



North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor

William G. Ross Jr., Secretary

April 26, 2007

Mr. Rani Franovich
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Renewal of Operating License for the Shearon Harris Nuclear Power Plant; Wake and Chatham counties, NC

Dear Mr. Franovich:

The Natural Heritage Program has a number of records of rare species, significant natural communities, or significant natural heritage areas on Progress Energy land at the Shearon Harris plant. The enclosed map shows the locations and names of rare plant and animal species and significant natural communities. I have also enclosed summaries and maps of the natural areas that have been identified by our Program that lie on Progress Energy land. The areas are shaded in gray on the general map.

Nearly all of these natural areas and rare species are located on forested lands, some in pinelands, some on hardwood slopes, and a few in wetlands. Though many rare plants and animals are known to occur in North Carolina within powerline rights-of-ways, apparently no such species are known to occur on the Shearon Harris powerline ROWs.

You may wish to check the Natural Heritage Program database website at www.ncnhp.org for a listing of rare plants and animals and significant natural communities in the county and on the quad map.

NC OneMap now provides digital Natural Heritage data online for free. This service provides site specific information on GIS layers with Natural Heritage Program rare species occurrences and Significant Natural Heritage Areas. The NC OneMap website provides Element Occurrence (EO) ID numbers (instead of species name), and the data user is then encouraged to contact the Natural Heritage Program for detailed information. This service allows the user to quickly and efficiently get site specific NHP data without visiting the NHP workroom or waiting for the Information Request to be answered by NHP staff. For more information about data formats and access, visit www.nconemap.com/data.html, or email NC OneMap at dataq@ncmail.net.

Please do not hesitate to contact me at 919-715-8697 if you have questions or need further information.

Sincerely,

Harry E. LeGrand, Jr., Zoologist
Natural Heritage Program

Enclosures
1601 Mail Service Center, Raleigh, North Carolina 27699-1601
Phone: 919-733-4984 \ FAX: 919-715-3060 \ Internet: www.enr.state.nc.us/ENR/

One
North Carolina
Naturally

SITE NAME: Buckhorn Bluffs and Levees

SIGNIFICANCE: County

INTEGRITY: Fair

THREATS: Medium -- clearcutting of adjoining areas

PROTECTION STATUS: Managed as gamelands by the NC Wildlife Commission through short-term lease with the landowner

JURISDICTION: Cape Fear Township

OWNERSHIP:

SUMMARY OF SIGNIFICANT FEATURES:

1. Buttercup phacelia (Phacelia ranunculacea), a candidate for state listing, grows abundantly on the rich levees present at this site.
2. This site has the most mature and most extensive levee forest in the county.

GENERAL SITE DESCRIPTION:

Just a few miles to the west of this site, the Haw and Deep Rivers join together to form the Cape Fear in the broad bottomlands of the Triassic Basin. Almost immediately, The Cape Fear enters the slate-belt and flows through some extremely rugged terrain before reaching the Fall Line a few miles downstream in Harnett County at Raven Rock State Park.

Although hemmed in by steep bluffs on both sides, this initial reach of the Cape Fear is relatively wide even below the low impoundment created by the Buckhorn Dam. Several large areas of alluvial bottomlands are present along the northeast shore, and in some areas levee deposits have created extensive islands, the most distinctive feature of this site.

Levee forests are usually restricted to narrow bands along the larger rivers, and most broad areas of bottomland have been thoroughly exploited with little original forest left. The levee forest at this site is thus noteworthy both for the large area it covers and for the fact that it has been little disturbed, particularly on the larger islands where flooding is frequent and accessibility is limited. On the islands, American elm (Ulmus americana), sweet gum (Liquidambar styraciflua), southern sugar maple (Acer floridanum), bitternut hickory (Carya cordiformis) and swamp chestnut oak (Quercus michauxii) dominate a canopy composed of mature trees up to 72 cm diameter. Shrubs and vines are plentiful, including pawpaw (Asimina triloba), spicebush (Lindera benzoin), possumhaw (Ilex decidua), storax (Styrax grandifolia), greenbriers (Smilax spp.), poison ivy (Toxicodendron radicans) and crossvine (Anisostichus capreolata). In this mature forest the herbs are sparse but fairly diverse, especially on higher spots where such species as Jack-in-the-pulpit (Arisaema triphyllum), broad beech fern (Thelypteris hexagonoptera) and bloodroot (Sanguinaria canadensis) occur.

and hackberry (Celtis laevigata). Shrubs are few but the herb layer is dense. In this area that a broad carpet of the rare buttercup phacelia can be found in the spring, along with such common bottomland herbs as chickweed (Stellaria media), spring beauty (Claytonia virginica), and sweet cicely (Osmorhiza longistylis).

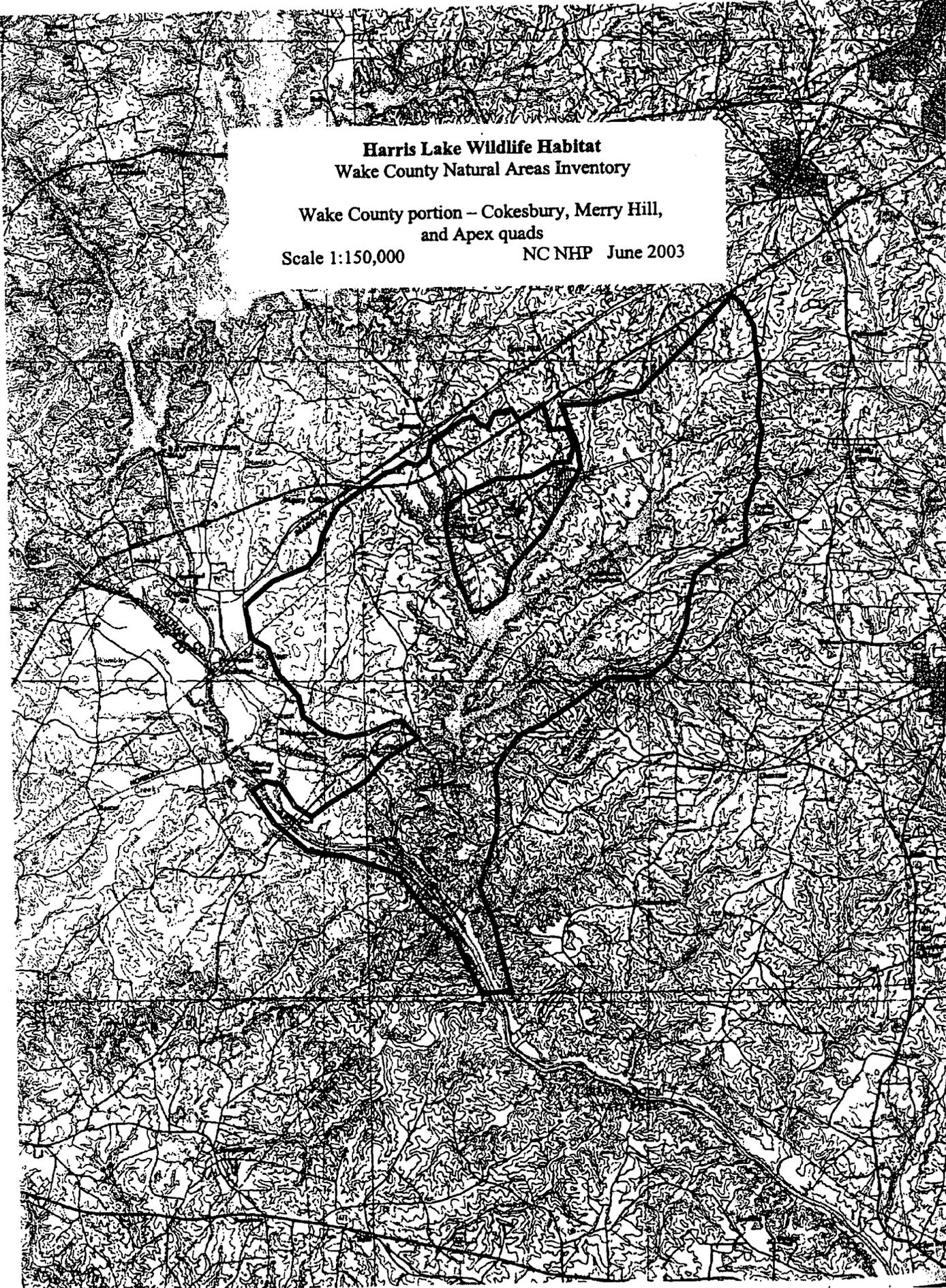
A typical mesic mixed-hardwood forest occupies the steep slopes bordering the bottomlands at this site. While some patches of this forest are fairly intact, most of the area shows the effects of considerable disturbance and exploitation.

