

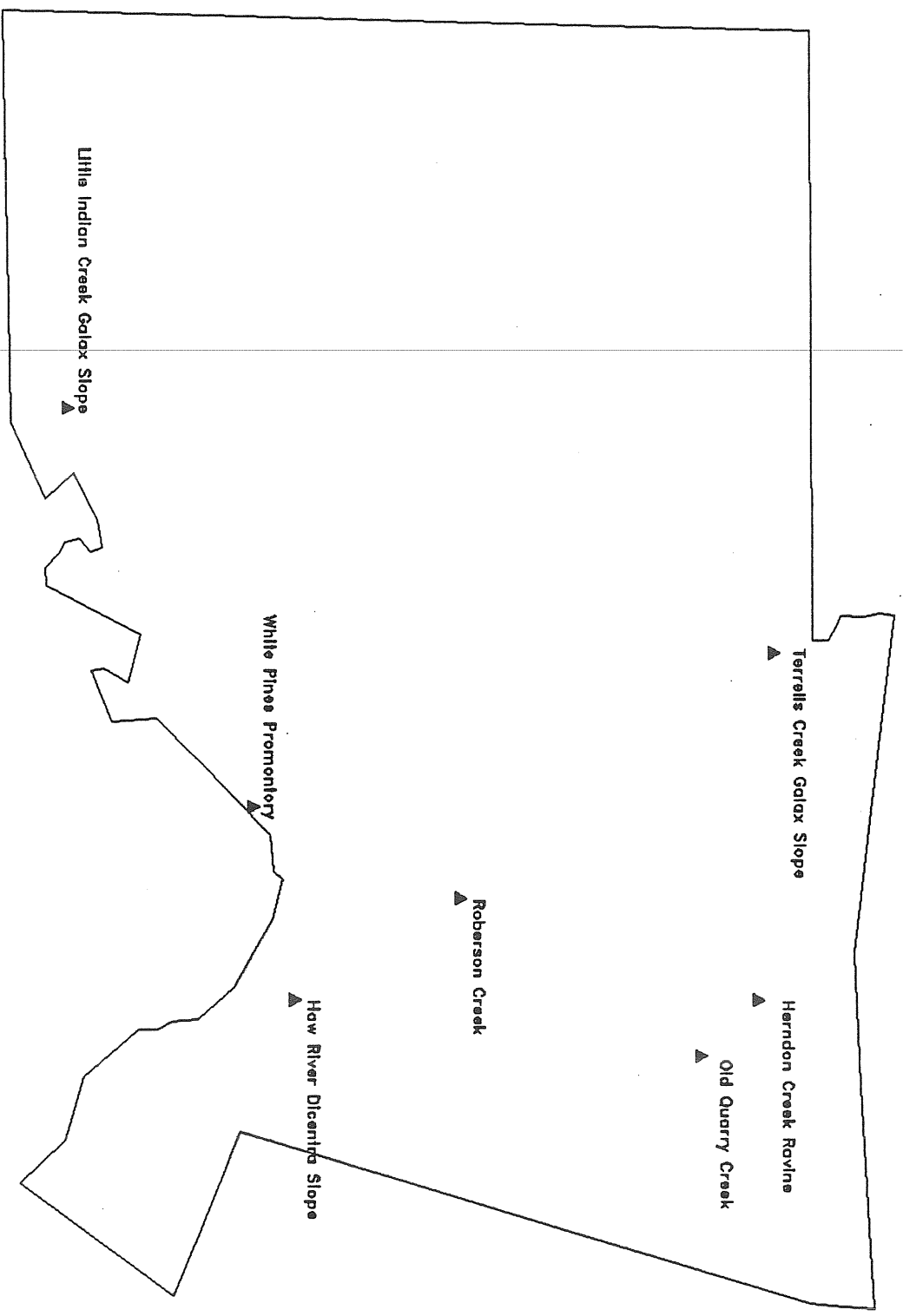
STEEP RAVINES AND BLUFFS

Where streams and rivers have cut deeply into the crystalline rocks of the Slate Belt, there are typically steep bluffs that possess moisture conditions departing strongly from the surrounding countryside. South-facing slopes, especially where rock outcrops occur, are among the most xeric of sites, receiving full insolation year-round. Steep north-facing slopes, in contrast, are partially shaded even at noon in midsummer; they usually contain the coolest, and most mesic of upland habitats. In Chatham County, these sites are primarily clustered along the edge of the Triassic Basin, where there is a drop in elevation of up to 400' in a distance of half a mile.

Because of their location along streams and rivers, these sites could also be placed in the category that follows, Riverine and Riparian Communities. This is especially true of the White Pines Promontory, where the adjacent reach of the Rocky River contains the most outstanding aquatic community in the region. We chose this grouping mainly to emphasize the strong similarities between their upland habitats. All of the sites included here contain examples of cool, moist slopes (no outstanding examples of south-facing conditions were discovered). Several are located within steep and narrow ravines, and the others on river bluffs. All but the Haw River Dicentra Slope are on north-facing situations.

Although there are no state- or federally-listed species on these slopes, their cool, montane-like conditions harbor a number of regionally-rare species, some quite disjunct from their main distribution in the mountains. Besides the rare species, the vertical rock outcrops often present at these sites are quite spectacular and there is usually an highly scenic display of wildflowers in the spring.

Figure 11. North-facing Ravine Slopes and River Bluffs



SITE NAME: White Pines Promontory

SIGNIFICANCE: National

INTEGRITY: High

THREATS: Low

PROTECTION STATUS: 242 acres of this natural area are owned by the Triangle Land Conservancy and dedicated as a State Nature Preserve; several additional tracts have been protected through conservation easements or voluntary registration

JURISDICTION: Oakland Township

OWNERSHIP: Triangle Land Conservancy and private

SUMMARY OF SIGNIFICANT FEATURES:

1. The riverine community located at the confluence of the Rocky and Deep Rivers is nationally significant since it contains the largest known population of the federally endangered Cape Fear shiner (Notropis mekistocholas). Also occurring here is the largest known population also Septima's clubtail dragonfly (Gomphus septima), a candidate for federal listing.
2. The best known feature of this site (and some of the adjoining areas) is the large number of Pleistocene relicts it contains, both plant and animal. These include most notably the only stand of white pines (Pinus strobus) that occurs in the eastern Piedmont and the only stand of catawba rhododendron (Rhododendron catawbiense) that exists in Chatham County. Other noteworthy disjunct species include dutchman's britches (Dicentra cucullaria), witch alders (Fothergilla major), and red-backed salamanders (Plethodon cinereus), all of which are known from only one other site in the county.
3. The forest in this tract is also notable for its age. Individual beeches have been determined to be 200 years old, and many of the white pines are at least 150 years old.
4. The presence of such wary, wide-ranging species of animals as wild turkey (Meleagris gallopavo), broad-winged hawk (Buteo platypterus), and pileated woodpecker (Dryocopus pileatus), all attest to the significance this large tract of forest has as a wildlife reservoir. Its position at the confluence of wildlife corridors running along both the Deep and Rocky Rivers makes this one of the most strategically located refuges in the region.
5. The steep bluffs, abundant flowers, and dramatic river vistas combine to make this one of the most scenic areas in the county. The trail system under development by the Triangle Land Conservancy should help make this one of the most popular sites in the entire Triangle region for hiking, picnicking, and other outdoor activities.

