

Executive Summary

Inventory of Natural Areas and Wildlife Habitats for Orange County, North Carolina

North Carolina Natural Heritage Program
Orange County Environment & Resource Conservation
Department

March 2005

SIGNIFICANT NATURAL HERITAGE AREAS OF ORANGE COUNTY

Orange County is located near the eastern edge of the North Carolina Piedmont, within the popular and rapidly developing Research Triangle region of North Carolina. Typical landscape features of the county include gently rolling hills, broad, upland ridges, and low energy streams with narrow floodplains. The two most common natural communities are Mesic Mixed Hardwood Forest and Dry-Mesic Oak-Hickory Forest, types of eastern deciduous forest.

The natural communities of Orange County are strongly associated with the variety of topographic, geologic, soil, and hydrologic conditions found throughout the county. Geologically, much of the county's 396 square miles is within the Carolina Slate Belt, which is composed of diverse, generally metamorphosed volcanic rocks. Two geographic features in Orange County stand out against the background of typical Piedmont formations. The southeastern most corner dips into the Triassic Basin, which is a low-elevation area of sedimentary, easily eroded rock. Orange County's lowest elevation, 240 feet, occurs in an area of Piedmont Swamp Forest along the western margin of the Triassic Basin. Many of the animals found here are normally distributed in the Coastal Plain.

The other important geographic feature is the monadnocks, which are hills capped with rock that is more resistant to erosion than the surrounding terrain. The highest elevation in Orange County is the monadnock summit of Occoneechee Mountain, at 860 feet high. Monadnocks are rare in the outer Piedmont, and their flora and fauna often show distinctly montane affinities. The group of monadnocks nearest to Orange County is in the Uwharrie range, and their summits have a similar montane biota. Orange County monadnocks are smaller in area. While the habitat on Occoneechee Mountain is the most unique and important, Orange County has a significant cluster of these isolated hills, including Blackwood, Bald, Pickards, McCauley, Crawford, and Mitchells "mountains." Other higher elevation areas occur along Morgan Creek, New Hope Creek, and the Eno River, where steep slopes have been cut by water action, but these rarely exceed 150 feet in relief. Many of the most unique natural areas of the county, such as rhododendron communities, pine – oak bluffs, and all of the dry, rocky slopes are restricted to these steep, stream-cut slopes.

Though a small area, Orange County has an unusually high degree of diversity in its aquatic species, due to the presence of three different river basins (Cape Fear, Neuse, and Roanoke) within its limits. Orange County contains the headwaters of numerous streams that flow into these rivers. New Hope Creek, Morgan Creek, Cane Creek, and Back Creek flow into the Cape Fear River system via the Haw River, which forms the county's southwestern corner. In the north, the Eno River and Little River (North and South forks) flow eastward into the Neuse River. South Hyco Creek and Lynch Creek, in Cedar Grove Township, flow north into the Roanoke River system, which soon enters Virginia. The Neuse River waterdog (*Necturus lewisi*) is probably the most restricted animal that occurs within Orange County. It is found only within the Neuse and Tar River systems of North Carolina and reaches its westernmost limit in the Eno River within Orange County.

There are no natural lakes in Orange County. Small examples of marshy terrain are found in some of the larger semi-permanent beaver ponds, and around the margins of University Lake and several other long-established reservoirs. Humans have generally altered seeps and springs, except in situations directly within floodplains, where these important amphibian-breeding habitats have been allowed to persist.

The natural area inventory conducted in Orange County during 2001-2002 identified 53 significant natural heritage areas, including 3 sites of national significance, 10 sites of state significance, 8 sites of regional significance, and 32 sites of county significance. Of the three nationally-significant sites, two are entirely within North Carolina Public Waters and one is privately-owned; of the ten state-significant sites, one is entirely within North Carolina Public Waters, two are privately-owned, one is partially in private conservation, one is publicly-owned, two are partially publicly-owned and in private conservation, one is entirely publicly-owned or within private conservation, and two are partially within a state park. Of the eight regionally-significant sites, three are privately-owned, two are partially publicly-owned, one is partially within a state park, two are partially in private conservation.

Frequently, sites occur in clusters with strong geographical connections and ecological relationships. Such clusters of sites are designated as "macrosites". The natural heritage areas of *national*, *state*, and *regional* significance in Orange County are summarized below, and are grouped according to their occurrences within macrosites. Isolated sites (those not in a macrosite) are placed in a stand-alone group.

