

SITES WITH UNUSUAL TOPOGRAPHY

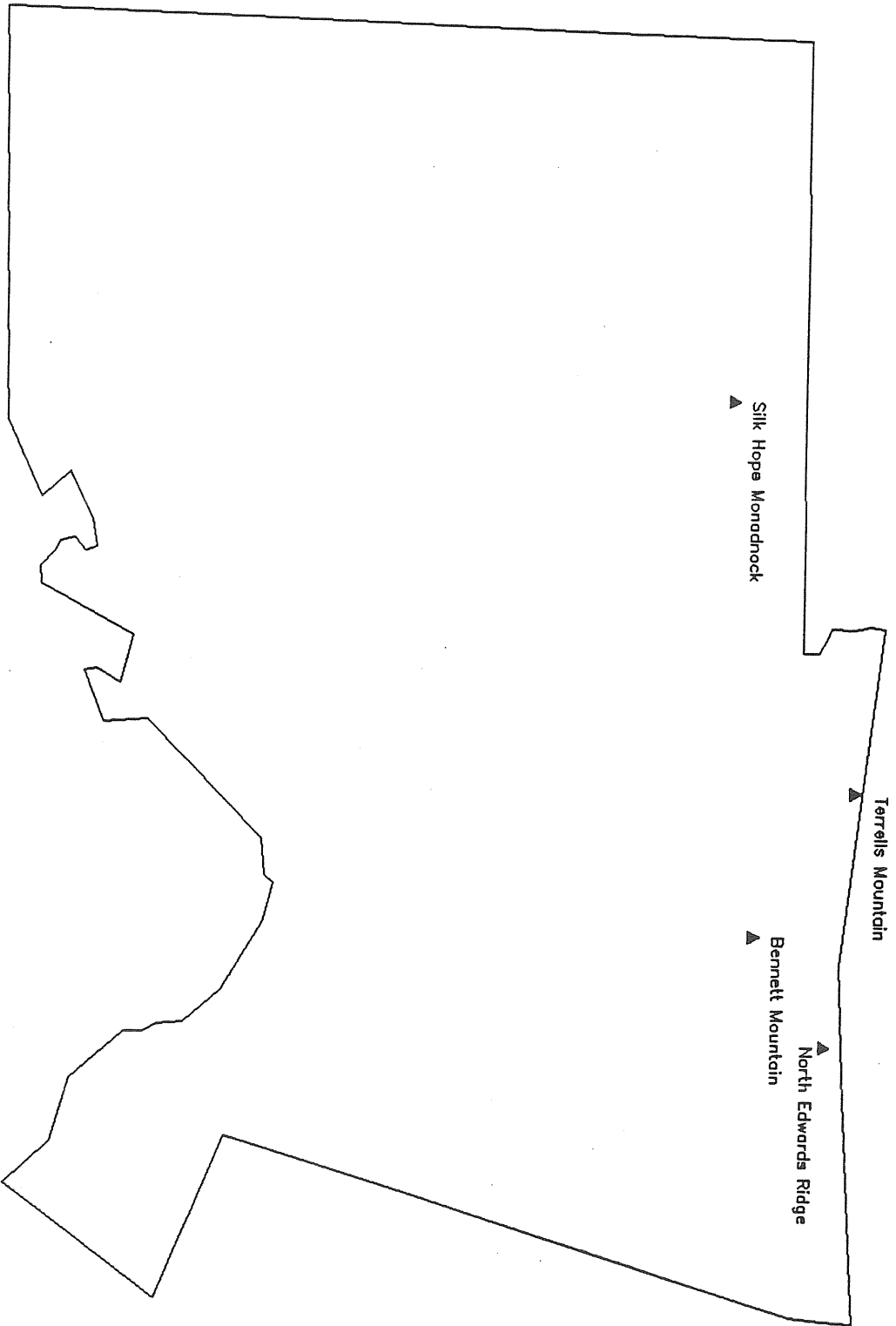
Most of the sites identified in this inventory are distinguished primarily by their topography, which in one way or another departs from the gently rolling landscape typical of the Piedmont. As mentioned in the Introduction, plant communities show strong correlations not only with soil chemistry and texture, but also with drainage and microclimate. Unusual communities for the Piedmont include those at the xeric moisture extreme, growing on dry, rocky summits, as well as those at the hydric extreme, occurring in swamps and bottomlands. This category also includes a number of communities showing strong affinities to the mountains, growing only on steep, north-facing slopes located above streams and rivers.

Due primarily to their topography, these are additionally sites that have largely escaped intensive cultivation and utilization for housing. Although all forests in the Piedmont are second-growth, bottomlands, steep slopes and ridges have historically been more difficult to exploit and consequently contain some of the most mature woodlands remaining in our area.

INSELBERGS

Four sites in Chatham County are located on the summits and upper slopes of inselbergs (formerly called monadnocks), which are "mountains" or hills that rise sharply above the surrounding terrain. These sites are characterized by thin, well-drained soils and scattered, usually prominent outcrops of boulders. The forests capable of growing on such sites show strong affinities to Blue Ridge communities, containing such characteristic species as chestnut oak, which form almost pure stands in some places, and scarlet oak. While these sites were formerly little exploited for timber or agriculture, they are now targets for upscale housing developments, because of the vistas they offer as well as for beauty of their mature forests.

Figure 6. Monadnock Forests



SITE NAME: Terrells Mountain

SIGNIFICANCE: County

INTEGRITY: Good to fair

THREATS: High -- residential development and expansion of the radio facility

PROTECTION STATUS: None

JURISDICTION: Baldwin Township

OWNERSHIP: Private and State of North Carolina (UNC)

SUMMARY OF SIGNIFICANT FEATURES:

1. This is one of the few true inselbergs that occur in Chatham County.
2. It contains the best example of Piedmont Monadnock Forest remaining in the county. Apart from the Uwharries and foothills of the Blue Ridge, this type of community is restricted to just a handful of isolated sites in the piedmont.

GENERAL SITE DESCRIPTION:

Terrells Mountain is a classic example of an inselberg, a ridge or peak that rises sharply above the surrounding terrain. Typically, they occur where a mass of resistant rock has become isolated while the adjacent terrain has weathered away. In the case of Terrells Mountain, the resistant rock appears to be the solid core of an ancient volcano. Rock outcrops exposed along the summit consist of rhyolites, volcanic glass, and other extrusive igneous formations. Flow-banding, produced as lava and ash becomes hardened in the process of streaming downslope, is evident in many of these rocks.

The Piedmont Monadnock Forests that grow atop these rocky inselbergs are as isolated and as unique as the inselbergs themselves. The characteristic species is the rock chestnut oak (Quercus prinus), which often forms nearly pure stands on these sites but is rare elsewhere in the piedmont. In Chatham County, for instance, chestnut oak is an important species only at Terrells Mountain, Edwards Mountain (FARN2), and a small inselberg near Silk Hope (SILK2). Other oaks and hickories also occur in these communities in varying proportions. On Terrells Mountain, white oak (Q. alba) is co-dominant with chestnut oak on all but the rockiest areas. Other dry oaks and hickories present on the summit and north slope of Terrells Mountain include scarlet oak (Q. coccinea), black oak (Q. velutina), post oak (Q. stellata), mockernut (Carya tomentosa), and red hickory (C. ovalis). Large patches of huckleberries (Gaylussacia frondosa) and blueberries (Vaccinium tennellum and V. vacillans), shrubs typical of these dry acidic sites, occur particularly on the north slope. Herbs are sparse.