The faunal list for this site is relatively incomplete, reflecting visits made outside the main nesting season for birds. No prothonotary warblers or redstarts were observed, for instance, despite the presence of suitable habitat; the only riparian forest birds we recorded during our April visit were the yellow-throated warbler (Dendroica dominica) and the northern parula warbler (Parula americana), both of which are early migrants. One species of riparian bird that should be especially looked for at this site is the cerulean warbler (Dendroica cerulea), an animal that is virtually restricted in North Carolina to old-growth levee forests along major rivers.

The most noteworthy animals actually observed were the Carolina anole (Anolis carolinensis), which penetrates the piedmont up from the coastal plain primarily along river floodplains, and two typically montane species, the sumo mite (Allothrombium sp.) and a landsnail (Mesomphix sp.), both of which may have been rafted across the river from the steep north-facing slopes on the Lee County side of the river. The presence of river otter (Lutra canadensis), gray fox (Urocyon cinereoargenteus), and pileated woodpecker (Dryocopus pileatus) is indicative of the large amount of undeveloped forest in this part of the county.

CONSERVATION RECOMMENDATIONS:

The bottomlands and levees leased by the NC Wildlife Resources Commission should be spared from further timbering; too little of this type of forest -- critical to wildlife -- exists in a mature state in North Carolina. Further protection for the overall natural area must also involve the preservation of buffer strips of forest left along the slopes and ridge crests above the bottomlands; this might be best approached through the acquisition of conservation easements or a change in forestry management practices to favor selective harvest over clearcutting.



Harris Lake Wildlife Habitat
Wake County Natural Areas Inventory

Wake County portion – Cokesbury, Merry Hill,
and Apex quads
Scale 1:150,000 NC NHP June 2003

Wake County Natural Areas Inventory

HARRIS LAKE WILDLIFE HABITAT

Site Number: 48

Size: about 35,000 acres (about 18,300 acres in Wake County)

Site Significance: not rated

Quadrangles: Wake County – Cokesbury, Merry Hill, Apex

Ownership: Progress Energy (Carolina Power & Light Company), other private

SIGNIFICANT FEATURES: This is the largest expanse of undeveloped, privately-owned lands in Wake County, mostly in Progress Energy (Carolina Power & Light Company) ownership. The wildlands site includes Harris Lake and various forested and timbered lands surrounding the lake, and the site extends into neighboring Chatham and Harnett counties, to the Cape Fear River. The area contains the best examples of Piedmont Longleaf Pine Forests in the county, and the Federally Endangered red-cockaded woodpecker (*Picoides borealis*) formerly inhabited the area. A number of rare plants and animals inhabit the site, and the area is important for breeding Neotropical migrant songbirds, game animals, herons, and other species.

LANDSCAPE RELATIONSHIPS: Five standard sites (County or higher significance) are present within this wildlife habitat in Wake County. These are the Jim Branch/Buckhorn Creek Forests, Shearon Harris Longleaf Pine Forest, Hollemans Crossroads Slopes, Hollemans Crossroads Salamander Pools, and Utley Creek Slopes. This wildlife habitat lies as close as a mile at one point from the southern end of the Jordan Lake Wildlife Habitat, near Old US 1 (New Hill area). This site also can be considered continuous with other extensive forested lands along the Cape Fear River, both upstream and downstream (to Raven Rock State Park); however, this wildlife habitat is arbitrarily delineated just east and west of where Buckhorn Creek enters the Cape Fear River.

SITE DESCRIPTION: This site incorporates most of the landholding of Progress Energy, including Harris Lake, but excludes the man-made facilities, such as the Shearon Harris Nuclear Power Plant and the Harris Energy & Environmental Center. Various timber company lands to the west and/or south are included also, as well as lands owned by private individuals in the Hollemans Crossroads area.

The great majority of the wildlife habitat lies in the Chatham Group (also called "Deep River") Triassic Basin. This relatively flat area of sedimentary rock provides very wide floodplains for quite small creeks, and reservoirs in such basins (e.g., Harris Lake, Jordan Lake, Falls Lake) are quite extensive with broad arms. Longleaf pine (*Pinus palustris*) is scattered over the wildlife habitat, and a few areas, such as the Shearon Harris Longleaf Pine Forest and a portion of the Harris Lake County Park, have been actively managed to promote the Piedmont Longleaf Pine Forest natural community. Though much of the wildlife habitat is now timbered, and thus in early successional stages or in pine stands, portions are in hardwoods, especially along moderate to steep slopes. Areas near Utley Creek contain extensive rock outcrops and rich slopes, and

some dry ridges near Harris Lake north of Hollemans Crossroads contain chalk maple (*Acer leucoderme*), very rare near the Fall Line.

The site is important for uncommon species of animals. Unfortunately, the several clusters of the Federally Endangered red-cockaded woodpecker (*Picoides borealis*) were abandoned by about 1990, owing to fire suppression and lack of recruitment of other birds from nearby areas (for gene flow). Because there are now no active clusters of the species within perhaps 30 miles (in the Sandhills region), there is no need to consider re-introduction of the species into Wake County. The Significantly Rare eastern fox squirrel (*Sciurus niger*), generally a Coastal Plain inhabitant, has recently been seen in the area. A few pools provide habitat for salamanders, including the Special Concern four-toed salamander (*Hemidactylium scutatum*). Great blue herons (*Ardea herodias*) have a nesting colony near Harris Lake, and the Federally Threatened bald eagle (*Haliaeetus leucocephalus*) is seen occasionally at the lake and may well nest in upcoming years in the nearby forests.

Extensive undeveloped lands are important for wildlife such as white-tailed deer (*Odocoileus virginianus*), wild turkey (*Meleagris gallopavo*), red-shouldered hawk (*Buteo lineatus*), and other large vertebrates. Most of the breeding bird species found in Wake County occur in this wildlife habitat. Because of the numerous recent clearcuts, this area of the county contains the largest populations of species requiring shrub/scrub habitats, such as yellow-breasted chat (*Icteria virens*) and prairie warbler (*Dendroica discolor*), and species utilizing dead snags, such as red-headed woodpecker (*Melanerpes erythrocephalus*), are numerous, as well.

PROTECTION AND MANAGEMENT: Progress Energy owns the great majority of this wildlife habitat, including Harris Lake and surrounding buffer lands. The company utilizes a number of agencies to help manage their extensive lands. Most of the landholdings (excluding developed areas) are leased to the N.C. Wildlife Resources Commission as the Shearon Harris Game Land (almost 15,000 acres). N.C. State University manages some lands east of the Management Center for longleaf pine restoration. A peninsula south of the Management Center is leased to Wake County for the Harris Lake County Park. A boy scout troop has developed a nature trail next to the Center. Thus, quite a few recreational opportunities exist on these lands, from boating and fishing on the lake, to hiking and picnicking at the park, to hunting on the forested lands.

