

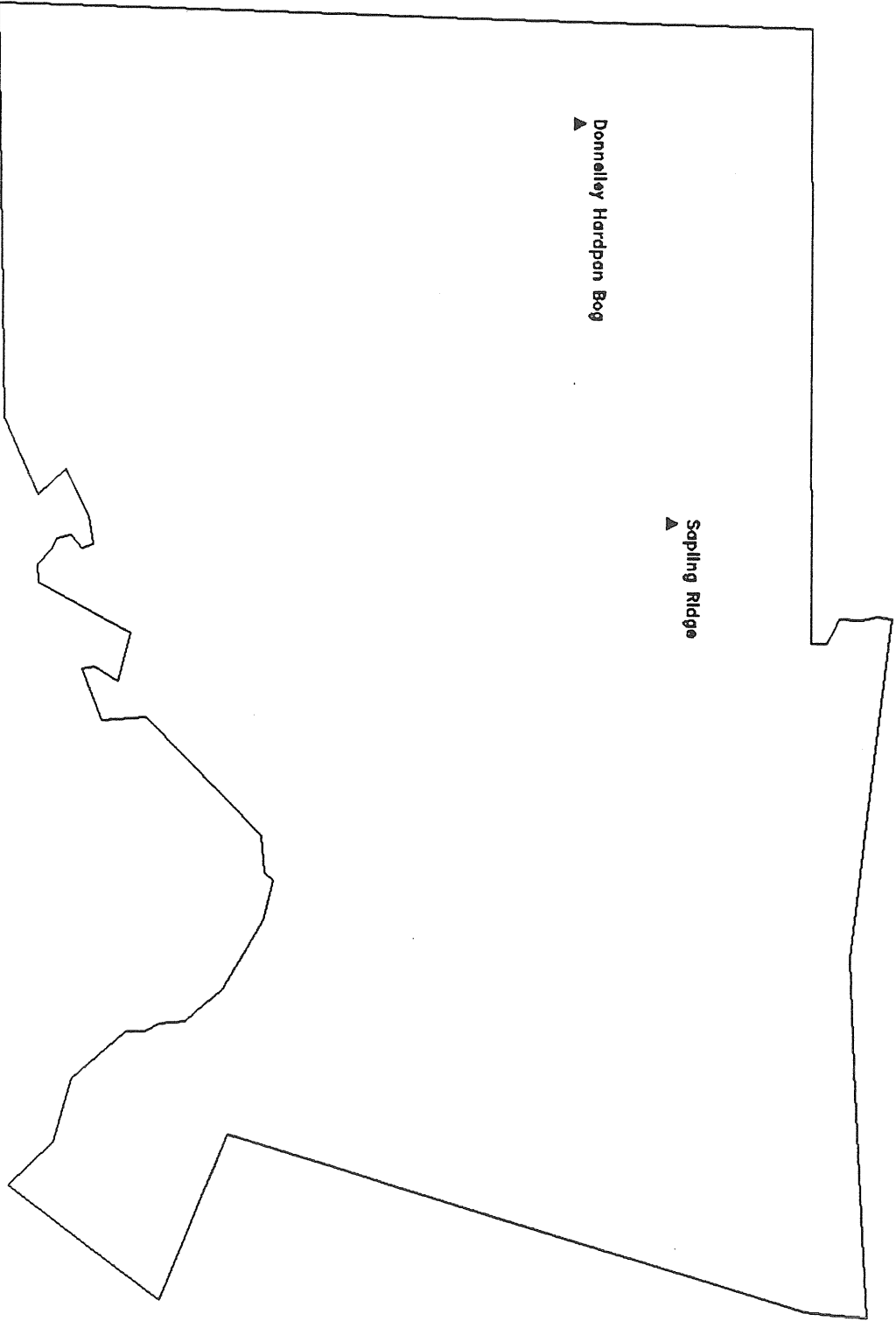
UPLAND DEPRESSION POOLS

The rarest communities in the county are those associated with isolated upland pools. These small aquatic habitats are filled directly by rain and are not associated with streams. In the typically well-drained Piedmont, such pools only occur in small widely scattered sites. They have been made even rarer by being drained, either for the sake of timbering or cultivation or for mosquito control. Consequently the best examples are often located in remote areas.

