



North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor

William G. Ross Jr., Secretary

September 12, 2008

Mr. Donald Palmrose
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Scoping – Shearon Harris Nuclear Power Plant, Units 2 and 3 – Combined License Application Review; Wake County, NC

Dear Mr. Palmrose:

The Natural Heritage Program has records of several rare plant and animal species in the general vicinity of the Shearon Harris property. In addition, our Program has identified several significant natural heritage areas on Progress Energy land, as well. Rare species in the project area are:

bald eagle (*Haliaeetus leucocephalus*), State Threatened; a nest occurs on the Harris property
eastern fox squirrel (*Sciurus niger*), State Significantly Rare
Lemmer's pinion [moth] (*Lithophane lemmeri*), State Significantly Rare
Virginia spiderwort (*Tradescantia virginiana*), State Significantly Rare
red-cockaded woodpecker (*Picoides borealis*), Federal and State Endangered; historical locations
Michaux's sumac (*Rhus michauxii*), Federal and State Endangered; transplanted population

Significant natural heritage areas are:

Utle Creek Slopes, of Regional significance
Hollems Crossroads Slopes, of County significance
Jim Branch/Buckhorn Creek Forest, of County significance

I am enclosing a copy of a map of the region, with these features identified. I am also enclosing occurrence data for the first four species. The woodpeckers disappeared from the Shearon Harris lands around 1990 and are no longer present; the habitat at the locations has since been clearcut, and birds are not expected to return. The sumac is a transplanted location and has never been known to occur in a natural occurrence on Shearon Harris lands.

The three natural areas are not under protection, though our Program has proposed registry for the Utle Creek Slopes. However, all three sites are expected to be impacted somewhat by the raising of the water level of Harris Lake by 20 feet.

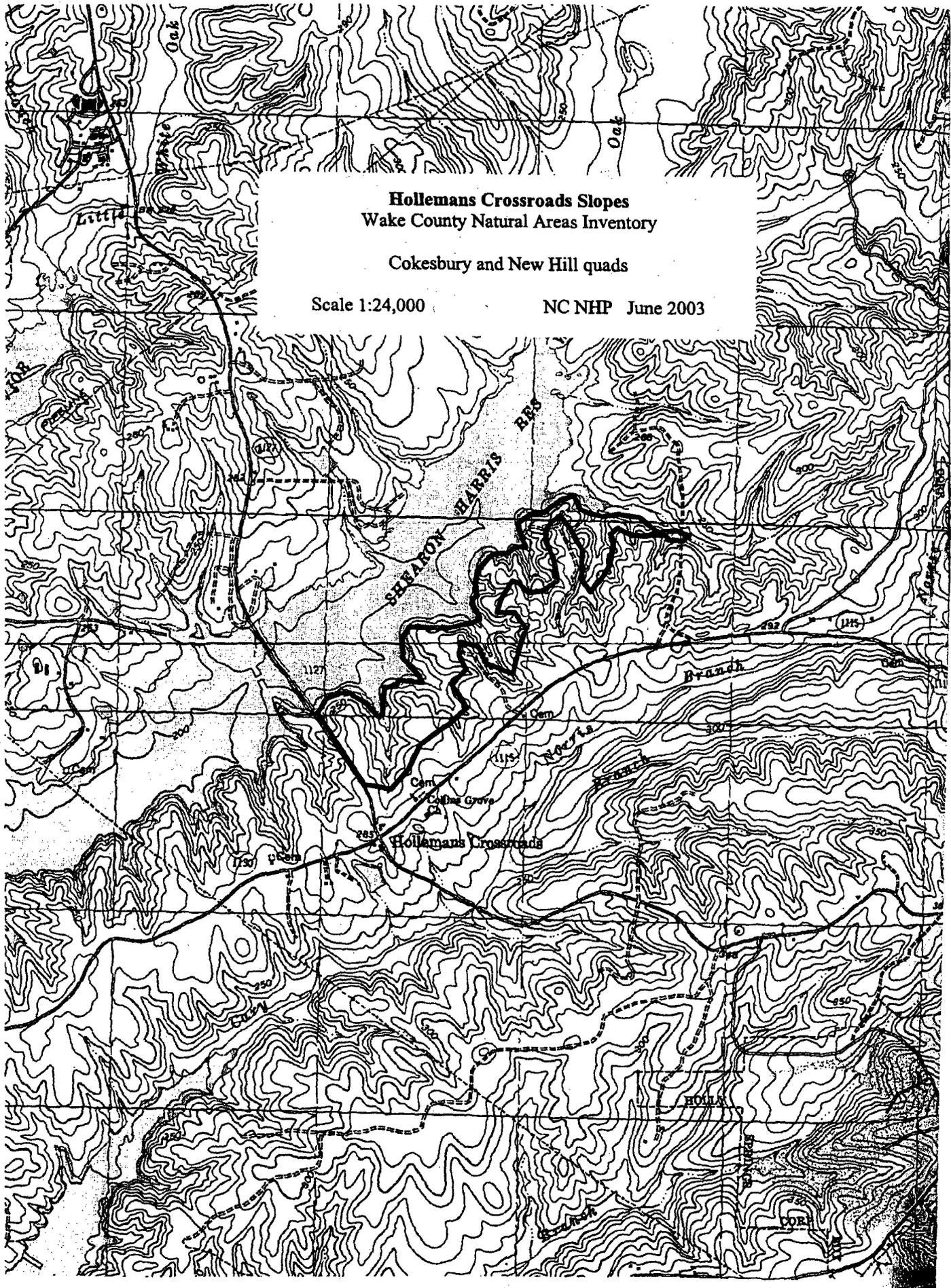
Please do not hesitate to contact me at 919-715-8697 if you have questions or need further information.