There is a need to have some type of protection for the natural areas identified in this report, such as conservation easements, or at a minimum the placement on the Registry of Natural Heritage Areas. In fact, Carolina Power & Light Company (now acquired by Progress Energy) did register a site that contained the only remaining active red-cockaded woodpecker cluster on the property in the late 1980's; this site, located along the north side of US 1, has since been de-registered because the birds abandoned the site a few years later. Thus, this company has worked with the NC NHP previously to protect important places there, and the company's willingness to work with other agencies to manage their lands is also favorable for maintaining and improving habitat for rare plants and animals and natural communities. However, Registry agreements are not long-term or permanent, and several sites within the wildlife habitat deserve

stronger or more long-term protection.

Several concerns are apparent with this wildlife habitat. There is much timber management, and thus areas now identified as natural areas, mostly hardwood stands, might be timbered in the future. If not timbered, there is the potential of sale for development. Some of the former Progress Energy lands at the eastern end of the area have recently been sold to the Town of Holly

Springs for an industrial park and/or other development. Thus, a precedent has been set such that other lands somewhat far removed from the power plant could be sold in the near future.

This wildlife habitat can be connected southward along Buckhorn Creek to the Cape Fear River, which has a fairly wide floodplain extending far upstream into Chatham, Lee, and Moore counties and downstream to Raven Rock State Park (in Harnett County) and farther into the Coastal Plain. There is thus a connection to the Jordan Lake Game Land northward from the Cape Fear. Old US 1, a 2-lane road, lies between this wildlife habitat and the Jordan Lake Wildlife Habitat, barely a mile away. This road is not a barrier to large animals, and there is relatively little traffic and development along this road now that US 1 has been constructed. It is possible that a connector between Corps lands at Jordan and Progress Energy lands at Harris can be made. However, the 4-lane US 1, with its wide median, forms a bit of an animal movement barrier south of Old US 1. At least, there are fingers of Harris Lake that extend northward past US 1 that could make a connection to Jordan lands, if conservation organizations feel that this connection is a high priority.

NATURAL COMMUNITIES (Wake County): Mesic Mixed Hardwood Forest (Slope variant), Dry-Mesic Oak-Hickory Forest, Dry Oak-Hickory Forest, Piedmont Longleaf Pine Forest, Basic Oak-Hickory Forest, Floodplain Pool, Piedmont/Low Mountain Alluvial Forest

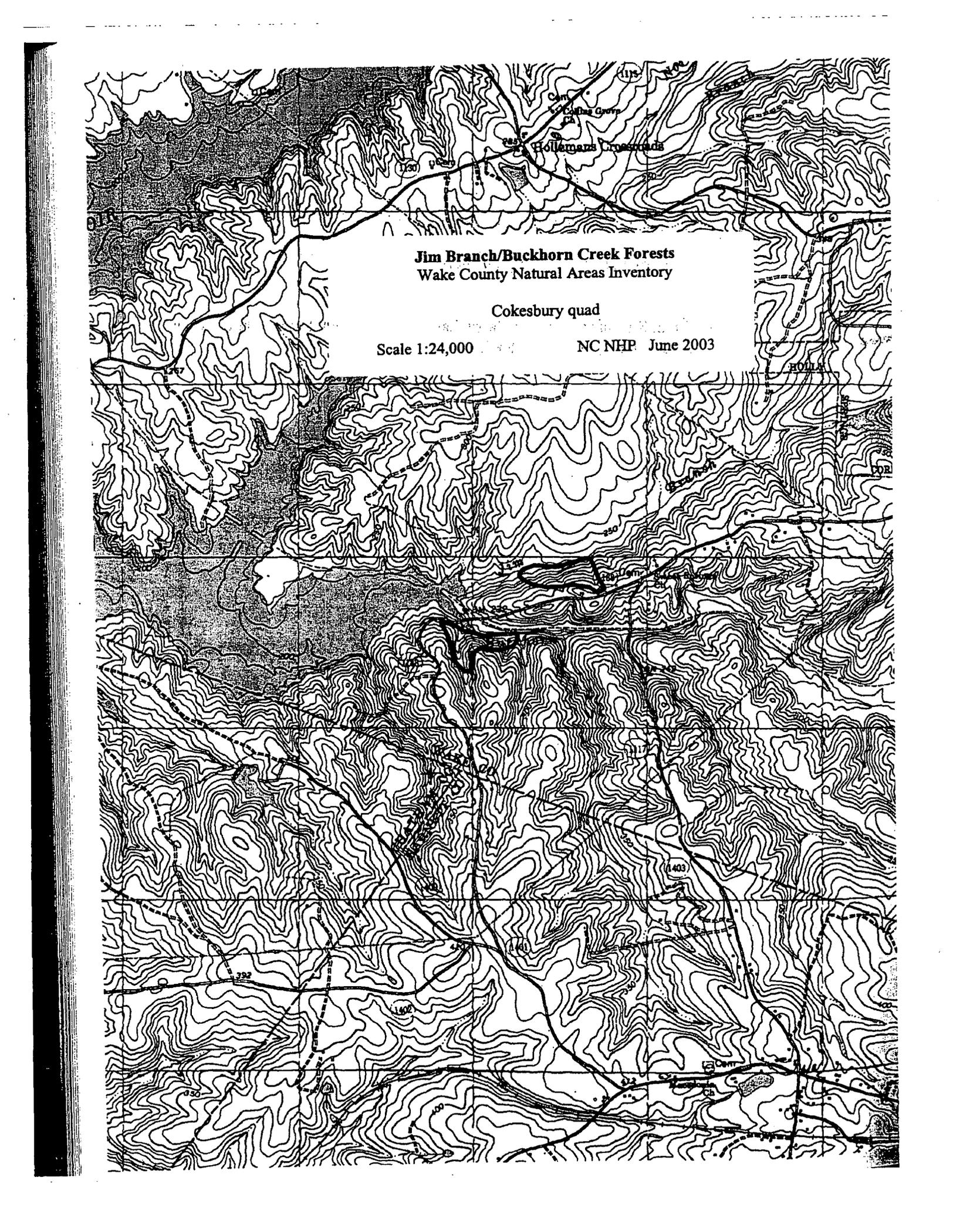
RARE PLANTS (Wake County): Virginia spiderwort (*Tradescantia virginiana*), Lewis's heartleaf (*Hexastylis lewisii*); Watch List – nestronia (*Nestronia umbellula*), American lotus (*Nelumbo lutea*)

RARE ANIMALS (Wake County): four-toed salamander (*Hemidactylium scutatum*), red-cockaded woodpecker (*Picoides borealis*), eastern fox squirrel (*Sciurus niger*), black vulture (*Coragyps atratus*), Lemmer's pinion [moth] (*Lithophane lemmeri*)

REFERENCES:

- LeGrand, H.E., Jr. 1987. Inventory of the natural areas of Wake County, North Carolina. Report to Triangle Land Conservancy, N.C. Natural Heritage Program, and Wake County Parks and Recreation Commission.
- LeGrand, H.E., Jr. 2002. Site survey report: Harris Lake County Park Natural Area. N.C. Natural Heritage Program, DPR, DENR, Raleigh.
- LeGrand, H.E., Jr. 2002. Site survey report: Harris Lake – Hollemans Crossroads Slopes. N.C. Natural Heritage Program, DPR, DENR, Raleigh.

