

From: Buchanan, Misty [mailto:misty.buchanan@ncdenr.gov]
Sent: Wednesday, February 17, 2010 4:37 PM
To: wendy.hillis@fac.unc.edu; JB Culpepper; Kay Pearlstein
Cc: Buchholz, George; Ed Harrison
Subject: Rizzo Conference Center and Little Creek Bottomlands and Slopes SNHA

I am attaching a letter and site report regarding the Little Creek Bottomlands and Slopes Significant Natural Heritage Area and potential impacts to the natural area due to the proposed UNC Rizzo Conference Center expansion. I recently visited the site with Ed Harrison and George Buchholz and wanted to share these comments and recommendations for protection. I have mailed a hard copy to Ms. Hillis via US Mail (mailed today).

I appreciate your interest in protecting significant natural heritage areas in Chapel Hill. If you have any questions about the attached documents or wish to discuss further, please do not hesitate to contact me or Linda.

Sincerely,

Misty

Misty Buchanan, Botanist
Natural Heritage Program
N.C. Dept. of Environment and Natural Resources
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Please note: my email address has changed to misty.buchanan@ncdenr.gov.

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Update to the Little Creek Bottomlands and Slopes Significant Natural Heritage Area

Report author: Misty Buchanan, Botanist, North Carolina Natural Heritage Program

Site visits were made on February 4 and 11, 2010 to survey the site of a concept plan proposal for the expansion to the Rizzo Conference Center, owned by University of North Carolina. The tract of interest adjoins the Jordan Game Land in Durham County. The proposed development would be located north of NC 54, west of Jordan Game Land, on the east side of Meadowmont Lane, and north of The Cedars Retirement Community. These visits were attended by Misty Buchanan, Ed Harrison, George Buchholz, and Eric Teagarden. The site was accessed from Iron Mountain Road and Cedar Post Lane.

Purpose:

The purpose of the visits was to evaluate the potential impacts to the Little Creek Bottomlands Significant Natural Heritage Area (SNHA), which was adopted in 1999 as a Durham Natural Inventory Site by Durham County. The current boundary of the SNHA extends onto the University-owned lands within the proposed development area. The NC Natural Heritage Program is a non-regulatory agency and therefore has no legal jurisdiction to protect SNHAs. However, counties which have supported natural area inventories and adopted SNHAs (or sites) for protection must depend on municipalities with land use jurisdiction over the natural areas to manage conservation and protection of those sites.

As in all Natural Heritage Program SNHAs, the boundaries of this natural area are based on biological criteria rather than on property lines. The lines themselves, therefore, are somewhat indefinite, serving primarily to identify the presence of a significant natural area but not to precisely define its limits.

The primary boundary of this SNHA is intended to include the Piedmont Bottomland Forest natural community, plus an upland buffer of **intact** natural area suitable for providing a refuge for wildlife during times when the bottomland areas are flooded. To highlight the importance of the slopes, the name is being changed to **Little Creek Bottomlands and Slopes Significant Natural Heritage Area**. When the site was originally drawn in 1999 Inventory, much focus was placed on zoological inventory and only cursory visits were conducted for botanical surveys; it was acknowledged that further botanical surveys were needed.

Site inspection:

The UNC tract includes some of the Little Creek Bottomlands and Slopes SNHA, which was identified in inventories of Durham County conducted by the North Carolina Natural Heritage Program (Hall, 1995; Hall et al., 1999). Although no state or federally listed species are known to reside within this site, the SNHA contains one of the last remnants in the state of the large bottomland forests that once dominated the Triassic Basins and still supports a high diversity of the wildlife typical of this region. Swamp White Oak (*Quercus bicolor*) and Pin Oak (*Quercus palustris*), two species on the NC NHP Watch List, have been recorded from this SNHA but not from within the UNC tract, however the limited surveys cannot guarantee that these species are

not on the UNC tracts. These Watch List species are considered rare, but relatively secure, in North Carolina.