Sincerely,

A handwritten signature in black ink that reads "Harry E. LeGrand, Jr." in a cursive style.

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

Enclosures



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 Utley 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 Avent 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.

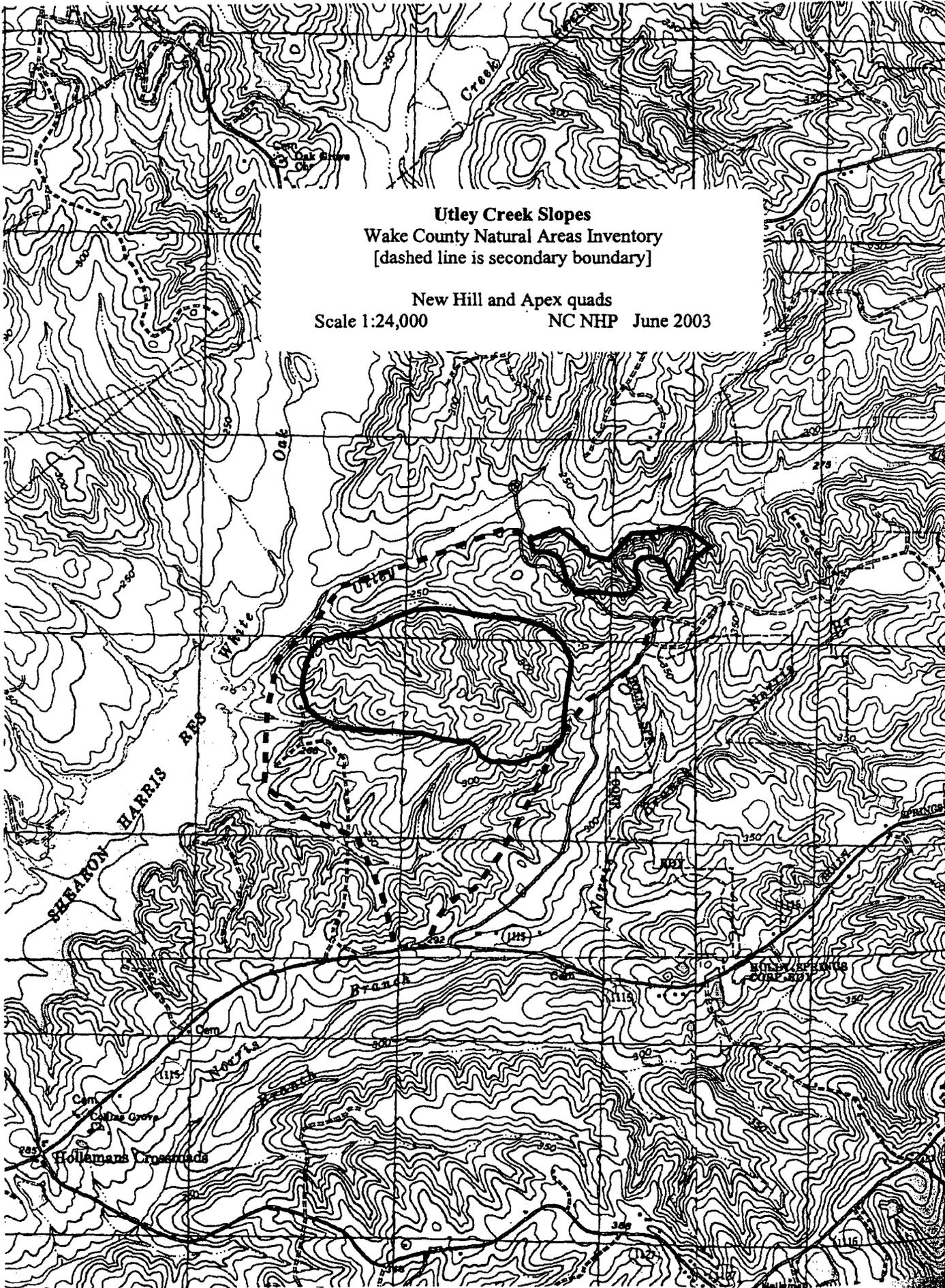
No management is needed. No timber, at least hardwoods, should be removed from the site. Currently, the only trails on Shearon Harris property are the White Oak Nature Trail and trails located at the Wake County park. The natural area would be suitable for hosting a hiking trail near the lakeshore. Such 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.



