

SITE NAME: Old Quarry Creek

SIGNIFICANCE: County

INTEGRITY: Good

THREATS: Low -- timbering

PROTECTION STATUS: Part of the area is protected as a Jordan Lake Natural Area, the rest is unprotected.

JURISDICTION: Williams Township

OWNERSHIP: Federal and private

SUMMARY OF SIGNIFICANT FEATURES:

1. This is the site of the only known population of sweet pinesap (Monotropsis odorata) growing in Chatham County. This species is a state candidate for threatened or endangered status.
2. The mesic mixed hardwoods and bottomland forest present at this site are some of the more mature woodlands occurring in the county.

GENERAL SITE DESCRIPTION:

As is true for Herndon Creek, Robeson Creek, and other streams crossing the western edge of the Triassic Basin, Old Quarry Creek has cut a series of steep bluffs along the point where it transects the fault line. This site also marks another junction; it occurs at the southern edge of the large granite pluton that forms Edwards Mountain and Boothe Hill. The rock formation here is a schist, a type of metamorphic rock that is typically found where plutonic rocks have intruded into older series.

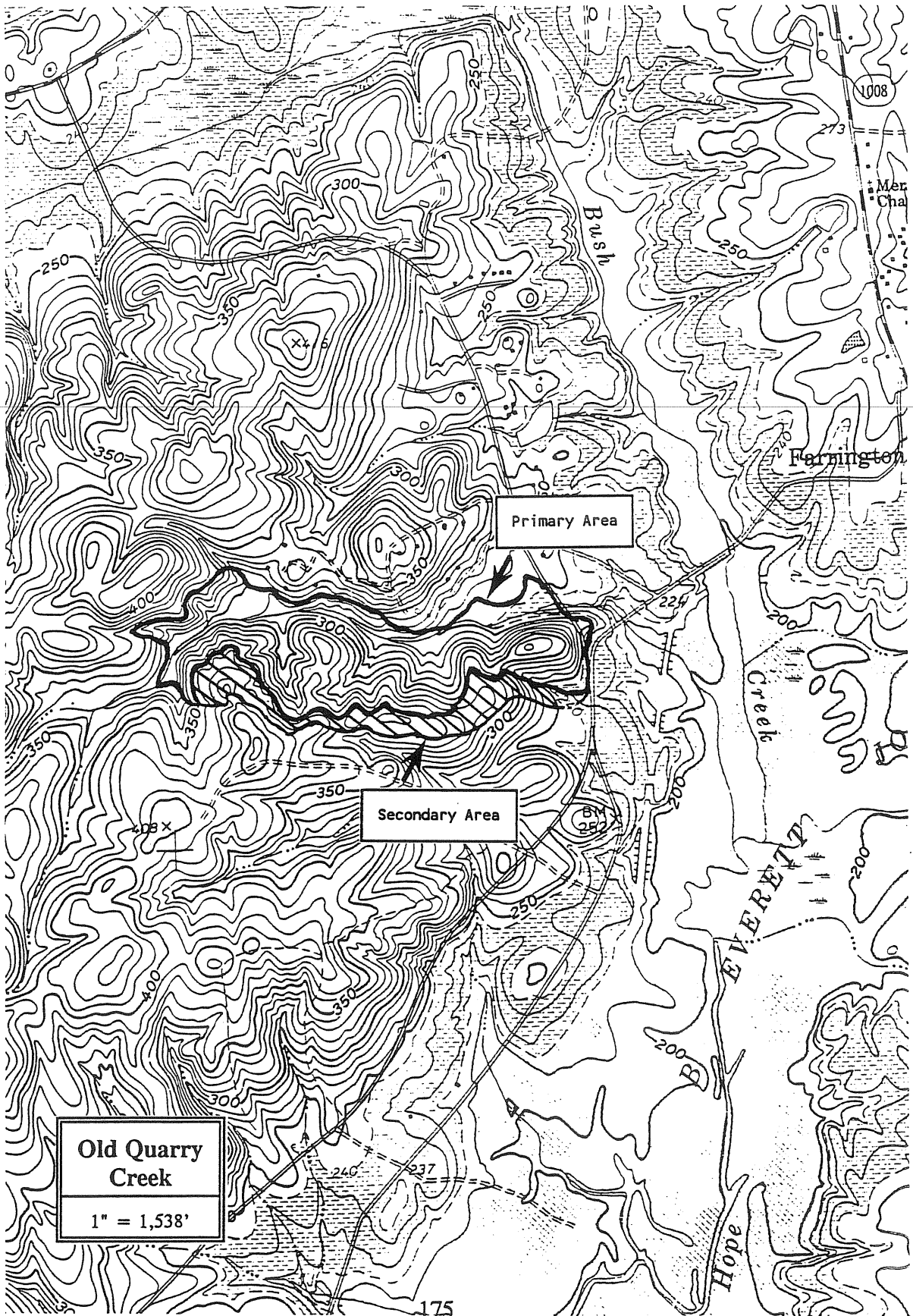
The steep north-facing slopes above the creek contain a good example of mesic mixed hardwood forest. The canopy is composed predominantly of beech (Fagus grandifolia), red oak (Quercus rubra), and white oak (Q. alba), and the understory and shrub layers contain such characteristic species as black gum (Nyssa sylvatica), maple leaf viburnum (Viburnum acerifolium), and witch hazel (Hamamelis virginiana). Herbs are fairly sparse, but one significant species is present, the sweet pinesap (Monotropsis odorata). This species is rare within the state generally, and is found more often in the mountains than the piedmont. In our region, this species is more-or-less restricted to steep north-facing slopes. Wintergreen (Gaultheria procumbens) has also been reported to occur at this site. Although not as rare as the pinesap, it has a similar distribution and habitat preference and is known from only one other site in Chatham County.

In addition to the slope community, this site has a reasonably well-developed bottomland forest. Although sections have been cut in the recent past and the presence of barbed wire fences indicates that grazing may still occur in some areas, this community contains many large trees, some of which are indicators of rich soil conditions. These include bitternut hickory (Carya cordiformis), northern shagbark hickory (C. ovata), and cherrybark oak (Quercus pagoda). The herb layer, however, is relatively depauperate, perhaps indicating continued disturbance. The dominant herb is the introduced japanese grass (Microstegium vimineum).

Few animals were observed during the two survey trips made to this site, possibly reflecting the proximity of residential areas on both the north and south sides of this tract. Both visits were made outside the breeding season, however, and a large number of birds can be expected to occur in this relatively extensive area of mature forest.

CONSERVATION RECOMMENDATIONS:

This area receives some protection as a designated Jordan Lake Natural Area but private lands border it on both sides. Conservation easements are needed in order to provide buffer strips, particularly on the ridge above the steep, north-facing slopes.