The University-owned tract appears to be completely forested. The majority of the uplands support a mature stand of Mesic Mixed Hardwood Forest, which extends downslope to the east and then grades into Piedmont Bottomland Forest just west of the Jordan Game Land boundary.

The Piedmont Bottomland and Mesic Mixed Hardwood forests in this SNHA are in surprisingly good condition, with numerous large trees greater than 20" diameter at breast height (DBH). The Jordan Game Land property line is located close to the base of the slope on the east side of the University tract.

Site Description:

Natural Communities:

The Little Creek Bottomlands and Slopes SNHA is largely defined by an extensive **Piedmont Bottomland Forest**. North of NC 54, much of this natural community is seasonally flooded by the man-made Upper Little Creek Wildlife Impoundment. The canopy in the area surveyed is dominated by cherrybark oak (*Quercus pagoda*), with many large trees measuring 22-25.5" DBH scattered throughout and some larger specimen trees, including tulip poplar (*Liriodendron tulipifera*) measuring 32" DBH and cherrybark oak measuring 42" DBH. Overall, the average DBH is 13-14". Additional species in the canopy include red maple (*Acer rubrum*), shagbark hickory (*Carya ovata*), sweetgum (*Liquidambar styraciflua*), loblolly pine (*Pinus taeda*), willow oak (*Quercus phellos*), and northern red oak (*Quercus rubra*). Understory trees include southern sugar maple (*Acer floridanum*). Shrubs include deciduous holly (*Ilex decidua*) and American holly (*Ilex opaca*). Vines include greenbrier (*Smilax sp.*), poison ivy (*Toxicodendron radicans*), and wild grape (*Vitis sp.*). Herbs are sparse at times of survey, but include false-nettle (*Boehmeria cylindrica*), grape fern (*Botrychium sp.*), rush (*Juncus sp.*), and Japanese honeysuckle (*Lonicera japonica*). This community type grades into Mesic Mixed Hardwood Forest upslope, where a wide ecotone is present on the low slopes, and grades into Piedmont Semipermanent Impoundment downslope at the edge of the artificial wildlife impoundment. Small ephemeral pools are scattered within this community type. 2006 and 2008 aerial photos indicate some potential beaver activity northeast of the impoundment, within the SNHA.

The western slopes of the SNHA north of NC 54 support a previously unreported mature **Mesic Mixed Hardwood Forest** strongly dominated by beech (*Fagus grandifolia*). This forest was not surveyed for the Durham Natural Inventory, but should be included within the SNHA, as it is a mature forest in very good condition. In addition to beech, the canopy includes red maple (*Acer rubrum*), mockernut hickory (*Carya alba*), sweetgum (*Liquidambar styraciflua*), white oak (*Quercus alba*), and northern red oak (*Quercus rubra*). Canopy trees average 12-15" DBH, and several larger trees in the range of 21-29 inches DBH were recorded, including beech, mockernut hickory, and tulip poplar. Understory trees include dogwood (*Cornus florida*) and eastern red cedar (*Juniperus virginiana*). The shrub layer includes many young beech, as well as strawberry bush (*Euonymus americana*). Herbs at the times of survey (February) are sparse, but include ebony spleenwort (*Asplenium platyneuron*), sedges (*Carex spp.*), little brown jug (*Hexastylis arifolia*), Christmas fern (*Polystichum acrostichoides*), and crane fly orchid (*Tipularia discolor*).

This community grades into Dry-Mesic Oak-Hickory Forest of mixed age upslope, but that natural community was not surveyed; it is expected to be relatively small in area, due to the upland development west of the UNC tract.

Both natural communities surveyed have very little influence from invasive exotic species, though small individuals of Japanese honeysuckle (*Lonicera japonica*) are scattered throughout. One small area that appears to be a historical home site has some large Russian olive (*Elaeagnus angustifolia*) and much Japanese stilt-grass (*Microstegium vimineum*). These areas should be treated and invasive species should be removed before they spread into the high quality natural areas.

