

SITES WITH UNUSUAL SOIL CHEMISTRY OR TEXTURE

Six natural areas identified in the inventory can be grouped together primarily on the basis of an unusual soil chemistry or texture. These edaphic features, in turn, produce communities of plants that differ markedly from the standard oak-hickory forests of the Piedmont.

SITES WITH BASIC (MAFIC) SOILS

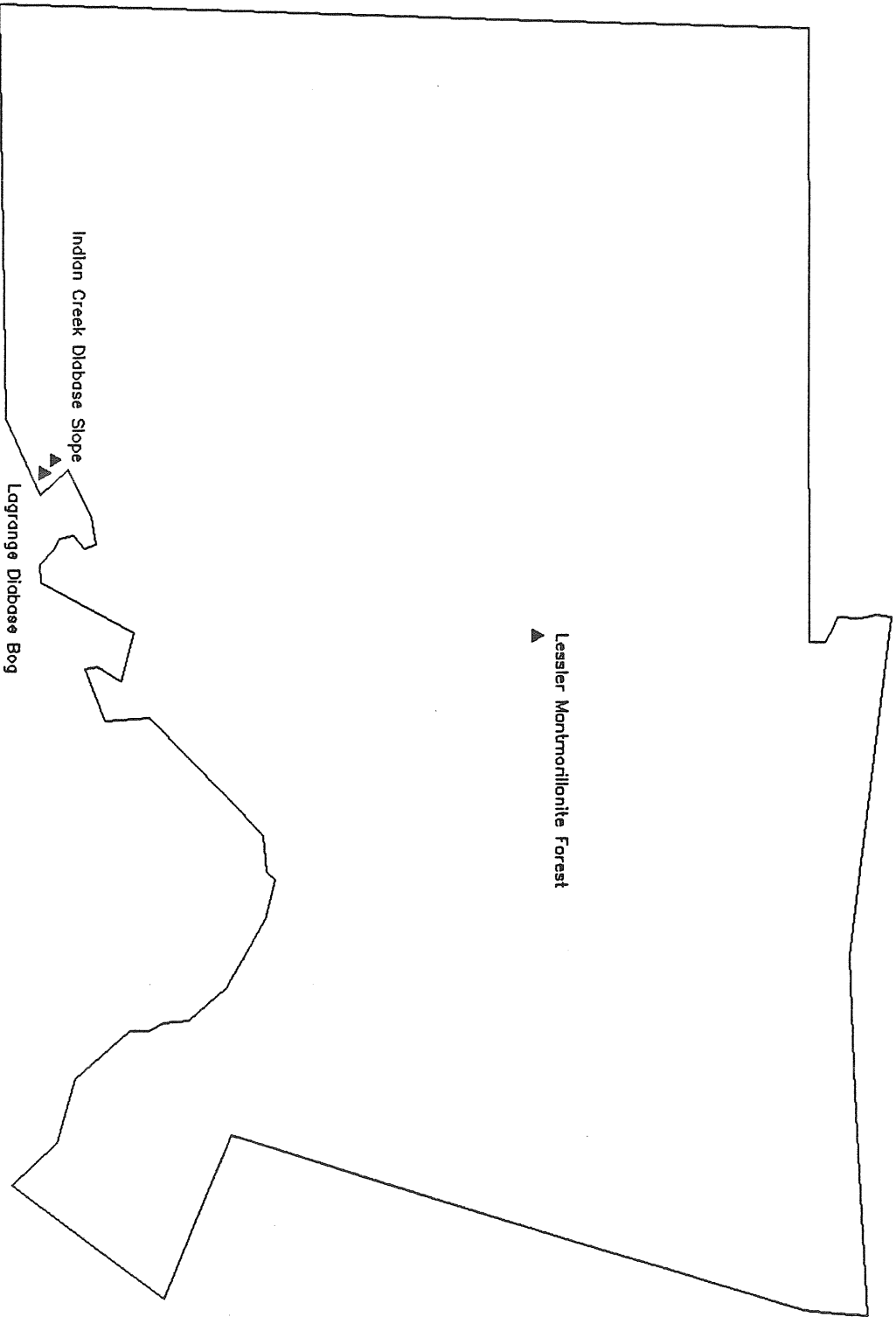
Three of these sites are characterized by soils that are relatively high in pH, at least by Piedmont standards (they may actually be only circumneutral). In addition to a higher pH, these soils are generally richer in nutrients, particularly calcium, iron, and magnesium. Because of this high mineral content, these soils often support a community of plants incapable of living on more impoverished soils. Characteristic species requiring these rich soil conditions include southern sugar maple, redbud, buckeye, and maidenhair fern. Rarer species include ginseng and piedmont horsebalm.

On the other hand, these soils are also frequently associated with harsh moisture regimes. The underlying rock formations -- gabbros, diabases, and basalts -- may be relatively impervious to water flow or they may form an equally impenetrable layer of montmorillonitic clay. Plants living in these conditions must be able to withstand periods of flooding during wet weather as well as periods of extreme drought. On these harsher sites the rich herb layer is missing and the community is characterized by trees and shrubs such as southern shagbarks, blackjack and post oaks, red cedars, winged elms, and downy arrowwood. The most characteristic herb is sphagnum moss.

As mentioned under Biogeography, rock formations producing these types of soils are relatively rare in Chatham County and because of the long history of cultivation in Chatham County, only on a handful of sites is there any trace of characteristic vegetation. The largest expanses occur in the form of diabase sills, which are clustered along the Deep River near Caribton and Gulf. Although these sills have also been under cultivation for over 200 years, and lack any mature forest cover, there are two small areas of unusual vegetation persisting along the slopes of one of these sills. The Lagrange Diabase Bog is probably too wet to have been productive for agriculture, while the Indian Creek Diabase Slope was too steep.

Illustrating the harsher side of these soil conditions is the Lessler Montmorillonite Forest, occupying a flat area in a region of metamorphosed mafic rock formations. Other areas, such as Roberson Creek, Rock Rest Mafic Islands and Shore, and the Rocky River Basalt Bluffs and Levees also show the influence of mafic soil conditions, but are shaped more prominently by other factors.