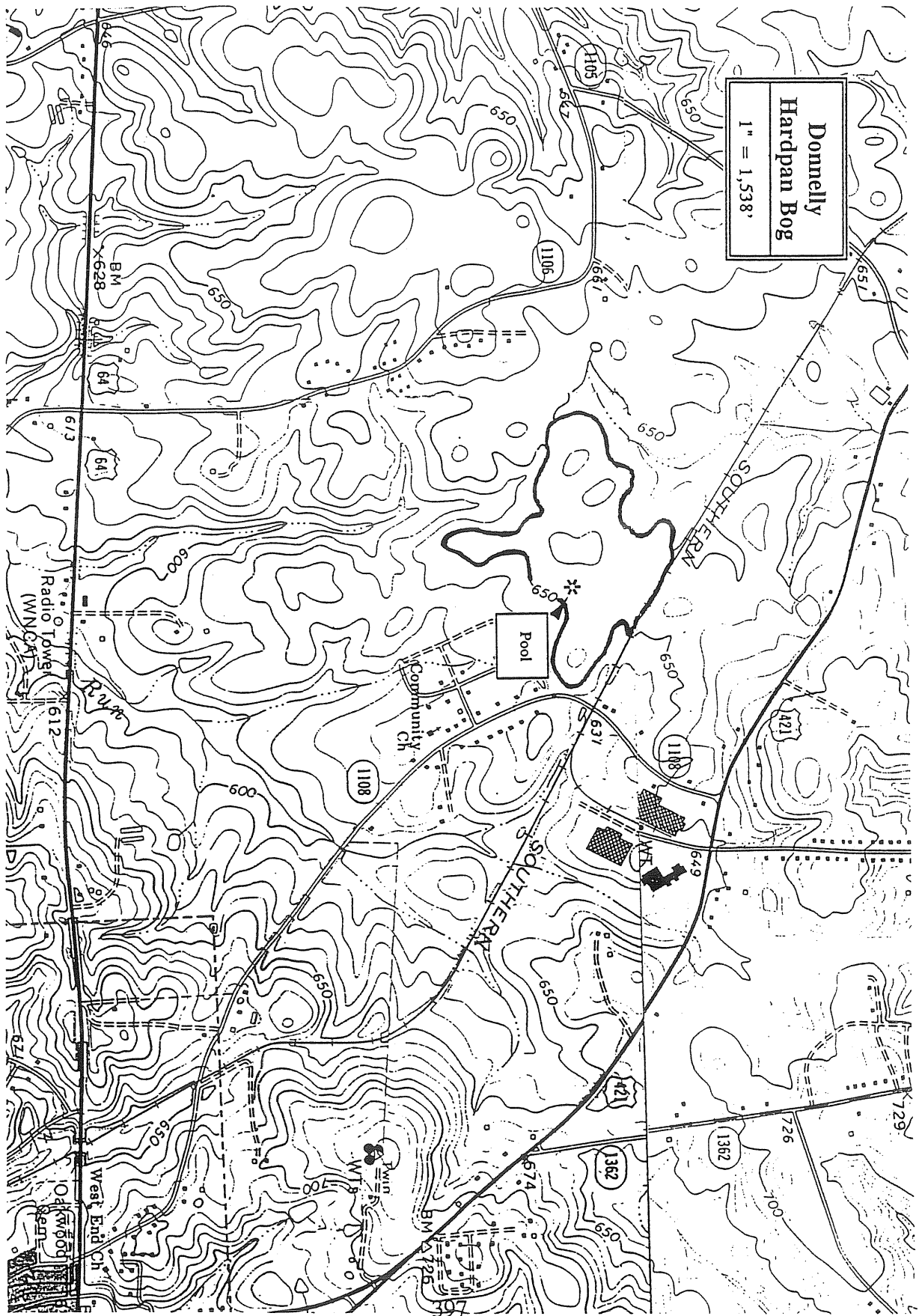
These small pools are typically filled in early winter and dry out completely in the summer. The extremes of moisture found at these sites can be tolerated by relatively few species of plants, including most conspicuously willow oak. They also are prime breeding sites for amphibians, many of which require fish-free waters for the survival of their aquatic larvae.