Old Quarry
Creek
1" = 1,538'

Primary Area

Secondary Area

SITE SURVEY REPORT

Site name: Old Quarry Creek
County: Chatham

Date(s): 25/VIII/88, 27/X/88

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: 99 primary acres + 26 secondary acres = 125 total acres

Quad: Farrington

Province: Piedmont

Watershed: Old Quarry Creek --> Jordan Lake --> Haw River --> Cape Fear River

Location and directions: Large ravine located west of SR 1716 at north end of the Big Woods

Landowners and addresses:

Owners contacted and attitude:

General landscape description: See Site Description

Physical description

Aspect: North

Slope: 10-35

Topographic position: Upper slope to bottomland

Hydrology: Terrestrial

Moisture: Moist

Elevation: 250 - 350'

Geology: Schist

Soils: Georgeville Stony Silt Loam, White Store Fine Sandy Loam (eroded phase)

Comments on physical description: Contains a fairly large area of steep, north-facing slopes

Biological description

Community # 1: Piedmont Alluvial Forest

Vegetation structure: Forest

Position in landscape and relation to other communities: bottomland

Quality and condition: Fair to good

Size:

Dominants (*) and important species:

Canopy:

Acer rubrum
Carya cordiformis
Carya glabra
Carya ovata
Carya tomentosa
Diospyros virginiana
Fagus grandifolia
Fraxinus sp.
Nyssa sylvatica
Pinus echinata
Pinus taeda
Quercus alba
Quercus falcata
Quercus rubra
Ulmus alata

Subcanopy:

Carpinus caroliniana
Juniperus virginiana
Quercus pagoda

Shrubs and vines:

Campsis radicans
Euonymus americanus
Lindera benzoin
Parthenocissus quinquefolia
Prunus serotina
Rhododendron nudiflorum
Rubus sp.

Shrubs (cont.):

Vitis labrusca
Vitis rotundifolia

Herbs:

Antennaria solitaria
Boehmeria cylindrica
Dioscorea villosa
Hepatica americana
Heuchera americana
Iris cristata
Lobelia cardinalis
Microstegium vimineum
Mitchella repens
Polystichum acrostichoides
Prenanthes altissima
Tiarella cordifolia
Viola sp.

Special status species

State-listed species:

Plants:

c *Monotropsis odorata*

Potential for other special status species: Low

Other noteworthy species or features: Site is part of an extensive area of upland forests known locally as the Big Woods

Site condition

Site integrity: Good

Average DBH of canopy trees:

Maximum DBH of canopy trees:

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 north of creek

Adjacent Land Uses: Forest and residential

Significance of site: County

Discussion: See Site Description

Protection considerations and management needs: Currently given some protection due to Corps ownership; forest should be protected from lumbering

Determination of survey boundaries: Encloses area of steepest north-facing slopes along Old Quarry Creek

Priority for further study: Low

Specimens collected:

Photographs: Monotropis odorata

Others knowledgeable about the site: Julie Moore

References: Moore,

Topo map: Attached

Sketch map:

PLANT SPECIES LIST

List is: Cursory

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| <p>Polystichum acrostichoides (11) Pinus echinata (16) Pinus taeda (16) Juniperus virginiana (18) Microstegium vimineum (29) Chamaelirium luteum (41) Dioscorea villosa (43) Iris cristata (46) Goodyera pubescens (49) Carya cordiformis (53) Carya glabra (53) Carya ovata (53) Carya tomentosa (53) Carpinus caroliniana (54) Fagus grandifolia (55) Quercus alba (55) Quercus falcata (55) Quercus falcata var. pagodaefolia (55) Quercus rubra (55) Ulmus alata (56) Ulmus rubra (56) Boehmeria cylindrica (59) Hexastylis arifolia (62) Hexastylis minor (62) Polygonum sp. (63) Hepatica americana (76) Liriodendron tulipifera (80) Lindera benzoin (84) Heuchera americana (94) Tiarella cordifolia (94) Hamamelis virginiana (95) Amelanchier arborea (97) Prunus serotina (97) Rubus sp. (97) Ilex decidua (112) Euonymus americanus (113) Acer rubrum (115)</p> | <p>Parthenocissus quinquefolia (120) Vitis labrusca (120) Vitis rotundifolia (120) Viola sp. (130) Nyssa sylvatica (141) Cornus florida (142) rr Chimaphila umbellata (145) Epigaea repens (145) c Monotropsis odorata (145) Oxydendrum arboreum (145) Rhododendron nudiflorum (145) Vaccinium sp. (145) Diospyros virginiana (150) Chionanthus virginicus (153) Fraxinus sp. (153) Aureolaria virginica (166) Campsis radicans (167) Epifagus virginiana (169) Mitchella repens (173) Viburnum acerifolium (174) Viburnum rafinesquianum (174) Lobelia cardinalis (178) Antennaria solitaria (179) Prenanthes altissima (179)</p> |
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ANIMAL SPECIES LIST

List is: Cursory (not visited during the nesting season)

Vertebrates:

- i Zenaida macroura
- i Coccyzus erythrophthalmus
- Melanerpes carolinus
- Picoides pubescens
- Colaptes auratus
- Cyanocitta cristata
- Parus carolinensis
- Thryothurus ludovicianus
- Sciurus carolinensis
- Odocoileus virginianus
- i Terrapene carolina
- Plethodon glutinosus

Invertebrates:

- Papilio glaucus
- Feniseca tarquinius
- Enodia portlandia
- Hermeuptychia hermes sosybius
- Haplotrema concavum
- Triodopsis fallax

SITE NAME: Terrells Creek Galax Bluffs

SIGNIFICANCE: County

INTEGRITY: Good

THREATS: Low -- timbering of adjacent property

PROTECTION STATUS: None

JURISDICTION: Hadley Township

OWNERSHIP: Private

SUMMARY OF SIGNIFICANT FEATURES:

1. The extensive population of galax (Galax aphylla) that grows on this slope is one of the few known for Chatham County. This species is widespread in the mountains but quite local in the Piedmont. Wintergreen (Gaultheria procumbens) is also present at this site and has a distribution similar to that of galax. Only one other site in Chatham County is known to have this plant.
2. The cliffs that rise nearly vertically above Terrells Creek are some of the most scenic in the county. The presence of mountain laurel, galax, and other mesic species gives this site a dramatically montane appearance.
3. A small ravine that cuts through the lower part of this site contains an area rich in wildflowers.

GENERAL SITE DESCRIPTION:

Terrells Creek is a medium-sized tributary of the Haw but has cut deeply along a ridge of resistant rock; the cliffs on the east side of this stream rise over fifty feet straight up from the channel.

The steepness of this site and numerous rock outcrops prevent the formation of a closed forest canopy. The resulting dry, sunny conditions, along with the thin acidic soil, produce an acidic cliff community, one of the less common community types in the Piedmont. In addition to the galax and wintergreen, characteristic species present at this site include trailing arbutus (Epigaea repens), partridgeberry (Mitchella repens), and mountain laurel (Kalmia latifolia). The scattered trees forming the canopy are dominated by mesic species such as beech (Fagus grandifolia), red oak (Quercus rubra), and white oak (Q. alba).