Figure 35. Mafic Habitats



SITE NAME: Indian Creek Diabase Slope

SIGNIFICANCE: County

INTEGRITY: Fair

THREATS: Low -- grazing and timbering

PROTECTION STATUS: None

JURISDICTION: Gulf Township

OWNERSHIP: Private

SUMMARY OF SIGNIFICANT FEATURES:

1. The diabase sill at this site is a rare geological feature in Chatham County, and this is the only one that contains remnants of natural vegetation.
2. The steep north-facing bluff in combination with the circumneutral to basic soils produced by the diabase create conditions that support one of the richest plant communities in the county. Several of the species are typical of rich mountain coves but are rare in the piedmont.
3. This is the only known Chatham County site for two rare species of plants: piedmont horsebalm (*Collinsonia tuberosa*), a candidate for state-listing as endangered or threatened, and ginseng (*Panax quinquefolius*), a species of special concern in North Carolina.

GENERAL SITE DESCRIPTION:

Diabase sills are large, flat rock formations associated with the Triassic Basin. They are plutonic in origin, created as upwellings of magma along fault lines that resulted from the separation of North America from Africa ca. 250 million years ago. These rocks are rich in minerals such as iron and magnesium but poor in silica, giving them a dark, rusted appearance. Unlike the acidic soils that weather from felsic rocks that predominate in the slate-belt, diabase produces a soil that is circumneutral to basic. These soils are also comparatively rich in calcium and support species of plants and snails requiring this mineral for growth.

Although disturbed by 250 years of grazing, timbering, and cultivation, the large sill on which this site occurs still contains remnants of natural vegetation, and is the only one of the few sills occurring in Chatham County to do so. One of these areas is the steep slope that exists along the northern face of the sill. Due to the steepness of this site, it has largely been left alone. Apart from evidence of some amount of past grazing, burning, and timbering, there are areas on this slope that still contain an relatively intact natural community characteristic of rich mesic sites.

The canopy of this slope is striking for its abundance of southern sugar maples (Acer floridanum), a species indicative of basic soils. On parts of the slope the maples form pure stands; elsewhere beeches are co-dominant in a forest that also includes red oaks (Quercus rubra), tulip trees (Liriodendron tulipifera), pignut hickories (Carya glabra) and other mesic species. Where the slope is less steep the forest has been timbered and most of the trees are young, but in the steepest portions and at the top of the bluff there are many large individuals, with one red oak reaching a diameter of 85 cm. The subcanopy and shrub layer are likewise composed of species characteristic of rich circumneutral soils, including pawpaw (Asimina triloba), redbud (Cercis canadensis), buckeye (Aesculus sylvatica), basswood (Tilia floridana), and hydrangea (Hydrangea arborescens). Besides having a rich assemblage of wildflowers typical of mesic piedmont forests, the herbs again reflect the richness of the site and include several less common species, such as maidenhair fern (Adiantum pedatum) broad beech fern (Thelypteris hexagonoptera), and wild ginger (Asarum canadense).

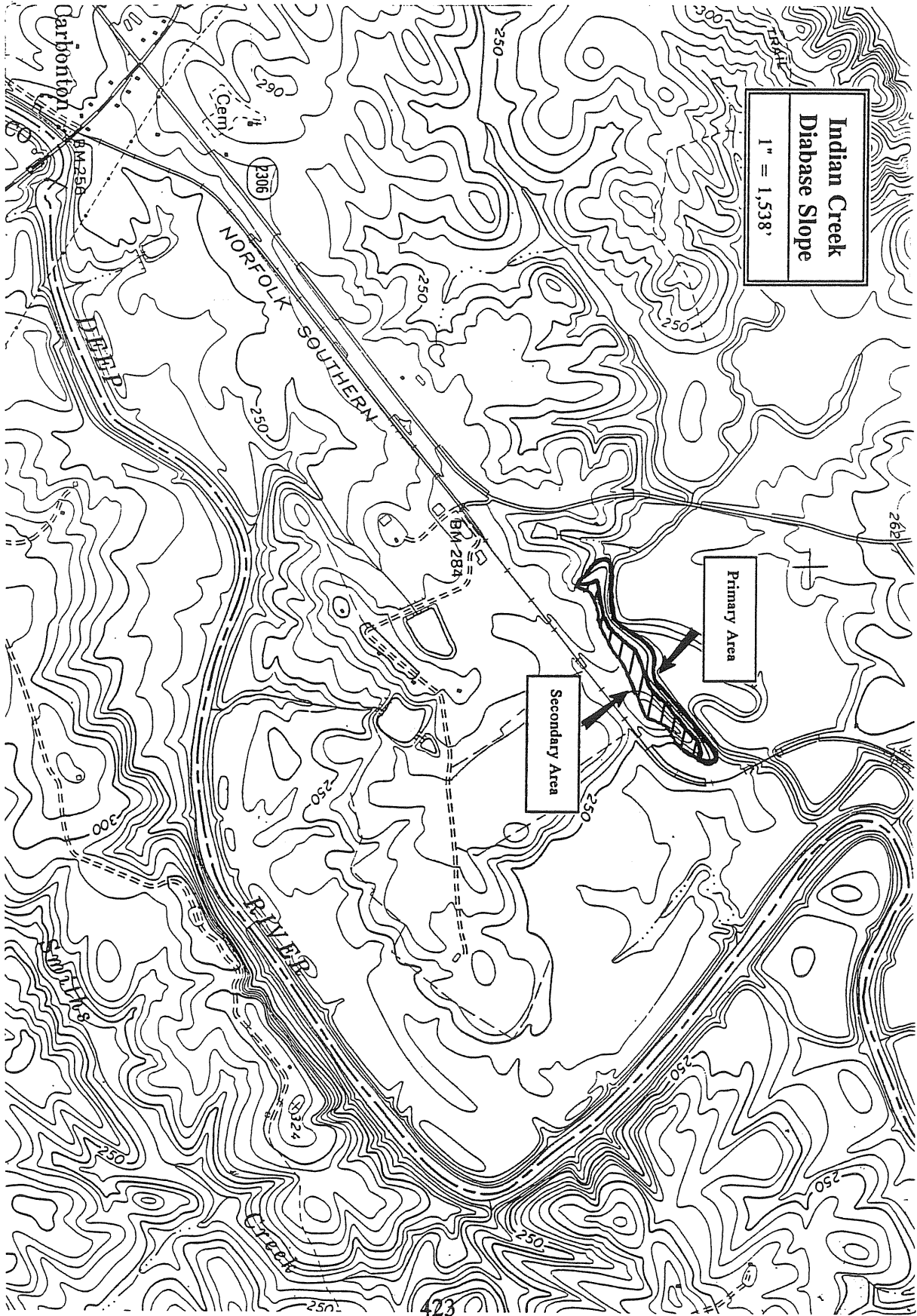
Two plant species are particularly noteworthy, since in Chatham County they are known to occur only at this site. Piedmont horsebalm is a rare species restricted to the piedmont. Ginseng on the other hand is uncommon in the piedmont and more characteristic of rich mountain coves. Bluebells (Campanula americana) and galax (Galax aphylla) are two other species typical of mountain habitats which occur in the cool habitat provided by the north-facing aspect of the slope.