Only three examples of large upland pools are known in Chatham County: the two included here, and the better-known site on Edwards Ridge, which is currently being surrounded by housing development. Smaller pools occur more widely but are usually of lesser importance. The sphagnum-filled pools at the Old Railroad Heath Glade are the only others in this report that reach significance as natural features.

Figure 32. Upland Pools



Donnelly
Hardpan Bog
1" = 1,538'



SITE SURVEY REPORT

Site name: Donnelly Hardpan Bog
County: Chatham

Date(s): 16/III/89, 14/VII/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: 64 acres

Quad: Siler City and Crutchfield

Province: Piedmont

Watershed: Lacy's Creek --> Rocky River --> Deep River --> Cape Fear River

Location and directions: Flats located south of railroad tracks; south of US 421 and west of NC 1108

Landowners and addresses:

Owners contacted and attitude:

General landscape description: See Site Description

Physical description

Aspect: Flat

Slope: Flat

Topographic position: Upland flat

Hydrology: Terrestrial

Moisture: Seasonally wet to dry

Elevation: 660 - 650'

Geology: Wacke-conglomerates; diabase dike

Soils: Alamance Silt Loam

Comments on physical description: Poorly drained felsic flats containing one large vernal pool plus many sphagnaceous depressions

Biological description

Community # 1: Upland Depression Swamp Forest/ Montmorillonite Forest

Vegetation structure: Forest

Position in landscape and relation to other communities: Upland flat

Quality and condition: Good to fair

Size:

Dominants (*) and important species:

Canopy:

Oxydendrum arboreum
Pinus taeda
Pinus virginiana
Quercus alba
Quercus marilandica
Quercus phellos
Quercus stellata

Subcanopy:

Acer rubrum
Betula nigra
Carpinus caroliniana
Cornus florida
Ilex opaca
Juniperus virginiana
Liquidambar styraciflua

Herbs:

Carex crinita var. *crinita*
Carex intumescens
Carex jooi
Carex lurida
Carex oxylepis
Chimaphila maculata
Lycopodium flabelliforme
Onoclea sensibilis
Scirpus cyperinus
Sphagnum sp.
Thelypteris palustris
Uniola laxa
Woodwardia areolata

Shrubs and vines:

Alnus serrulata
Campsis radicans
Cephalanthus occidentalis
Cornus amomum
Hypericum sp.
Ilex decidua
Rosa palustris
Smilax bona-nox
Vaccinium arboreum
Vaccinium stamineum
Vaccinium vacillans

Special status species

State-listed species:

Animals:

sc Hemidactylum scutatum

Potential for other special status species: Possible site for Tachopteryx thoreyii

Other noteworthy species or features:

Communities:

Upland Depression Swamp Forest
Piedmont Hardpan Bog
Montmorillonite Forest (?)
Vernal pool in prime condition

Site condition

Site integrity: Good to fair

Average DBH of canopy trees:

Maximum DBH of canopy trees:

Fire regime: Natural

Logged: Within last 20 years

Evenness of canopy: Mixed-age

Ditched/drained: Yes, but most ditches are old and filled-in by natural accumulation

Stream channelized: No

Dredged/filled: No

Understory cleared: No

Grazed: No

ORV damaged: Yes; several jeep trails run through the property

Other disturbances: Yes; used as illegal trash dump

Adjacent Land Uses: Forest and residential

Significance of site: State

Discussion: See Site Description

Protection considerations and management needs: Nature Conservancy owns the property.

Determination of survey boundaries: Encloses the area of upland flats located south of the railroad tracks; includes the area surrounding the vernal pool.

Priority for further study: Medium; site could harbor Tachopteryx and other species of rare dragonflies and butterflies.