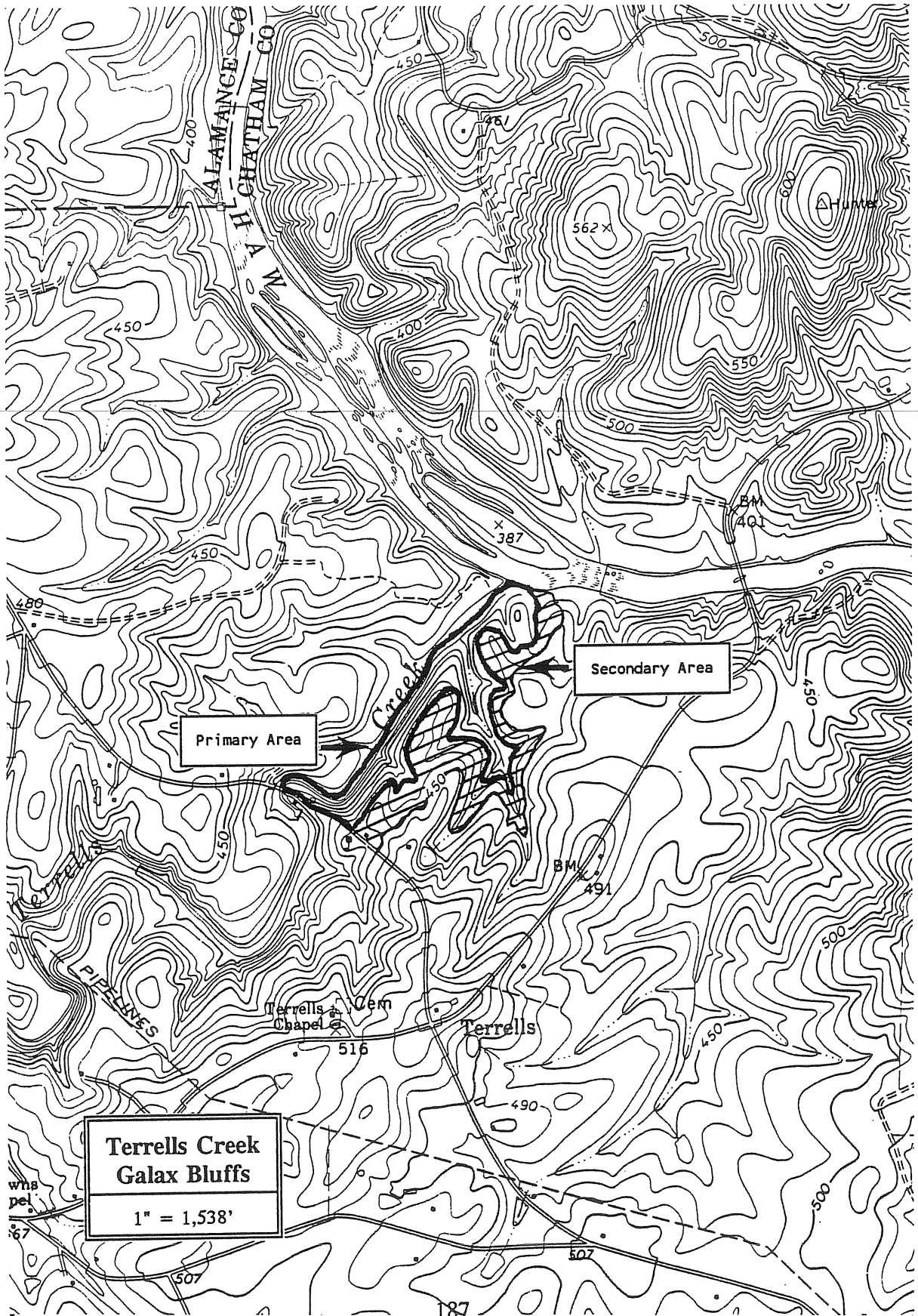
Contrasting sharply to the cliff community is a small area of bottomland forest that occurs in a ravine entering Terrells Creek near its lower end. Here southern sugar maple (Acer floridanum), a basophile, shares the canopy with beech. The herbs are characteristic of rich mesic sites and include such species as bloodroot (Sanguinaria canadensis), mayapple

(Podophyllum peltatum), black cohosh (Cimicifuga racemosa) and green dragon (Arisaema draconitum). Two herbs found here, blue star (Amsonia tabernaemontana) and bulbous bittercress (Cardamine bulbosa), are quite rare in the Piedmont.

Among the animals occurring at this site, the six species of warblers recorded in late April (some of which may still have been migrating through) provide perhaps the best picture of habitat quality. The hooded and Kentucky warblers (Wilsonia citrina and Oporornis formosus) both inhabit the interiors of forests, while the northern parula warbler (Parula americana), prothonotary warbler (Protonotaria citrea) and Louisiana waterthrush (Seiurus motacilla) are characteristic of riverbank or streamside habitats. The yellow-throated warbler (Dendroica dominica) is another streamside bird but one that prefers to nest in mature pines. The presence of these species as nesting birds would indicate the maturity and integrity of this ravine community. This picture is reinforced by the presence of red-tailed hawks (Buteo jamaicensis), red-shouldered hawks (B. lineatus), and river otters (Lutra canadensis), all of which require extensive tracts of undeveloped lands for their survival.

CONSERVATION RECOMMENDATIONS:

The owner of the cliff community is aware of its value and wishes to protect it as a natural area. Registration of the site as a state or county natural area would represent a first step, but long-term protection is best achieved through a conservation easement. Full protection of this site must also involve adjacent properties which are currently exploited for timber or grazing. A key tract lies along the top of the bluff. Without protection of this buffer strip, erosion and wind damage will create problems on the slope below.



Primary Area

Secondary Area

**Terrells Creek
Galax Bluffs**
1" = 1,538'

SITE SURVEY REPORT

Site name: Terrells Creek Galax Bluffs
County: Chatham

Date(s): 27/IV/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: 37 primary acres + 40 secondary acres = 77 total acres

Quad: Bynum

Province: Piedmont

Watershed: Terrells Creek (southern) --> Haw River --> Cape Fear River

Location and directions: 0.5 miles NW of Terrells Crossroad; steep slopes downstream from restored mill site on SR 1520

Landowners and addresses:

Owners contacted and attitude: Site was visited at the invitation of Lois Anne Hobbes

General landscape description: See Site Description

Physical description

Aspect: North to northwest

Slope: 35+ (in places)

Topographic position: Crest, upper and lower slopes

Hydrology: Terrestrial

Moisture: Moist to dry

Elevation: 380 - 420'

Geology: Conglomerates and graywackes

Soils: Georgeville Stony Silt Loam

Comments on physical description: Highly scenic, steep ravine with large rock outcrops

Biological description

Community # 1: Mesic Mixed Hardwood Forest (Kalmia slope)

Vegetation structure: Forest

Position in landscape and relation to other communities: Kalmia community on north- and northwest-facing slopes above creek

Quality and condition: Good

Size:

Dominants (*) and important species:

Canopy:

Acer rubrum
Fagus grandifolia *
Nyssa sylvatica
Oxydendrum arboreum
Pinus echinata
Quercus alba *
Quercus rubra *

Herbs:

Aster divaricatus
Chamaelirium luteum
Chimaphila maculata
Epigaea repens
Erythronium umbilicatum
rr Galax aphylla
rr Gaultheria procumbens
Hepatica americana
Heuchera americana
Hexastylis arifolia
Hexastylis minor
Hieraceum venosum
Houstonia caerulea
Luzula acuminata
Mitchella repens
Oxalis violacea
Polygonatum biflorum
Polystichum acrostichoides
Prenanthes serpentaria
Ranunculus recurvatus

Subcanopy:

Ilex opaca

Shrubs and vines:

Amelanchier arborea
Hamamelis virginiana
Kalmia latifolia
Lonicera japonica
Rhus radicans
Styrax grandifolia
Vaccinium stamineum
Viburnum acerifolium

Special status species

State-listed species: None observed

Potential for other special status species: The rocky nature of stream suggests that it could support a population of Gomphus septima, which is known from areas downstream on the Haw (see Site MROK1)

Other noteworthy species or features:

Plants:

- rr Cardamine bulbosa
- rr Gaultheria procumbens
- rr Galax aphylla
- rr Amsonia tabernaemontana

Animals:

- rr Lutra canadensis

Geology:

Outcrops of conglomerate (included in UNC Geology Field Trip Handbook)

Site condition

Site integrity: Good

Average DBH of canopy trees: 40 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: Clear-cut on areas adjoining slope

Adjacent Land Uses: Forest, agriculture, and residential

Significance of site: County

Discussion: See Site Description

Protection considerations and management needs: Should be registered; buffer-strip is needed on land adjoining the bluff

Determination of survey boundaries: Encloses steep slope containing the Galax and heath community, extending downstream from the Hobbes residence to confluence of Terrels Creek and the Haw River

Priority for further study: Medium; upstream area should be surveyed

Specimens collected:

Photographs:

Others knowledgeable about the site:

References:

Topo map: Attached

Sketch map: None

PLANT SPECIES LIST

List is: Medium-thorough

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| <p> <i>Botrychium virginianum</i> (6) <i>Polystichum acrostichoides</i> (11) <i>Pinus echinata</i> (16) <i>Sagittaria longirostra</i> (27) <i>Arisaema draconitum</i> (32) <i>Luzula acuminata</i> (40) <i>Allium canadense</i> (41) <i>Chamaelirium luteum</i> (41) <i>Erythronium umbilicatum</i> (41) <i>Polygonatum biflorum</i> (41) <i>Dioscorea villosa</i> (43) <i>Fagus grandifolia</i> (55) <i>Quercus alba</i> (55) <i>Quercus rubra</i> (55) <i>Ulmus alata</i> (56) <i>Hexastylis arifolia</i> (62) <i>Hexastylis minor</i> (62) <i>Claytonia virginica</i> (70) <i>Stellaria pubera</i> (71) <i>Cimicifuga racemosa</i> (76) <i>Hepatica americana</i> (76) <i>Ranunculus recurvatus</i> (76) <i>Podophyllum peltatum</i> (77) <i>Sanguinaria canadensis</i> (85) rr <i>Cardamine bulbosa</i> (88) <i>Sedum ternatum</i> (91) <i>Heuchera americana</i> (94) <i>Saxifraga virginiana</i> (94) <i>Hamamelis virginiana</i> (95) <i>Platanus occidentalis</i> (96) <i>Amelanchier arborea</i> (97) <i>Oxalis violacea</i> (100) <i>Rhus radicans</i> (110) <i>Ilex opaca</i> (112) <i>Acer floridanum</i> (115) <i>Acer rubrum</i> (115) <i>Viola</i> sp. (130) <i>Sanicula canadensis</i> (140) <i>Nyssa sylvatica</i> (141) <i>Chimaphila maculata</i> (145) </p> | <p> <i>Epigaea repens</i> (145) rr <i>Gaultheria procumbens</i> (145) <i>Kalmia latifolia</i> (145) <i>Oxydendrum arboreum</i> (145) <i>Vaccinium stamineum</i> (145) rr <i>Galax aphylla</i> (146) <i>Styrax grandifolia</i> (152) rr <i>Amsonia tabernaemontana</i> (156) <i>Epifagus virginiana</i> (169) <i>Galium circaezans</i> (173) <i>Galium</i> sp. (173) <i>Houstonia caerulea</i> (173) <i>Mitchella repens</i> (173) <i>Lonicera japonica</i> (174) <i>Sambucus canadensis</i> (174) <i>Symphoricarpos orbiculatus</i> (174) <i>Viburnum acerifolium</i> (174) <i>Aster divaricatus</i> (179) <i>Hieraceum venosum</i> (179) <i>Prenanthes serpentaria</i> (179) </p> |
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ANIMAL SPECIES LIST

List is: Cursorsy

Vertebrates:

- i Buteo lineatus
- Buteo jamaicensis
- Melanerpes carolinus
- Empidonax virescens
- Cyanocitta cristata
- Parus bicolor
- Polioptila caerulea
- Vireo flavifrons
- Vireo olivaceus
- Parula americana
- Dendroica dominica
- i Protonotaria citrea
- i Seiurus motacilla
- i Oporornis formosus
- i Wilsonia citrina
- Cardinalis cardinalis
- Molothrus ater
- Castor canadensis
- rr Lutra canadensis *
- Opheodrys aestivalis
- Bufo woodhousei fowleri
- Acris crepitans
- Hyla chrysoscelis

Invertebrates:

- Papilio troilus
- Feniseca tarquinius
- Phyciodes tharos
- Limenitis arthemis astyanax

* Reported by Lois Anne Hobbes

SITE NAME: Little Indian Creek Galax Bluff

SIGNIFICANCE: County

INTEGRITY: Good to fair

THREATS: Medium -- timbering

PROTECTION STATUS: None

JURISDICTION: Gulf Township

OWNERSHIP: Private

SUMMARY OF SIGNIFICANT FEATURES:

1. This site is distinguished by its large population of galax (Galax aphylla), a species plentiful in the mountains but restricted to steep, north-facing slopes in the Piedmont. A second regionally rare species present at this site is featherbells (Stenanthium gramineum).

GENERAL SITE DESCRIPTION:

The north-facing slope along this section of Little Indian Creek is part of a fault scarp. Although fairly low in elevation, it is quite steep and provides a cool mesic environment capable of supporting several species of plants that are widespread in the mountains but unusual within the Piedmont.