GENERAL SITE DESCRIPTION:

The terrain surrounding the confluence of the Rocky and Deep Rivers contains some of the most spectacularly rugged scenery occurring in the eastern Piedmont. Although similar sites exist along the Fall Line and margins of the Triassic Basin, this particular pocket is especially extensive and seems more out of place considering that upstream as well as downstream the Deep River meanders through the broad lowlands of the Sanford and Durham Triassic Basins. Instead of following the narrow Colon Constriction connecting the two basins further to the south, the Deep River here cuts through a prong of crystalline rock belonging to the Western Carolina Slate Belt, and owing to the strong stream-cutting action created by the descent of the Deep into the Durham Basin, both rivers have carved out a series of particularly rocky and steep walled bluffs both at their confluence and for some distance up and downstream. It is the presence of these steep rocky promontories, an extensive series of which face due north, that accounts for the unusual concentration of rare terrestrial species for which the White Pines Promontory is well-known and regionally significant. It is for the correspondingly extensive rock gardens that occur in the rivers below these promontories, however, that this site rises to national significance, due to the presence of the many rare aquatic species several of which are found here in their greatest numbers worldwide.

Attention was originally given to this site because of the communities of northern and montane plant communities that were discovered growing along the north-facing bluffs, nearly a hundred miles from the main part of their distribution in the southern Appalachians. The best known of these Pleistocene relicts is the stand of white pines which thrives at this site, the only population in the eastern Piedmont and 75 miles from the next natural occurrence. Conditions here permit the white pines not only to persist -- some individuals are over 150 years old -- but also to reproduce plentifully. Saplings are found through much of the forest, including not only the moist ravines and bluffs on the north-facing slopes, but also along the drier ridge-crest and spurs.

Other montane disjuncts include witch-alder and catawba rhododendron, both of which form part of an extensive heath-bluff community that occurs on a rocky slope that ascends nearly 60 degrees above the Rocky River. This community, which is itself quite restricted within the eastern Piedmont, also includes mountain laurel (*Kalmia latifolia*), wild hydrangea (*Hydrangea arborescens*), witch hazel (*Hamamelis virginianus*), and several species of blueberry (*Vaccinium* spp.) in the shrub layer, and trailing arbutus (*Epigaea repens*), partridge berry (*Mitchella repens*), barren strawberry (*Waldsteinia fragaroides*), saxifrage (*Saxifraga virginiana*), and margined shieldfern (*Dryopteris marginalis*) in the sparse herb layer.

Dutchman's britches (*Dicentra cucullaria*) is yet another montane disjunct, but this species grows in richer soils of a mesic slope situated east of the heath-bluff and adjacent to the confluence of the two rivers. The community on this slope, as well as in several ravines leading up the ridge from both the Deep and Rocky Rivers, consists of mesic mixed hardwoods dominated by large (200+ year) beeches (*Fagus grandifolia*), as well as northern

red oaks (Quercus rubra), white oaks (Q. alba), tuliptrees (Liriodendron tulipifera), southern sugar maples (Acer floridanum), as well as the largest white pines in the area. The shrubs of these rich, cool slopes include buckeye (Aesculus sylvatica), redbud (Cercis canadensis), sweetleaf (Symplocos tinctoria), American hophornbeam (Ostrya virginiana), and witch hazel (Hamamelis virginiana). In addition to the dutchman's britches, a number of other wildflowers adorn these slopes in the spring, including anemone (Anemone lancifolia), toothwort (Cardamine angustata), black cohosh (Cimucifuga racemosa), trout lillies (Erythronium americanum and umbilicatum), bloodroot (Sanguinaria canadense), foamflower (Tiarella cordifolia), and Catesby's trillium (Trillium catesbaei).

In addition to the communities having montane or northern affinities, this area is notable for its possession of a number of other biological communities, favored by a diversity of terrains that includes not only moist ravines and north-facing bluffs, but also dry uplands, slopes of various aspects, flat floodplains, rocky riverbanks, and extensive stream riffles. Most of the natural area is, in fact, covered by upland forests composed of second growth oak-hickory woodlands or mixed stands of pines and hardwoods; the presence of white pine throughout much of these uplands is the primary feature that separates these communities from those that are characteristic of the majority of the Piedmont. One other community occupying a significant extent of the natural area is a narrow but lengthy strip of piedmont floodplain forest located primarily along the banks of the Deep River and the point of the confluence.

A particularly striking illustration of the habitat diversity present in this natural area is the occurrence of both white pines and longleaf pines (Pinus palustris). In fact, this is probably the only spot in the country where longleaf, white, shortleaf (P. echinata) and loblolly pines (P. taeda) grow naturally together.

Among the animals, this same diversity is illustrated by the juxtaposition of Carolina anoles (Anolis carolinensis), representative of the Coastal Plain, and red-backed salamanders (Plethodon cinereus), typical of montane and northern forests. As suggested by these examples, the communities of terrestrial animals reflect many of the same biogeographic forces that shape the plant communities. Other species that have predominantly montane/northern distributions include a rare land snail (Mesomphix sp.) and a velvet mite (Allothrombium sp.); a terrestrial flatworm reported to occur at this site (Cooper, et al., 1977) is another probable montane disjunct, since the only terrestrial flatworms known for our region occur in the southern Appalachians. Animals that are correspondingly typical of the coastal plain include two landsnails found in the floodplain forest, Anguispira fergusonii and Ventridens ligera, as well as the characteristic bird of southern swamplands, the prothonotary warbler (Protonaria citrea).

The diversity and extent of the woodlands present at this site, along with its strategic location at the junction of the Rocky and Deep Rivers, accounts for the large number of wildlife species that have been observed here. Extremely impressive are the fifty-five species of birds that are believed to nest within the natural area, including ten species of warblers. In addition to the prothonotary warbler, other species indicative of the high quality of this area are red-shouldered hawk (Buteo lineatus), broad-winged hawk (B. platypterus), wild turkey

(Meleagris gallopavo), woodcock (Scolopax minor), barred owl (Strix varia), hairy and pileated woodpeckers (Picoides villosus and Dryocopus pileatus), white-breasted nuthatch (Sitta carolinensis), American redstart (Setophaga ruticilla), hooded warbler (Wilsonia citrina), Kentucky warbler (Oporornis formosus), and both species of tanagers (Piranga rubra and olivacea).

By far the most significant species present at this site are several aquatic animals that inhabit the riffles and justicia beds that extend from the Deep River Harperella Beds (COLON3) to at least as far as Wood's Mill Bend on the Rocky (SCNE1). The largest extant population of the federally-endangered Cape Fear shiner (Notropis mekistocholas) occurs right at the confluence of the Rocky and the Deep. This site has, in fact, been declared critical habitat for this species. The same may also eventually be decided with regard to the extremely rare Septima's clubtail dragonfly, which is currently a candidate for federal listing. This species is now verified to occur only in Chatham County (see also the COLON2 and MROK1), and the largest population again occurs in the region of the confluence of the Rocky and Deep River upstream to the Rocky River Hydro Plant. This area was once rich in freshwater bivalves; species recorded for the area include Atlantic pigtoe (Fusconaia masoni), squawfoot (Strophitus undulatus), brook floater (Alasmidonta varicosa), and triangle floater (A. undulata). Given the continued presence of the other rare animals in this area, there is a good chance that these mollusks may still persist here as well, although none were found at this particular site during the survey.