Specimens collected:

Photographs:

Others knowledgeable about the site: A. Weakley

References: A. Weakley report to Nature Conservancy

Topo map: Attached

Sketch map: None

Plant Species List: See Community # 1

List is: cursory; see Weakley report for more complete list (not included here because it includes holdings outside the limits of the natural area)

ANIMAL SPECIES LIST

List is: Cursory (surveyed outside main nesting period)

Vertebrates:

i Buteo platypterus
Colinus virginianus
i Coccyzus erythrophthalmus
i Strix varia
Picoides pubescens
Colaptes auratus
Cyanocitta cristata
Parus carolinensis
Parus bicolor
i Sitta carolinensis
Thryothorus ludovicianus
Hylocichla mustelina
Vireo olivaceus
Dendroica pinus
Piranga rubra
Piranga olivacea
Cardinalis cardinalis
Carduelis tristis
Sylvilagus floridanus
Ochrotomys nuttali
Procyon lotor
i Terrapene carolina
Sceloporus undulatus
i Ambystoma maculatum
sc Hemidactylium scutatum
Hyla crucifer
Pseudacris triseriata
Rana clamitans

Invertebrates:

Polygonia interrogationis
Junonia coenia
Limenitis arthemis astyanax
Anax junius
i Epiaeschna heros
Libellula incesta
Libellula vibrans
Plathemis lydia
Pachydiplax longipennis
Haplotrema concavum
Triodopsis juxtidentis

SITE NAME: Sapling Ridge

SIGNIFICANCE: County

INTEGRITY: Good to fair

THREATS: Medium

PROTECTION STATUS: None

JURISDICTION: Hadley Township

OWNERSHIP: Private

SUMMARY OF SIGNIFICANT FEATURES:

1. A large upland pool is present on this ridge. This is a rare topographic feature within the piedmont, or indeed the state as a whole.
2. The extensive hardwood forests covering this ridge have importance as wildlife habitat.

GENERAL SITE DESCRIPTION:

The most outstanding feature of this site is a fairly large upland pool, one of only three known to occur in Chatham County. The community of plants and animals that occurs here is far more characteristic of bottomlands than of the dry, rocky conditions that prevail over most of the ridge. The pool itself supports sedges (Carex complanata), bulrushes (Scirpus atrovirens), greenbriers (Smilax spp.), and sphagnum moss, while growing around the rim are such typical bottomland trees as willow oak (Quercus phellos), and sweetgum (Liquidambar styraciflua). Characteristic lowland animals found at this site are spotted salamanders (Ambystoma maculatum) and two species of dragonflies (Epiaschna heros and Libellula vibrans), all of which prefer isolated, fish-free pools for breeding. Several wider-ranging species also observed in the vicinity of the pool include gray treefrogs (Hyla chrysoscelis), green frogs (Rana clamitans), and painted turtles (Chrysemys picta).