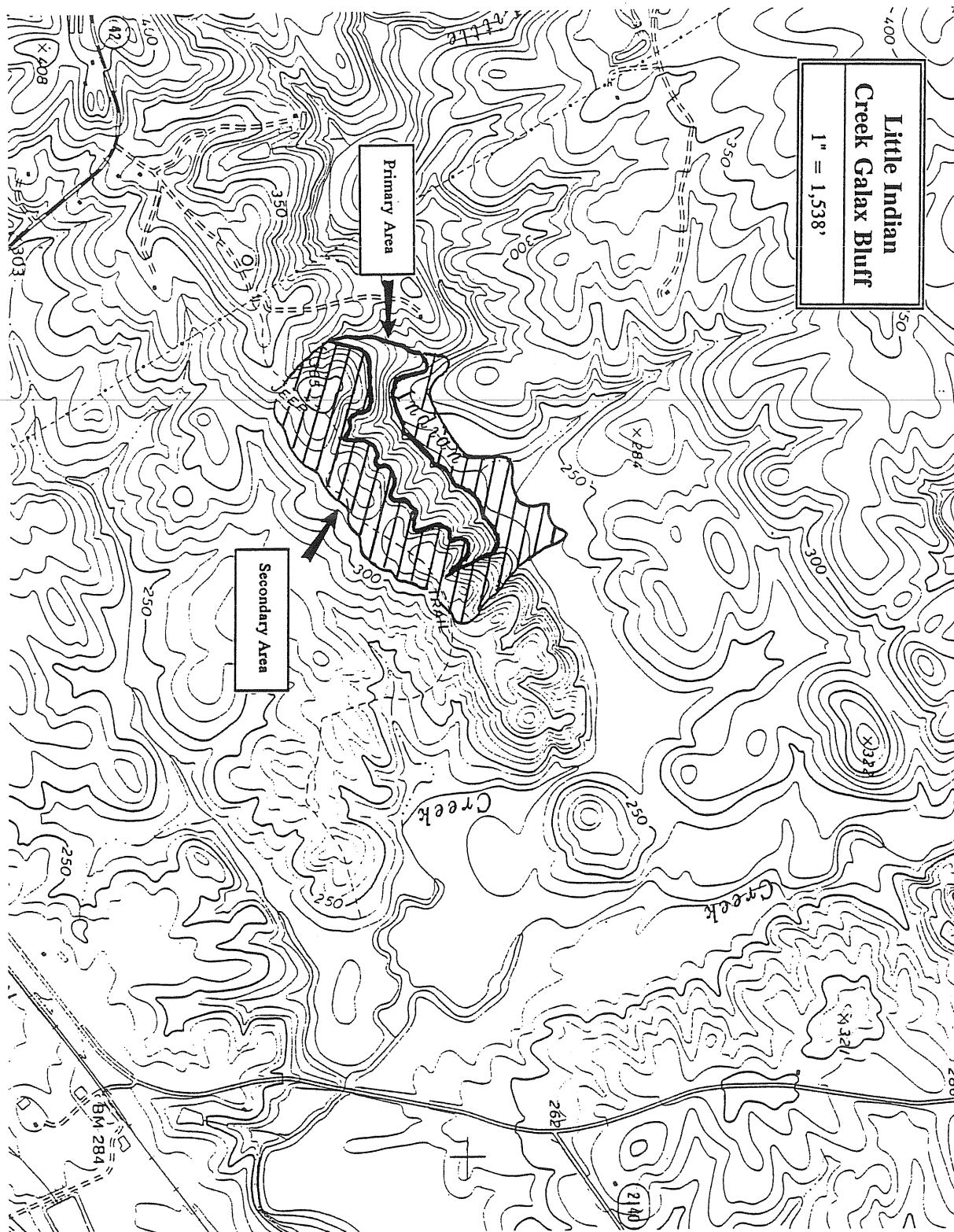
The most conspicuous member of this community is galax, which densely covers extensive areas of the slope. Featherbells also represents a montane species that is highly localized in the Piedmont and Coastal Plain. The site is curious in its lack of mountain laurel, which is usually associated with galax. The rest of this community grades from dry-mesic oak-hickory forest on the upper slope to mesic mixed hardwood forest on the lower slope and ravine; both communities are widespread in the piedmont. The canopy is dominated by white oak (Quercus alba) but is also composed of several other species of oaks and hickories, including southern red oak (Q. falcata), post oak (Q. stellata), black oak (Q. velutina), red oak (Q. rubra), mockernut hickory (Carya tomentosa), and northern shagbark hickory (C. ovata). One interesting member of the canopy is rock chestnut oak (Q. prinus), which is near the eastern edge of its range at this site. The subcanopy and shrub layer include such mesic species as basswood (Tilia heterophylla), witchhazel (Hamamelis virginiana), and possumhaw (Ilex decidua), as well as dry species such as chinquapin (Castanea pumila), hophornbeam (Ostrya virginiana), and lowbush blueberry (Vaccinium tenellum). In addition to containing the uncommon galax and featherbells, the herb layer is rich again in both dry and mesic species. Herbs such as (Aureolaria virginica), crane fly orchid (Tipularia discolor), and elephant's foot (Elephantopus tomentosus) are found higher on the slope, while devil's bit

(Chamaelirium luteum), royal fern (Osmunda regalis) and golden alexanders (Zizia trifoliata) occur in the more mesic areas.

The animals observed at this site were all typical members of Piedmont communities. Although this site was surveyed late in the season, 23 species of birds were recorded, including several riparian species such as green-backed heron (Butorides striatus), belted kingfisher (Megaceryle alcyon), Louisiana waterthrush (Seiurus motacilla), and eastern phoebe (Sayornis phoebe). Species representative of upland habitats included eastern wood peewee (Contopus virens), summer and scarlet tanagers (Piranga rubra and P. olivacea). The stream is somewhat degraded due to siltation from nearby clearcuts but still supports a community of hardier species of freshwater mussels (e.g., Elliptio complanata and Anodonta cataracta) and stream dragonflies (e.g., Macromia georgina and Epicordulia princeps).

CONSERVATION RECOMMENDATIONS:

The landowners should be alerted to the significance of this unusual community, and the site should be registered as a state or county natural area. A conservation easement would provide the best long-term protection for this site. Any effort to conserve the community along the steep slopes must also include preservation of a buffer strip along the crest of the ridge.



SITE SURVEY REPORT

Site name: Little Indian Creek Galax Bluff
County: Chatham

Date(s): 14/VI/89, 4/VIII/89

Surveyors:

Stephen P. Hall, Ph.D
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P.O. Box 27687
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Marjorie Boyer
NC Plant Conservation Program
P.O. Box 27647
Raleigh, NC 27611
(919) 733-3610

Size: 26 primary acres + 74 secondary acres = 100 total acres

Quad: Goldston

Province: Piedmont

Watershed: Little Indian Creek --> Indian Creek --> Deep River --> Cape Fear River

Location and directions: Northwest-facing slope along a stretch of Little Indian Creek located 1.5 miles NW of Carabonton

Landowners and addresses:

Owners contacted and attitude:

General landscape description: See Site Description

Physical description

Aspect: Northwest

Slope: 10-35

Topographic position: Crest to alluvial flat

Hydrology: Terrestrial

Moisture: Moist

Elevation: 240 - 330'

Geology: Carolina Slate Series

Soils: Georgeville Stony Silt Loam

Comments on physical description: Fault scarp with steep north-facing slopes

Biological description

Community # 1: Dry-mesic Oak-hickory Forest

Vegetation structure: Forest

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

Quality and condition: Good

Size:

Dominants (*) and important species:

Canopy:

Carya glabra
Carya ovata
Carya tomentosa
Fagus grandifolia
Liriodendron tulipifera
Nyssa sylvatica
Pinus taeda
Quercus alba *
Quercus falcata
Quercus prinus
Quercus rubra
Quercus stellata
Quercus velutina