In addition to the composition of this community, another striking feature of many inselberg forests is their age. Due to the low level of timbering and agricultural exploitation that has occurred on these steep, rocky, and dry summits, these forests represent some of the oldest growth remaining in the piedmont. On Terrells Mountain, trees average over 50 cm (18 inches) in diameter and the largest, a white oak, is 69 cm. Although trees of this size occur elsewhere in Chatham County, they usually exist only as widely scattered individuals.

One other noteworthy community occurring on Terrells Mountain is the xeric oak-hickory forest located on the southern slope below the summit. This is the largest expanse of south-facing slope in the county and it possesses the county's best and least disturbed tract of Dry Oak-Hickory Forest. The open canopy is dominated by southern red oak (Quercus falcata), post oak, and mockernut. Other species indicating the extreme dryness of this slope are blackjack oak (Q. marilandica), scarlet oak, short-leaf pine (Pinus echinata), and virginia pine (P. virginiana). Large areas are relatively barren, with only a sparse growth of such xerophytic herbs as rock oregano (Cunila origanoides), St. John's wort (Hypericum sp.), and goat's rue (Tephrosia spicata). An interesting element of this herb layer is slender ladies' tresses (Spiranthes gracilis), an orchid that grows primarily on dry, thinly wooded slopes.

The animal community of this site is relatively depauperate, as is the usual case in dry upland forests, but may have been further diminished here due to the development along the top of the mountain. Nonetheless, the presence of box turtles (Terrapene carolinensis), hairy woodpeckers (Picoides villosus), and white-breasted nuthatches (Sitta carolinensis) is indicative of the maturity of woodlands, as well as its extensiveness.

CONSERVATION RECOMMENDATIONS:

Although long-undeveloped due to their rocky, inhospitable nature, inselbergs have recently become prime sites for radio, television, and microwave transmission facilities. They are also fast becoming popular sites for upscale housing, due to the unspoiled nature of their forests and the spectacular views they often afford. Terrells Mountain, in particular, is vulnerable to development because of its proximity to Chapel Hill. Conservation of the remnant monadnock forest on the summit deserves the utmost priority if it is to survive at all. The University and private landowners should be contacted immediately to inform them of the significance of this site. Registration should be the first step, but long-term survival of this community will require the acquisition of a conservation easement or outright purchase of the remaining undeveloped tracts. Although it is the summit that is in imminent danger, attention should also be given to the lower slopes, which are still in relatively good condition, and particularly to the excellent dry oak-hickory forest growing on the south slope.

SITE SURVEY REPORT

Site name: Terrells Mountain
County: Chatham

Date(s): 14/VIII/88, 4/IX/89

Surveyors:

Stephen P. Hall, Ph.D
NC Natural Heritage Program
P.O. Box 27687
Raleigh, NC 27611-7687
(919) 733-7701

Marjorie Boyer
NC Plant Conservation Program
P.O. Box 27647
Raleigh, NC 27611
(919) 733-3610

Size: 188 acres

Quad: Bynum

Province: Piedmont

Watershed: Terrells Creek --> Haw River --> Cape Fear River

Location and directions: Ridge located due north of SR 1540 and east of SR 1541

Landowners and addresses:

Owners contacted and attitude:

General landscape description: See Site Description

Physical description

Aspect: Primarily North and South

Slope: 10-35

Topographic position: Crest, upper and mid slope

Hydrology: Terrestrial

Moisture: Dry (Xeric)

Elevation: 500 - 755'

Geology: Flow-banded rhyolites, volcanic glass and other extrusive felsic series (similar to Bald Mountain in Orange County)

Soils: Herndon Silt Loam (stony phase)

Comments on physical description: Highest elevation in the county; an inselberg with steep south-facing slope

Biological description

Community # 1: Piedmont Monadnock Forest

Vegetation structure: Forest

Position in landscape and relation to other communities: Crest and upper north slope

Quality and condition: Mature forest but disturbed due to presence of radio towers and new houses

Size:

Dominants (*) and important species:

Canopy:

Acer rubrum
Carya ovalis
Carya tomentosa
Nyssa sylvatica
Oxydendrum arboreum
Pinus taeda
Quercus alba *
Quercus coccinea
Quercus prinus *
Quercus stellata
Quercus velutina

Subcanopy:

Cornus florida
Sassafras albidum

Shrubs and vines:

Chionanthus virginicus
Elaeagnus umbellata
Gaylussacia frondosa
Ilex opaca
Juniperus virginiana
Lonicera japonica
Prunus serotina
Vaccinium tenellum
Vaccinium vacillans
Viburnum dentatum
var. lucidum
Viburnum rufidulum
Vitis rotundifolia

Herbs:

Asplenium platyneuron
Chimaphila maculata
Desmodium nudiflorum
Hexastylis arifolia
Polygonum sp.

Biological description

Community # 2: Dry Oak-Hickory Forest

Vegetation structure: Forest

Position in landscape and relation to other communities: South-facing slope

Quality and condition: Good

Size:

Dominants (*) and important species:

Canopy:

Carya glabra
Carya ovalis
Carya tomentosa *
Liriodendron tulipifera
Nyssa sylvatica
Pinus echinata
Pinus taeda
Pinus virginiana
Quercus alba
Quercus coccinea
Quercus falcata *
Quercus marilandica
Quercus stellata *
Quercus velutina

Subcanopy:

Acer rubrum
Juniperus virginiana

Shrubs and vines:

Amelanchier arborea
Hypericum sp.
Ilex opaca
Rhus copallina
Smilax bona-nox
Vaccinium tenellum
Viburnum rafinesquianum
Viburnum rufidulum
Vitis rotundifolia

Herbs:

Aureolaria virginica
Chimaphila maculata
Cunila origanoides
Desmodium nudiflorum
Euphorbia corollata
var. zinniflora
Hieraceum venosum
Lespedeza procumbens
Spiranthes gracilis
Tephrosia spicata

Special status species

State-listed species: None observed

Potential for other special status species: Low

Other noteworthy species or features:

Community:

Piedmont Monadnock Forest

Site condition

Site integrity: Good

Average DBH of canopy trees: 50-55 cm

Maximum DBH of canopy trees: 69 cm

Fire regime: Natural

Logged: Within last 50-100 years

Evenness of canopy: Natural

Ditched/drained: No

Stream channelized: No

Dredged/filled: No

Understory cleared: No

Grazed: No

ORV damaged: No

Other disturbances: WUNC radio towers; new houses

Adjacent Land Uses: Forest, residential, radio-tower

Significance of site: County

Discussion: See Site Description

Protection considerations and management needs: An effort should be made to preserve the Chestnut Oak forest on the summit, one of the very few examples of its kind in Chatham County.

Determination of survey boundaries: Encloses steep slopes and ridgetop; includes some houses and the radio facility.