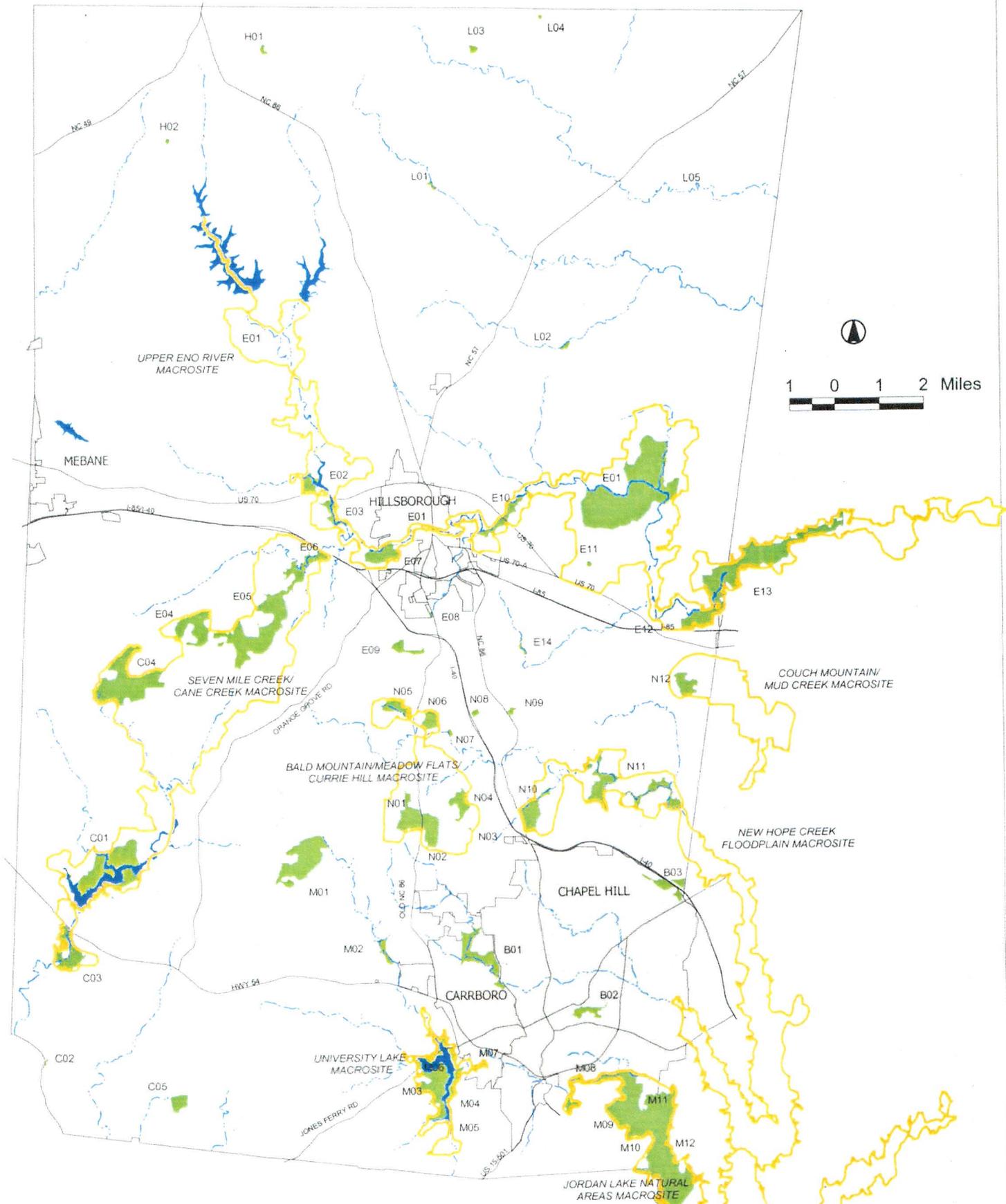
Funding for this project was provided by the North Carolina Natural Heritage Trust fund and Orange County, North Carolina. The inventory was updated by Bruce Sorrie and Rich Shaw and published by the North Carolina Natural Heritage Program.