Subcanopy:

Acer rubrum
Amelanchier arborea
Carpinus caroliniana
Cornus florida
Fraxinus sp.
Ostrya virginiana
Oxydendrum arboreum
Sassafras albidum
Tilia heterophylla

Shrubs and vines:

Castanea pumila
Chionanthus virginicus
Euonymus americanus
Hamamelis virginiana
Hypericum sp.
Ilex decidua
Ilex verticillata
Juniperus virginiana
Lonicera sempervirens
Rhododendron nudiflorum
Rhus radicans
Rosa carolina
Sambucus canadensis
Smilax bona-nox
Styrax grandifolia
Symplocos tinctoria
Vaccinium stamineum
Vaccinium tenellum
Vaccinium vacillans
Viburnum acerifolium
Viburnum prunifolium
Xanthorhiza simplicissima

Herbs:

| | | |
|----|--------------------------|----------------------------|
| | Agrimonia rostellata | Iris cristata |
| | Amianthium muscaetoxicum | Isotria verticillata |
| | Antennaria solitaria | Ligusticum canadense |
| | Asplenium platyneuron | Lobelia spicata |
| | Athyrium asplenioides | Luzula acuminata |
| | Aureolaria virginica | Malaxis unifolia |
| | Boehmeria cylindrica | Mitchella repens |
| | Chamaelirium luteum | Osmunda cinnamomea |
| | Chimaphila maculata | Osmunda regalis |
| | Chrysogonum virginianum | var. spectabilis |
| | Cryptotaenia canadensis | Polygonatum biflorum |
| | Desmodium nudiflorum | Polystichum acrostichoides |
| | Dioscorea villosa | Prenanthes altissima |
| | Elephantopus tomentosus | Ranunculus recurvatus |
| | Epigaea repens | Rudbeckia laciniata |
| rr | Galax aphylla | Saururus cernuus |
| | Geranium maculatum | Scutellaria integrifolia |
| | Geum canadense | Silene virginica |
| | Goodyera pubescens | Smilacena racemosa |
| | Hepatica americana | Solidago caesia |
| | Heuchera americana | Solidago odora |
| | Hexastylis arifolia | rr Stenanthium gramineum |
| | Hexastylis minor | Tipularia discolor |
| | Hieraceum venosum | Uvularia sessilifolia |
| | Houstonia caerulea | Viola sp. |
| | Houstonia purpurea | Zizia trifoliata |

Special status species

State-listed species: None observed

Potential for other special status species: Low

Other noteworthy species or features:

Plants:

rr Galax aphylla
rr Stenanthium gramineum

Site condition

Site integrity: Good to fair

Average DBH of canopy trees: 30 cm

Maximum DBH of canopy trees: 66 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: Clear-cut at east end of slope

Adjacent Land Uses: Forest and residential

Significance of site: County

Discussion: See Site Description

Protection considerations and management needs: Landowner should be contacted for possible registration of natural area.

Determination of survey boundaries: Encloses galax community on steep north-facing slope; buffer-strip includes adjacent hardwood forest along ridge down to clear-cut at east end

Priority for further study: Medium; should be visited during the spring wildflower period.

Specimens collected:
Photographs: Galax aphylla

Others knowledgeable about the site:

References:

Topo map: Attached
Sketch map: None

Plant Species List: See Community # 1
List is: Nearly Complete

ANIMAL SPECIES LIST

List is: Cursory (not visited during the nesting season)

Vertebrates:

i Butorides striatus
Coccyzus erythrophthalmus
Archilochus colubris
Megaceryle alcyon
Melanerpes carolinus
Picoides pubescens
Contopus virens
Empidonax virescens
Sayornis phoebe
Parus carolinensis
Parus bicolor
i Sitta carolinensis
Thryothurus ludovicianus
Polioptila caerulea
Hylocichla mustelina
Vireo olivaceus
i Seiurus motacilla
Geothlypis trichas
Piranga rubra
Piranga olivacea
Cardinalis cardinalis
Passerina cyanea
Carduelis tristis
Didelphis marsupialis
Castor canadensis
Procyon lotor

Vertebrates (cont.):

Bufo woodhousei fowleri
Hyla chrysoscelis
Rana palustris

Invertebrates:

Papilio glaucus
Papilio troilus
Celastrina ladon
Phyciodes tharos
Polygonia interrogationis
Polygonia comma
Limenitis arthemis astyanax
Lerema accius
Ancyloxpha numitor
Poanes zabulon
Euphyes ruricola metacomet
Macromia georgina
Epicordulia princeps
Erythemis simplicicollis
Anodonta cataracta
Elliptio complanata
Triodopsis fallax

SITE NAME: Haw River Dicentra Slopes

SIGNIFICANCE: County

INTEGRITY: Good

THREATS: Low -- timbering, highway widening

PROTECTION STATUS: None

JURISDICTION: Haw River Township

OWNERSHIP: Private

SUMMARY OF SIGNIFICANT FEATURES:

1. The population of dutchman's britches (Dicentra cucullaria) growing on this slope is the larger of only two that are known to occur in the county.
2. Growing at the base of the slope is a large population of buttercup phacelia (Phacelia ranunculacea), a species that is a candidate for state listing as threatened or endangered.

GENERAL SITE DESCRIPTION:

Although this is the smallest of all the sites included in this survey, it is also one of the most attractive. The defining feature is the population of dutchman's britches, a spectacular spring wildflower which in Chatham County occupies only this small bluff overlooking the Haw River and a similar site at the White Pines Natural Area. This montane disjunct grows on only the richest soils, which at this site may be produced from an outcrop of conglomerate.

The population of dutchman's britches is not the only feature of significance, however. A large population of buttercup phacelia occurs at the base of the slope. This plant is found in only a few watersheds in the entire country, but in Chatham County grows extensively within streams of the Cape Fear system (see also MROK1 and COKY1). This site also harbors a number of additional species that indicate the richness of the soils, including a dense shrub layer of buckeye (Aesculus sylvatica) and bladderpod (Staphylea trifolia), and a herb layer containing fumitory (Corydalis flavula), baby blue eyes (Nemophila microcalyx), and an uncommon violet (Viola striata).

This site is too small to contain a significant animal community. The most conspicuous species are two riparian birds, the northern parula warbler (Parula americana) and prothonotary warbler (Protonotaria citrea). The location of this site along the Haw River gives it importance, however, as a link in a wildlife corridor system extending throughout the Cape Fear watershed.

CONSERVATION RECOMMENDATIONS:

This site is small enough to be purchased by a local conservation organization. This would provide the best means of ensuring the survival of the rare plants growing on this site.