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 RES

Hollamans Crossroads
Cem
Cedar Grove
Cem

MINNERSVILLE
Cem

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.

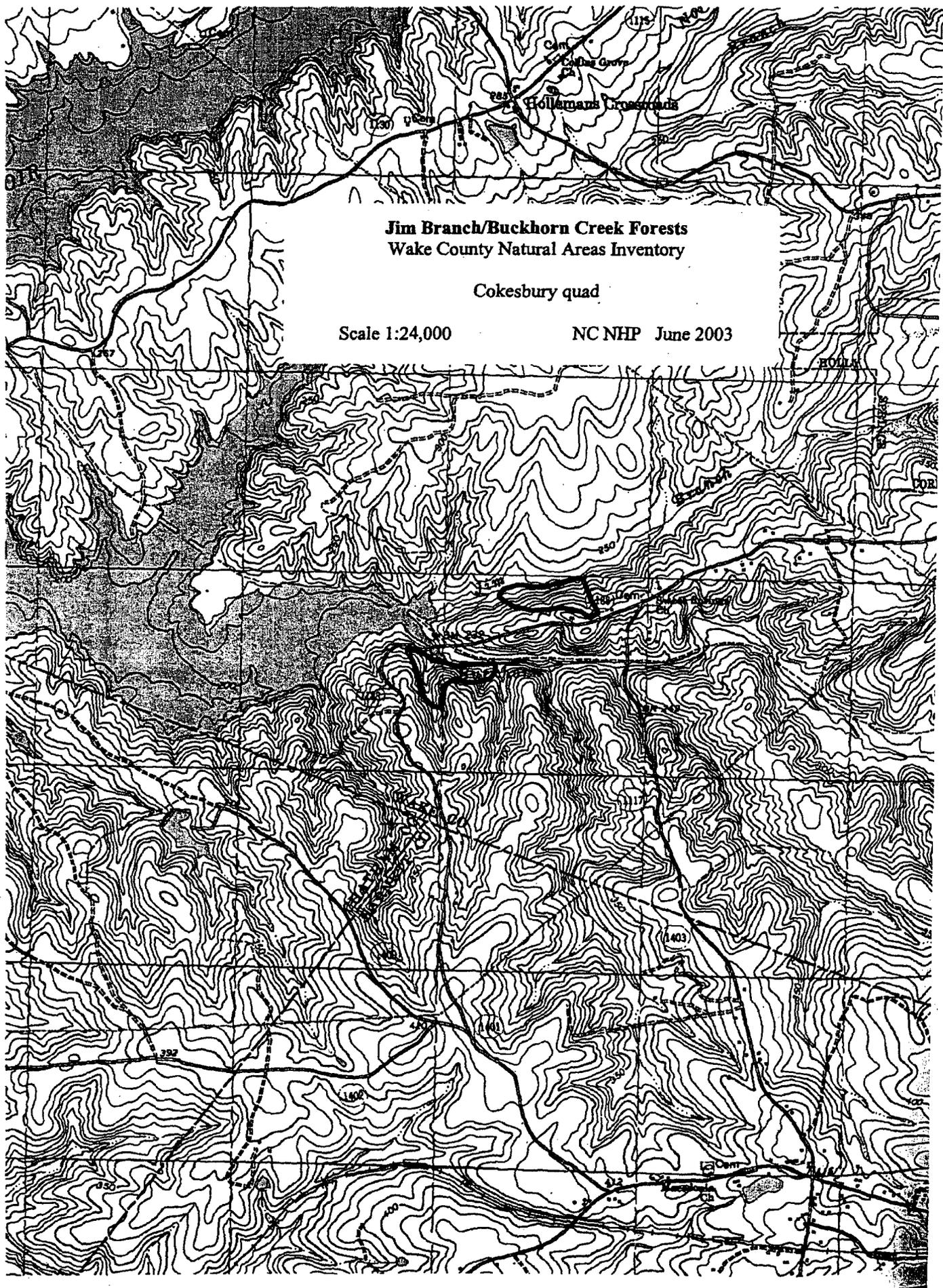
NATURAL COMMUNITIES: Dry Oak-Hickory Forest, Dry-Mesic Oak-Hickory Forest, Mesic Mixed Hardwood Forest (Slope variant)

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.



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.