wake County line is forest land leased to hunt clubs. All this land together is one of the most important hunting areas in the County.

d. Parks and Greenways

Wake County leases a 683-acre tract from

CP&L for a county park with trails, fishing, picnic areas and other facilities. Other parks in the watershed include the Apex Elementary School Park and the NC Wildlife Resources boat ramp on Bartley-Holleman Road. The County and three towns of Apex, Holly Springs, and Fuquay Varina have just completed a small area plan for the watershed which proposes two additional boat ramps on the lake, five greenway or low-impact recreation parks, and several additional active recreation parks. In addition, the towns and county plan to establish greenway buffers and trails along several of the major creeks in the watershed. Old US 1 is an NCDOT-designated bike route, and NC 55 has been proposed as a bike route for commuters. The American Tobacco Trail, a rail-trail corridor which starts in Durham, ends in Bonsal at the Railroad Museum.

e. Agriculture

Several large farms still operate in the southeastern part of the watershed, including one land grant farm. This area still has a chance to remain agricultural because of the amount of farmland just across the County line in Harnett County.

f. Communities

Although higher density developments are beginning to spread west into the watershed from Apex, Holly Springs, and Fuquay Varina, the historic communities of New Hill, Bonsal, and Friendship and several other small rural neighborhoods remain much as they have for many years.

g. Regulatory Mechanisms

Much of the watershed has maintained a rural character, with approximately 70% of the landscape under Wake County's jurisdiction, while Holly Springs, Fuquay-Varina and Apex have municipal planning and urban service areas over the remaining 30%. However, suburban growth patterns are beginning to spread south into the heart of the watershed.

Wake County's zoning requirements designate much of the land in this study area as Residential 80 District. This zoning requires 80,000 square feet of land per lot or approximately two acres per lot.

Wake County adopted the Southwest Wake Area Land Use Plan in April 1999. This Plan guides growth in the study area by identifying areas for greenways and parks as well as areas

for higher density development. Water quality recommendations are also part of the Plan, with the Watershed Critical Area allowing the lowest density (up to 0.5 dwellings per acre) and the areas beside main streams and lakes at the next lowest density (up to 1.75 dwellings per acre). Eighteen activity centers are also proposed to include compact, mixed use development surrounded by lower density residential areas. The incorporated areas and extra territorial jurisdictions (ETJs) of Holly Springs, Apex, and Fuquay Varina, and CP&L's nuclear plant exclusion zone, are not included in the study area.

Holly Springs recently completed a ten-year Comprehensive Growth Plan, which included a plan for developing parks and greenways. White Oak, Utley and Middle Creeks are identified as future greenway corridors. Holly Springs, in its Comprehensive Plan, supports preservation of environmentally significant areas and streamside buffers. The Town also currently requires developers to dedicate planned parks and greenways. Harris Lake drains to the Cape Fear River, therefore, streambank protection offered by the Neuse River Rules does not apply.

3. Policies

a. Protect Water Quality

The County should seek to protect water quality in the watershed by:

- Amending its ordinances for new development along blue-line streams to require a minimum 50-foot undisturbed forest buffer and an additional 100 feet of undisturbed vegetated buffer, for a total of 150 feet; and
- Encouraging adjacent landowners around the lake to cooperate with CP&L in maintaining an adequate buffer; and
- Providing funding assistance for the preservation/conservation of properties identified in this plan that would support the objectives set forth in this policy.

b. Protect and Improve Wildlife Habitat and Rare Native Plant Communities

In this watershed, the County has a unique opportunity to help a willing landowner protect and improve a Piedmont Transitional Long Leaf Pine Community (PTLC). The County should encourage reestablishment of PTLC by:

- Continuing cooperative efforts with CP&L and the NC Utilities Commission to enhance the PTLC restoration projects; and
- Educating landowners of inholdings about conservation options and the County's interests; and
- Partnering with CP&L, NCSU, and the NC Wildlife Resources Commission to further educate the public about this special ecosystem and management techniques (including burning) needed to restore it; and
- Supporting the partnership between the County's Parks & Recreation Department and CP&L and other land owners and land managers in the County; and
- Providing funding assistance for the preservation/ conservation of properties identified in this plan that would support the objectives set forth in this policy.

c. Protect Agriculture in the Watershed

The County should seek ways to support farmers who want to continue farming in the areas identified by the Wake County Soil & Water Conservation District's (SWCD) by:

- Supporting the SWCD's farmland preservation programs; and
- Educating landowners about conservation options; and
- Providing funding assistance for the preservation/conservation of properties identified in this plan that would support the objectives set forth in this recommendation. Note: Agricultural priority properties will be identified in future SWCD mapping and programs.

d. Protect Historic and Cultural Resources Related to Open Space

The County should seek ways to maintain open space resources related to historic and cultural landscapes in the watershed by:

- Educating the public about Wake County's varied historic resources; and
- Educating property owners about the benefits of the National Register Program; and
- Providing funding assistance for the preservation/conservation of properties

identified in this plan that would support the objectives set forth in this policy.

e. Protect Land for Recreation, Greenways, and Bike Routes

The County should assure that land identified for parks and greenways be protected by:

- Requiring greenway dedication whenever land along Big and Little branches, and White Oak and Utley creeks is developed; and
- In areas identified for hunting and agriculture, greenway trails should not be developed until the land is no longer used for hunting or agriculture - however, the County should require reservation of a 150-foot buffer and trail easement on all blue-line streams whenever a tract is developed; and
- Requesting that NCSU develop a system of recreational trails for various non-motorized users on the land it leases from CP&L so that the public can see restoration of the PTCL and enjoy a wilderness experience not available elsewhere in the watershed; and
- Supporting construction of an additional shoulder or separate bike lane to Old US 1 to make it safer for people to use this established bike route, and supporting continuation of the American Tobacco Trail to Bonsal; and
- Supporting construction of bike lanes on NC 55 to provide bicycle access from urbanized areas to natural areas as well as a safer non-motorized transportation corridor; and
- Providing funding assistance for the preservation/conservation of properties identified in this plan that would support the objectives set forth in this policy.

f. Preserve Places for Hunting and Fishing

The County should seek ways to maintain the land in the watershed in forestry and hunting use by:

- Continuing cooperative efforts with CP&L, the Utilities Commission, the NC Wildlife Resources Commission, and private landowners of current CP&L inholdings to encourage continued use of these areas as hunting and timber lands; and

- Educating landowners of inholdings about conservation options; and
- Providing funding assistance for the preservation/conservation of properties identified in this plan that would support the objectives set forth in this policy.

4. References

Bode, Scott. 1997. Land Use and Environmental History of the Shearon Harris Tract. M.S. Thesis. Department of Forestry, NC State University, Raleigh, NC.

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LeGrand, Harry E., Jr. 1987. Inventory of the Natural Areas of Wake County, North Carolina. Triangle Land Conservancy and NC Natural Heritage Program, Raleigh, NC.

Parker, Douglas S. 1998. Using Botanical Analysis to Shape a Longleaf Restoration Project. M.S. Thesis. Department of Forestry, NC State University, Raleigh, NC.