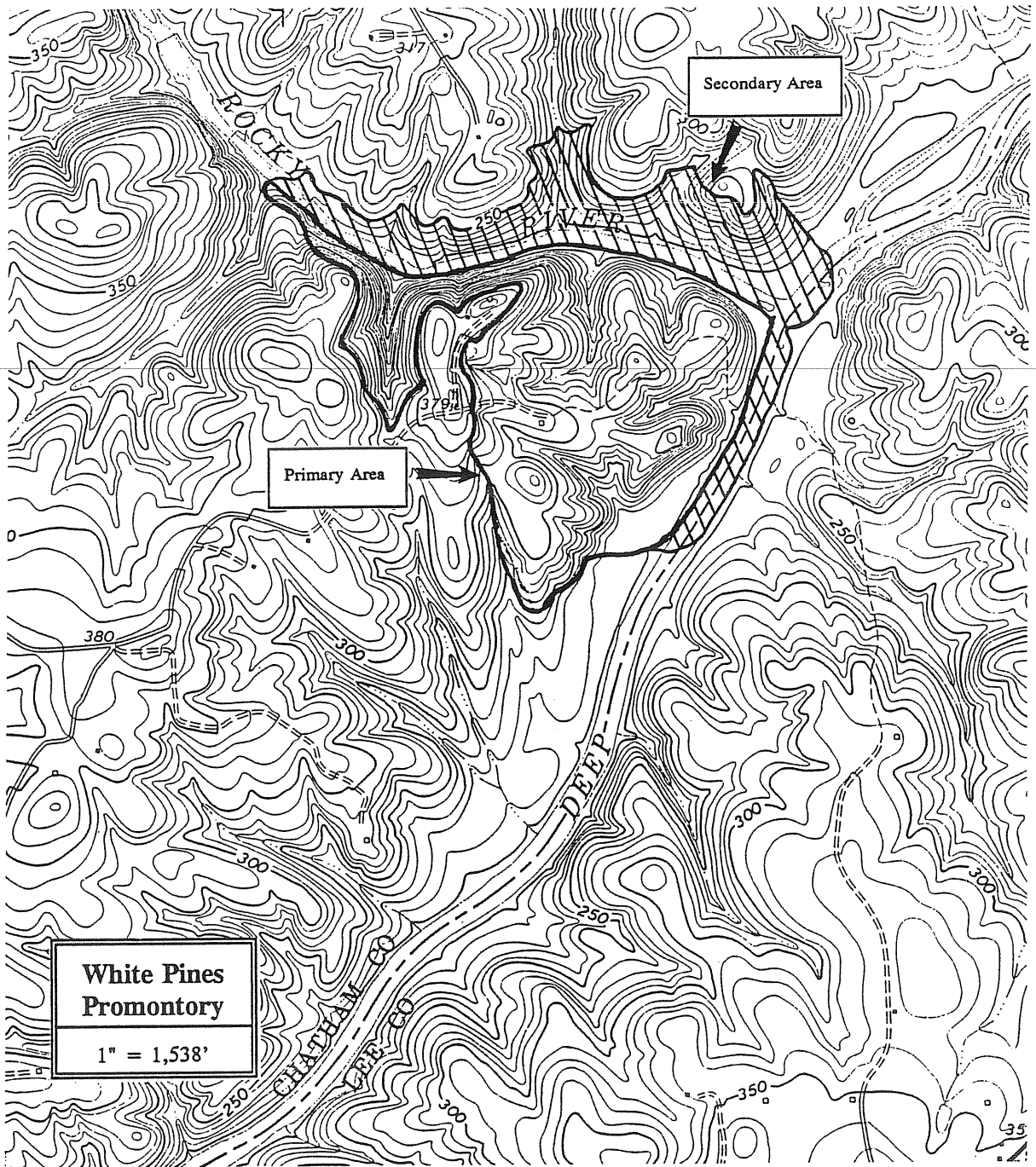
CONSERVATION RECOMMENDATIONS:

Much of the terrestrial portion of this site is already owned and protected by the Triangle Land Conservancy. Additionally, several of the remaining private landowners are aware of the natural values of this site and are voluntarily protecting their tracts; some of these owners have registered their tracts with the North Carolina Natural Heritage Program. Full protection will require the acquisition of a few more key tracts, and the TLC is working towards this goal.

The situation of the riverine portions, however, is far more precarious. The once rich molluscan fauna of the Rocky River has been greatly decimated, and without controlling both point and non-point sources of pollution throughout the watershed, there is no hope for its recovery. Particularly important in this regard is cleaning up the effluents discharged by the Siler City Wastewater Plant. Given the presence of two federally endangered species occurring within this watershed -- the Cape Fear shiner and harperella (see COLON3) -- this should be given the utmost priority.

Other actions include preservation and restoration of buffer strips of vegetation along the sides of all streams feeding into this system. At the White Pines area itself, a larger buffer is needed on lands immediately opposite the Promontory, not only to protect the large

population of the Cape Fear shiner inhabiting this particular reach of the river, but also to preserve the scenic qualities of this site.



SITE SURVEY REPORT

Site name: White Pines Promontory
County: Chatham

Date(s): 22/X/88, 17/V/89, 25/V/89, 30/VI/89

Surveyors:

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

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

Size: 179 primary acres + 93 secondary acres = 272 total acres

Quad: Colon

Province: Piedmont

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

Location and directions: Point of land located between the Rocky and Deep Rivers at their confluence; 7 air miles south of Pittsboro on US 15-501

Landowners and addresses:

Owners contacted and attitude:

General landscape description: See Site Description

Physical description

Aspect: Various

Slope: 10-35 (flat on floodplain below slopes)

Topographic position: Crest to alluvial flats

Hydrology: Terrestrial and riverine

Moisture: Seasonally wet to dry

Elevation: 200 - 350'

Geology: Felsic crystalline tuffs

Soils: Georgeville Gravelly Silt Loam, Goldston Gravelly Silt Loam, and Alamance Gravelly Silt Loam (uplands); Congaree Silt Loam (bottomland)

Comments on physical description: The steep ravines and slopes on this promontory between Rocky and Deep Rivers represent a projection of piedmont terrain between two sections of the Triassic Basin (Durham and Deep River portions).

Biological description

Community # 1: Piedmont White Pine Forest

Vegetation structure: Forest

Position in landscape and relation to other communities:

Quality and condition:

Size:

Dominants and important species:

Canopy:

Carya glabra
Liquidambar styraciflua
Paulownia tomentosa
Pinus echinata
rr Pinus palustris
Pinus taeda
Quercus alba
Quercus coccinea
Quercus falcata
Quercus marilandica
Quercus prinus
Quercus stellata
Quercus velutina
Ulmus alata

Subcanopy:

Acer rubrum
Cornus florida
Crataegus uniflora
Diospyros virginiana
Ilex opaca
Juniperus virginiana
Nyssa sylvatica
Ostrya virginiana
Oxydendrum arboreum
Prunus serotina
Sassafras albidum

Shrubs:

Baccharis halimifolia
Campsis radicans
Ceanothus americanus
Elaeagnus umbellata
Gaylussacia frondosa
Gelsemium sempervirens
Hypericum hypericoides
Hypericum lloydii
Hypericum prolificum
Ilex decidua
Lonicera japonica
Lonicera sempervirens
Lyonia ligustrina
Lyonia mariana
Rhus copallina
Rhus glabra
Rosa carolina
Rosa multiflora
Rubus sp.
Symphoricarpos orbiculatus
Vaccinium arboreum
Vaccinium stamineum

Herbs:

	<i>Acalypha virginica</i>	<i>Cypripedium acaule</i>
	<i>Agalinis purpurea</i>	<i>Dactylis glomerata</i>
	<i>Agilinis setacea</i>	<i>Danthonia sericea</i>
	<i>Agrimonia rostellata</i>	<i>Danthonia spicata</i>
	<i>Agropyron caninum</i>	<i>Daucus carota</i>
	<i>Agrostis eliottiana</i>	<i>Digitaria filiformis</i>
	<i>Agrostis perennans</i>	<i>Digitaria ischaemum</i>
	<i>Agrostis stolonifera</i>	<i>Diodia teres</i>
	<i>Ambrosia artemisifolia</i>	<i>Diodia virginiana</i>
	<i>Anagallis arvensis</i>	<i>Eclipta alba</i>
	<i>Andropogon eliottii</i>	<i>Eleocharis obtusa</i>
	<i>Andropogon gerardii</i>	<i>Elephantopus tomentosus</i>
	<i>Andropogon scoparius</i>	<i>Eleusine indica</i>
	<i>Andropogon virginicus</i>	<i>Elymus villosus</i>
	<i>Anemone virginiana</i>	<i>Epigaea repens</i>
	<i>Antennaria plantaginifolia</i>	<i>Eragrostis capillaris</i>
	<i>Anthoxanthum odoratum</i>	<i>Erianthus contortus</i>
	<i>Apocynum cannabinum</i>	<i>Erigeron annuus</i>
	<i>Arabidopsis thaliana</i>	<i>Erigeron strigosus</i>
	<i>Aristida dichotoma</i>	<i>Eupatorium aromaticum</i>
	<i>Aristida purpurascens</i>	<i>Eupatorium capillifolium</i>
rr	<i>Aristida virgata</i>	<i>Eupatorium hyssopifolium</i>
	<i>Asclepias amplexicaulis</i>	<i>Eupatorium rotundifolium</i>
	<i>Asclepias quadrifolia</i>	<i>Euphorbia corollata</i>
	<i>Asplenium platyneuron</i>	<i>Euphorbia maculata</i>
	<i>Aster paternus</i>	<i>Festuca elatior</i>
	<i>Barbarea verna</i>	<i>Festuca myuros</i>
	<i>Bidens aristosa</i>	<i>Festuca octoflora</i>
	<i>Bidens frondosa</i>	<i>Fragaria virginiana</i>
	<i>Botrychium dissectum</i>	<i>Galium aparine</i>
	<i>Bromus japonicus</i>	<i>Galium pilosum</i>
rr	<i>Calystegia sepium</i>	<i>Geranium carolinianum</i>
	<i>Cerastium glomeratum</i>	<i>Geum canadense</i>
	<i>Chaerophyllum tainturieri</i>	<i>Gnaphalium obtusifolium</i>
	<i>Chenopodium ambrosioides</i>	<i>Gnaphalium purpureum</i>
	<i>Chimaphila maculata</i>	<i>Goodyera pubescens</i>
	<i>Chrysanthemum leucanthemum</i>	<i>Helenium amarum</i>
	<i>Clitoria mariana</i>	<i>Hexastylis arifolia</i>
	<i>Cuscuta sp.</i>	<i>Hieraceum gronovii</i>
	<i>Cyperus ovularis</i>	<i>Hieraceum venosum</i>
	<i>Cyperus pseudovegetus</i>	<i>Houstonia caerulea</i>
	<i>Cyperus strigosus</i>	<i>Houstonia purpurea</i>

Herbs (cont.):

	Hypericum mutilum	Oxalis florida var. filipes
	Hypericum punctatum	Oxalis stricta
	Hypochoeris radicata	Panicum boscii
	Hypoxis hirsuta	Panicum dichotomum
	Ipomoea coccinea	Panicum lanuginosum
	Ipomoea pandurata	Panicum laxiflorum
	Juncus effusus	Panicum microcarpon
	Juncus tenuis	Panicum villosissimum
	Krigia dandelion	Paspalum floridanum
	Krigia virginica	Paspalum laeve
	Lactuca canadensis	Paspalum setaceum
rr	Lechea leggettii	Passiflora incarnata
	Lechea tenuifolia	Penstemon laevigatus
	Lepidium virginicum	Perilla frutescens
	Lindernia anagaloides	Phleum pratense
rr	Lindernia dubia	Phyllanthus caroliniensis
	Linum virginianum	Physalis heterophylla
	var. medium	Physalis virginiana
	Lobelia inflata	Plantago aristata
	Lobelia nuttallii	Plantago lanceolata
	Lobelia puberula	Plantago virginica
	Lobelia spicata	Poa annua
	Ludwigia alternifolia	Poa pratensis
	Ludwigia decurrens	Polygala incarnata
	Ludwigia palustris	Polygala verticillata
	Lycopodium flabelliforme	var. ambigua
	Lysimachia ciliata	Polygonum aviculare
	Mecardonia acuminata	Polypreum procumbens
	Melica mutica	Potentilla canadensis
	Mikania scandens	Prunella vulgaris
	Muscari racemosum	Pteridium aquilinum
	Myosotis macrosperma	Pycnanthemum incanum
	Oenothera biennis	Pycnanthemum tenuifolium
	Oenothera fruticosa	Ranunculus bulbosus
	Onoclea sensibilis	Rhexia mariana
	Ophioglossum vulgatum	Rorippa islandica
	var. pycnostichum	Rudbeckia fulgida
	Ornithogalum umbellatum	Ruellia caroliniensis
	Osmunda cinnamomea	Rumex acetosella
	Osmunda regalis	Sabatia angularis
	var. spectabilis	rr Sabatia brachiata
		Salvia lyrata

Herbs (cont.):

Sanicula smallii
Scirpus cyperinus
Scleria oligantha
Scutellaria integrifolia
Senecio smallii
Setaria geniculata
Sisyrinchium albidum
Sisyrinchium angustifolium
Solanum americanum
Solanum carolinense
Specularia perfoliata
Sphenopholis obtusata
Sporobolus poiretii
Stellaria media
Strophostyles umbellata
Tephrosia virginiana
Tipularia discolor
Trachelospermum difforme
Tragia urticifolia
Trichostema dichotomum
Tridens flavus var. chapmanii
Trifolium arvense
Trifolium campestre
Trifolium dubium
Trifolium pratense
Trifolium repens
rr Valerianella radiata
Verbena urticifolia
Vernonia acaulis
Veronica arvensis
Vicia angustifolia
Vinca minor
Viola emarginata
 var. acutiloba
Viola hirsutula
Viola papilionacea
Viola rafinesquii

Community # 2: Mesic-mixed Hardwood Forest

Vegetation structure: Forest

Position in landscape and relation to other communities:

Quality and condition:

Size:

Dominants and important species:

Canopy:

Acer floridanum
Carya glabra
Fagus grandifolia
Juglans nigra
Liriodendron tulipifera
rr Pinus strobus
Quercus alba
Quercus rubra
Ulmus rubra

Subcanopy:

Acer rubrum
Carpinus caroliniana
Cercis canadensis
Cornus florida
Ilex opaca
Morus rubra
Ostrya virginiana

Shrubs:

Aesculus sylvatica
Anisostichus capreolata
Euonymus americanus
Hamamelis virginiana
Monotropa hypopithys
Monotropa uniflora
Rhododendron nudiflorum
Symplocos tinctoria
Viburnum acerifolium
Vitis rotundifolia

Herbs:

rr Adiantum pedatum
Amphicarpa bracteata
Anemone lancifolia
Aplectrum hyemale
Asplenium platyneuron
Athyrium asplenioides
Blephilia ciliata
Boehmeria cylindrica
Botrychium virginianum
Cardamine angustata
Chaerophyllum tainturieri
Cheilanthes lanosa
Chimaphila maculata
Chrysogonum virginianum
Cimicifuga racemosa
Circaea lutetiana
Claytonia virginica
Corallorhiza odontorhiza
Cunila origanoides
Cynoglossum virginianum
Dioscorea villosa
Elephantopus carolinianus
Epifagus virginiana
Erythronium americanum
Erythronium umbilicatum
Euphorbia obtusata
Galium circaezans
Galium tinctorium
Geranium maculatum
Goodyera pubescens
Hepatica americana
Heuchera americana
Hexastylis arifolia

Herbs (cont.):