SITE SURVEY REPORT

Site name: Haw River Dicentra Slope
County: Chatham

Date(s): 3/IV/89, 31/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: 3 primary acres + 3 secondary acres = 6 total acres

Quad: Merry Oaks

Province: Piedmont

Watershed: Haw River --> Cape Fear River

Location and directions: West slope above Haw River, just south of US 1

Landowners and addresses:

Owners contacted and attitude:

General landscape description: See Site Description

Physical description

Aspect: East

Slope: 10-35

Topographic position: Crest to alluvial flat

Hydrology: Terrestrial

Moisture: Moist

Elevation: 200 - 170'

Geology: Conglomerates

Soils: Wadesboro Fine Sandy Loam (gravelly phase -- slopes); Congaree Silt Loam (floodplain)

Comments on physical description: Low but steep river bluff

Biological description

Community # 1: Piedmont Levee Forest

Vegetation structure: Forest

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

Quality and condition: Good

Size:

Dominants (*) and important species:

Canopy:

Acer negundo

Celtis laevigata

Shrubs and vines:

Aesculus sylvatica

Anisostichus capreolata

Lonicera japonica

Rhus radicans

Sambucus canadensis

Staphylea trifolia

Herbs:

Cardamine angustata

Corydalis flavula

rr *Dicentra cucullaria*

Lamium purpureum

Nemophila microcalyx

c *Phacelia ranunculacea*

Polygonatum biflorum

Polystichum acrostichoides

Saxifraga virginensis

Stellaria media

Stellaria pubera

Viola papilionacea

Viola striata

Special status species

State-listed species:

Plants:

c Phacelia ranunculacea

Potential for other special status species: Low

Other noteworthy species or features:

Plants:

rr Dicentra cucullaria

Site condition

Site integrity: Good

Average DBH of canopy trees:

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: No

Adjacent Land Uses: Forest and highway

Significance of site: Regional

Discussion: See Site Description

Protection considerations and management needs: Area should be registered and a conservation easement sought; contains one of the few Dicentra populations in Chatham County, as well as a healthy population of Phacelia ranunculacea

Determination of survey boundaries: Encloses the wooded slope containing the entire *Dicentra* population; bounded to north and west by highway and cleared right-of-way, to east by river, and to south by small ravine

Priority for further study: Low

Specimens collected:

Photographs: *Dicentra cucullaria*

Others knowledgeable about the site: Harry LeGrand

References:

Topo map: Attached

Sketch map: None

Plant Species List: See Community # 1

List is: Medium-thorough

SITE NAME: Herndon Creek Ravine

SIGNIFICANCE: County

INTEGRITY: Fair

THREATS: High -- timbering and residential development

PROTECTION STATUS: The lower end is Corps property; the upper end is privately owned and unprotected

JURISDICTION: Williams Township

OWNERSHIP: Private

SUMMARY OF SIGNIFICANT FEATURES:

1. This is one of the deepest ravines in the county and it possesses one of the most extensive north-facing slopes.
2. This site functions as an important wildlife corridor connecting the uplands of Boothe Hill with the lowlands around Jordan Lake.

GENERAL SITE DESCRIPTION:

The western edge of the Triassic Basin is one of the most dissected landscapes in the Triangle region. The sharp drop in elevation from the uplands of the slate-belt to the lowlands of the Triassic Basin creates strong stream-cutting forces, resulting in such deep ravines as found along Herndon and Roberson Creeks.

The north-facing slope that occurs along the middle section of the Herndon Creek ravine is one of the steepest in the county. As at similar sites (e.g., GOLD3, BYNUM4) there are a few mesophilic species present, including galax (*Galax aphylla*) and wild hydrangea (*Hydrangea arborescens*), but the site generally lacks the diversity of pleistocene relicts or typically montane species often found on these sheltered slopes. Granitic soils and recent timbering may explain their absence.

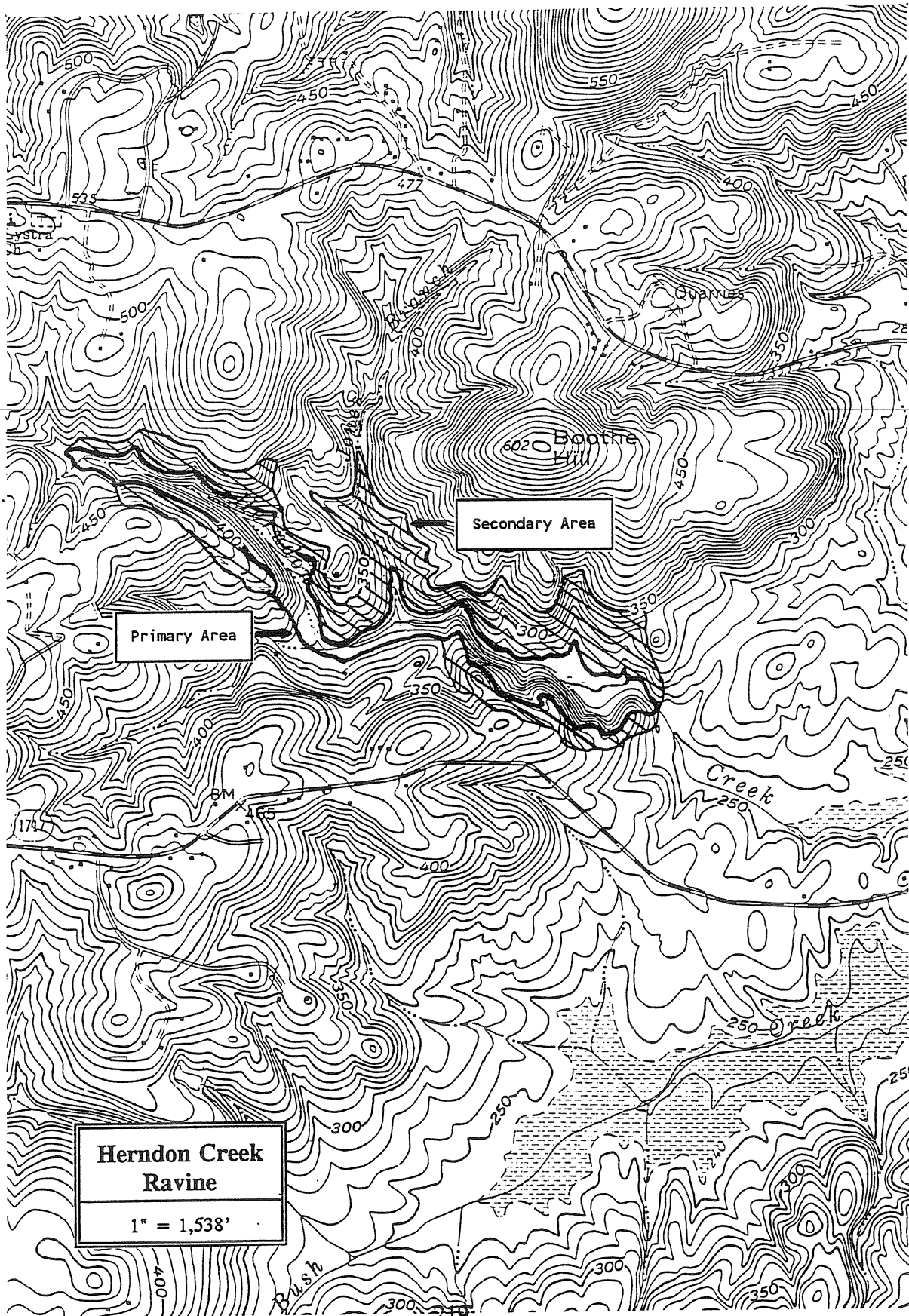
The community is mesic mixed hardwoods. Beeches (*Fagus grandifolia*) and red oaks (*Quercus rubra*) are both prominent in the canopy, and umbrella tree (*Magnolia tripetala*), maple-leaf viburnum (*Viburnum acerifolium*), and pinxter flower (*Rhododendron nudiflorum*) are mesic species present in the understory and shrub layers. Although fairly sparse, the herbs include many of the spring wildflowers and ferns found on the moister slopes of the Piedmont. These include devil's bit (*Chamaelirium luteum*), trillium (*Trillium catesbaei*), bloodroot (*Sanguinaria canadensis*), dwarf crested iris (*Iris cristata*), and lady fern (*Athyrium asplenoides*). Although still recovering from recent timbering, this site has high potential to become one of the most scenic slopes in the county.