- LeGrand, H.E., Jr. 2002. Site survey report: Harris Lake – Jim Branch/Buckhorn Creek Forests. N.C. Natural Heritage Program, DPR, DENR, Raleigh.
- LeGrand, H.E., Jr. 2002. Site survey report: Harris Lake – Longleaf Pine Forest. N.C. Natural Heritage Program, DPR, DENR, Raleigh.
- LeGrand, H.E., Jr. 2002. Site survey report: Harris Lake – Tom Jack Creek Upland Forest. N.C. Natural Heritage Program, DPR, DENR, Raleigh.
- LeGrand, H.E., Jr. 2002. Site survey report: Harris Lake – Utley Creek Slopes. N.C. Natural Heritage Program, DPR, DENR, Raleigh.
- LeGrand, H.E., Jr. 2002. Harris Lake – White Oak Nature Trail – notes from August 22, 2002 site visit. N.C. Natural Heritage Program, DPR, DENR, Raleigh.
- LeGrand, H.E., Jr. 2002. Harris Lake – NCSU Research Lands (South) – notes from August 8, 2002 visit. N.C. Natural Heritage Program, DPR, DENR, Raleigh.
- LeGrand, H.E., Jr. 2002. Harris Lake – upper Utley Creek drainage; notes from August 22, 2002 site visit. N.C. Natural Heritage Program, DPR, DENR, Raleigh.
- Wiecek, C. 2002. Site survey report: Holly Springs Four-toed Salamander Site. N.C. Natural Heritage Program, DPR, DENR, Raleigh.



Jim Branch/Buckhorn Creek Forests
Wake County Natural Areas Inventory

Cokesbury quad

Scale 1:24,000

NC NHP June 2003

Wake County Natural Areas Inventory

JIM BRANCH/BUCKHORN CREEK FORESTS

Site Number: 44

Size: about 25 acres

Site Significance: County

Quadrangle: Cokesbury

Ownership: Progress Energy (Carolina Power & Light Company), other private

SIGNIFICANT FEATURES: There are fairly rich hardwood slopes at the site, and the presence of both showy orchis (*Orchis spectabilis*) and lily-leaved twayblade (*Liparis lilifolia*) indicates rich soils. The natural area contains a nesting colony of great blue herons (*Ardea herodias*) along Jim Branch.

LANDSCAPE RELATIONSHIPS: The site is roughly 2 miles south of the Hollemans Crossroads Slopes. It is part of the Harris Lake Wildlife Habitat site that encompasses much of the southwestern corner of Wake County and extends into neighboring Chatham and Harnett counties.

SITE DESCRIPTION: The natural area consists of two separate portions – slopes along Buckhorn Creek, south of Cass Holt Road (SR 1188); and slopes and creek along Jim Branch (north of the road). Both areas have fairly rich hardwood slopes, mostly with Mesic Mixed Hardwood Forest and some Dry-Mesic Oak-Hickory Forest. Along Jim Branch is a moderate-sized colony of nesting great blue herons (*Ardea herodias*). On the site visit, about 32 nests were counted in six to seven trees, mostly in mature loblolly pines (*Pinus taeda*); this is apparently the largest known colony in the county and one of the larger ones for the eastern Piedmont.

The primary natural community at the site is Mesic Mixed Hardwood Forest. The portion along Buckhorn Creek, especially along an unnamed tributary, is of good quality. The slope facing Buckhorn Creek is somewhat of a dry example of this type. The canopy contains much American beech (*Fagus grandifolia*), along with white oak (*Quercus alba*) and white ash (*Fraxinus americana*). Hop-hornbeam (*Ostrya virginiana*) dominates the understory, but Florida maple (*Acer barbatum*) is numerous. The shrub layer is moderate, featuring dry-mesic species such as fringetree (*Chionanthus virginicus*), maple-leaved viburnum (*Viburnum acerifolium*), downy arrowwood (*V. rafinesquianum*), and pink azalea (*Rhododendron periclymenoides*). The herb layer is sparse, dominated by Christmas fern (*Polystichum acrostichoides*).

On the tributary streams, especially the one to the west, the soil is richer and herb diversity increases. Tuliptree (*Liriodendron tulipifera*) and northern red oak (*Q. rubra*) are major canopy components. Hop-hornbeam is common in the understory. The herb layer contains much Christmas fern, and broad beech fern (*Thelypteris hexagonoptera*) is locally abundant, as is hog-peanut (*Amphicarpa bracteata*). Black cohosh (*Cimicifuga racemosa*) is widespread and conspicuous, and a few showy orchis (*Orchis spectabilis*) plants are present.

The Mesic Mixed Hardwood Forest on the north-facing slope above Jim Branch is quite a bit different. Here, the canopy is much taller, dominated by 100-110' tall tuliptrees. Northern red oak is numerous. Redbud (*Cercis canadensis*) and hop-hornbeam are common in the understory. The shrub layer is mostly seedlings of redbud, with thousands of young trees dominating the slope. Christmas fern and broad beech fern are also abundant on these slopes. At the foot of the slopes, bigleaf snowbell (*Styrax grandifolia*) is common. There are few wildflowers on this slope, though a scattering of lily-leaved twayblade (*Liparis lilifolia*) is present.

The Dry-Mesic Oak-Hickory Forest occurs in the Buckhorn Creek portion but is not widespread. White oak dominates the canopy, but some scarlet oak (*Q. coccinea*) is present. Understory trees such as flowering dogwood (*Cornus florida*), sourwood (*Oxydendrum arboreum*), and American holly (*Ilex opaca*) mix with the hop-hornbeam. Ericads such as deerberry (*Vaccinium stamineum*) are present in the shrub layer; and the herb layer is sparse, with woodland tick-trefoil (*Desmodium nudiflorum*) the most common species.

PROTECTION AND MANAGEMENT: Most of the natural area is owned by Progress Energy (Carolina Power & Light Company) and managed by the N.C. Wildlife Resources Commission as the Shearon Harris Game Land. The site is unprotected. There is probably little need for Registry as a Natural Heritage Area at the present time. Additional field work is recommended, as is additional monitoring of the heronry.

No timber harvest should be done in the area. The heronry site especially needs to be set aside from the timber base. The herons require tall trees, preferably in water, for nesting. Interestingly, most of the nest trees are on dry land. Unfortunately, silverberry (*Elaeagnus umbellata*) has escaped on the slopes and may be too far advanced in the natural area for control. Nonetheless, some control of this invasive shrub might be worth initiating.

NATURAL COMMUNITIES: Mesic Mixed Hardwood Forest (Slope variant), Dry-Mesic Oak-Hickory Forest

REFERENCES:

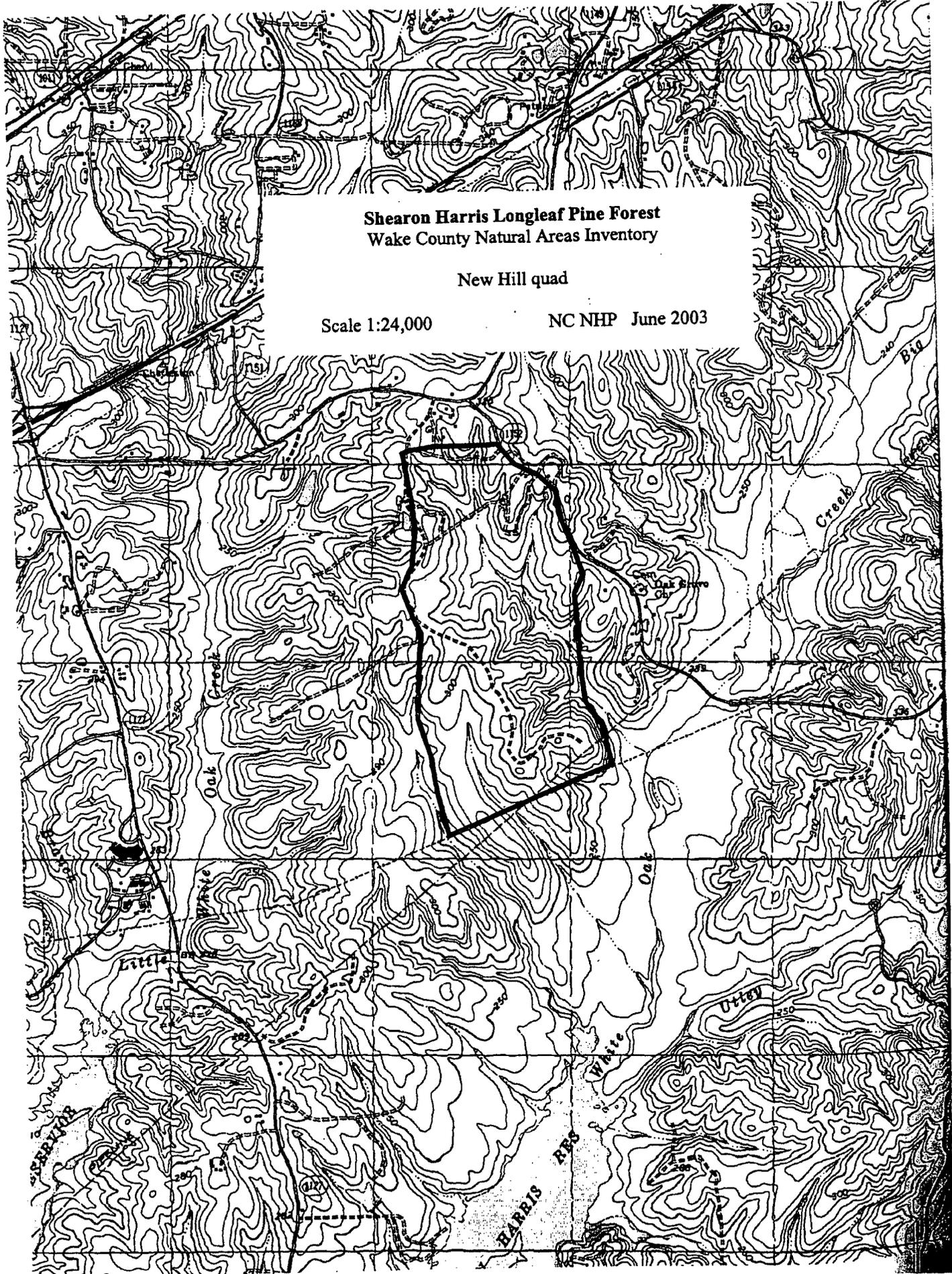
LeGrand, H.E., Jr. 2002. Site survey report: Harris Lake – Jim Branch/Buckhorn Creek Forests. N.C. Natural Heritage Program, DPR, DENR, Raleigh.

Shearon Harris Longleaf Pine Forest
Wake County Natural Areas Inventory

New Hill quad

Scale 1:24,000

NC NHP June 2003



Wake County Natural Areas Inventory

SHEARON HARRIS LONGLEAF PINE FOREST

Site Number: 40

Size: about 360 acres

Site Significance: Regional

Quadrangle: New Hill

Ownership: Progress Energy (Carolina Power & Light Company)

SIGNIFICANT FEATURES: There are a few hundred longleaf pines (*Pinus palustris*) scattered over this part of the Shearon Harris property, one of the better concentrations of this species in the county. The area features a rare Piedmont Longleaf Pine Forest natural community.

LANDSCAPE RELATIONSHIPS: The site lies about a mile northwest of the Utley Creek Slopes natural area. The Hollemans Crossroads Slopes is also about 1-1.5 miles away, across Harris Lake to the south. The natural area is included within the Harris Lake Wildlife Habitat site.

SITE DESCRIPTION: This natural area is located in the southwestern portion of Wake County, just northeast of Harris Lake. It lies just southwest of Holly Springs - New Hill Road (SR 1152). The natural area consists of gently rolling slopes in the Triassic Basin. The area is a remnant Piedmont Longleaf Pine Forest that has long been fire-suppressed but is now being managed by North Carolina State University to restore the longleaf pine (*Pinus palustris*) stand. The central half of the site was harvested within the past few years with a seed-tree cut, leaving only widely scattered longleaf pines. Surrounding this is a more typical mixed forest, dominated by loblolly pines (*P. taeda*) but with widely scattered longleaf pines.

Two "forms" of Piedmont Longleaf Pine Forest are present in the natural area: 1) natural, fire-suppressed; and 2) artificially opened. The natural, fire-suppressed stands that surround the cut area appear to have been selectively thinned over time, with canopies generally touching but not dense. The thinnings have kept the forests mostly with a pine canopy rather than a more even hardwood-pine mix. In general, the stands average 65-75' tall, and in some places are probably around 80' tall. Loblolly pine is the dominant tree. Shortleaf pine (*P. echinata*) is widely scattered, and here and there are longleaf pines. There are just enough longleaf pines to identify the community as this type. Widespread hardwoods, mostly in the subcanopy but a few reaching the canopy, are sweetgum (*Liquidambar styraciflua*), red maple (*Acer rubrum*), white oak (*Quercus alba*), and southern red oak (*Q. falcata*). The understory is often fairly dense with these hardwoods. The shrub layer is typically dense with ericaceous species; the most numerous are dangleberry (*Gaylussacia frondosa*), deerberry (*Vaccinium stamineum*), lowbush blueberry (*V. tenellum*), and staggerbush (*Lyonia mariana*). Herbs are spotty, and are found mainly along road margins and other openings. Common are goat's-rue (*Tephrosia virginiana*) and rosinweed (*Silphium compositum*).

The artificially opened area is a large clearcut in the center of the area, harvested of all trees

except longleaf pines perhaps 2-3 years ago. After the harvest, a burn was conducted, and smoke from the burn was still evident on the site visit, even though the cleared area was mostly vegetated in herbaceous species. Widely scattered longleaf pines 40-60' tall are present, though none appear old enough to produce cones. A few of the pines have been killed by the fire. The ground contains somewhat weedy native species – seedlings of red maple and sweetgum; winged sumac (*Rhus copallina*), blackberry (*Rubus argutus*), dog-fennel (*Eupatorium capillifolium*), toadflax (*Linaria canadensis*), pokeweed (*Phytolacca americana*), horseweed (*Conyza canadensis*), broomsedge (*Andropogon* sp.), and others.

PROTECTION AND MANAGEMENT: This natural area is owned by Progress Energy (Carolina Power & Light Company). It has been leased to North Carolina State University to manage for re-establishment of longleaf pine and the Piedmont Longleaf Pine Forest community. When the management of the site is farther along, with seedling longleaf pines established, there may be a need to discuss protection in terms of a Registry of Natural Heritage Areas agreement. However, the site is still undergoing active management, so it appears best not to be concerned with Registry in the interim.