One animal whose presence at this site is attributable to the same factors as the plants is a land snail (Mesomphix sp.). This genus is widespread in the mountains but quite localized in the piedmont, occurring mainly on north-facing slopes and often in association with mafic soils. In Chatham County, this species is only known from three other sites.

Other noteworthy animals observed at this site are more characteristic of bottomland forests than the mountains. These include redstarts (Setophaga ruticilla), prothonotary warblers (Protonotaria citrea), and Kentucky warblers (Oporornis formosis), all of which are restricted in their piedmont distribution to wide areas of bottomland forest such as exists along Indian Creek. Pileated woodpeckers (Dryocopus pileatus), barred owls (Strix varia), and kingfishers (Megaceryle alcyon) are three other wide-ranging species that are present here due to the extensive nature of this forest.

CONSERVATION RECOMMENDATIONS:

The landowner needs to be informed of the significance of this site and should be encouraged to leave it in its natural state and particularly to keep livestock from grazing there. This site is unique in the county and should receive stronger protection in the form of a conservation easement.



Indian Creek
Diabase Slope
1" = 1,538'

Primary Area

Secondary Area

SITE SURVEY REPORT

Site name: Indian Creek Diabase Slope
County: Chatham

Date(s): 22/X/88, 19/V/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: 8 primary acres + 6 secondary acres = 14 total acres

Quad: Goldston

Province: Piedmont

Watershed: Deep River --> Cape Fear River

Location and directions: Steep north-facing slopes above Indian Creek located just north of railway grade, 2 miles NE of Carbonton

Landowners and addresses:

Owners contacted and attitude:

General landscape description: See Site Description

Physical description

Aspect: North

Slope: 10-35 (35+ on steepest slopes)

Topographic position: Upper slope to bottomland

Hydrology: Terrestrial

Moisture: Moist

Elevation: 220 - 250'

Geology: Diabase sill

Soils: Wadesboro Fine Sandy Loam

Comments on physical description: Site is located on the north side of the largest of the few diabase sills found in the county. An impressive coal seam exists at one end of the natural area.

Biological description

Community # 1: Basic Mesic Forest

Vegetation structure: Forest

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

Quality and condition: Fair to good

Size:

Dominants (*) and important species:

Canopy:

Acer floridanum *
Carya cordiformis
Carya glabra
Carya ovata
Fagus grandifolia *
Juglans nigra
Liriodendron tulipifera
Quercus alba
Quercus rubra
Ulmus rubra

Subcanopy:

Acer negundo
Asimina triloba
Cercis canadensis
Cornus florida
Fraxinus sp.
Morus rubra
Ostrya virginiana
Tilia floridana

Shrubs and vines:

Aesculus sylvatica
Anisostichus capreolata
Euonymus americanus
Hamamelis virginiana
Hydrangea arborescens
Lindera benzoin
Lonicera japonica
Lonicera sempervirens
Parthenocissus quinquefolia
Rhus radicans
Sambucus canadensis
Smilax bona-nox
Viburnum acerifolium

ANIMAL SPECIES LIST

List is: Medium-thorough

Vertebrates:

i Coccyzus erythrophthalmus
i Strix varia
Megaceryle alcyon
Melanerpes carolinus
i Dryocopus pileatus
Empidonax virescens
Parus carolinensis
Parus bicolor
Thryothurus ludovicianus
Polioptila caerulea
Vireo flavifrons
Vireo olivaceus
Parula americana
i Setophaga ruticilla
i Protonotaria citrea
i Seiurus aurocapillus
i Seiurus motacilla
i Oporornis formosus
Piranga olivacea
Cardinalis cardinalis
Quiscalus quiscula
Procyon lotor
Odocoileus virginianus
Plethodon glutinosus
Hyla chrysoscelis

Invertebrates:

Celastrina ladon
Megisto cymela
Erythemis simplicicollis
rr Mesomphix sp.
Ventridens ligera

SITE NAME: Lagrange Diabase Bog

SIGNIFICANCE: State

INTEGRITY: Good to fair

THREATS: Medium -- grazing and timbering

PROTECTION STATUS: None

JURISDICTION: Gulf Township

OWNERSHIP: Private

SUMMARY OF SIGNIFICANT FEATURES:

1. The community at this site is a hillside seepage bog, one of the rarest biological communities in the Piedmont.
2. Several coastal plain species occur in this bog, all of which are considered regionally rare in the Piedmont.
3. This site is located at the base of the largest diabase sill in Chatham County and the only one that retains any remnants of natural vegetation. Diabase sills are rare geological formations in Chatham County.

GENERAL SITE DESCRIPTION:

The poorly drained, sphagnaceous community comprising this natural area is a classic example of a hillside seepage bog (Schafale and Weakley, 1990). This is one of the rarest community types in North Carolina and has previously been reported only from Iredell and Montgomery Counties. Its presence here is associated with a large diabase sill, itself a rare geological formation. The rock composing this sill allows little penetration by water and as a consequence the slopes along the edge of the sill are nearly continually wet. Springs and ponds are present in some locations along the margin of the sill but along an extensive section of the eastern slope water seeps out over a broad front, creating a bog.

Unlike the Montgomery and Iredell County bogs, which are located on relatively sterile, acidic soils, the bog here overlies a richer soil derived from the diabase. As a possible consequence, this site lacks the pitcher plants that distinguish the other piedmont bogs; pitcher plants and other carnivorous species are found mainly where the soil offers few nutrients.