Discussion of potential impacts and possible mitigative measures:

The significance of the Little Creek Bottomlands and Slopes SNHA lies mainly in the extensiveness of its Piedmont Bottomland Forest Natural Community. The site also includes some smaller Mesic Mixed Hardwood Forests. These forests provide movement corridors connecting wildlife populations over the entire region.

The uplands that border the floodplain of Little Creek are an integral part of this natural area, providing important buffers against the penetration of noise, lights, domestic animals, and other types of disturbances associated with developed areas. The upland buffers surrounding the wildlife impoundments – such as the one near the proposed project – are particularly important, in that they provide important areas of refuge for non-aquatic species during the winter months when waters are backed up to the very edge of the floodplain.

In our conservation recommendations for this site, as well as other sites located within the Jordan Game Land at the upper end of Jordan Lake, we have strongly supported the protection of these upland buffers that were largely left out of the original US Army Corps of Engineers purchase.

The main impact of concern to NHP at this site is the loss of a dry-land buffer needed for terrestrial wildlife during floods, including the flood pool created by the wildlife impoundments operated by the NC Wildlife Resources Commission. This buffer is needed not only as a refuge area in itself, but also as a movement corridor creating a link to other dry-land sites during times of high water levels.

Breaks in this strip of bufferlands by any one project can have significant consequences for the ability of animals to travel from one area to another. With increasing development along the edge of the Corps property, this buffer could be completely eliminated, drastically affecting the entire ecosystem associated with the floodplain forest. NHP, consequently, is concerned not only about the direct impacts of this project, but also with the indirect and cumulative impacts of all developments along the boundary of the Jordan Game Land.

Hall's 1999 attempt to represent this dry-land buffer through use of the 250' contour in the Durham County Inventory is admittedly just a rough guess as to the actual needs of the ecosystem. In order to protect habitat for the wildlife that use the bottomland in this area, we recommend protecting the Piedmont Bottomland Forest community, the mature Mesic Mixed

Hardwood Forests, and 100 meters of dry-land buffer around the maximum flood pool for the impoundment. Because accurate maps of the maximum yearly flood pool in this area are not currently available, we recommend using the 100 year flood hazard zone as an estimate for the maximum flood levels. A current estimate of the 100 year flood hazard zone can be obtained from the North Carolina Floodplain Mapping Program; see <http://www.ncfloodmaps.com/>.

References:

Hall, S.P. 1995. Inventory of the wildlife habitats, movement corridors, and rare animal populations of Durham County, North Carolina. NC Natural Heritage Program, Durham County Inventory Review Committee, and Triangle Land Conservancy.

Hall, S.P.; Sutter, R.D.; Pullman, E.; Simpson, A.C.; and Wilson, A.C. 1999. Durham County inventory of important natural areas, plants, and wildlife. NC Natural Heritage Program, Durham County Inventory Review Committee, and Triangle Land Conservancy.

Schafale, M. P., and A. S. Weakley. 1990. Classification of the natural communities of North Carolina. Third approximation. North Carolina Department of Environment, Health, and Natural Resources, Division of Parks and Recreation, Natural Heritage Program, Raleigh. 325 pp.

Weakley, A.S. 2009. Flora of the Southern and Mid-Atlantic States. Working draft of 25 November 2009. University of North Carolina Herbarium (NCU), NC Botanical Garden, University of North Carolina, Chapel Hill, North Carolina.



North Carolina Department of Environment and Natural Resources
Division of Natural Resources Planning and Conservation

Beverly Eaves Perdue
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Linda Pearsall
Director

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Secretary

February 12, 2010

Wendy Hillis
Facilities Planning Department
University of North Carolina
Campus Box 1090
Chapel Hill, NC 27599-1090

RE: Little Creek Bottomlands and Slopes Significant Natural Heritage Area (Durham County Natural Heritage Inventory Site)

Dear Ms. Hillis,

In response to a concept plan proposal for the expansion to the Rizzo Conference Center, owned by University of North Carolina, we are providing the attached site report about the portion of the Little Creek Bottomlands and Slopes Significant Natural Heritage Area (SNHA) that would be impacted by the proposed expansion.