Hexastylis minor
Iris cristata
Ligusticum canadense
Luzula acuminata
Luzula bulbosa
Luzula echinata
Malaxis unifolia
Mitchella repens
Oxalis violacea
Phryma leptostachya
Phytolacca americana
Plantago rugelii
Poa autumnalis
Podophyllum peltatum
Polygonatum biflorum
Ranunculus recurvatus
Sanguinaria canadensis
Scutellaria elliptica
Smilacena racemosa
Solidago caesia
Spiranthes gracilis
Spiranthes sp.
Stellaria pubera
Thalictrum thalictroides
Thelypteris hexagonoptera
Thelypteris noveboracensis
Tiarella cordifolia
Tipularia discolor
Trillium catesbaei
Uvularia pudica
Viola palmata v. triloba

Community # 3: Coastal Plain/Piedmont Heath Bluff

Vegetation structure: Forest

Position in landscape and relation to other communities:

Quality and condition:

Size:

Dominants and important species:

Subcanopy:

Amelanchier arborea

Shrubs:

rr Fothergilla major
Hamamelis virginiana
Hydrangea arborescens
Kalmia latifolia
rr Rhododendron catawbiense
Rhododendron nudiflorum
Vaccinium stamineum

Herbs:

Campanula divaricata
Deschampsia flexuosa
Dryopteris marginalis
Erechtites hieracifolia
Mitchella repens
Polypodium polypodioides
Polypodium virginianum
Saxifraga virginensis
Waldsteinia fragarioides

Community # 4: Piedmont Bottomland Forest

Vegetation structure: Forest

Position in landscape and relation to other communities:

Quality and condition:

Size:

Dominants and important species:

Canopy:

Acer floridanum
Acer negundo
Betula nigra
Carya cordiformis
Celtis laevigata
Fraxinus americana
Fraxinus pennsylvanica
Juglans nigra
Liriodendron tulipifera
Platanus occidentalis
Quercus michauxii
Quercus nigra
Quercus phellos
Quercus shumardii
Ulmus rubra

Subcanopy:

Acer rubrum
Asimina triloba
Carpinus caroliniana
Gleditsia tricanthos
Morus rubra
Salix nigra
Tilia heterophylla

Shrubs:

Alnus serrulata
Anisostichus capreolata
Chionanthus virginicus
Cornus amomum
Ilex decidua

Shrubs (cont.):

Ilex verticillata
Itea virginica
Leucothoe racemosa
Ligustrum sinense
Lindera benzoin
Lonicera japonica
Parthenocissus quinquefolia
Phoradendron serotinum
Rhus radicans
Rosa palustris
Sambucus canadensis
Staphylea trifolia
Styrax grandifolia
Symphoricarpos orbiculatus
Viburnum dentatum
var. lucidum
Viburnum prunifolium
Vitis rotundifolia

Herbs:

Allium canadense
Amaranthus spinosus
Ambrosia trifida
Aneilema keisak
Anemone lancifolia
Arisaema draconitum
Arisaema triphyllum
Aristolochia serpentaria
Arthraxon hispidus
Arundinaria gigantea
Asarum canadense
Athyrium asplenioides

Herbs (cont.):

rr	Aureolaria flava	Impatiens capensis
	Avena sativa	Juncus acuminatus
	Bidens tripartita	Juncus coriaceous
	Boehmeria cylindrica	Juncus dichotomus
	Botrychium virginianum	Juncus marginatus
	Cardamine hirsuta	var. biflorus
	Cardamine pensylvanica	Justicia americana
	Carex intumescens	Lactuca floridana
	Cassia marilandica	Lamium purpureum
	Cephalanthus occidentalis	Laportea canadensis
	Cinna arundinacea	Leersia virginica
	Claytonia virginica	rr Lemna perpusilla
	Clematis viorna	Lobelia cardinalis
	Clematis virginiana	Ludwigia palustris
	Commelina communis	Lycopus virginicus
	Commelina virginica	Lysimachia nummularia
	Corydalis flavula	Matelea gonocarpa
	Cryptotaenia canadensis	Mecardonia acuminata
rr	Dicentra cucullaria	Menispermum canadense
	Diodia virginiana	Microstegium vimineum
	Dracocephalum virginianum	Mimulus alatus
	Duchesnea indica	Nemophila microcalyx
	Eclipta alba	Ophioglossum vulgatum
	Elymus virginicus	var. pycnostichum
	Eragrostis refracta	Osmorhiza longistylis
	Erigeron canadensis	Oxalis violacea
	Eupatorium fistulosum	Panicum clandestinum
	Eupatorium rugosum	Panicum commutatum
	Eupatorium serotinum	var. ashei
	Euphorbia obtusata	Panicum dichotomiflorum
	Festuca obtusa	Panicum polyanthes
	Festuca paradoxa	Panicum scoparium
	Fimbristylis autumnalis	Panicum virgatum
	Galium aparine	Passiflora lutea
	Galium obtusum	Pedicularis canadensis
	var. filifolium	Penthorum sedoides
	Galium triflorum	Phryma leptostachya
	Galium uniflorum	Phytolacca americana
	Geum canadense	Pilea pumila
	Glecoma hederacea	Pluchea purpurescens
	Glyceria striata	Poa sylvestris
	Hypoxis hirsuta	Podophyllum peltatum

Herbs (cont.):

Podostemum ceratophyllum
Polygonatum biflorum
Polygonum cespitosum
 var. longisetum
Polygonum lapanthifolium
Polygonum punctatum
Polygonum setaceum
Pontederia cordata
Potentilla simplex
Ranunculus abortivus
Ranunculus pusillus
Ranunculus recurvatus
Rhynchospora caduca
Rhynchospora chalarocephala
Rudbeckia laciniata
Sagittaria sp.
Samolus parviflorus
Sanicula gregaria
Saururus cernuus
Scirpus atrovirens
Scutellaria integrifolia
Sedum ternatum
rr Sicyos angulatus
Silene virginica
Smilax bona-nox
Smilax glauca
Sorghastrum nutans
Thelypteris hexagonoptera
Tovara virginiana
Typha latifolia
Uniola latifolia
Uvularia sessilifolia
Verbena urticifolia
Verbesina alternifolia
Vernonia noveboracensis
Viola eriocarpa
Viola palmata var. triloba
Woodwardia areolata
Xanthorhiza simplicissima
Zephyranthes atamasco
Zizaniopsis miliacea
Zizia trifoliata

Special status species

State-listed species:

Plants:

Animals:

- fe Notropis mekistocholas
- sc Gomphus septima

Potential for other special status species:

Other noteworthy species or features:

Plants:

- rr Adiantum pedatum
- rr Pinus palustris
- rr Pinus strobus
- rr Aristida virgata
- rr Lemna perpusilla
- rr Dicentra cucullaria
- rr Fothergilla major
- rr Lechea leggettii
- rr Rhododendron catawbiense
- rr Sabatia brachiata
- rr Calystegia sepium
- rr Aureolaria flava
- rr Lindernia dubia
- rr Valerianella radiata
- rr Sicyos angulatus

Animals:

- rr Meleagris gallopavo
- rr Anolis carolinesis
- rr Plethodon cinereus
- rr Allothrombium sp.
- rr Anguispira fergusonii
- rr Mesomphix sp.
- rr "Land planarian" (see Cooper, et al., 1977)

Site condition

Site integrity: High

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: Yes, along trails leading to river

Other disturbances: No

Adjacent Land Uses: Forest and residential

Significance of site: National

Discussion: See Site Description

Protection considerations and management needs: Parts of the natural area are owned by the Triangle Land Conservancy; more land needs to be added to the reserve

Determination of survey boundaries: Encloses the area of uplands at the east end of the promontory, including the TLC natural area and adjacent areas containing the same community elements; also included is a strip of bottomland along the Deep River.