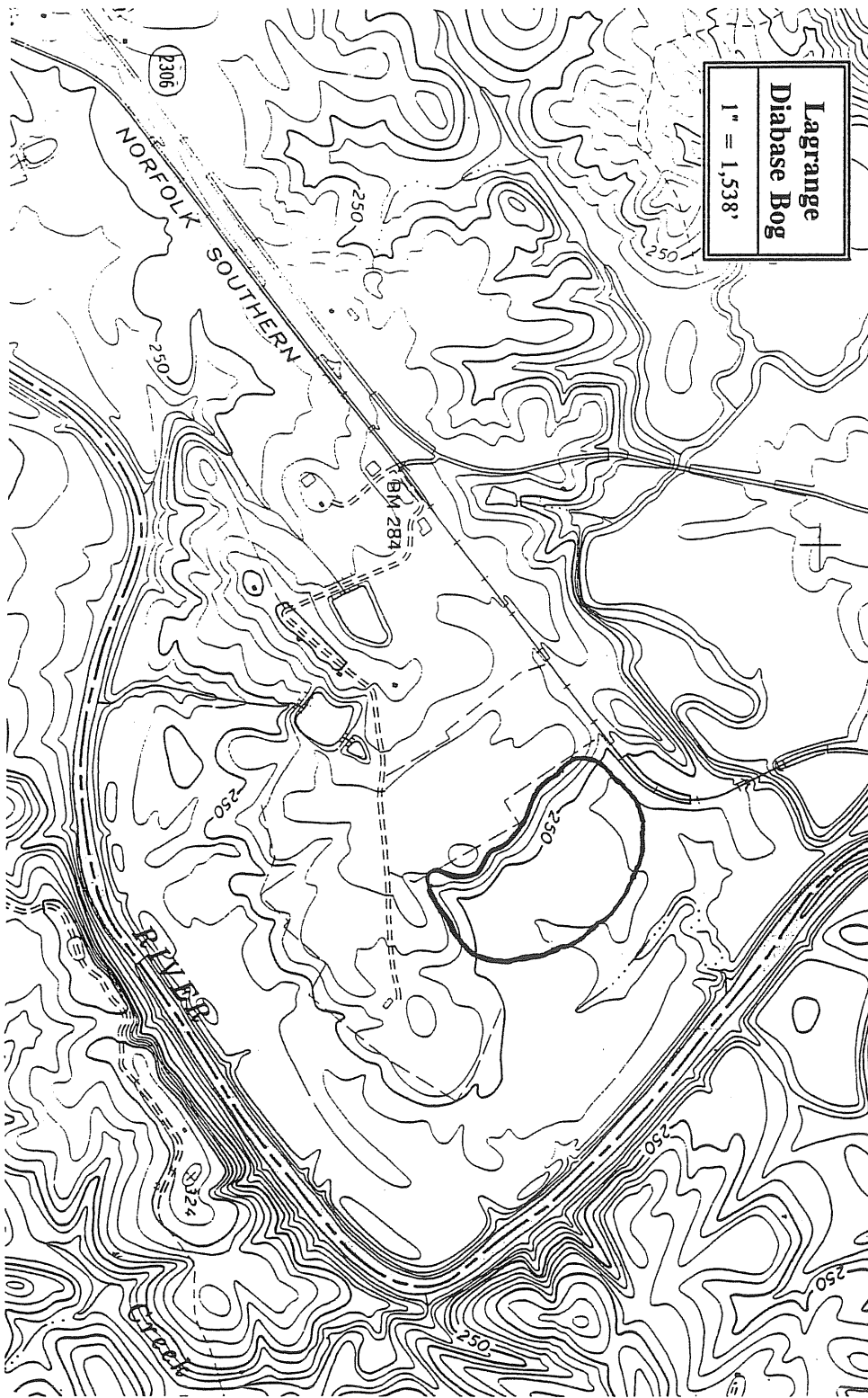
The community at this site shows strong affinity to the coastal plain. Sweet bay (Magnolia virginiana), largely a coastal species, is the dominant member of the subcanopy. Blasphemewine (Smilax laurifolia), Virginia chain fern (Woodwardia virginica), and a spikerush (Eleocharis tortillis), all of which are otherwise restricted to the coastal plain, are found at this site. Another species rare in the Piedmont is stiff cowbane (Oxypolis rigidior). The rest

of the plant community is composed of more widely distributed wetland species or species tolerant of wet conditions and contains a wide diversity of shrubs, vines and herbs under a canopy of tulip tree (Liriodendron tulipifera) and red maple (Acer rubrum). Sphagnum (Sphagnum sp.) covers much of the ground. The bog is rich in wetland ferns, with royal fern (Osmunda regalis), cinnamon fern (O. cinnamomea), lady fern (Athyrium asplenoides), and netted chain fern (Woodwardia areolata). Lizard's tail (Saururus cernuus), cardinal flower (Lobelia cardinalis) and arrowhead (Sagittaria longirostrata) occupy the wettest areas.

The abundance of sphagnaceous trickles and small pools supports an interesting amphibian community. The most noteworthy species is the southern dusky salamander (Desmognathus auriculatus); six species of frogs were also observed here. Other bottomland species include the redstart (Setophaga ruticilla), zebra swallowtail (Eurytides marcellus), hackberry butterfly (Asterocampa celtis), and the coastal plain disc (Anguispira fergusonii).

CONSERVATION RECOMMENDATIONS:

This site deserves the highest degree of protection. The best solution would be outright purchase by the Nature Conservancy or Triangle Land Conservancy. Failing that, a conservation easement should be sought. Any purchase or easement should include the slope above this site, in order to protect the hydrology.