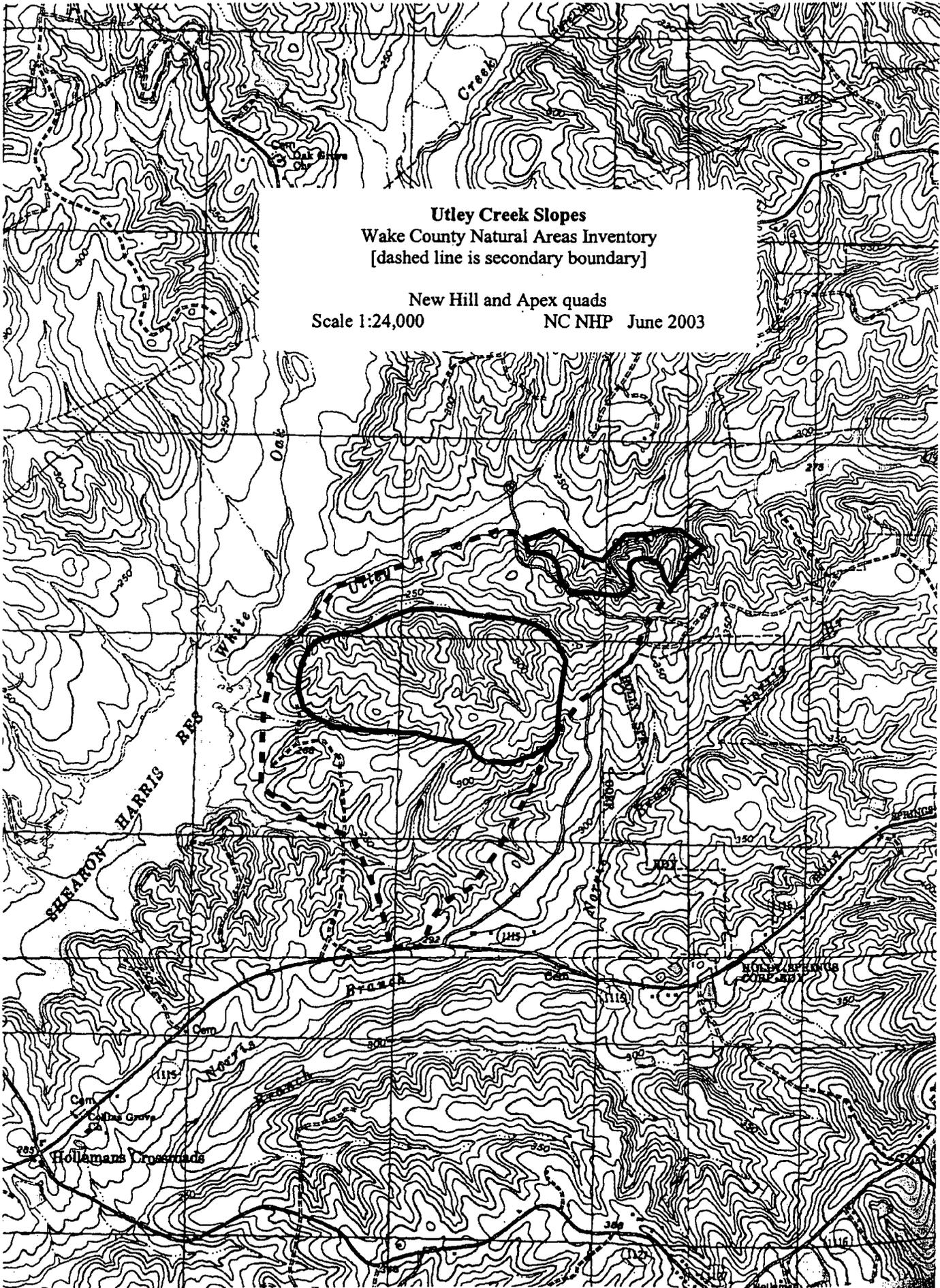
Both N.C. State University and Progress Energy are actively involved with the management of the site. A 135-acre site was burned in the fall of 1998, and the natural regeneration harvest to release longleaf pine was done in 1999. There will be periodic burning of the study tract, and monitoring/sampling plots have been established by the N.C. Vegetation Survey program (Gary Blank, pers. comm.).

The cleared area should be burned frequently (every 2-3 years at the longest) in order to keep sweetgums, loblolly pines, and other trees from invading the site. It is recommended that no further clearcutting be done in the natural area surrounding the cleared study area. However, this surrounding area could be burned in the winter. Or, there could be thinning of some trees surrounding the longleaf pines, yet keeping the area still in a forested condition. Re-introduction of other plants characteristic of this natural community might be considered; wiregrass (*Aristida stricta*) is found at a few such Piedmont sites elsewhere, though it might be difficult and labor-intensive for establishment of this grass.

NATURAL COMMUNITIES: Piedmont Longleaf Pine Forest

REFERENCES:

LeGrand, H.E., Jr. 2002. Site survey report: Harris Lake – Longleaf Pine Forest. N.C. Natural Heritage Program, DPR, DENR, Raleigh.



Utley Creek Slopes
Wake County Natural Areas Inventory
[dashed line is secondary boundary]

New Hill and Apex quads
Scale 1:24,000 NC NHP June 2003

SHEARON HARRIS RD

Hollamans Crossroads

Branch

WILSON BRANCH

Creek

White Oak

885

Cem. Cold Grove

Cem. NORTON

RD 1115

UTLEY

Wake County Natural Areas Inventory

UTLEY CREEK SLOPES

Site Number: 43

Size: about 590 acres (220 in primary area)

Site Significance: Regional

Quadrangles: New Hill, Apex

Ownership: Progress Energy (Carolina Power & Light Company)

SIGNIFICANT FEATURES: The natural area has a very large extent of Dry Oak-Hickory Forest, and much exists in good to excellent condition. The site has a very large outcropping of sedimentary rocks for the Triangle area, as the site lies in the Triassic Basin. The rocks harbor "caves", as well as waterfalls during good water flow conditions. Several slopes contain Virginia spiderwort (*Tradescantia virginiana*), Significantly Rare and a first Wake County record.

LANDSCAPE RELATIONSHIPS: Immediately to the west is the Hollemans Crossroads Slopes, and the Hollemans Crossroads Salamander Pools is just to the southwest. The Shearon Harris Longleaf Pine Forest lies to the northwest by about a mile. The natural area is a part of the much larger Harris Lake Wildlife Habitat site.

SITE DESCRIPTION: The natural area, on Shearon Harris lands in the southwestern part of the county, contains two primary areas and consists of moderate slopes north of Old Avent Ferry Road (SR 1115) to steep north-facing slopes adjacent to Utley Creek. Much of the area consists of mature hardwood forests, including a considerable acreage of Dry Oak-Hickory Forest, not usually found in sizable stands in the county.

There are numerous exposed sedimentary rocks along steep slopes such as side ravines and along Utley Creek. These rocks are not exposed on their tops, but mainly on their sides (vertical erosion). Under some there are small "caves" extending back about 10 feet and up to 4-5 feet tall; the caves are mostly wedges in the rocks. Other rocks are exposed along creeks, such that when one is walking upstream, a creek appears to end at a rock, or the stream falls 5-8 feet over the rock as a small waterfall.

Three main natural communities appear to be present, though only the first two are of high quality. Dry Oak-Hickory Forest is prevalent along an east-west ridge in the center of the natural area. This is one of the best, or the most extensive, examples in the Triangle area. The mature canopy is dominated by white oak (*Quercus alba*), with considerable post oak (*Q. stellata*), southern red oak (*Q. falcata*), pignut hickory (*Carya glabra*), and a few other oak species. Virginia red-cedar (*Juniperus virginiana*) is scattered in the understory. Other understory trees include sourwood (*Oxydendrum arboreum*) and black gum (*Nyssa sylvatica*). The shrub layer is quite dense. Downy arrowwood (*Viburnum rafinesquianum*) is scattered, though much less common than in the next community. Blueberries are abundant, including deerberry (*Vaccinium stamineum*) and lowbush blueberry (*V. pallidum*). There are some "glady" openings with various grasses and forbs, such as rattlesnake-weed (*Hieracium venosum*) and

summer bluet (*Houstonia purpurea*).

Dry-Mesic Oak-Hickory Forest is the most common community in the natural area. Some of the ridges, and most of the mid- and lower slopes, contain this community, the most common natural community in Wake County. White oak is the dominant tree. A few other oaks are present in the canopy along with pignut hickory, tuliptree (*Liriodendron tulipifera*), and an occasional sweetgum (*Liquidambar styraciflua*). The well-developed understory has flowering dogwood (*Cornus florida*), red maple (*Acer rubrum*), black gum, and sourwood as common components. The shrub layer contains an abundance of downy arrowwood. A scattering of ericads such as deerberry are present. The sparse herb layer contains vines such as muscadine (*Vitis rotundifolia*) and Virginia creeper (*Parthenocissus quinquefolius*).