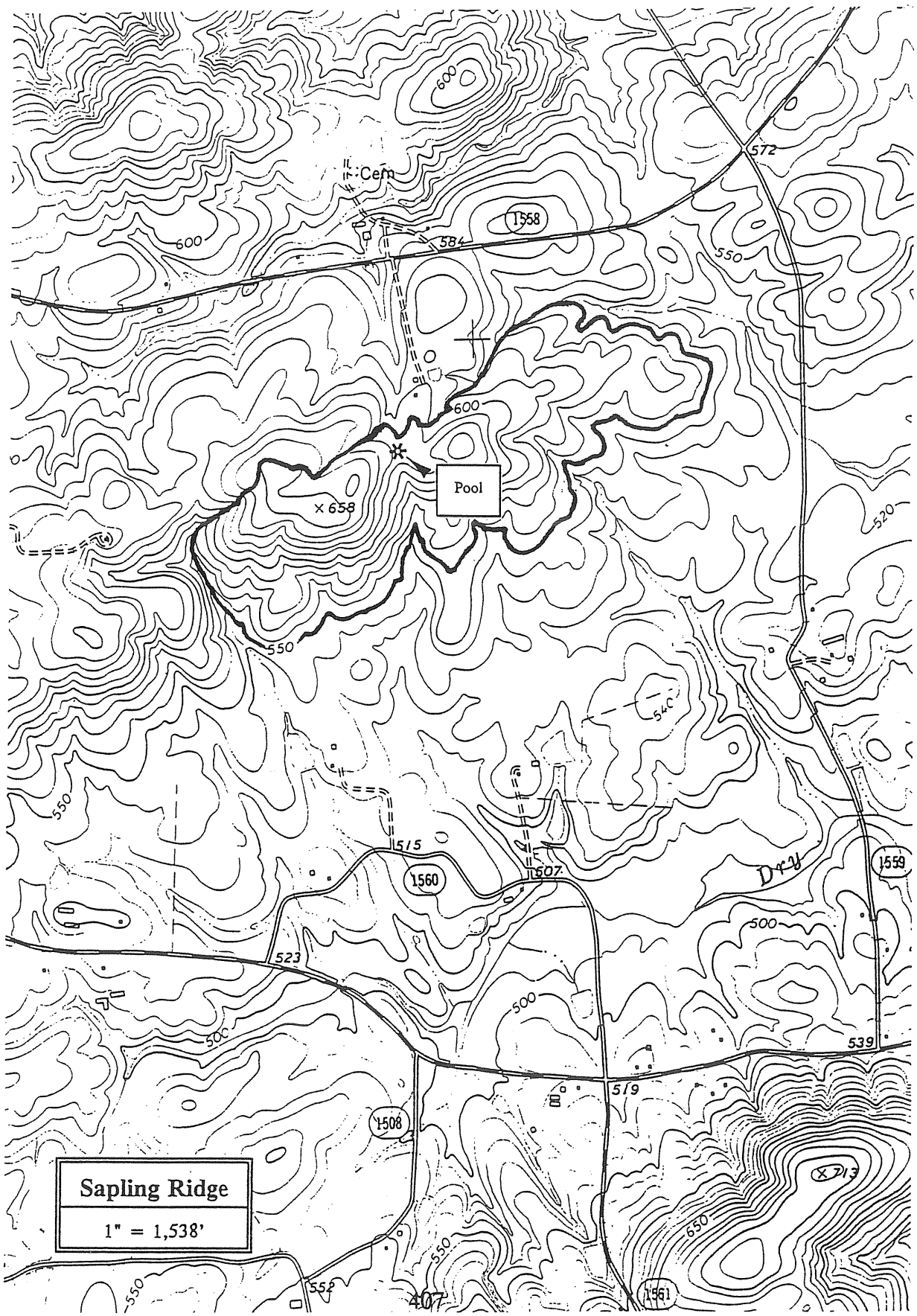
The vast majority of the ridge is covered with the dry-mesic hardwood forest typical of the piedmont. This community possesses a mixture of oak species in the canopy (e.g., Quercus alba, Q. falcata, Q. coccinea, and Q. velutina), an understory of red maple (Acer rubrum) and a sparse herb layer. Intergrading with this community along the drier, rockier parts of the ridge top are patches of dry oak-hickory forest, with a canopy of post oak (Q. stellata) and blackjack oak (Q. marilandica). Huckleberries (Gaylussacia dumosa) make up the low shrub layer in these drier sites; herbs present include coreopsis (Coreopsis major), leopard's bane (Arnica acaulis), and wild oregano (Cunila oreganoides).

Although not particularly unusual in themselves, the large extent of the hardwood forests along the ridge and adjacent bottomlands make this site valuable to wildlife, particularly such

wide-ranging forest species as the pileated woodpecker (Dryocopus pileatus) and gray fox (Urocyon cinereoargenteus).

CONSERVATION RECOMMENDATIONS:

The area of the upland pool should be protected either by registration or through acquisition of a conservation easement. The remainder of the ridge can be managed for both forestry and wildlife but the landowners should be encouraged to use practices other than clear-cutting in order to maintain extensive forest cover and mixed aged stands.