The NC Natural Heritage Program (NHP) inventories, catalogues, and supports conservation of areas that are important for preservation of natural diversity within our state. Although NHP is a non-regulatory agency and therefore has no legal jurisdiction to protect areas identified as significant conservation areas, we believe these areas merit special consideration as land-use decisions are made. Local governments, including counties and municipalities have variously adopted land use ordinances to promote protection of SNHAs (or sites) identified in Inventories. As Chapel Hill and Orange County have not yet formally adopted measures to protect SNHAs, we request that land owners and land managers voluntarily take these areas into consideration when developing land use and development plans.

Recent site visits were conducted to verify the boundary of the Little Creek Bottomlands and Slopes SNHA and assess potential impacts. As a result of our site visits, we are updating the boundary of the SNHA. The new boundary will include mature, high quality forests mapped by NHP and a 100 meter wide strip of uplands surrounding the limits of the 100 year floodplain mapped by the North Carolina Flood Mapping Program (2007). In addition to the standardized buffer around the floodplain, we are also deleting areas that have been developed, based on the 2008 NAIP aerial photographs. These boundaries are shown in the attached map and can be sent to your office as GIS shape files upon request.

Moreover, we recommend protecting the high quality natural communities and a 100 meter wide strip of upland buffer around the 100 year floodplain along the entire boundary of the Jordan Game Land property within the

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Little Creek watershed as the approximate border for³⁵ the natural area. This buffer extends onto the property proposed for development. While we support consideration of our SNHAs for review of potential impacts, we recommend that the boundaries be viewed as estimates based on biological criteria and are, consequently, indefinite in nature. Nonetheless, we support their use as triggers for environmental review when impacts from a proposed project cross their bounds.

One of our main concerns regarding the proposed project is the possible reduction of the dry land buffer during flood events and its consequent impacts on the wildlife associated with the bottomland forest. In assessing the significance of these impacts, we recommend that several factors be taken into consideration:

- 1) The current or projected flood regime at this site. The Corps estimate of the 240' contour represents the estimated maximum flood pool for the reservoir, but we now regard current estimates of the 100 year floodplain in the immediate vicinity of the project site to be more realistic. The estimate we are using to correct the boundaries was obtained from the North Carolina Floodplain Mapping Program (<http://www.ncfloodmaps.com/>).
- 2) The extent of the flood pool of the Upper Little Creek Wildlife Impoundment. This impoundment is filled nearly every winter to support duck hunting.
- 3) In assessing the adequacy of the dry land buffer at this site, we recommend using a 100 meter width extending out from either the flood pool of the wildlife impoundment or the current 100 year floodplain, whichever represents the greater extent of flooding in this area. This area will provide important refuge for animals during annual winter flooding of the impoundment.

In addition to the direct impacts of this project, we also recommend that the cumulative nature of the impacts be considered. As the boundary of the Army Corps of Engineers property around the Jordan Lake area continues to be developed, there will be less and less refuge left for wildlife during flood events – either natural or man-made. Maintaining a dry land buffer along the entire boundary of the Jordan Lake area will, therefore, become increasingly important, as will the review of the combined impacts to that buffer.

I and my staff will be happy to answer any questions or discuss protection of this natural area. Please contact me at 919-715-4195 or Misty Buchanan at 919-715-8700 for further information.

Sincerely,



Linda Pearsall, Director
North Carolina Natural Heritage Program

cc: George Buchholz, EcoEngineering
J.B. Culpepper, Planning Director, Town of Chapel Hill
Kay Pearlstein, Senior Planner, Town of Chapel Hill