On the steeper slopes, especially the north-facing ones such as along Utley Creek, are acidic examples of Mesic Mixed Hardwood Forest. These are shrub- and herb-poor types compared to others on rich soils. As with other types, American beech (*Fagus grandifolia*) is a canopy dominant. Hop-hornbeam (*Ostrya virginiana*) dominates the understory, but Florida maple (*Acer barbatum*) is locally common. The shrub layer is poor, such that it is easy to observe long distances through the community. Typical herbs are Christmas fern (*Polystichum acrostichoides*), dwarf heartleaf (*Hexastylis minor*), dittany (*Cunila origanoides*), and crested dwarf iris (*Iris cristata*). The Significantly Rare Virginia spiderwort (*Tradescantia virginiana*), not previously known from Wake County, is found on several gentle slopes. This herb occurs in just a handful of lower Piedmont counties in the state and is normally found on high pH soils.

The Special Concern black vulture (*Coragyps atratus*) was noted during the site visit and is likely nesting at the site or nearby. This extensive hardwood forest is likely important nesting habitat for many Neotropical migrant songbirds.

PROTECTION AND MANAGEMENT: The natural area is wholly owned by Progress Energy (Carolina Power & Light Company) and is part of the Shearon Harris Game Land managed by the N.C. Wildlife Resources Commission. The natural area has no current protection but definitely should be pursued for protection as a Registered Natural Heritage Area. Because it is considered of Regional significance, a stronger measure of protection such as a conservation easement might be warranted.

Some effort is needed to clearly delineate the natural area. Presently, this description covers two separate areas, bisected by a dirt road and pine stands. Thus, an additional site visit or two might be necessary to more clearly define the area worthy of protection.

Most of the area should be set aside with no management. Any timber harvest should be limited to pines. A green-tree reservoir just north of the rocky slopes and bluffs is an eye-sore, especially being nearly dry, and it has impacted the floodplain of the creek. Instead of a shady, forested floodplain, it is a sunny, baked area with many dead trees and some exposed mud. It might be best to allow the area to return to a forested condition, if that can be done.

NATURAL COMMUNITIES: Dry Oak-Hickory Forest, Dry-Mesic Oak-Hickory Forest, Mesic Mixed Hardwood Forest (Slope variant)

RARE PLANTS: Virginia spiderwort (*Tradescantia virginiana*)

RARE ANIMALS: Black vulture (*Coragyps atratus*)

REFERENCES:

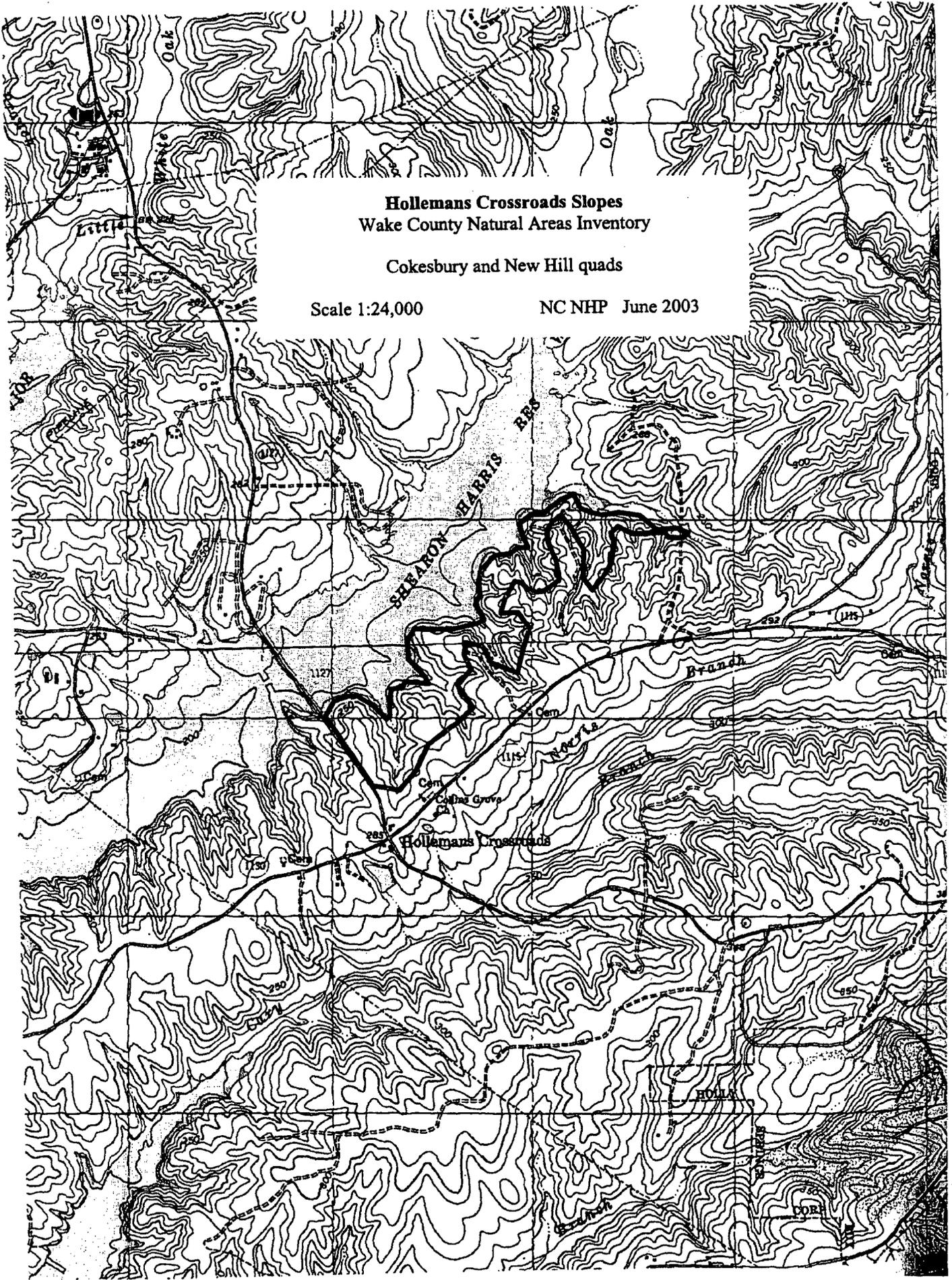
LeGrand, H.E., Jr. 2002. Site survey report: Harris Lake – Utley Creek Slopes. N.C. Natural Heritage Program, DPR, DENR, Raleigh.

Hollemans Crossroads Slopes
Wake County Natural Areas Inventory

Cokesbury and New Hill quads

Scale 1:24,000

NC NHP June 2003



Wake County Natural Areas Inventory

HOLLEMANS CROSSROADS SLOPES

Site Number: 41

Size: about 135 acres

Site Significance: County

Quadrangles: Cokesbury, New Hill

Ownership: Progress Energy (Carolina Power & Light Company), other private

SIGNIFICANT FEATURES: The natural area contains unusual ridges of sedimentary rocks with a mafic influence, though likely over felsic rock. There is an abundance of chalk maple (*Acer leucoderme*), which is very rare in the eastern Piedmont. The site contains a good diversity of shrubs and small trees of "mafic" character on some slopes and ridges. American lotus (*Nelumbo lutea*), a Watch List species, occurs as several stands in coves at the lake.

LANDSCAPE RELATIONSHIPS: This site lies very close -- a few hundred yards -- to Uteley Creek Slopes and could be combined into a single large site of Regional significance. The Hollemans Crossroads Salamander Pools site lies adjacent to the southeast, along Old Avert Ferry Road (SR 1115). Across the lake to the north lies the Shearon Harris Longleaf Pine Forest. The natural area is a part of the much larger Harris Lake Wildlife Habitat site.