SITE SURVEY REPORT

Site name: Lagrange Diabase Bog
County: Chatham

Date(s): 22/X/88, 19/V/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: 46 acres

Quad: Goldston

Province: Piedmont

Watershed: Deep River --> Cape Fear River

Location and directions: Base of diabase sill located south of railroad tracks, 2 miles ENE of Carbondon

Landowners and addresses:

Owners contacted and attitude: L.B. Hester was interested when contacted, and gave a tour of the property

General landscape description: See Site Description

Physical description

Aspect: North-east

Slope: 0-5 (5-10 on slopes above bog)

Topographic position: Lower slope

Hydrology: Seep

Moisture: Saturated

Elevation: 250 - 270'

Geology: Diabase

Soils: Wadesboro Fine Sandy Loam

Comments on physical description: A large area of seepage at the base of a diabase sill; part of the largest diabase sill in the county

Biological description

Community # 1: Hillside Seepage Bog

Vegetation structure: Forest

Position in landscape and relation to other communities: Lower slope

Quality and condition: Fair to good

Size:

Dominants (*) and important species:

Canopy:

Acer rubrum	rr	Smilax laurifolia
Liquidambar styraciflua		Smilax rotundifolia
Liriodendron tulipifera *		Vaccinium sp.
Nyssa sylvatica		Viburnum dentatum
Pinus taeda		var. lucidum
Quercus nigra		Viburnum nudum
		Vitis rotundifolia

Subcanopy:

Carpinus caroliniana
Fagus grandifolia
Fraxinus sp.
Ilex opaca
Magnolia virginiana

Shrubs and Vines:

Alnus serrulata
Amelanchier arborea
Campsis radicans
rr Clethra alnifolia
Euonymus americanus
Ilex verticillata
Itea virginica
Leucothoe racemosa
Lindera benzoin
Lonicera japonica
Lyonia ligustrina
Rhododendron nudiflorum
Rhus radicans
Rosa palustris
Sambucus canadensis

Herbs:

- Apios americana
- Arisaema triphyllum
- Aster puniceus
- Athyrium asplenioides
- Boehmeria cylindrica
- Botrychium biternatum
- Cuscuta gronovii
- Dioscorea villosa
- rr Eleocharis tortilis
- Eupatorium perfoliatum
- Galium obtusum
 - var. filifolium
- Habenaria ciliaris
- Heuchera americana
- Impatiens capensis
- Lobelia cardinalis
- Medeola virginiana
- Microstegium vimineum
- Mitchella repens
- Osmunda cinnamomea
- Osmunda regalis
 - var. spectabilis
- rr Oxypolis rigidior
- Polygonatum biflorum
- Polygonum punctatum
- Ranunculus pusillus
- Ranunculus recurvatus
- Rudbeckia laciniata
- Sagittaria longirostra
- Saururus cernuus
- Scutellaria lateriflora
- Solidago sp.
- Sphagnum spp.
- Spiranthes sp.
- Thalictrum sp.
- Woodwardia areolata
- rr Woodwardia virginica

Special status species

State-listed species: None observed

Potential for other special status species: An unsuccessful search was made for Hemidactylum during its nesting period. However, the large amounts of sphagnum suggest that this would be a likely site for them, and a further search should be made. This site also looks promising for Eurycea quadridigitata.

Other noteworthy species or features:

Plants:

- rr Clethra alnifolia
- rr Smilax laurifolia
- rr Eleocharis tortilis
- rr Oxypolis rigidior
- rr Woodwardia virginica

Animals:

- rr Desmognathus auriculatus

Site condition

Site integrity: Good to fair

Average DBH of canopy trees: 20 cm

Maximum DBH of canopy trees: 40 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: Yes; parts of bog are currently being grazed by cattle

ORV damaged: No

Other disturbances: No

Adjacent Land Uses: Pasture

Significance of site: Regional

Discussion: See Site Description

Protection considerations and management needs: Surrounding land is actively managed for agriculture and logging; while the boggy nature of the site largely prevents its use, the present fences should be maintained to keep cattle out. Owner should be made aware of natural value of the site and contacted for potential registry.

Determination of survey boundaries: Encloses entire extent of boggy area with remaining canopy.

Priority for further study: Medium; potential presences of Hemidactylum and regionally rare plant species

Specimens collected: Oxypolis rigidior, Eleocharis tortilis
Photographs:

Others knowledgeable about the site: Mike Schafale

References:

Topo map: Attached

Sketch map: None

Plant Species List: See Community # 1

List is: Nearly Complete

ANIMAL SPECIES LIST

List is: Medium-thorough

Vertebrates:

Zenaida macroura
 Melanerpes carolinus
 Picoides pubescens
 Colaptes auratus
 Contopus virens
 Empidonax virescens
 Cyanocitta cristata
 Parus carolinensis
 Parus bicolor
 Thryothurus ludovicianus
 Polioptila caerulea
 Hylocichla mustelina
 Vireo flavifrons
 Vireo olivaceus
 Parula americana
 i Setophaga ruticilla
 i Seiurus aurocapillus
 Piranga olivacea
 Cardinalis cardinalis
 Sturnella magna
 Quiscalus quiscula
 Molothrus ater
 Carduelis tristis
 Sylvilagus floridanus
 Procyon lotor
 Cnemidophorus sexlineatus
 rr Desmognathus auriculatus
 Bufo americanus
 Bufo woodhousei fowleri
 Hyla crucifer
 Hyla chrysoscelis
 Pseudacris triseriata
 Rana clamitans

Invertebrates:

i Eurytides marcellus
 Papilio glaucus
 Papilio troilus
 Pieris rapae
 Anthocharis midea
 Colias eurytheme
 Celastrina ladon
 Euptoeita claudia
 Vanessa atalanta rubria
 i Asterocampa celtis
 Cyllopsis gemma
 Hermeuptychia hermes sosybius
 Ancyloxpha numitor
 Poanes zabulon
 Libellula semifasciata
 Plathemis lydia
 Pachydiplax longipennis
 Anguispira fergusonii
 Mesodon thyroidus

SITE NAME: Lessler Montmorillonite Forest

SIGNIFICANCE: Regional

INTEGRITY: Fair

THREATS: High -- US 64 re-alignment

PROTECTION STATUS: Landowner covenants

JURISDICTION: Center Township

OWNERSHIP: Private

SUMMARY OF SIGNIFICANT FEATURES:

1. Two rare animals are present: the four-toed salamander (Hemidactylium scutatum, which is state-listed as special concern, and the Thorey's grayback dragonfly (Tachopteryx thoreyi), which is unofficially considered to be of special concern by the North Carolina Natural Heritage.
2. The xeric hardpan forest that covers most of this site is quite restricted in its distribution.
3. Several regionally rare plant species occur in the hardpan forest or in the adjoining slopes above Harland's Creek. These include groundpine (Lycopodium obscurum), golden club (Orontium aquaticum), bulbous bitter cress (Cardamine bulbosa), and blue star (Amsonia tabernaemontana).
4. The extensive woodlands of this site and the adjoining areas provide habitat for wild turkey (Meleagris gallopavo), red-shouldered hawk (Buteo lineatus), and other wide-ranging species of animals.