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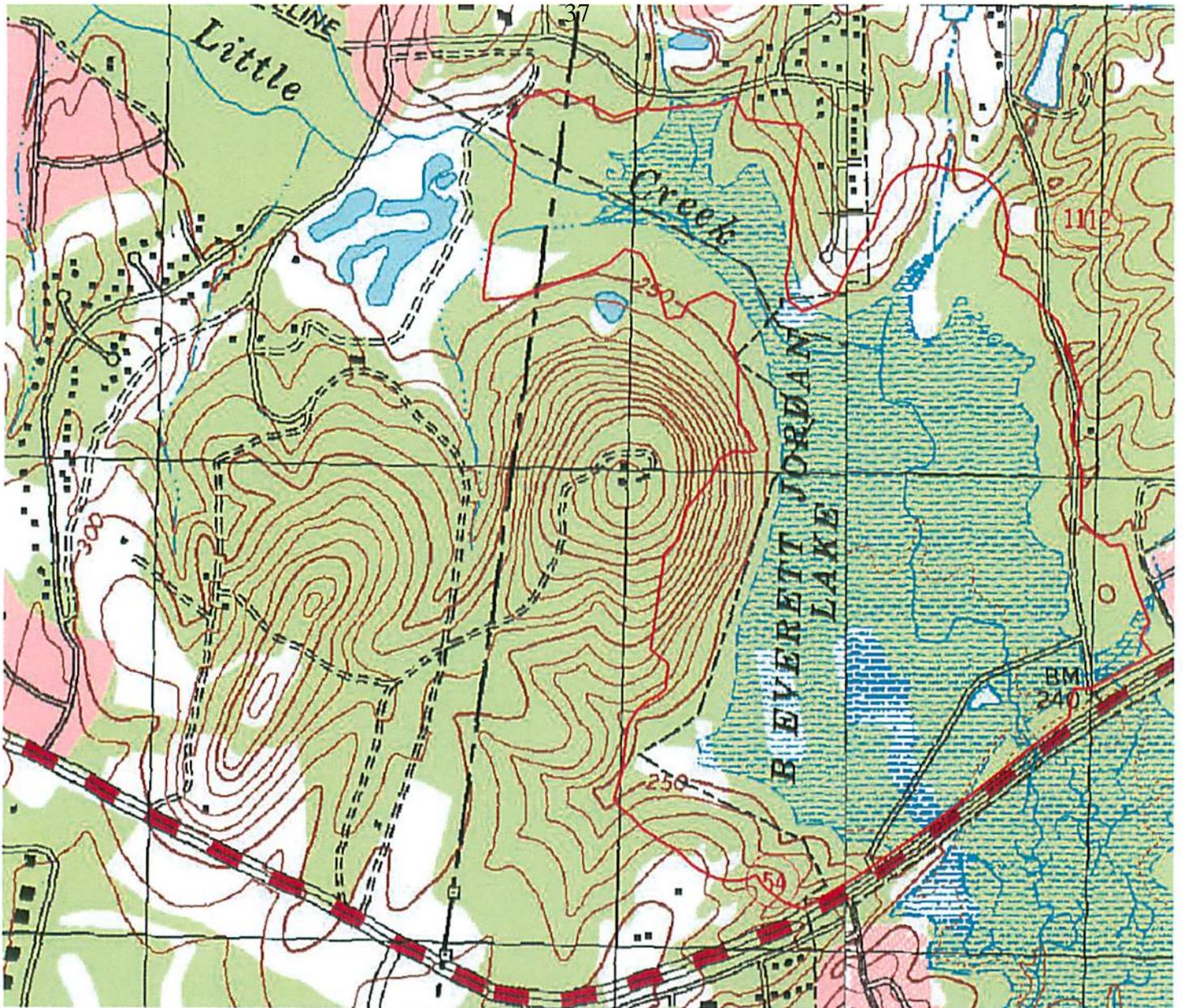


Red line on map shows the boundary of the Little Creek Bottomlands and Slopes Significant Natural Heritage Area (SNHA) north of NC 54 overlaid on 2008 aerial image. The SNHA area south of NC 54 is not shown on this map. Contact NC NHP for full extent of SNHA.

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Red line on map shows the boundary of the Little Creek Bottomlands and Slopes Significant Natural Heritage Area (SNHA) north of NC 54 overlaid on USGS Topo map. The SNHA area south of NC 54 is not shown on this map. Contact NC NHP for full extent of SNHA.

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