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- Orange County Macrosites
- Natural Areas 2004
- Major Roads
- Reservoirs & Lakes
- Major Streams
- Cities

Figure 4. Natural Areas and Macrosites in Orange County



SITES OF NATIONAL, STATE, AND REGIONAL SIGNIFICANCE IN ORANGE COUNTY



Sevenmile Creek/Cane Creek Macrosite

Sevenmile Creek Sugar Maple Bottoms (regional significance) is the richest bottomland remaining in the county, and is located just west of Hillsborough. All other rich, basic bottomlands along upland streams have been brought under cultivation. Nowhere else occurs such a large stand of southern sugar maple (*Acer barbatum*), hackberry (*Celtis laevigata*), and swamp chestnut oak (*Quercus michauxii*). The most important value of this site, however, is the amazingly profuse herb layer. Particularly impressive are the large patches of such regionally rare species as maidenhair fern (*Adiantum pedatum*) and blue cohosh (*Caulophyllum thalictroides*); this is, in fact, the only known site for the blue cohosh in Orange County and much of the surrounding Piedmont. Ownership of this site is by Orange County and private landowners.

Upper Eno River Macrosite

Eno River Aquatic Habitat (national significance) has an extremely diverse aquatic fauna, including nine rare mussel species, three rare fish species and one rare amphibian. This site runs in two narrow east-southeast corridors in the central to eastern portion of the county (the site continues over the Durham County line). Also, several important terrestrial sites are adjacent to the Eno River. The Orange County portion of the Eno River contains one federally endangered mussel species—the dwarf wedgemussel (*Alasmidonta heterodon*). It has been found at one location in the county. In addition, the federal species of concern and state endangered brook floater (*Alasmidonta varicosa*), Atlantic pigtoe (*Fusconaia masoni*), yellow lampmussel (*Lampsilis cariosa*) and green floater (*Lasmigona subviridis*) have all been found in the Orange County portion of the Eno River. This site is entirely within North Carolina Public Waters.

Occoneechee Mountain (state significance) in the central part of the county is the highest point in Orange County and in the Triangle Region. As part of the overall massif of Occoneechee Mountain, this area forms an important wildlife reservoir; its position along the Eno further enhances its value since the valley of the Eno is one of the most significant wildlife corridors in the county. Naturalists have long recognized the Panther's Den ravine as state significant because of the several disjunct plant species that reach their easternmost limits at this site. The site is owned by the State of North Carolina, the Town of Hillsborough, the Eno River Association, and private landowners.

Eno River/Cates Ford and Uplands (state significance) are located in the eastern section of the county, and this large site combines five contiguous sites that had been listed separately in the original 1988 inventory. They are the Rich Mesic Slopes, Uplands and Vernal Pools, Buckwater Creek Ridge and Slopes, Cox's Mountain and Cate's Ford. These areas include some of the richest forest slopes in Orange County, with north-facing slopes supporting a mesic mixed hardwood forest with an outstandingly diverse herb layer, massive rock outcrops, upland depressions and a very well-developed riparian community. Part of this site is within the Eno River State Park, the rest is in private ownership.

Middle Eno River Bluffs and Slopes (state significance) is in the eastern section of the county and extends into Durham County. Several different habitats and state-listed species are found along the nearly two-mile portion of the site in Orange County. At the driest extreme is a community growing on a steep, 80-foot bluff near the reservoir near the western boundary of this natural area. On gentler, less-exposed slopes occur mixed mesic hardwoods. At the bottom of these slopes, the herbaceous layer is very rich, as evidenced by the presence of maidenhair fern (*Adiantum pedatum*), wild ginger (*Asarum canadense*), and bloodroot (*Sanguinaria canadensis*). Most of the site lies within Eno River State Park, the rest is in private ownership.

ERSP Mountain Spleenwort and Rhododendron Bluff (regional significance) in the eastern section of the county, is the easternmost known location in the Carolinas for the mountain spleenwort (*Asplenium montanum*), a regionally rare plant species disjunct from the mountains. Additionally, the steep north-facing bluff on this bend of the Eno is the location of one of only nine populations of catawba rhododendron (*Rhododendron catawbiense*) in the county. A regionally rare disjunct animal, the red-backed salamander (*Plethodon cinereus*), is found here and at only two other sites in Orange County (Kings Mill and Mason Farm Pond: M08). Part of this site is within the Eno River State Park, the rest is in private ownership.