Additional communities are present in the bottomlands adjoining the slopes. The small floodplain along the creek supports a young stand of Piedmont Bottomland Forest, containing such important wildlife forage species as hazelnut (Corylus americana) and wild grapes (Vitis labrusca and V. rotundifolia). Several large springs occur at the base of the steep slopes and have good potential for harboring Thorey's grayback dragonflies (Tachopteryx thoreyi) and four-toed salamanders (Hemidactylium scutatum).

The main value of this site is probably its function as a wildlife corridor. The lower end runs into the gamelands around Jordan Lake while the ravine extends up into the highland habitats present on Boothe Hill. This combination of uplands and lowlands is important for many species of animals that need to forage in different habitats in different seasons. White-tailed deer (Odocoileus virginianus), gray fox (Urocyon cinereoargenteus), raccoon (Procyon lotor), and gray squirrel (Sciurus virginianus) are all known to occur at this site, and turkey (Meleagris gallopavo) and bobcat (Lynx rufus) can still be expected, at least downstream from the residential areas.

CONSERVATION RECOMMENDATIONS:

The lower portion of this watershed is protected as part of the Jordan Lake gamelands but needs additional restrictions on timber cutting if the forest is to recover. The upper end is all privately owned and being developed by individual landowners. Some of these owners are aware of the natural values of this site and landowner covenants offer probably the best means of protection. Some amount of education may still be needed, however, especially concerning the importance of leaving springs in their natural condition; one spring located below a residence has been heavily disturbed.



Primary Area

Secondary Area

Boothe Hill
602

**Herndon Creek
Ravine**
1" = 1,538'

SITE SURVEY REPORT

Site name: Herndon Creek Ravine
County: Chatham

Date(s): 11/VI/88, 12/VI/88, /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: 56 acres

Quad: Farrington

Province: Piedmont

Watershed: Herndon Creek --> Jordan Lake --> Haw River --> Cape Fear River

Location and directions: Steep ravine located north of SR 1717 and south of Boothe Hill

Landowners and addresses:

Owners contacted and attitude: Upper section of the ravine was visited at the invitation of Dav Robertson

General landscape description: See Site Description

Physical description

Aspect: North

Slope: 35+

Topographic position: Upper to lower slope

Hydrology: Terrestrial

Moisture: Moist

Elevation: 260 - 350'

Geology: Farrington Granite

Soils: Appling Stony Sandy Loam (steep phase)

Comments on physical description: Contains some of the steepest slopes in the county

Biological description

Community # 1: Mesic-mixed Hardwood Forest

Vegetation structure: Forest

Position in landscape and relation to other communities: steep north-facing slopes

Quality and condition: Fair

Size:

Dominants (*) and important species:

Canopy:

Carya tomentosa
Fagus grandifolia
Liriodendron tulipifera
Quercus alba
Quercus falcata
Quercus rubra

Subcanopy:

Cornus florida
Nyssa sylvatica
Oxydendrum arboreum

Shrubs and vines:

Aesculus sylvatica
Amelanchier arborea
Cercis canadensis
Corylus americana
Hydrangea arborescens
Juniperus virginiana
Lindera benzoin
Lonicera japonica
Magnolia tripetala
Rhododendron nudiflorum
Sassafras albidum
Vaccinium sp.
Viburnum acerifolium
Viburnum prunifolium
Viburnum rufidulum
Vitis labrusca
Vitis rotundifolia

Herbs:

Aristolochia serpentaria
Asplenium platyneuron
Athyrium asplenioides
Chamaelirium luteum
Dioscorea villosa
Dryopteris sp.
Epifagus virginiana
Eupatorium sp.
rr Galax aphylla
Goodyera pubescens
Hepatica americana
Heuchera americana
Hexastylis arifolia
Hexastylis minor
Iris cristata
Ligusticum canadense
Osmunda cinnamomea
Osmunda regalis
 var. spectabilis
Polystichum acrostichoides
Sanguinaria canadensis
Saururus cernuus
Scutellaria sp.
Smilacena racemosa
Tipularia discolor
Trillium catesbaei

Special status species

State-listed species: None observed

Potential for other special status species: Low

Other noteworthy species or features:

Plants:

rr Galax aphylla

Site condition

Site integrity: Fair

Average DBH of canopy trees:

Maximum DBH of canopy trees:

Fire regime: Natural

Logged: Within last 20 years

Evenness of canopy: Natural

Ditched/drained: No

Stream channelized: No

Dredged/filled: No

Understory cleared: No

Grazed: No

ORV damaged: No

Other disturbances: Bottomlands adjacent to slope have been selectively cut within the last 20 years

Adjacent Land Uses: Forest

Significance of site: County

Discussion: See Site Description

Protection considerations and management needs: Alert landowners of the significance to wildlife in maintaining large tracts of upland hardwood forest; the steep slopes have great potential scenic value and should be left in an undisturbed condition.

Determination of survey boundaries: Encloses the area of steepest slopes

Priority for further study: Medium; only a brief reconnaissance was made; a large seep at the upper end could provide habitat for both Hemidactylum and Tachopteryx

Specimens collected:

Photographs:

Others knowledgeable about the site:

References:

Topo map: Attached

Plant Species List: See Community # 1

List is: Cursory

ANIMAL SPECIES LIST

List is: Cursory

Vertebrates:

- i Zenaida macroura
- i Coccyzus erythrophthalmus
- Archilochus colubris
- Melanerpes carolinus
- Picoides pubescens
- Empidonax virescens
- Thryothurus ludovicianus
- Polioptila caerulea
- Cardinalis cardinalis
- Carduelis tristis
- Sciurus carolinensis
- i Urocyon cinereoargenteus
- Procyon lotor
- Odocoileus virginianus
- i Terrapene carolina
- Eumeces fasciatus
- Bufo americanus
- Acris crepitans
- Rana clamitans

Invertebrates:

- Papilio glaucus
- Calycopis cecrops
- Celastrina ladon
- Enodia portlandia
- Hermeuptychia hermes sosybius
- Poanes zabulon