GENERAL SITE DESCRIPTION:

This is the site of an old plantation. The forest now present over most of the tract strongly reflects this past land use, showing a highly uneven age structure. Most of the trees are fairly young, but scattered throughout are impressive hickories and oaks that once served as shade trees.

Although this woodland is somewhat degraded second-growth, it warrants inclusion as a significant county natural area due to its possession of a number of unusual elements of its flora and fauna. The underlying rock of most of this tract is mapped as mafic tuffs and andesitic crystalline tuffs, which when present in flat topographies, such as predominates at this site, typically produces an impermeable layer of montmorillonitic clay. The plant community reflects these conditions, possessing the classic features of hardpan forest. The canopy is composed of species that can tolerate extremes of wet and dry, with the willow oaks (Quercus phellos), characteristic of bottomlands, mixing with xerophilic blackjack oaks (Q. marilandica) and post oaks (Q. stellata). Large areas of the ground are

covered with running cedar (Lycopodium flabelliforme) and sphagnum moss; the regionally rare groundpine L. obscurum) also occurs in a few places. At the margin of the hardpan forest is a sphagnaceous spring inhabited by two rare animals, the four-toed salamander and the Thorey's grayback dragonfly. Both these animals are scarce throughout the state due to their dependence on mossy, muck-bottomed pools for breeding.

The hardpan forest grades into mesic mixed hardwoods on the slopes above Harland's Creek. Again, the influence of mafic rock is evident, producing a community intermediate between Mesic Mixed Hardwood Forest and Basic Oak-Hickory Forest. The canopy and shrub layer contains such basophilic species as southern shagbarks (Carya carolinae-septentrionalis), redbuds (Cercis canadensis), and red cedars (Juniperus virginiana), as well as the beeches (Fagus grandifolia) and red oaks (Quercus rubra) characteristic of cool, shaded slopes. The herb layer also reflects this mixture of conditions, where blue star and bulbous bittercress, favoring circumneutral soils, join a long list of mesic wildflowers. An unusual aquatic species that occurs in one of the small creeks running through this area is golden club.

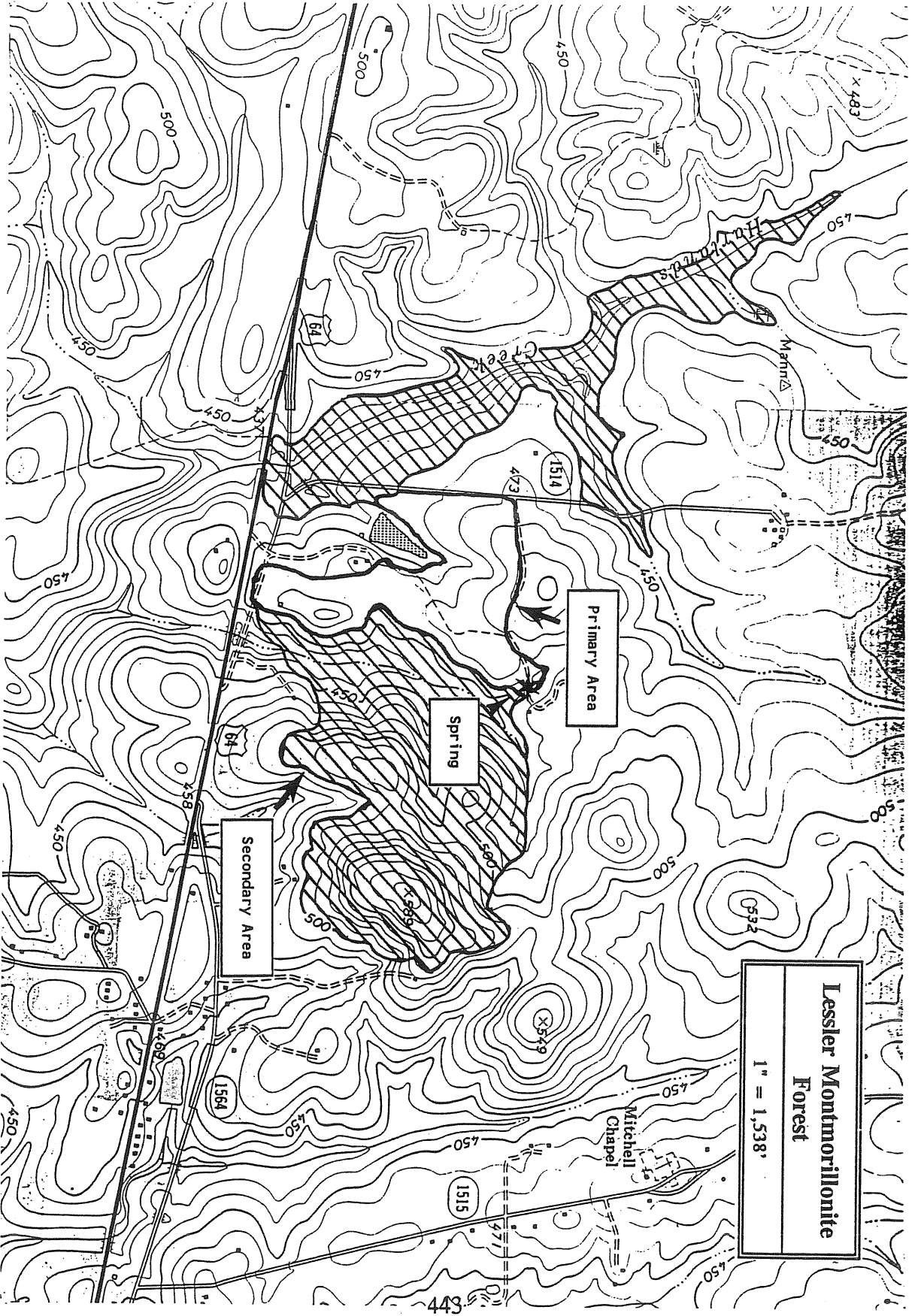
Still other community types are present on both the eastern and western boundaries of this site, contributing to the overall diversity of the area.