Priority for further study: Medium

Specimens collected: Rhyolite and other rock samples

Photographs: Flow-banded rhyolite

Others knowledgeable about the site:

References:

Topo map: Attached

Sketch map: None

PLANT SPECIES LIST

List is: Medium-thorough

- Asplenium platyneuron (13)
- Pinus echinata (16)
- Pinus taeda (16)
- Pinus virginiana (16)
- Juniperus virginiana (18)
- Smilax bona-nox (41)
- Spiranthes gracilis (49)
- Carya glabra (53)
- Carya ovalis (53)
- Carya tomentosa (53)
- Quercus alba (55)
- Quercus coccinea (55)
- Quercus falcata (55)
- Quercus marilandica (55)
- Quercus prinus (55)
- Quercus stellata (55)
- Quercus velutina (55)
- Hexastylis arifolia (62)
- Polygonum sp. (63)
- Liriodendron tulipifera (80)
- Sassafras albidum (84)
- Amelanchier arborea (97)
- Prunus serotina (97)
- Desmodium nudiflorum (98)
- Lespedeza procumbens (98)
- Tephrosia spicata (98)
- Euphorbia corollata
 - var. zinniflora (107)
- Rhus copallina (110)
- Ilex opaca (112)
- Acer rubrum (115)
- Vitis rotundifolia (120)
- Hypericum sp. (126)
- Elaeagnus umbellata (134)
- Nyssa sylvatica (141)
- Cornus florida (142)
- Chimaphila maculata (145)
- Gaylussacia frondosa (145)
- Oxydendrum arboreum (145)
- Vaccinium tenellum (145)
- Vaccinium vacillans (145)
- Chionanthus virginicus (153)
- Cunila origanoides (164)
- Aureolaria virginica (166)
- Lonicera japonica (174)
- Viburnum dentatum
 - var. lucidum (174)
- Viburnum rafinesquianum (174)
- Viburnum rufidulum (174)
- Hieraceum venosum (179)

ANIMAL SPECIES LIST

List is: Cursory

Vertebrates:

- Melanerpes carolinus
- Picoides pubescens
- i Picoides villosus
- Contopus virens
- Cyanocitta cristata
- Parus bicolor
- i Sitta carolinensis
- Thryothurus ludovicianus
- Sialia sialis
- Odocoileus virginianus
- i Terrapene carolina
- Eumeces fasciatus
- Scincella lateralis

SITE NAME: Silk Hope Inselberg

SIGNIFICANCE: County

INTEGRITY: Good to fair

THREATS: Medium -- timbering

PROTECTION STATUS: None

JURISDICTION: Albright Township

OWNERSHIP: Private

SUMMARY OF SIGNIFICANT FEATURES:

1. This is one of the few true inselbergs that occur in Chatham County.
2. The forest on the summit of this small hill is one of only three examples of Piedmont Monadnock Forest that occur in the county.

GENERAL SITE DESCRIPTION:

The Silk Hope Inselberg, one of the highest points in Chatham County, is a small but distinct peak rising steeply about 150 feet above the surrounding countryside. Like Terrells Mountain, it is a good example of an inselberg, a body of resistant rock persisting as the softer surrounding area has weathered away. Judging from surface rocks, this hill is probably the remnant of a volcanic cone.

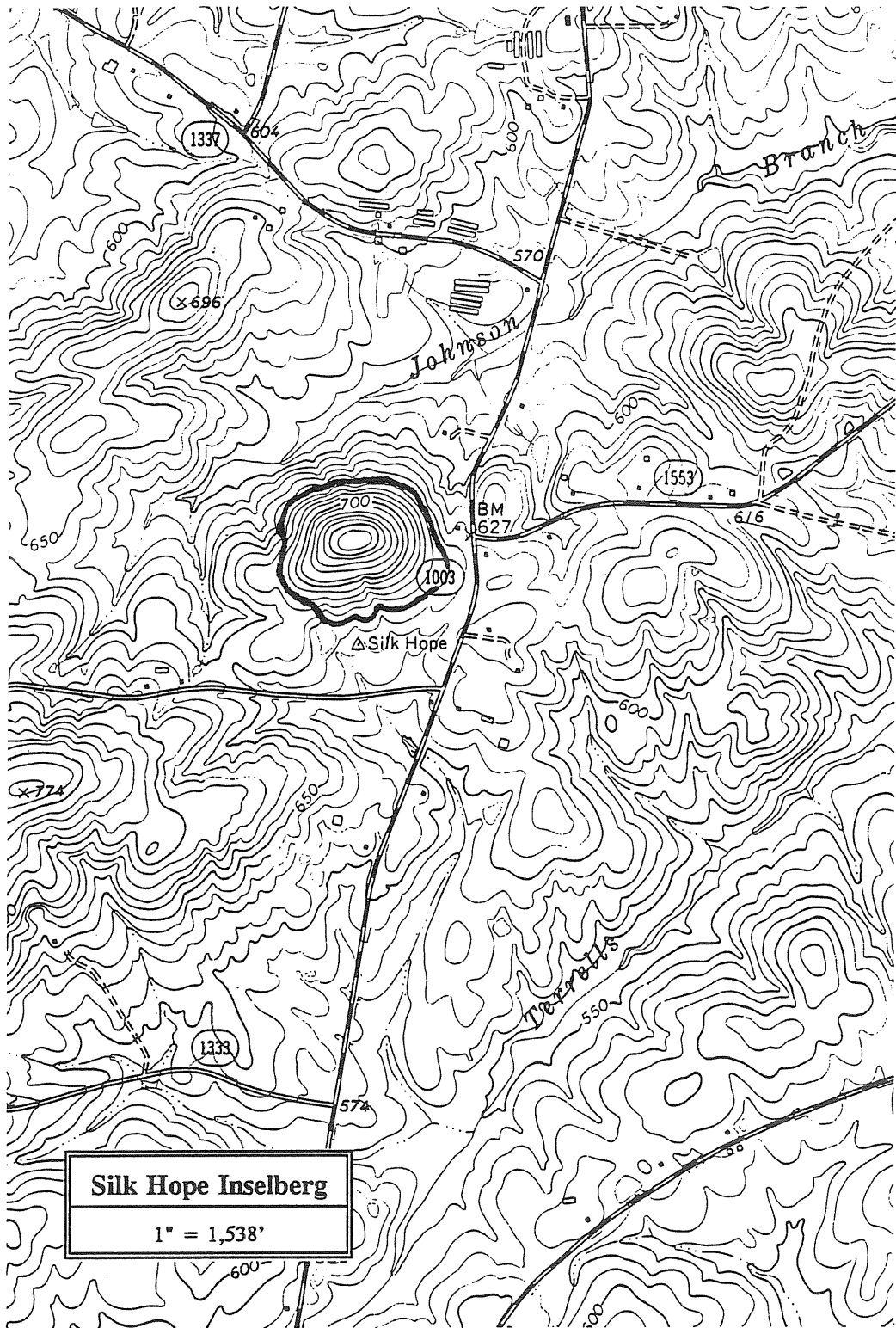
While part of the eastern slope of the hill has been recently timbered, the north and west slopes are covered with relatively undisturbed forest. Rock chestnut oaks (Quercus prinus) dominate a two-acre area near the summit, forming one of only three Piedmont Monadnock Forests found in the county. In the rest of the forest the rock chestnut oaks are only one element within a diverse mix of dry-mesic oaks (Q. alba, Q. falcata, Q. coccinea) and hickories (Carya tomentosa, C. glabra). The trees at the summit are large, with several individuals of 60-70 cm diameter. The forest of the lower slopes, on the other hand, is somewhat younger, the canopy trees averaging 45 cm diameter. Under the semi-open canopy are patches of huckleberries (Gaylussacia frondosa) and blueberries (Vaccinium tennellum). A variety of wildflowers is present, particularly on north slope, including crested iris (Iris cristata), bellworts (Uvularia spp.), and lovage (Ligusticum canadense). One somewhat surprising species present in this relatively dry habitat is lady fern (Athyrium asplenioides).