Cates Creek Hardwood Forest (regional significance) is in the central area of the county. Though reduced in size by surrounding development, this site is a good example of bottomland forest occurring over basic clay soils. The impermeability of this clay and the circumneutral pH provide habitat for such basophilic species as slippery elm (*Ulmus rubra*) and redbud (*Cercis canadensis*). The atamasco lily (*Zephyranthes atamasco*), found at scattered locations throughout the county on wet clay soils, is also present here. This site is on private land.

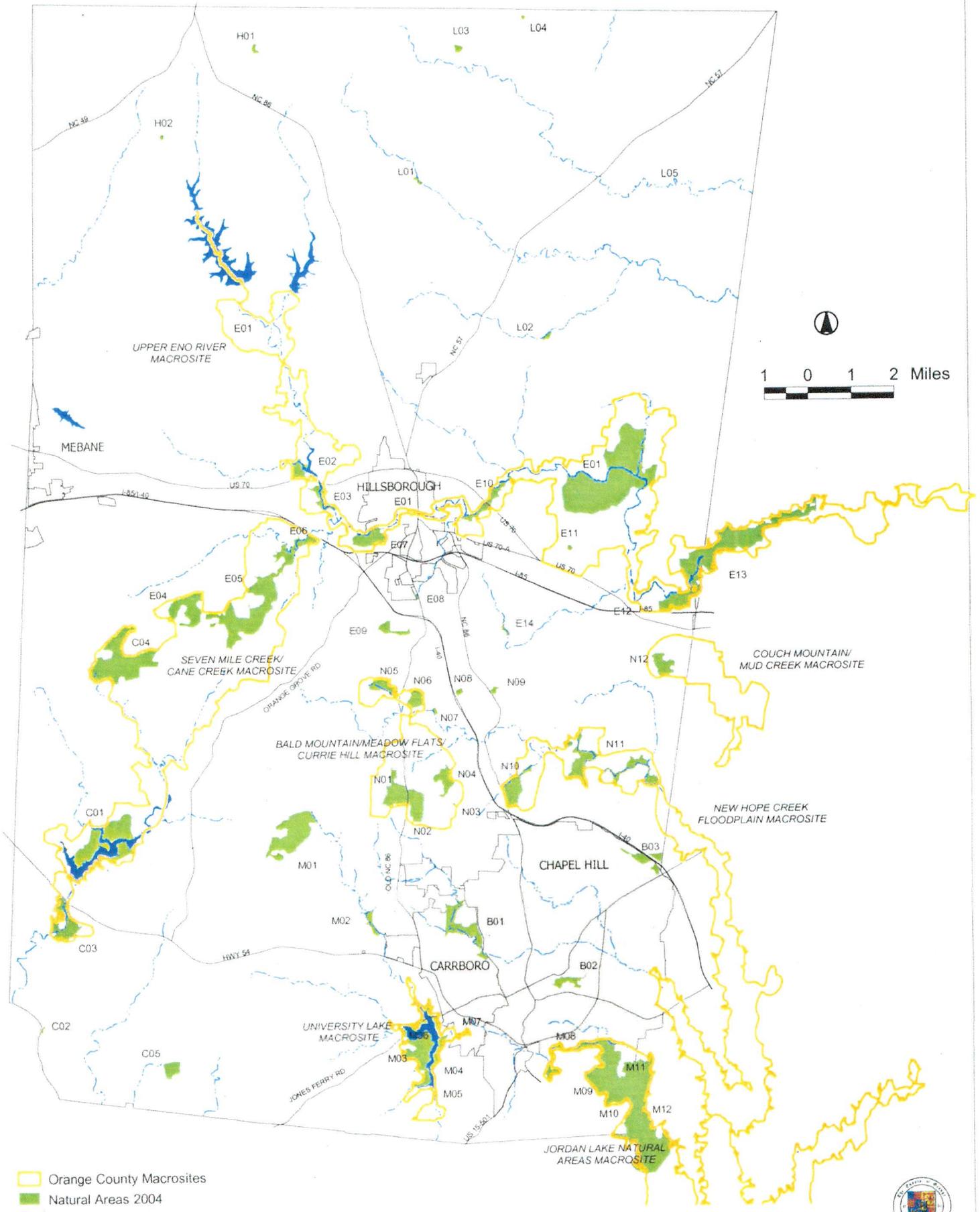


Figure 4. Natural Areas and Macrosites in Orange County