Priority for further study: Medium; invertebrates should be surveyed (Ed Swab is currently inventorying the plants and birds).

Specimens collected:

Photographs:

Others knowledgeable about the site: Ed Swab, Julie Moore, Benson Kirkman, et al.

References: Swab, E.C. 1990. The flora and vegetation of White Pines Natural Area, Chatham County, North Carolina. Unpubl. Thesis; NC State University; Raleigh, NC.

Topo map: Attached

Sketch map: None

PLANT SPECIES LIST

List is: Nearly Complete

- | | | |
|----|---------------------------------|------------------------------|
| | Lycopodium flabelliforme (3) | Arthraxon hispidus (29) |
| | Botrychium dissectum (6) | Arundinaria gigantea (29) |
| | Botrychium virginianum (6) | Avena sativa (29) |
| | Ophioglossum vulgatum | Bromus japonicus (29) |
| | var. pycnostichum (6) | Cinna arundinacea (29) |
| | Osmunda cinnamomea (7) | Dactylis glomerata (29) |
| | Osmunda regalis | Danthonia sericea (29) |
| | var. spectabilis (7) | Danthonia spicata (29) |
| rr | Adiantum pedatum (10) | Deschampsia flexuosa (29) |
| | Cheilanthes lanosa (10) | Digitaria filiformis (29) |
| | Pteridium aquilinum (10) | Digitaria ischaemum (29) |
| | Athyrium asplenioides (11) | Eleusine indica (29) |
| | Dryopteris marginalis (11) | Elymus villosus (29) |
| | Onoclea sensibilis (11) | Elymus virginicus (29) |
| | Thelypteris hexagonoptera (11) | Eragrostis capillaris (29) |
| | Thelypteris noveboracensis (11) | Eragrostis refracta (29) |
| | Woodwardia areolata (12) | Erianthus contortus (29) |
| | Asplenium platyneuron (13) | Festuca elatior (29) |
| | Polypodium polypodioides (14) | Festuca myuros (29) |
| | Polypodium virginianum (14) | Festuca obtusa (29) |
| | Pinus echinata (16) | Festuca octoflora (29) |
| rr | Pinus palustris (16) | Festuca paradoxa (29) |
| rr | Pinus strobus (16) | Glyceria striata (29) |
| | Pinus taeda (16) | Leersia virginica (29) |
| | Juniperus virginiana (18) | Melica mutica (29) |
| | Typha latifolia (19) | Microstegium vimineum (29) |
| | Sagittaria sp. (27) | Panicum boscii (29) |
| | Agropyron caninum (29) | Panicum clandestinum (29) |
| | Agrostis elliottiana (29) | Panicum commutatum |
| | Agrostis perennans (29) | var. ashei (29) |
| | Agrostis stolonifera (29) | Panicum dichotomiflorum (29) |
| | Andropogon elliottii (29) | Panicum dichotomum (29) |
| | Andropogon gerardii (29) | Panicum lanuginosum (29) |
| | Andropogon scoparius (29) | Panicum laxiflorum (29) |
| | Andropogon virginicus (29) | Panicum microcarpon (29) |
| | Anthoxanthum odoratum (29) | Panicum polyanthes (29) |
| | Aristida dichotoma (29) | Panicum scoparium (29) |
| | Aristida purpurascens (29) | Panicum villosissimum (29) |
| rr | Aristida virgata (29) | Panicum virgatum (29) |
| | | Paspalum floridanum (29) |

- Paspalum laeve* (29)
Paspalum setaceum (29)
Phleum pratense (29)
Poa annua (29)
Poa autumnalis (29)
Poa pratensis (29)
Poa sylvestris (29)
Setaria geniculata (29)
Sorghastrum nutans (29)
Sphenopholis obtusata (29)
Sporobolus poiretii (29)
Tridens flavus
 var. *chapmanii* (29)
Uniola latifolia (29)
Zizaniopsis miliacea (29)
Carex intumescens (30)
Cyperus ovularis (30)
Cyperus pseudovegetus (30)
Cyperus strigosus (30)
Eleocharis obtusa (30)
Fimbristylis autumnalis (30)
Rhynchospora caduca (30)
Rhynchospora chalarocephala
 (30)
Scirpus atrovirens (30)
Scirpus cyperinus (30)
Scleria oligantha (30)
Arisaema draconitum (32)
Arisaema triphyllum (32)
rr *Lemna perpusilla* (33)
Aneilema keisak (38)
Commelina communis (38)
Commelina virginica (38)
Pontederia cordata (39)
Juncus acuminatus (40)
Juncus coriaceous (40)
Juncus dichotomus (40)
Juncus effusus (40)
Juncus marginatus
 var. *biflorus* (40)
Juncus tenuis (40)
Luzula acuminata (40)
Luzula bulbosa (40)
Luzula echinata (40)
Allium canadense (41)
Erythronium americanum (41)
Erythronium umbilicatum (41)
Muscari racemosum (41)
Ornithogalum umbellatum (41)
Polygonatum biflorum (41)
Smilacena racemosa (41)
Smilax bona-nox (41)
Smilax glauca (41)
Trillium catesbaei (41)
Uvularia pudica (41)
Uvularia sessilifolia (41)
Dioscorea villosa (43)
Hypoxis hirsuta (44)
Zephyranthes atamasco (44)
Iris cristata (46)
Sisyrinchium albidum (46)
Sisyrinchium angustifolium
 (46)
Aplectrum hyemale (49)
Corallorhiza odontorhiza (49)
Cypripedium acaule (49)
Goodyera pubescens (49)
Malaxis unifolia (49)
Spiranthes gracilis (49)
Spiranthes sp. (49)
Tipularia discolor (49)
Saururus cernuus (50)
Salix nigra (51)
Carya cordiformis (53)
Carya glabra (53)
Juglans nigra (53)
Alnus serrulata (54)
Betula nigra (54)
Carpinus caroliniana (54)
Ostrya virginiana (54)
Fagus grandifolia (55)
Quercus alba (55)
Quercus coccinea (55)
Quercus falcata (55)
Quercus marilandica (55)
Quercus michauxii (55)
Quercus nigra (55)
Quercus phellos (55)