The forest on this hill is isolated within an agricultural landscape. In comparison to the larger and more contiguous tracts of similar forest occurring on Terrells and Edwards Mountain, the animal community observed here is quite depauperate. At 37 acres, this site

contains relatively little area that does not show edge effects and only two species of forest interior birds were observed: ovenbird (Seiurus aurocapillus) and yellow-billed cuckoo (Coccyzus erythrophthalmus). More characteristic species are the wood peewee (Contopus virens) and summer tanager (Piranga rubra), both of which prefer dry, open woodlands, particularly those containing large trees.

CONSERVATION RECOMMENDATIONS:

This site is best protected by alerting the landowner to the significance of this small but unusual tract of forest. Registration of the site, either as a state or county natural area, is a first step, but acquisition of a conservation easement would best ensure the integrity of this site over the long run.



Silk Hope Inselberg
1" = 1,538'

SITE SURVEY REPORT

Site name: Silk Hope Inselberg
County: Chatham

Date(s): 7/VI/89

Surveyors:

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P.O. Box 27687
Raleigh, NC 27611-7687
(919) 733-7701

Marjorie Boyer
NC Plant Conservation Program
P.O. Box 27647
Raleigh, NC 27611
(919) 733-3610

Size: 37 acres

Quad: Silk Hope

Province: Piedmont

Watershed: Johnson Branch --> Terrells Creek --> Haw River --> Cape Fear River

Location and directions: Summit due west of intersection between NC 1003 and NC 1553

Landowners and addresses:

Owners contacted and attitude:

General landscape description: See Site Description

Physical description

Aspect: Various

Slope: 10-35

Topographic position: Crest to mid slope

Hydrology: Terrestrial

Moisture: Dry

Elevation: 760 - 650'

Geology: Basalt; rhyolite

Soils: Herndon Silt Loam (stony phase)

Comments on physical description: Small inselberg

Biological description

Community # 1: Piedmont Monadnock Forest

Vegetation structure: Forest

Position in landscape and relation to other communities: Summit and upper slopes

Quality and condition: Good to fair

Size:

Dominants (*) and important species:

Canopy:

Carya glabra
Carya ovata
Carya tomentosa
Liriodendron tulipifera
Nyssa sylvatica
Pinus echinata
Quercus alba *
Quercus coccinea
Quercus falcata *
Quercus prinus *
Quercus rubra
Quercus velutina

Subcanopy:

Acer rubrum
Cercis canadensis
Cornus florida
Fraxinus americana
Ilex opaca
Juniperus virginiana
Morus rubra
Oxydendrum arboreum
Prunus serotina
Sassafras albidum

Shrubs and vines:

Chionanthus virginicus
Euonymus americanus
Gaylussacia frondosa

Shrubs and vines (cont.):

Hypericum sp.
Lonicera japonica
Lonicera sempervirens
Parthenocissus quinquefolia
Rhododendron nudiflorum
Rhus radicans
Smilax bona-nox
Smilax glauca
Vaccinium stamineum
Vaccinium tenellum
Viburnum prunifolium
Viburnum rufidulum
Vitis sp.

Herbs:

Antennaria solitaria
Asplenium platyneuron
Athyrium asplenioides
Aureolaria virginica
Chimaphila maculata
Cimicifuga racemosa
Galium circaezans
Heuchera americana
Hexastylis arifolia
Hieraceum venosum
Iris cristata
Ligusticum canadense
Polystichum acrostichoides
Prenanthes altissima
Sanicula canadensis

Herbs (cont.):

Scutellaria integrifolia

Uvularia perfoliata

Uvularia sessilifolia

Special status species

State-listed species: None observed

Potential for other special status species: Low

Other noteworthy species or features:

Communities:

Piedmont Monadnock Forest

Geology:

Volcanic inselberg

Site condition

Site integrity: Good to Poor

Average DBH of canopy trees: 35-40 cm

Maximum DBH of canopy trees: 70 cm

Fire regime: Natural

Logged: Within last 10 years

Evenness of canopy: Mixed-age

Ditched/drained: No

Stream channelized: No

Dredged/filled: No

Understory cleared: No

Grazed: No

ORV damaged: No

Other disturbances: Yes, a trash dump

Adjacent Land Uses: Agriculture (pasture), timber

Significance of site: County

ANIMAL SPECIES LIST

List is: Cursory

Vertebrates:

- i Coccyzus erythrophthalmus
- Contopus virens
- Cyanocitta cristata
- Parus carolinensis
- Parus bicolor
- Thryothurus ludovicianus
- Hylocichla mustelina
- Vireo olivaceus
- i Seiurus aurocapillus
- Piranga rubra
- Piranga olivacea
- Cardinalis cardinalis

SITE NAME: North Edwards Ridge

SIGNIFICANCE: County

INTEGRITY: Good

THREATS: High -- residential development

PROTECTION STATUS: Landowner covenant

JURISDICTION: Williams Township

OWNERSHIP: Private

SUMMARY OF SIGNIFICANT FEATURES:

1. This site contains the largest of the three Piedmont Monadnock Forests known from Chatham County. This forest is also one of the few old growth communities left in the region.
2. The large size and largely unbroken character of this upland forest has high value for wildlife.
3. This is one of the most scenic uplands remaining in the county.

GENERAL SITE DESCRIPTION:

Edwards Ridge is a large granitic massif located along the western edge of the Triassic Basin. Rising sharply above the neighboring terrain, it has all the hallmarks of an inselberg: a mass of resistant rock that has become elevationally isolated as the softer surrounding terrain has weathered away. It differs from Terrells Mountain in that the rock formation is plutonic rather than volcanic. It also is somewhat less isolated, since it belongs to a string of uplands that resulted from an upthrust along the fault forming the western border of the Triassic Basin.

Although the entire ridge was until recently one of the most significant natural areas remaining in the Triangle region, intense development of the southern portion has greatly reduced the amount of undisturbed habitat. For the purposes of this report, we are considering only the northern summits and north-facing slopes for inclusion in a natural area, even though there are scattered homesites in this part of the ridge and there may still be significant natural features, such as the highland pond, occurring in the southern section.

This northern part of the ridge contains a fairly unusual mixture of community elements. Along the rocky crests of the ridge and its spurs grows a good example of Piedmont Monadnock Forest. The characteristic tree species of this community is rock chestnut oak (*Quercus prinus*). Southern red oak (*Q. falcata*) is co-dominant with chestnut oak in these areas, but white oak (*Q. alba*) and mockernut hickory (*Carya tomentosa*) are also important

members of the canopy. Unlike Terrells Mountain, the shrub layer here is composed of thickets of viburnums (Viburnum rafinesquianum, V. acerifolium, V. prunifolium, and V. rufidulum) rather than heaths. On the whole, this is a richer community than occurs on Terrells Mountain, possibly due to less acidic soil conditions or the more mesic microclimate associated with the extensive north-facing slope.