At the base of the slope along Harland's Creek is a small section of floodplain forest with bitternut hickories (Carya cordiformis), northern shagbarks (C. ovata), and American elms (Ulmus americana). Along the eastern side, a small area of mature upland hardwoods dominated by white oaks and various hickories grows upon a small rocky ridge.

This diversity of plant communities, including a number of different successional stages, contributes, in turn, to a fairly high diversity of animals. Representative species range from ovenbirds (Seiurus aurocapillus), scarlet tanagers (Piranga olivacea) and box turtles (Terrapene carolina) in the uplands to spotted salamanders (Ambystoma maculatum), Louisiana waterthrushes (Seiurus moticilla), and beaver (Castor canadensis) in the bottomlands. The value this site has for wildlife is further enhanced by both the size and largely unbroken character of its forests. Wide-ranging species such as wild turkey (Meleagris gallopavo), as well as forest interior species, such as the hooded warbler (Wilsonia citrina), only survive in large blocks of forest such as the one present here.

CONSERVATION RECOMMENDATIONS:

The landowners are aware of the value of the forest and its wildlife. Registration of the site as a state natural area or acquisition of a conservation easement are the most appropriate means of conserving these values. Conservation efforts should be aimed toward maintaining the extent of unbroken forest, allowing the natural communities to mature, and controlling invasive species, particularly silverberry, an exotic shrub that is widespread through the site. Prescribed burns may help eliminate the silverberry as well as restore the natural hardpan forest, which is probably a fire-maintained community (Schafale and Weakley, 1990).



**Lesler Montmorillonite
Forest**
1" = 1,538'

Primary Area

Spring

Secondary Area

SITE SURVEY REPORT

Site name: Lessler Montmorillonite Forest

County: Chatham

Date(s): 16/IX/88, 12/IV/89, 14/VII/89, 22/X/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: 68 primary acres + 277 secondary acres = 345 total acres

Quad: Pittsboro

Province: Piedmont

Watershed: Harlands Creek --> Rocky River --> Deep River --> Cape Fear River

Location and directions: Flats north of US 64 and east of NC 1514

Landowners and addresses:

Owners contacted and attitude: Toured site at the invitation of Donna Schneider, a tenant of the property

General landscape description: See Site Description

Physical description

Aspect: Various

Slope: 0-5

Topographic position: Upland flat to alluvial flat

Hydrology: Terrestrial

Moisture: Seasonally wet to dry

Elevation: 500 - 430'

Geology: Mafic flows

Soils: Orange Silt Loam (upland flat); Alamance Silt Loam (ridge); Congaree Silt Loam, Georgeville Silty Clay Loam (bottomland along creek)

Comments on physical description: Fairly extensive area of poorly drained, hardpan flats

Biological description

Community # 1: Xeric Hardpan Forest

Vegetation structure: Forest

Position in landscape and relation to other communities: Upland flats

Quality and condition: Fair

Size:

Dominants (*) and important species:

Canopy:

Acer rubrum
Carya ovata
Carya tomentosa
Liquidambar styraciflua
Pinus echinata
Pinus taeda
Quercus alba
Quercus falcata
Quercus marilandica
Quercus phellos *
Quercus rubra
Quercus stellata *
Quercus velutina

Herbs:

Arnica acaulis
Lycopodium flabelliforme
rr Lycopodium obscurum
Sphagnum sp.

Subcanopy:

Juniperus virginiana
Oxydendrum arboreum

Shrubs and vines:

Elaeagnus umbellata
Gaylussacia frondosa
Rhus radicans
Vaccinium tenellum

Community # 2: Mesic Mixed-hardwoods

Vegetation structure: Forest

Position in landscape and relation to other communities: Lower slope and bottomland along Harlands Creek

Quality and condition: Fair

Size:

Dominants (*) and important species:

Canopy:

Acer rubrum
Betula nigra
Carya carolinae-septentrionalis
Carya cordiformis
Carya ovata
Carya tomentosa
Fagus grandifolia
Liquidambar styraciflua
Liriodendron tulipifera
Pinus echinata
Pinus taeda
Quercus alba
Quercus falcata
Quercus phellos
Quercus rubra
Ulmus alata
Ulmus americana

Subcanopy:

Carpinus caroliniana
Cercis canadensis
Cornus florida
Fraxinus pennsylvanica
Ilex opaca
Juniperus virginiana
Morus rubra
Oxydendrum arboreum
Prunus serotina

Shrubs and vines:

Chionanthus virginicus
Corylus americana
Elaeagnus umbellata
Euonymus americanus
Lindera benzoin
Lonicera japonica
Rhododendron nudiflorum
Rhus radicans
Sambucus canadensis
Smilax bona-nox
Viburnum prunifolium
Vitis rotundifolia

Herbs:

Agrimonia rostellata
rr Amsonia tabernaemontana
Asplenium platyneuron
Athyrium asplenioides
Botrychium biternatum
Botrychium virginianum
Cardamine angustata
rr Cardamine bulbosa
Chamaelirium luteum
Chimaphila maculata
Chrysogonum virginianum
Cicuta maculata
Claytonia virginica
Elephantopus carolinianus
Epifagus virginiana
Erythronium umbilicatum
Fragaria virginiana
Galium circaezans

Herbs (cont.):

Goodyera pubescens
Gratiola virginiana
Hepatica americana
Hexastylis arifolia
Houstonia caerulea
Impatiens capensis
Laportea canadensis
Lobelia cardinalis
Luzula acuminata
Lycopodium flabelliforme
Microstegium vimineum
Onoclea sensibilis
rr Orontium aquaticum
Osmunda cinnamomea
Pedicularis canadensis
Podophyllum peltatum
Polygonatum biflorum
Polystichum acrostichoides
Ranunculus abortivus
Ranunculus recurvatus
Sagittaria longirostra
Saururus cernuus
Scutellaria integrifolia
Smilacena racemosa
Solidago caesia
Sphagnum sp.
Stellaria pubera
Thalictrum thalictroides
Tiarella cordifolia
Tipularia discolor
Uvularia sessilifolia
Viola sp.