- Quercus prinus* (55)
Quercus rubra (55)
Quercus shumardii (55)
Quercus stellata (55)
Quercus velutina (55)
Celtis laevigata (56)
Ulmus alata (56)
Ulmus rubra (56)
Morus rubra (57)
Boehmeria cylindrica (59)
Laportea canadensis (59) rr
Pilea pumila (59)
Phoradendron serotinum (61)
Aristolochia serpentaria (62)
Asarum canadense (62)
Hexastylis arifolia (62)
Hexastylis minor (62)
Polygonum aviculare (63)
Polygonum cespitosum
 var. *longisetum* (63)
Polygonum lapanthifolium (63)
Polygonum punctatum (63)
Polygonum setaceum (63)
Rumex acetosella (63)
Tovara virginiana (63)
Chenopodium ambrosioides
 (64) rr
Amaranthus spinosus (66)
Phytolacca americana (68)
Claytonia virginica (70)
Cerastium glomeratum (71)
Silene virginica (71)
Stellaria media (71)
Stellaria pubera (71)
Anemone lancifolia (76)
Anemone virginiana (76)
Cimicifuga racemosa (76)
Clematis viorna (76)
Clematis virginiana (76)
Hepatica americana (76)
Ranunculus abortivus (76)
Ranunculus bulbosus (76)
Ranunculus pusillus (76)
Ranunculus recurvatus (76)
Thalictrum thalictroides (76)
Xanthorrhiza simplicissima (76)
Podophyllum peltatum (77)
Menispermum canadense (79)
Liriodendron tulipifera (80)
Asimina triloba (81)
Lindera benzoin (84)
Sassafras albidum (84)
Sanguinaria canadensis (85)
Corydalis flavula (86)
Dicentra cucullaria (86)
Arabidopsis thaliana (88)
Barbarea verna (88)
Cardamine angustata (88)
Cardamine hirsuta (88)
Cardamine pensylvanica (88)
Lepidium virginicum (88)
Rorippa islandica (88)
Podostemum ceratophyllum (90)
Penthorum sedoides (91)
Sedum ternatum (91)
Heuchera americana (94)
Hydrangea arborescens (94)
Itea virginica (94)
Saxifraga virginiana (94)
Tiarella cordifolia (94)
Fothergilla major (95) rr
Hamamelis virginiana (95)
Liquidambar styraciflua (95)
Platanus occidentalis (96)
Agrimonia rostellata (97)
Amelanchier arborea (97)
Crataegus uniflora (97)
Duchesnea indica (97)
Fragaria virginiana (97)
Geum canadense (97)
Potentilla canadensis (97)
Potentilla simplex (97)
Prunus serotina (97)
Rosa carolina (97)
Rosa multiflora (97)
Rosa palustris (97)
Rubus sp. (97)
Waldsteinia fragarioides (97)

- Amphicarpa bracteata* (98)
Cassia marilandica (98)
Cercis canadensis (98)
Clitoria mariana (98)
Gleditsia tricanthos (98)
Strophostyles umbellata (98)
Tephrosia virginiana (98)
Trifolium arvense (98)
Trifolium campestre (98)
Trifolium dubium (98)
Trifolium pratense (98)
Trifolium repens (98)
Vicia angustifolia (98)
Linum virginianum
 var. *medium* (99)
Oxalis florida
 var. *filipes* (100)
Oxalis stricta (100)
Oxalis violacea (100)
Geranium carolinianum (101)
Geranium maculatum (101)
Polygala incarnata (106)
Polygala verticillata
 var. *ambigua* (106)
Acalypha virginica (107)
Euphorbia corollata (107)
Euphorbia maculata (107)
Euphorbia obtusata (107)
Phyllanthus caroliniensis (107)
Tragia urticifolia (107)
Rhus copallina (110)
Rhus glabra (110)
Rhus radicans (110)
Ilex decidua (112)
Ilex opaca (112)
Ilex verticillata (112)
Euonymus americanus (113)
Staphylea trifolia (114)
Acer floridanum (115)
Acer negundo (115)
Acer rubrum (115)
Aesculus sylvatica (116)
Impatiens capensis (118)
Ceanothus americanus (119)

Parthenocissus quinquefolia
 (120)
Vitis rotundifolia (120)
Tilia heterophylla (121)
Hypericum hypericoides (126)
Hypericum lloydii (126)
Hypericum mutilum (126)
Hypericum prolificum (126)
Hypericum punctatum (126)
 rr *Lechea leggettii* (129)
Lechea tenuifolia (129)
Viola emarginata
 var. *acutiloba* (130)
Viola eriocarpa (130)
Viola hirsutula (130)
Viola palmata var. *triloba* (130)
Viola papilionacea (130)
Viola rafinesquii (130)
Passiflora incarnata (131)
Passiflora lutea (131)
Elaeagnus umbellata (134)
Rhexia mariana (136)
Circaea lutetiana (137)
Ludwigia alternifolia (137)
Ludwigia decurrens (137)
Ludwigia palustris (137)
Oenothera biennis (137)
Oenothera fruticosa (137)
Chaerophyllum tainturieri (140)
Cryptotaenia canadensis (140)
Daucus carota (140)
Ligusticum canadense (140)
Osmorhiza longistylis (140)
Sanicula gregaria (140)
Sanicula smallii (140)
Zizia trifoliata (140)
Nyssa sylvatica (141)
Cornus amomum (142)
Cornus florida (142)
Chimaphila maculata (145)
Epigaea repens (145)
Gaylussacia frondosa (145)
Kalmia latifolia (145)
Leucothoe racemosa (145)

	Lyonia ligustrina (145)		Dracocephalum virginianum (164)
	Lyonia mariana (145)		Glechoma hederacea (164)
	Monotropa hypopithys (145)		Lamium purpureum (164)
	Monotropa uniflora (145)		Lycopus virginicus (164)
	Oxydendrum arboreum (145)		Perilla frutescens (164)
rr	Rhododendron catawbiense (145)		Prunella vulgaris (164)
	Rhododendron nudiflorum (145)		Pycnanthemum incanum (164)
	Vaccinium arboreum (145)		Pycnanthemum tenuifolium (164)
	Vaccinium stamineum (145)		Salvia lyrata (164)
	Anagallis arvensis (147)		Scutellaria elliptica (164)
	Lysimachia ciliata (147)		Scutellaria integrifolia (164)
	Lysimachia nummularia (147)		Trichostema dichotomum (164)
	Samolus parviflorus (147)		Physalis heterophylla (165)
	Diospyros virginiana (150)		Physalis virginiana (165)
	Symplocos tinctoria (151)		Solanum americanum (165)
	Styrax grandifolia (152)		Solanum carolinense (165)
	Chionanthus virginicus (153)		Agalinis purpurea (166)
	Fraxinus americana (153)		Agilinis setacea (166)
	Fraxinus pennsylvanica (153)	rr	Aureolaria flava (166)
	Ligustrum sinense (153)		Lindernia anagalloides (166)
	Gelsemium sempervirens (154)	rr	Lindernia dubia (166)
	Polypremum procumbens (154)		Mecardonia acuminata (166)
	Sabatia angularis (155)		Mimulus alatus (166)
rr	Sabatia brachiata (155)		Paulownia tomentosa (166)
	Apocynum cannabinum (156)		Pedicularis canadensis (166)
	Trachelospermum difforme (156)		Penstemon laevigatus (166)
	Vinca minor (156)		Veronica arvensis (166)
	Asclepias amplexicaulis (157)		Anisostichus capreolata (167)
	Asclepias quadrifolia (157)		Campsis radicans (167)
	Matelea gonocarpa (157)		Epifagus virginiana (169)
rr	Calystegia sepium (158)		Justicia americana (171)
	Cuscuta sp. (158)		Ruellia caroliniensis (171)
	Ipomoea coccinea (158)		Plantago aristata (172)
	Ipomoea pandurata (158)		Plantago lanceolata (172)
	Nemophila microcalyx (160)		Plantago rugelii (172)
	Cynoglossum virginianum (161)		Plantago virginica (172)
	Myosotis macrosperma (161)		Cephalanthus occidentalis (173)
	Verbena urticifolia (162)		Diodia teres (173)
	Phryma leptostachya (163)		Diodia virginiana (173)
	Blephilia ciliata (164)		Galium aparine (173)
	Cunila origanoides (164)		Galium circaezans (173)

Galium obtusum
 var. *filifolium* (173)
Galium pilosum (173)
Galium tinctorium (173)
Galium triflorum (173)
Galium uniflorum (173)
Houstonia caerulea (173)
Houstonia purpurea (173)
Mitchella repens (173)
Lonicera japonica (174)
Lonicera sempervirens (174)
Sambucus canadensis (174)
Symphoricarpos orbiculatus
 (174)