Sapling Ridge
1" = 1,538'

SITE SURVEY REPORT

Site name: Sapling Ridge
County: Chatham

Date(s): 24/V/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: 193 acres

Quad: Silk Hope

Province: Piedmont

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

Location and directions: Ridge located south of NC 1558 and east of NC 1506

Landowners and addresses:

Owners contacted and attitude:

General landscape description: See Site Description

Physical description

Aspect: Various

Slope: 5-10

Topographic position: Crest and upper Slope

Hydrology: Terrestrial

Moisture: Seasonally wet to dry

Elevation: 658 - 550'

Geology: Wackes and other slate series; adjoins an area to the east composed of mafic igneous series

Soils: Herndon Silt Loam (stony phase); Alamance Silt Loam; Orange Silt Loam

Comments on physical description: Contains a large, relatively undisturbed vernal pool

Biological description

Community # 1: Dry Oak-hickory Forest

Vegetation structure: Forest

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

Quality and condition: Fair

Size:

Dominants (*) and important species:

Canopy:

Carya glabra
Pinus taeda
Quercus alba
Quercus coccinea
Quercus falcata
Quercus marilandica
Quercus rubra
Quercus stellata

Subcanopy:

Acer rubrum
Cornus florida
Juniperus virginiana
Oxydendrum arboreum
Prunus serotina

Shrubs and Vines:

Gaylussacia dumosa
Hypericum sp.
Lonicera sempervirens
Rhus radicans
Rosa carolina
Smilax glauca
Vaccinium tenellum
Vaccinium vacillans
Viburnum prunifolium
Vitis rotundifolia

Herbs:

Arnica acaulis
Aster solidagineus
Aureolaria virginica
Carex complanata
Claytonia virginica
Coreopsis major
 var. *stellata*
Cunila origanoides
Danthonia spicata
Hieraceum venosum
Hypoxis hirsuta
Panicum dichotomum
Pteridium aquilinum

Biological description

Community # 2: Dry-mesic Oak-hickory Forest

Vegetation structure: Forest

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

Quality and condition: Fair

Size:

Dominants (*) and important species:

Canopy:

Liquidambar styraciflua
Liriodendron tulipifera
Nyssa sylvatica
Quercus alba
Quercus coccinea
Quercus falcata
Quercus rubra
Quercus velutina

Subcanopy:

Acer rubrum
Juniperus virginiana
Oxydendrum arboreum
Prunus serotina

Shrubs and Vines:

Euonymus americanus
Parthenocissus quinquefolia
Smilax bona-nox
Vaccinium tenellum
Vitis rotundifolia

Herbs:

Chamaelirium luteum
Chimaphila maculata
Goodyera pubescens
Houstonia caerulea
Isotria verticillata
rr Lycopodium obscurum
Polygonatum biflorum
Scutellaria integrifolia
Vernonia acaulis

Biological description

Community # 3: Upland Depression Swamp Forest (?)

Vegetation structure: Forest and Vernal Pool

Position in landscape and relation to other communities: upland flat

Quality and condition: Good to fair

Size:

Dominants (*) and important species:

Canopy:

Liquidambar styraciflua

Nyssa sylvatica

Pinus taeda

Quercus alba

Quercus phellos

Quercus stellata

Quercus velutina

Subcanopy:

Acer rubrum

Juniperus virginiana

Ostrya virginiana

Oxydendrum arboreum

Shrubs and Vines:

Lonicera japonica

Parthenocissus quinquefolia

Smilax bona-nox

Smilax rotundifolia

Vaccinium stamineum

Viburnum prunifolium

Vitis rotundifolia

Herbs:

Carex complanata

Scirpus atrovirens

Sphagnum sp.

Special status species

State-listed species: None observed

Potential for other special status species: Low; possible site for Hemidactylum

Other noteworthy species or features:

Communities:

Upland Depression Swamp Forest

Geology:

Large vernal pool

Site condition

Site integrity: Good to fair

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: No

Adjacent Land Uses: Forest and agriculture

Significance of site: County

Discussion: See Site Description

Protection considerations and management needs: Upland depression communities are rare within the region and deserve registration and protection through acquisition of a conservation easement.

Determination of survey boundaries: Encloses wooded ridge and upper slopes.

Priority for further study: Medium; Hemidactylum should be looked for in the early spring.