The Monadnock Forest grades quickly into Mesic Mixed Hardwoods on all but the rockiest areas. Although there are a few acidophiles present, such as fly poison (Amianthium muscaetoxicum), there is a rich assemblage of mesic species. The canopy over most of the slope consists of beeches (Fagus grandifolia) and red oaks (Quercus rubra) mixed with other oaks, hickories and tulip trees (Liriodendron tulipifera). The subcanopy and shrub layers contain a large diversity of species characteristic of the mesic forests of the piedmont. Umbrella tree (Magnolia tripetala) is present here, one of the few occurrences of this species in Chatham County. The rich herb layer presents an impressive array of wildflowers, including trilliums (Trillium catesbaei), black cohosh (Cimicifuga racemosa), crested iris (Iris cristata), devil's bit (Chamaelirium luteum), and golden alexanders (Zizia spp.). One of the more unusual members of this assemblage is barren strawberry (Waldsteinia fragarioides), and among the several fern species found on the wetter areas of the slope, broad beech fern (Thelypteris hexagonoptera) is quite rare in the county.

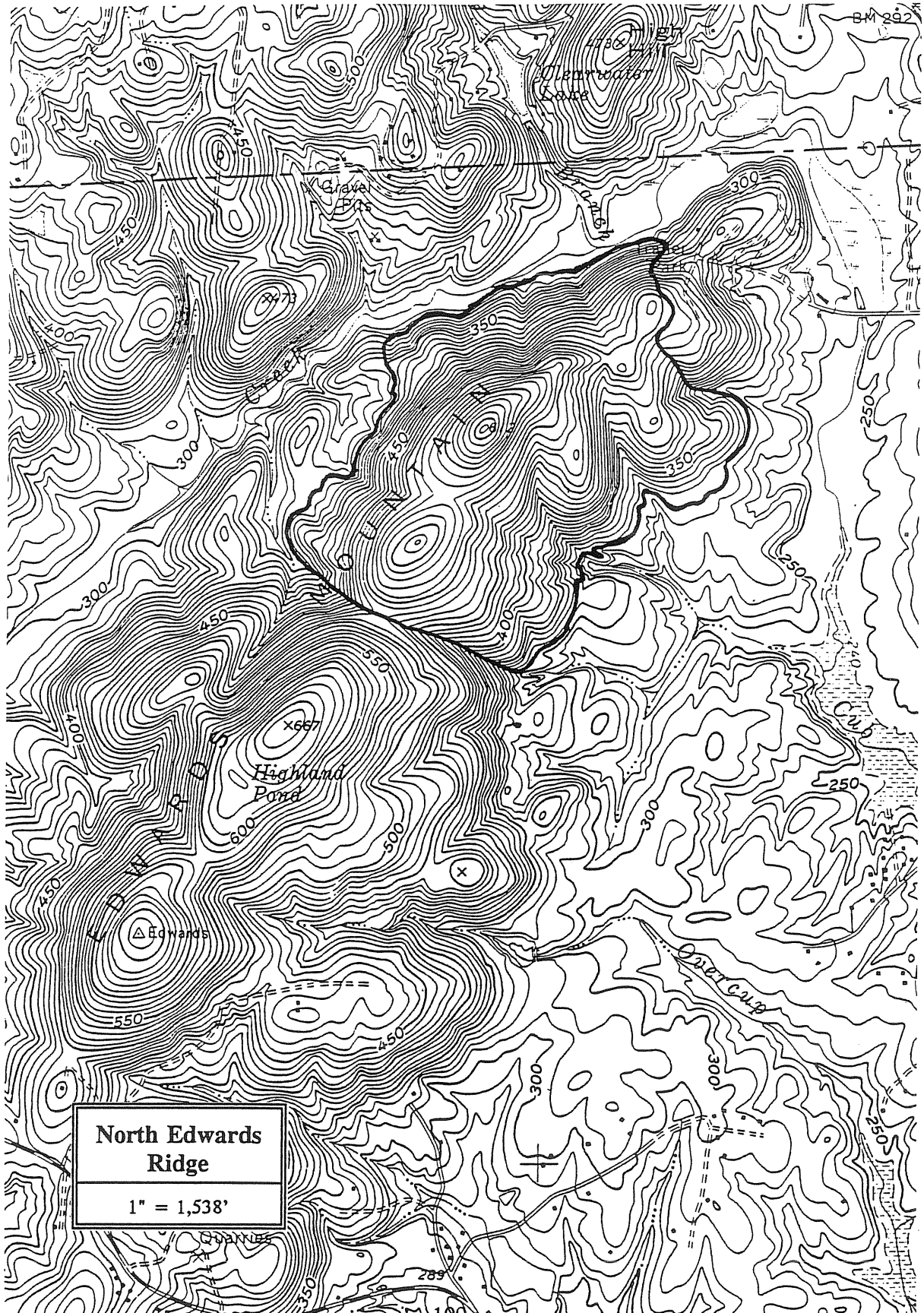
As was true for Terrells Mountain, the rocky, steep slopes of Edwards Ridge did not lend themselves to agriculture, nor were the chestnut oaks and beeches commercially valuable as timber. Consequently, the forests over the northern part of Edwards Ridge represent one of the largest extents of old growth remaining in the Triangle region. Trees average 45 cm over most of the northern ridge, whereas the typical diameter for hardwoods in most of the region is only around 30 cm.

The maturity of the forest, along with its size and largely unbroken character, are important features for wildlife. The broad-winged hawk and pileated woodpecker observed here both require extensive tracts of upland forests; the hooded warbler and ovenbird are restricted to the interiors of hardwood forests; and the white-breasted nuthatch, which is quite rare throughout Chatham County (Barbara Roth, pers. com.), is found primarily where large oaks and hickories still persist. Although not observed during our brief survey, wild turkey can also be expected to occur on Edwards Ridge. Mature oak/beech forests are important producers of mast used by this species, as well as by deer and other wildlife. Bobcat is also known to occur nearby and should still roam the wilder northern slopes of Edwards Ridge.

Altogether, this is one of the most outstanding stands of forests of the Triangle. In addition to its plant diversity and value to wildlife, it is also one of the most striking scenic elements of the county. Rising to a peak elevation of 667', the view of Edwards Mountain is especially impressive from Jordan Lake, whose average elevation is over 400' lower.

CONSERVATION RECOMMENDATIONS:

The land values on Edwards Ridge probably prohibit the outright purchase of any significant tracts by local conservation organizations. Conservation efforts should therefore be directed towards the acquisition of conservation easements or the formation of covenants between the landowners. Registration of the area as a state natural area is appropriate but will not be sufficient to hold off development pressures. County planning could aid in the conservation of this forest. Planning should aim toward minimizing fragmentation of this area into small lots, as has taken place in much of the surrounding area, and the intrusion of roads, powerlines, and sewer lines.