SITE DESCRIPTION: The Hollemans Crossroads Slopes is a narrow southwest-northeast corridor along the edge of Harris Lake. It consists of many rather narrow ridges and ravines, including some steep slopes overlooking the lake. Most of these slopes contain mature hardwood forests, over slightly acidic to nearly circumneutral soils in the Triassic Basin.

The site contains three main communities, with the most significant being Basic Oak-Hickory Forest. This type lies on dry ridges, especially near their ends overlooking the lake. The canopy is dominated by white oak (*Quercus alba*), but a variety of other oaks and hickories is present. The understory contains much white ash (*Fraxinus americana*), but chalk maple (*Acer leucoderme*) is quite common and is the indicator species for this community, which lies over "shaly" soil that has a mafic character. This maple is seemingly unknown elsewhere in Wake County. The shrub layer is dominated by dense stands of downy arrowwood (*Viburnum rafinesquianum*). Mafic conditions are indicated by the presence of species such as bigleaf snowbell (*Styrax grandifolia*) and the near lack of ericads. There are very few herbs.

Slopes more to the southwest, toward New Hill - Holleman Road (SR 1127), are covered in Dry Oak-Hickory Forest. White oak again is the dominant tree. Scarlet oak (*Q. coccinea*) is present, along with other oaks and hickories. Sourwood (*Oxydendrum arboreum*) is common in the subcanopy. The shrub layer is dense, with downy arrowwood being abundant but ericads being widespread, such as deerberry (*Vaccinium stamineum*) and dangleberry (*Gaylussacia frondosa*). Some light gaps contains various grasses.

Slopes facing the lake contain a dry subtype or variant of Mesic Mixed Hardwood Forest, which has some elements of a Heath Bluff. Though American beech (*Fagus grandifolia*) is dominant,

indicating this community, openings contain herbs that are typical of drier soils, such as white goldenrod (*Solidago bicolor*) and wavy-leaved aster (*Aster undulatus*). The understory contains hop-hornbeam (*Ostrya virginiana*), chalk maple, American hornbeam (*Carpinus caroliniana*), and some redbud (*Cercis canadensis*). Downy arrowwood is common, and witch-hazel (*Hamamelis virginiana*) is also numerous.

PROTECTION AND MANAGEMENT: Nearly all of the natural area is owned by Progress Energy (Carolina Power & Light Company); a small area at the southern end is in other private ownership. The Progress Energy lands are leased to the N.C. Wildlife Resources Commission as the Shearon Harris Game Land. The natural area is worthy of protection, especially the portions with chalk maple, as a Registered Natural Heritage Area, as currently there is no protection for the site. Because this site is somewhat different – a “mafic” character over sedimentary rock – from others in the county, stronger protection such as a conservation easement might be pursued.

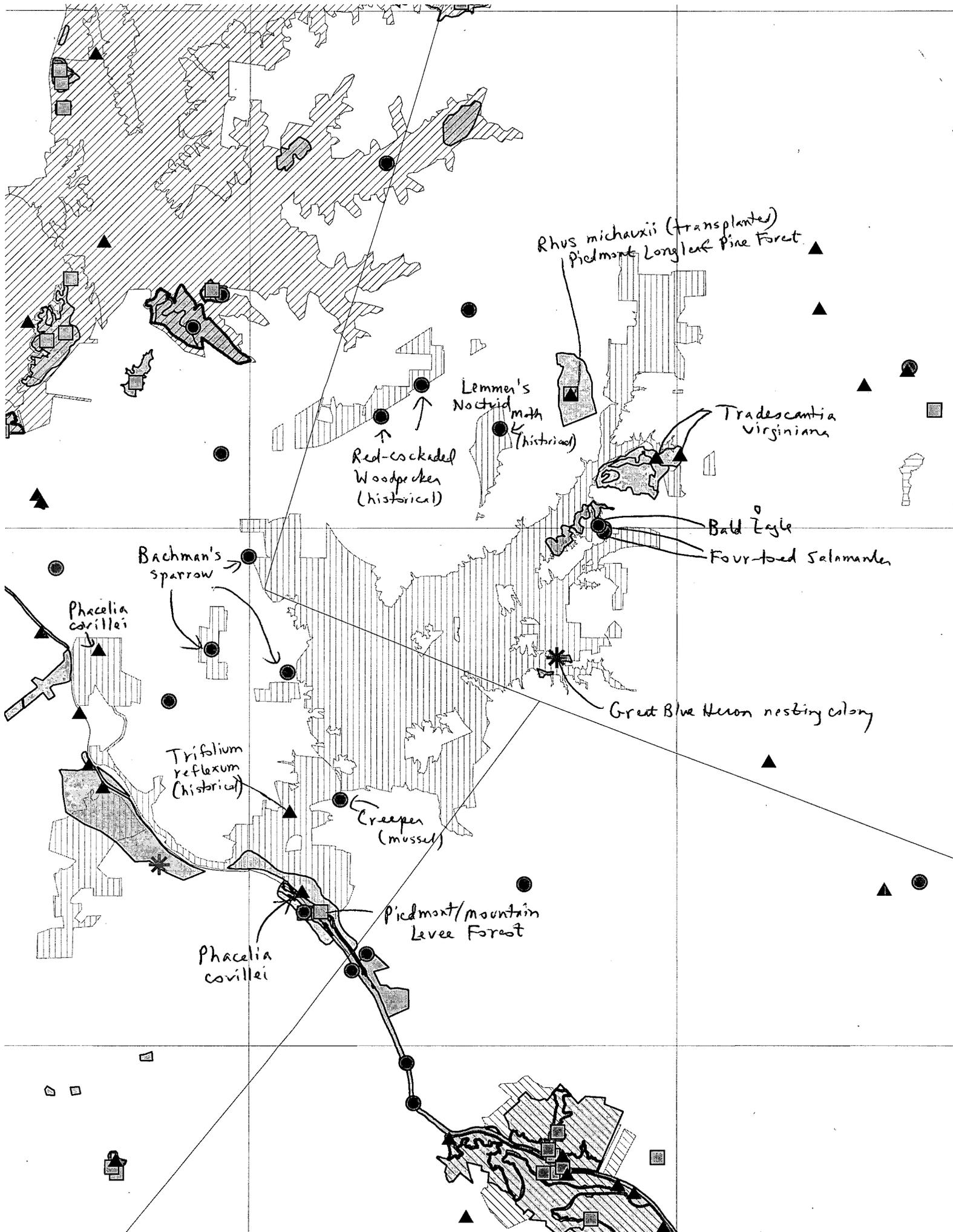
No management is needed. No timber, at least hardwoods, should be removed from the site. Currently, the only trails on Shearon Harris property are the White Oak Nature Trail and trails located at the Wake County park. The natural area would be suitable for hosting a hiking trail near the lakeshore. Such a trail might conflict with hunting interests, but there is a considerable land base along the lakeshore that would be very suitable for a lengthy hiking trail.

NATURAL COMMUNITIES: Basic Oak-Hickory Forest, Dry Oak-Hickory Forest, Mesic Mixed Hardwood Forest (Slope variant)

RARE PLANTS: Watch List – American lotus (*Nelumbo lutea*)

REFERENCES:

LeGrand, H.E., Jr. 2002. Site survey report: Harris Lake – Hollemans Crossroads Slopes. N.C. Natural Heritage Program, DPR, DENR, Raleigh.



Rhus michauxii (transplanted)
Piedmont Longleaf Pine Forest

Lemmen's
Noctuid moth
(historical)

Red-shouldered
Woodpecker
(historical)

Tradescantia virginiana

Bald Eagle

Four-toed Salamander

Bachman's
sparrow

Phacelia covillei

Trifolium reflexum
(historical)

Creeper
(mussel)

Great Blue Heron nesting colony

Piedmont/mountain
Levee Forest

Phacelia covillei