Special status species

State-listed species:

Animals:

sc Hemidactylium scutatum
u Tachopteryx thoreyi

Potential for other special status species: Low

Other noteworthy species or features:

Plants:

rr Lycopodium obscurum
rr Orontium aquaticum
rr Cardamine bulbosa
rr Amsonia tabernaemontana

Animals:

rr Meleagris gallopavo

Communities:

Xeric Hardpan Forest

Site condition

Site integrity: Fair

Average DBH of canopy trees: 30 cm

Maximum DBH of canopy trees:

Fire regime: Natural

Logged: Within last 30-40 years

Evenness of canopy: Mixed-age

Ditched/drained: No

Stream channelized: No

Dredged/filled: No

Understory cleared: No

Grazed: No (not in recent times)

ORV damaged: No

Other disturbances: No

Adjacent Land Uses: Residential, forest, and agriculture

Significance of site: Regional

Discussion: See Site Description

Protection considerations and management needs: Landowners are aware of the significance of the site; a conservation easement should be negotiated.

Determination of survey boundaries: Primary natural area encloses undeveloped area of hardpan forest; secondary areas include the bottomlands and adjoining slopes along Harlands Creek and the mature hardwood stand located on the ridge east of the hardpan forest.

Priority for further study: Low

Specimens collected:

Photographs:

Others knowledgeable about the site: Donna Schneider

References:

Topo map: Attached

Sketch map: None

PLANT SPECIES LIST

List is: Cursory (Medium Thorough for bottomlands)

- | | |
|---|--|
| <p>Sphagnum sp. (00)
 Lycopodium flabelliforme (3)
 rr Lycopodium obscurum (3)
 Botrychium biternatum (6)
 Botrychium virginianum (6)
 Osmunda cinnamomea (7)
 Athyrium asplenioides (11)
 Onoclea sensibilis (11)
 Polystichum acrostichoides (11)
 Asplenium platyneuron (13)
 Pinus echinata (16)
 Pinus taeda (16)
 Juniperus virginiana (18)
 Sagittaria longirostra (27)
 Microstegium vimineum (29)
 Orontium aquaticum (32)
 Luzula acuminata (40)
 Chamaelirium luteum (41)
 Erythronium umbilicatum (41)
 Polygonatum biflorum (41)
 Smilacena racemosa (41)
 Smilax bona-nox (41)
 Uvularia sessilifolia (41)
 Goodyera pubescens (49)
 Tipularia discolor (49)
 Saururus cernuus (50)
 Carya carolinae-septentrionalis (53)
 Carya cordiformis (53)
 Carya ovata (53)
 Carya tomentosa (53)
 Betula nigra (54)
 Carpinus caroliniana (54)
 Corylus americana (54)
 Fagus grandifolia (55)
 Quercus alba (55)
 Quercus falcata (55)
 Quercus marilandica (55)
 Quercus phellos (55)
 Quercus rubra (55)
 Quercus stellata (55)</p> | <p>Quercus velutina (55)
 Ulmus alata (56)
 Ulmus americana (56)
 Morus rubra (57)
 Laportea canadensis (59)
 Hexastylis arifolia (62)
 Claytonia virginica (70)
 Stellaria pubera (71)
 Hepatica americana (76)
 Ranunculus abortivus (76)
 Ranunculus recurvatus (76)
 Thalictrum thalictroides (76)
 Podophyllum peltatum (77)
 Liriodendron tulipifera (80)
 Lindera benzoin (84)
 Cardamine angustata (88)
 rr Cardamine bulbosa (88)
 Tiarella cordifolia (94)
 Liquidambar styraciflua (95)
 Agrimonia rostellata (97)
 Fragaria virginiana (97)
 Prunus serotina (97)
 Cercis canadensis (98)
 Rhus radicans (110)
 Ilex opaca (112)
 Euonymus americanus (113)
 Acer rubrum (115)
 Impatiens capensis (118)
 Vitis rotundifolia (120)
 Viola sp. (130)
 Elaeagnus umbellata (134)
 Cicuta maculata (140)
 Cornus florida (142)
 Chimaphila maculata (145)
 Gaylussacia frondosa (145)
 Oxydendrum arboreum (145)
 Rhododendron nudiflorum (145)
 Vaccinium tenellum (145)
 Chionanthus virginicus (153)
 Fraxinus pennsylvanica (153)
 rr Amsonia tabernaemontana (156)</p> |
|---|--|

Scutellaria integrifolia (164)
Gratiola virginiana (166)
Pedicularis canadensis (166)
Epifagus virginiana (169)
Galium circaezans (173)
Houstonia caerulea (173)
Lonicera japonica (174)
Sambucus canadensis (174)
Viburnum prunifolium (174)
Lobelia cardinalis (178)
Arnica acaulis (179)
Chrysogonum virginianum (179)
Elephantopus carolinianus (179)
Solidago caesia (179)

ANIMAL SPECIES LIST

List is: Medium-thorough

Vertebrates:

i Buteo lineatus
 rr Meleagris gallopavo *
 i Coccyzus erythrophthalmus
 Melanerpes carolinus
 Picoides pubescens
 Empidonax virescens
 Cyanocitta cristata
 Parus carolinensis
 Parus bicolor
 Thryothurus ludovicianus
 Polioptila caerulea
 Hylocichla mustelina
 Vireo olivaceus
 Parula americana
 Dendroica pinus
 i Seiurus aurocapillus
 i Seiurus motacilla
 i Wilsonia citrina
 Piranga rubra
 Piranga olivacea
 Cardinalis cardinalis
 Pipilo erythrophthalmus
 Carduelis tristis
 Sylvilagus floridanus
 Castor canadensis
 Procyon lotor
 Odocoileus virginianus
 i Terrapene carolina
 i Ambystoma maculatum
 Ambystoma opacum
 sc Hemidactylium scutatum
 Acris crepitans
 Pseudacris triseriata

Invertebrates:

Papilio glaucus
 Anthocharis midea
 Celastrina ladon
 Libytheana bachmanii
 Polygonia interrogationis
 Nymphalis antiopa
 Vanessa atalanta rubria
 Limenitis arthemis astyanax
 Hermeuptychia hermes sosybius
 Epargyreus clarus
 Erynnis juvenalis
 Lerema accius
 Ancyloxypha numitor
 u Tachopteryx thoreyi
 Somatochlora linearis

* Reported by Donna Schneider