**North Edwards
Ridge**
1" = 1,538'

SITE SURVEY REPORT

Site name: North Edwards Ridge
County: Chatham

Date(s): 6/XI/88, 14/VI/89

Surveyors:

Stephen P. Hall, Ph.D
NC Natural Heritage Program
P.O. Box 27687
Raleigh, NC 27611-7687
(919) 733-7701

Marjorie Boyer
NC Plant Conservation Program
P.O. Box 27647
Raleigh, NC 27611
(919) 733-3610

Size: 278 acres

Quad: Farrington

Province: Piedmont

Watershed: Cub Creek --> Haw River --> Cape Fear River

Location and directions: North end of Edwards Mountain, located south of SR 1780, east of SR 1724, and west of SR 1008; south end bounded by Governor's Club development

Landowners and addresses:

Owners contacted and attitude: Suzy Starnes

General landscape description: See Site Description

Physical description

Aspect: Various

Slope: 10-35

Topographic position: Crest to lower slopes

Hydrology: Terrestrial

Moisture: Moist to dry

Elevation: 270 - 612'

Geology: Farrington Granite

Soils: Appling Stony Sandy Loam (steep phase)

Comments on physical description: Edwards Mountain is the largest massif in the county; the southern half is being intensively developed but the northern ridge is currently less threatened

Biological description

Community # 1: Piedmont Monadnock Forest

Vegetation structure: Forest

Position in landscape and relation to other communities: Crest and upper slopes

Quality and condition: Good

Size:

Dominants (*) and important species:

Canopy:

Carya glabra
Carya tomentosa
Fagus grandifolia
Liquidambar styraciflua
Liriodendron tulipifera
Quercus alba
Quercus falcata *
Quercus prinus *
Quercus rubra

Subcanopy:

Acer rubrum
Carpinus caroliniana
Juniperus virginiana
Magnolia tripetala
Morus rubra
Nyssa sylvatica
Ostrya virginiana
Oxydendrum arboreum

Shrubs and vines:

Chionanthus virginicus
Corylus americana
Euonymus americanus
Hamamelis virginiana
Parthenocissus quinquefolia
Prunus serotina
Rhododendron nudiflorum
Rhus radicans
Smilax sp.
Vaccinium sp.
Viburnum acerifolium
Viburnum prunifolium
Viburnum rafinesquianum
Viburnum rufidulum
Vitis rotundifolia

Herbs:

Amianthium muscaetoxicum
Antennaria solitaria
Asplenium platyneuron
Athyrium asplenioides
Aureolaria virginica
Chamaelirium luteum
Chimaphila maculata
Chrysogonum virginianum
Cimicifuga racemosa
Coreopsis major
 var. stellata
Desmodium nudiflorum
Dioscorea villosa

Herbs (cont.):

Epifagus virginiana
Euphorbia corollata
Galium circaeazans
Galium obtusum
 var. filifolium
Goodyera pubescens
Hepatica americana
Heuchera americana
Hexastylis arifolia
Hexastylis minor
Houstonia caerulea
Iris cristata
Ligusticum canadense
Luzula acuminata
Luzula echinata
Mitchella repens
Myosotis macrosperma
Osmunda cinnamomea
Osmunda regalis
 var. spectabilis
Polygonatum biflorum
Polypodium polypodioides
Polystichum acrostichooides
Prenanthes altissima
Smilacena racemosa
Thelypteris hexagonoptera
Tiarella cordifolia
Tipularia discolor
Trillium catesbaei
Uvularia perfoliata
Viola palmata var. triloba
Viola sp.
Waldsteinia fragarioides
Zizia aptera
Zizia trifoliata

Special status species

State-listed species: None observed

Potential for other special status species: Low

Other noteworthy species or features:

Communities:

Piedmont Monadnock Forest (rare in Chatham County)

Site condition

Site integrity: Good

Average DBH of canopy trees: 45 cm

Maximum DBH of canopy trees:

Fire regime: Natural

Logged: Within last 50-100 years

Evenness of canopy: Natural

Ditched/drained: No

Stream channelized: No

Dredged/filled: No

Understory cleared: No

Grazed: No

ORV damaged: No

Other disturbances: North end of ridge is being developed by individual landowners; south end (not included in survey) is being intensively developed on a large scale

Adjacent Land Uses: Forest and residential

Significance of site: County

Discussion: See Site Description

Protection considerations and management needs: Landowners should be alerted to the significance of chestnut oak forest, and of the general value to wildlife in maintaining large tracts of upland hardwood forest. A covenant between the landowners on the northern ridge might be the best way to ensure continued presence of the forest.

Determination of survey boundaries: Encloses ridge and steep slopes at northern end of Edwards Mountain; some houses and future homesites are included.

Priority for further study: Low

Specimens collected:

Photographs:

Others knowledgeable about the site: Julie Moore, Jay Carter

References:

Topo map: Attached

Sketch map: None

Plant Species List: See Community # 1

List is: Medium-thorough

ANIMAL SPECIES LIST

List is: Medium-thorough

Vertebrates:

i Buteo platypterus
Melanerpes carolinus
Picoides pubescens
i Dryocopus pileatus
Contopus virens
Parus carolinensis
Parus bicolor
i Sitta carolinensis
Thryothorus ludovicianus
Hyalocichla mustelina
Vireo flavifrons
Vireo olivaceus
Dendroica pinus
i Seiurus aurocapillus
i Wilsonia citrina
Piranga olivacea
Scincella lateralis
Bufo americanus

Invertebrates:

Papilio glaucus
Papilio troilus
Satyrium calanus
Nymphalis antiopa
Plathemis lydia

SITE NAME: Bennett Mountain

SIGNIFICANCE: County

INTEGRITY: Good

THREATS: High -- residential development and timbering

PROTECTION STATUS: None

JURISDICTION: Baldwin Township

OWNERSHIP: Private

SUMMARY OF SIGNIFICANT FEATURES:

1. The forest at this site is probably the best example of Dry-mesic Oak-Hickory Forest in Chatham County.
2. As indicated by the presence of wild turkeys, this tract has a fairly high wildlife value.

GENERAL SITE DESCRIPTION:

Bennett Mountain is a western outlier of the granitic pluton that forms Edwards Mountain and Boothe Hill. Although the top of the hill is fairly flat, the abundance of large boulders has largely protected this site from both agriculture and residential development, although a few houses are now scattered around its margins. The forest on the summit has also escaped recent timbering and is in excellent condition. The largest individual trees observed were a white oak (Quercus alba) 60 cm in diameter, and a rock chestnut oak (Q. prinus) 43 cm in diameter. The average diameter is only 30 cm., however, indicating that selective cutting has probably been practiced in the past.

Although geologically similar to Edwards Ridge, Bennetts Mountain does not possess the Piedmont Monadnock Forest characteristic of inselbergs; rock chestnut oak is present but not dominant. The communities instead are more typical of those that were once widespread over most of the piedmont. The summit is occupied by Dry-mesic Oak-Hickory Forest; white oak is dominant in a canopy of seven species of oaks (Quercus spp.), some hickories (Carya tomentosa, C. glabra), and a few scattered loblolly pines (Pinus taeda) and sourwoods (Oxydendrum arboreum). This community has an open aspect with a light scattering of blueberries (Vaccinium vacillans, V. tennellum) and grape vines (Vitis rotundifolia).