Specimens collected:

Photographs: Pool

Others knowledgeable about the site:

References:

Topo map: Attached

Sketch map: None

PLANT SPECIES LIST

List is: Medium Thorough

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| <p>rr <i>Lycopodium obscurum</i> (3)
 <i>Sphagnum</i> sp. (00)
 <i>Pteridium aquilinum</i> (10)
 <i>Pinus taeda</i> (16)
 <i>Juniperus virginiana</i> (18)
 <i>Danthonia spicata</i> (29)
 <i>Panicum dichotomum</i> (29)
 <i>Carex complanata</i> (30)
 <i>Scirpus atrovirens</i> (30)
 <i>Chamaelirium luteum</i> (41)
 <i>Polygonatum biflorum</i> (41)
 <i>Smilax bona-nox</i> (41)
 <i>Smilax glauca</i> (41)
 <i>Smilax rotundifolia</i> (41)
 <i>Hypoxis hirsuta</i> (44)
 <i>Goodyera pubescens</i> (49)
 <i>Isotria verticillata</i> (49)
 <i>Carya glabra</i> (53)
 <i>Ostrya virginiana</i> (54)
 <i>Quercus alba</i> (55)
 <i>Quercus coccinea</i> (55)
 <i>Quercus falcata</i> (55)
 <i>Quercus marilandica</i> (55)
 <i>Quercus phellos</i> (55)
 <i>Quercus rubra</i> (55)
 <i>Quercus stellata</i> (55)
 <i>Quercus velutina</i> (55)
 <i>Claytonia virginica</i> (70)
 <i>Liriodendron tulipifera</i> (80)
 <i>Liquidambar styraciflua</i> (95)
 <i>Prunus serotina</i> (97)
 <i>Rosa carolina</i> (97)
 <i>Rhus radicans</i> (110)
 <i>Euonymus americanus</i> (113)
 <i>Acer rubrum</i> (115)
 <i>Parthenocissus</i>
 <i>quinquefolia</i> (120)
 <i>Vitis rotundifolia</i> (120)
 <i>Hypericum</i> sp. (126)
 <i>Nyssa sylvatica</i> (141)
 <i>Cornus florida</i> (142)</p> | <p><i>Chimaphila maculata</i> (145)
 <i>Gaylussacia dumosa</i> (145)
 <i>Oxydendrum arboreum</i> (145)
 <i>Vaccinium stamineum</i> (145)
 <i>Vaccinium tenellum</i> (145)
 <i>Vaccinium vacillans</i> (145)
 <i>Cunila origanoides</i> (164)
 <i>Scutellaria integrifolia</i> (164)
 <i>Aureolaria virginica</i> (166)
 <i>Houstonia caerulea</i> (173)
 <i>Lonicera japonica</i> (174)
 <i>Lonicera sempervirens</i> (174)
 <i>Viburnum prunifolium</i> (174)
 <i>Arnica acaulis</i> (179)
 <i>Aster solidagineus</i> (179)
 <i>Coreopsis major</i>
 <i>var. stellata</i> (179)
 <i>Hieraceum venosum</i> (179)
 <i>Vernonia acaulis</i> (179)</p> |
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ANIMAL SPECIES LIST

List is: Cursory

Vertebrates:

- i Buteo jamaicensis
- i Dryocopus pileatus
- Contopus virens
- Empidonax virescens
- Myiarchus crinitus
- Cyanocitta cristata
- Parus carolinensis
- Parus bicolor
- Thryothurus ludovicianus
- Polioptila caerulea
- Hylocichla mustelina
- Vireo olivaceus
- Dendroica pinus
- i Seiurus aurocapillus
- Piranga rubra
- Piranga olivacea
- Pipilo erythrophthalmus
- Molothrus ater
- Sciurus carolinensis
- i Urocyon cinereoargenteus
- Procyon lotor
- Odocoileus virginianus
- Chelydra serpentina
- Chrysemys picta
- Sceloporus undulatus
- i Ambystoma maculatum
- Hyla chrysoscelis
- Rana clamitans

Invertebrates:

- Papilio polyxenes asterias
- Papilio glaucus
- Papilio troilus
- Satyrium calanus
- Satyrium liparops
- Polygonia interrogationis
- Nymphalis antiopa
- Megisto cymela
- Epargyreus clarus
- Achalarus lyciades
- i Epiaeschna heros
- Libellula vibrans