The forest on the summit grades into more xeric and more mesic communities on the slopes, thereby encompassing the standard range of moisture variants of piedmont hardwood forests. In the steep ravine on the western side of Bennett Mountain the forest grades into mesic mixed hardwoods, dominated by beech (Fagus grandifolia) and red oak (Quercus rubra).

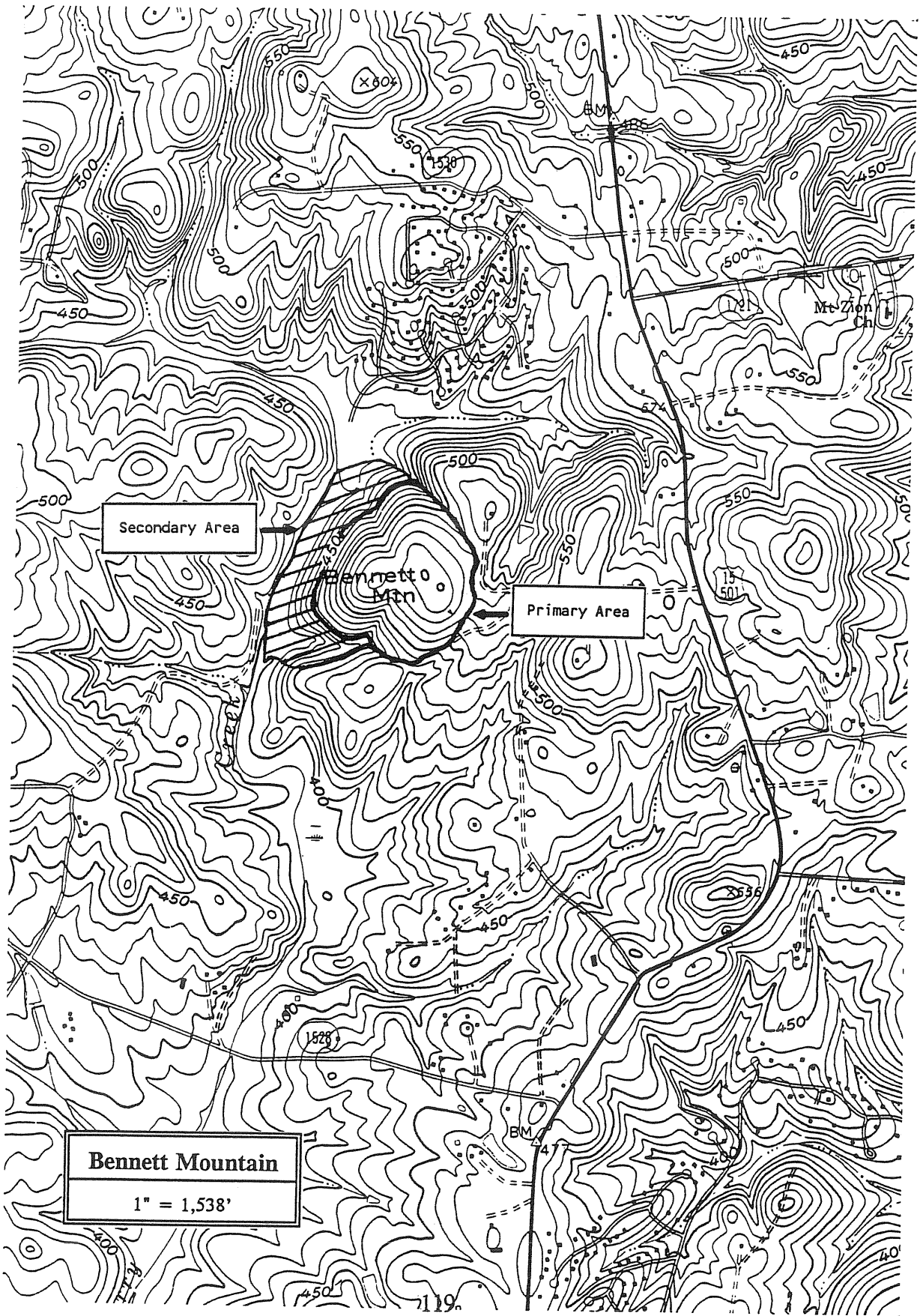
Ferns demonstrate the moisture gradient, ranging from royal fern (Osmunda regalis) and netted chain fern (Woodwardia areolata) in the ravine bottom to ebony spleenwort (Asplenium platyneuron) and Christmas fern (Polystichum acrosticoides) higher on the slopes. On the extreme southern flank of the summit the forest grades into dry oak-hickory forest, where in addition to white oak, the dominant trees are post oak (Quercus stellata), blackjack oak (Q. marilandica), black oak (Q. velutina), and pignut hickory (Carya glabra). Numerous red cedars (Juniperus virginiana) and persimmons (Diospyros virginiana) are present in the subcanopy, and the shrub layer is composed of both viburnums and heaths. The herbaceous growth in this open, stunted forest is generally quite sparse, but the boulder-strewn ground is covered with lichens.

The presence of wild turkey (Meleagris gallopavo) at this site is explained partly by the abundance of mature mast-producing hardwoods, particularly the oaks and beeches. This species additionally requires extensive tracts of forest, as does the pileated woodpecker (Dryocopus pileatus) also observed here; although the woodlands of Bennetts Mountain are limited in extent, they are contiguous with surrounding forests, and are connected to the Jordan Lake gamelands via the bottomlands along Pokeberry Creek. Other indicator species of animals observed on Bennetts Mountain include the white-breasted nuthatch (Sitta carolinensis), a rare species in Chatham County, and the white-lipped forest snail (Triodopsis albolabris), both of which require old-growth hardwoods. The yellow-breasted vireo (Vireo flavifrons) and summer tanager (Piranga rubra) are two of the more typical birds inhabiting dry, open upland forests.

Scenically, this area is one of the most attractive uplands remaining in Chatham County. The large, lichen-covered boulders and the mature hardwoods combine to make this a pleasant place to walk, as is indicated by several foot-trails that wind over the summit.

CONSERVATION RECOMMENDATIONS:

The landowners are aware of the natural and scenic values of this site. Preservation of the mature forest can be accomplished by registration of the site as a state natural area, through acquisition of a conservation easement, or by the use of least disruptive forms of forest management, such as selective harvest in place of clear-cutting. Preservation of the flock of turkeys and other wide-ranging wildlife will further require that adjoining tracts of land also be left in a forested, undeveloped state.



Secondary Area

Bennett Mtn

Primary Area

Bennett Mountain
1" = 1,538'

Mt. Zion Ch.

BM 47

604

1528

119

SITE SURVEY REPORT

Site name: Bennett Mountain
County: Chatham

Date(s): 21/VII/89, 1/VIII/89

Surveyors:

Stephen P. Hall, Ph.D
NC Natural Heritage Program
P.O. Box 27687
Raleigh, NC 27611-7687
(919) 733-7701

Marjorie Boyer
NC Plant Conservation Program
P.O. Box 27647
Raleigh, NC 27611
(919) 733-3610

Size: 53 primary acres + 31 secondary acres = 84 total acres

Quad: Farrington

Province: Piedmont

Watershed: Pokeberry Creek --> Haw River --> Cape Fear River

Location and directions: Summit located west of SR 1529

Landowners and addresses:

Owners contacted and attitude: Walt Haywood

General landscape description: See Site Description

Physical description

Aspect: Various

Slope: 5-10

Topographic position: Crest and upper slope

Hydrology: Terrestrial

Moisture: Dry

Elevation: 450 - 550'

Geology: Farrington Granite

Soils: Appling Stony Sandy Loam (steep phase)

Comments on physical description: A small granitic inselberg

Biological description

Community # 1: Dry-mesic Oak-Hickory forest

Vegetation structure: Forest

Position in landscape and relation to other communities: Crest and upper slopes

Quality and condition: Good

Size:

Dominants (*) and important species:

Canopy:

Carya glabra
Carya tomentosa
Oxydendrum arboreum
Pinus taeda
Quercus alba *
Quercus coccinea
Quercus falcata
Quercus prinus
Quercus rubra
Quercus stellata
Quercus velutina

Shrubs and vines:

Euonymus americanus
Parthenocissus quinquefolia
Smilax bona-nox
Vaccinium stamineum
Vaccinium tenellum
Vaccinium vacillans
Viburnum acerifolium
Viburnum rafinesquianum
Vitis rotundifolia

Herbs:

Subcanopy:

Acer rubrum
Amelanchier arborea
Cornus florida
Juniperus virginiana
Nyssa sylvatica
Sassafras albidum

Aureolaria virginica
Chimaphila maculata
Goodyera pubescens
Hexastylis arifolia
Hieraceum venosum

Biological description

Community # 2: Mesic Mixed Hardwood forest

Vegetation structure: Forest

Position in landscape and relation to other communities: ravines in west slope

Quality and condition: Good

Size:

Dominants (*) and important species:

Canopy:

Fagus grandifolia *
Liriodendron tulipifera *
Quercus alba *

Subcanopy:

Cornus florida

Shrubs and vines:

Rhododendron nudiflorum
Rhus radicans

Herbs:

Asplenium platyneuron
Athyrium asplenioides
Boehmeria cylindrica
Desmodium nudiflorum
Elephantopus carolinianus
Leersia oryzoides
Lycopus virginicus
Osmunda cinnamomea
Osmunda regalis
 var. *spectabilis*
Polygonatum biflorum
Polystichum acrostichoides
Sanicula canadensis
Scutellaria integrifolia
Solidago caesia
Woodwardia areolata

Biological description

Community # 3: Dry Oak-Hickory forest

Vegetation structure: Forest

Position in landscape and relation to other communities: Crest, in patches surrounded by dry-mesic oak-hickory community

Quality and condition: Good

Size:

Dominants (*) and important species:

Canopy:

Carya glabra *
Juniperus virginiana
Pinus echinata
Pinus taeda
Quercus alba *
Quercus marilandica
Quercus stellata *
Quercus velutina

Herbs:

Clitoria mariana
Desmodium rotundifolium
Hieraceum venosum
Hypericum hypericoides
Hypericum mutilum
Polypodium polypodioides

Subcanopy:

Diospyros virginiana

Shrubs and vines:

Vaccinium arboreum
Vaccinium sp.
Viburnum prunifolium
Viburnum rafinesquianum
Vitis rotundifolia

Special status species

State-listed species: None observed

Potential for other special status species: Low

Other noteworthy species or features:

Animals:

rr Meleagris gallopavo

Communities:

One of the most mature upland oak-hickory forests in the county

Site condition

Site integrity: Good

Average DBH of canopy trees: 30 cm

Maximum DBH of canopy trees: 60 cm

Fire regime: Natural

Logged: Within last 30-40 years

Evenness of canopy: Natural

Ditched/drained: No

Stream channelized: No

Dredged/filled: No

Understory cleared: No

Grazed: No

ORV damaged: No

Other disturbances: Houses located on north edge of natural area; adjacent forest logged within last 2 years

Adjacent Land Uses: Forest and residential

Significance of site: County

Discussion: See Site Description

Protection considerations and management needs: Landowners should be alerted to the significance of the old growth hardwood forest

Determination of survey boundaries: Encloses ridgetop and steep slopes that are currently undeveloped; contains one of the best examples of upland hardwood forest remaining in the county

Priority for further study: Low

Specimens collected:

Photographs:

Others knowledgeable about the site: Walt Haywood

References:

Topo map: Attached

Sketch map: None

PLANT SPECIES LIST

List is: Medium-thorough

- Osmunda cinnamomea (7)
Osmunda regalis
 var. spectabilis (7)
Athyrium asplenioides (11)
Polystichum acrostichoides (11)
Woodwardia areolata (12)
Asplenium platyneuron (13)
Polypodium polypodioides (14)
Pinus echinata (16)
Pinus taeda (16)
Juniperus virginiana (18)
Leersia oryzoides (29)
Polygonatum biflorum (41)
Smilax bona-nox (41)
Goodyera pubescens (49)
Carya glabra (53)
Carya tomentosa (53)
Fagus grandifolia (55)
Quercus alba (55)
Quercus coccinea (55)
Quercus falcata (55)
Quercus marilandica (55)
Quercus prinus (55)
Quercus rubra (55)
Quercus stellata (55)
Quercus velutina (55)
Boehmeria cylindrica (59)
Hexastylis arifolia (62)
Liriodendron tulipifera (80)
Sassafras albidum (84)
Amelanchier arborea (97)
Clitoria mariana (98)
Desmodium nudiflorum (98)
Desmodium rotundifolium (98)
Rhus radicans (110)
Euonymus americanus (113)
Acer rubrum (115)
Parthenocissus quinquefolia
 (120)
Vitis rotundifolia (120)
Hypericum hypericoides (126)
Hypericum mutilum (126)
Sanicula canadensis (140)
Nyssa sylvatica (141)
Cornus florida (142)
Chimaphila maculata (145)
Oxydendrum arboreum (145)
Rhododendron nudiflorum (145)
Vaccinium arboreum (145)
Vaccinium sp. (145)
Vaccinium stamineum (145)
Vaccinium tenellum (145)
Vaccinium vacillans (145)
Diospyros virginiana (150)
Lycopus virginicus (164)
Scutellaria integrifolia (164)
Aureolaria virginica (166)
Viburnum acerifolium (174)
Viburnum prunifolium (174)
Viburnum rafinesquianum (174)
Elephantopus carolinianus (179)
Hieraceum venosum (179)
Solidago caesia (179)

ANIMAL SPECIES LIST

List is: Medium-thorough

Vertebrates:

rr Meleagris gallopavo
i Coccyzus erythrophthalmus
Melanerpes carolinus
Picoides pubescens
i Dryocopus pileatus
Empidonax virescens
Cyanocitta cristata
Parus bicolor
i Sitta carolinensis
Thryothurus ludovicianus
Hylocichla mustelina
Vireo flavifrons
Vireo olivaceus
Piranga rubra
Carphophis amoenus
Coluber constrictor

Invertebrates:

Papilio polyxenes asterias
Papilio glaucus
Nymphalis antiopa
Vanessa virginiensis
Limenitis arthemis astyanax
Enodia portlandia
Cercyonis pegala
Poanes zabulon
Myrmekiaphila fluviatilis
i Triodopsis albolabris