Viburnum acerifolium (174)
Viburnum dentatum
 var. *lucidum* (174)
Viburnum prunifolium (174)
rr *Valerianella radiata* (175)
rr *Sicyos angulatus* (177)
Campanula divaricata (178)
Lobelia cardinalis (178)
Lobelia inflata (178)
Lobelia nuttallii (178)
Lobelia puberula (178)
Lobelia spicata (178)
Specularia perfoliata (178)
Ambrosia artemisifolia (179)
Ambrosia trifida (179)
Antennaria plantaginifolia (179)
Aster paternus (179)
Baccharis halimifolia (179)
Bidens aristosa (179)
Bidens frondosa (179)
Bidens tripartita (179)
Chrysanthemum leucanthemum
 (179)
Chrysogonum virginianum (179)
Eclipta alba (179)
Elephantopus carolinianus (179)
Elephantopus tomentosus (179)
Erechtites hieracifolia (179)
Erigeron annuus (179)
Erigeron canadensis (179)
Erigeron strigosus (179)
Eupatorium aromaticum (179)
Eupatorium capillifolium (179)
Eupatorium fistulosum (179)
Eupatorium hyssopifolium (179)
Eupatorium rotundifolium (179)
Eupatorium rugosum (179)
Eupatorium serotinum (179)
Gnaphalium obtusifolium (179)
Gnaphalium purpureum (179)
Helenium amarum (179)
Hieraceum gronovii (179)
Hieraceum venosum (179)
Hypochoeris radicata (179)
Krigia dandelion (179)
Krigia virginica (179)
Lactuca canadensis (179)
Lactuca floridana (179)
Mikania scandens (179)
Pluchea purpurescens (179)
Rudbeckia fulgida (179)
Rudbeckia laciniata (179)
Senecio smallii (179)
Solidago caesia (179)
Verbesina alternifolia (179)
Vernonia acaulis (179)
Vernonia noveboracensis (179)

ANIMAL SPECIES LIST

List is: Medium-thorough

Vertebrates:

i Aix sponsa¹
 i Buteo lineatus
 i Buteo platypterus
 rr Meleagris gallopavo
 Colinus virginianus
 i Scolopax minor¹
 Zenaida macroura
 i Coccyzus americanus¹
 i Strix varia¹
 Megaceryle alcyon¹
 Archilochus colubris¹
 Melanerpes carolinus
 Picoides pubescens
 i Picoides villosus¹
 Colaptes auritus¹
 i Dryocopus pileatus
 Contopus virens¹
 Empidonax virescens
 Myiarchus crinitus
 Cyanocitta cristata¹
 Corvus brachyrhynchos
 Parus carolinensis
 Parus bicolor
 i Sitta carolinensis¹
 Sitta pusilla¹
 Thryothurus ludovicianus
 Polioptila caerulea
 Sialia sialis¹
 i Hyllocichla mustelina¹
 Turdus migratorius¹
 Dumetella carolinensis¹
 Mimus polyglottos¹
 Toxostoma rufum¹
 Vireo griseus
 Vireo flavifrons
 Vireo olivaceus
 Parula americana
 Dendroica dominica

Vertebrates (cont.):

Dendroica pinus
 i Setophaga ruticilla
 i Protonotaria citrea
 i Seiurus aurocapillus
 i Seiurus motacilla
 i Oporornis formosus¹
 i Wilsonia citrina
 Geothlypis trichas¹
 Piranga rubra
 Piranga olivacea
 Cardinalis cardinalis
 Passerina cyanea
 Pipilo erythrophthalmus¹
 Spizella passerina¹
 Molothrus ater¹
 Carduelis tristis
 Scalopus aquaticus
 Tamias striatus
 Sciurus carolinensis
 Castor canadensis
 Peromyscus leucopus
 Sylvalagus floridanus¹
 Mephitis mephitis¹
 i Urocyon cinereoargenteus
 Procyon lotor
 Odocoileus virginianus
 Sternotherus odoratus
 Chrysemys concinna
 i Terrapene carolina
 rr Anolis carolinensis
 Sceloporus undulatus¹
 Eumeces laticeps¹
 Scincella lateralis
 Carphophis amoenus
 Diadophis punctatus¹
 i Heterodon platyrhinos
 Ophiodryas aestivus¹
 Storeria dekayi¹

Vertebrates (cont.):

	Virginia striatula ¹
	Virginia valeriae ¹
	Notopthalmus viridescens ¹
	Ambystoma maculatum ¹
	Ambystoma opacum
rr	Plethodon cinereus
	Plethodon glutinosus
	Bufo americanus ¹
	Bufo woodhousei fowleri
	Acris crepitans
	Pseudacris crucifer ¹
	Pseudacris triseriata ¹
	Hyla chrysoscelis
	Rana catesbaeiana ¹
	Rana clamitans
	Rana sphenoccephala ¹
fe	Notropis mekistocholas ²

Invertebrates (cont.):

	Dromogomphus spinosus
sr	Gomphus septima
	Basiaeschna janata
	Anax junius
	Epicordulia regina
	Perithemis tenera
	Libellula incesta
	Libellula luctuosa
rr	Allothrombium sp.
rr	Anguispira fergusonii
rr	Mesomphix sp.
	Ventridens ligera
	Haplotrema concavum
	Mesodon thyroidus

Invertebrates:

Papilio glaucus
Papilio troilus
Papilio polyxenes¹
Pieris rapae¹
Anthocaris midea¹
Celastrina ladon
Polygonia interrogationis
Polygonia comma
Nymphalis antiopa¹
Vanessa atalanta rubria
Junonia coenia¹
Limenitis arthemis¹
Cercyonis pegala¹
Hermeuptychia hermes sosybius
Errynis juvenalis¹
Thorybes sp.

1. Listed in Schwab, 1990, but not seen during the survey; some species on this list are not included here, since it could not be determined if they represented breeding species or migrants.
2. North Carolina Natural Heritage Program database.

SITE NAME: Roberson Creek Ravine

SIGNIFICANCE: Regional

INTEGRITY: High to good

THREATS: Medium -- timbering

PROTECTION STATUS: Most of this site protected as a Jordan Lake Natural Area and registered and managed by the NC Division of Parks and Recreation

JURISDICTION: Center Township

OWNERSHIP: Federal and private

SUMMARY OF SIGNIFICANT FEATURES:

1. The lower portion of Roberson Creek contains perhaps the richest ravine community in the county. Prominent species include barren strawberry (Waldsteinia fragarioides), tall thimbleweed (Anemone virginiana), marginal shield fern (Dryopteris marginalis), and maidenhair fern (Adiantum pedatum), all of which are quite rare in Chatham.
2. Two species of animals, the red-backed salamander (Plethodon cinereus) and a land snail (Mesomphix sp.), are northern or montane species that are disjunct in this area of the Piedmont. The salamander is known from only one other site in the county, the larger community of montane disjuncts present at the White Pines Promontory.
3. The steep slopes and large outcrops rising above the creek offer some of the best natural scenery in the county.
4. The stream still has a fairly high water quality, supporting mussels and providing habitat for river otters. At least formerly, this creek was known to have a population of the endangered Cape Fear Shiner. This ravine has high value for wildlife in general.

GENERAL SITE DESCRIPTION:

As is true for most streams that drop down from the uplands of the slate-belt into the lowlands of the Triassic Basin, Roberson Creek has cut a deep ravine as it crosses the fault line. The steep slopes and large rock outcrops that in some spots rise nearly vertically above the creek, provide some of the most dramatic scenery in Chatham County.

Although the area has been mapped as felsic crystalline tuffs, the large number of basophilic plant species growing on both the slopes and bottomlands suggest that there is also a diabase dike or some other mafic rock formation located in the vicinity. The community, in any case, fits the description of Basic Mesic Forest (Schafale and Weakley, 1990). The two dominant tree species are southern sugar maple (Acer floridanum) and beech (Fagus

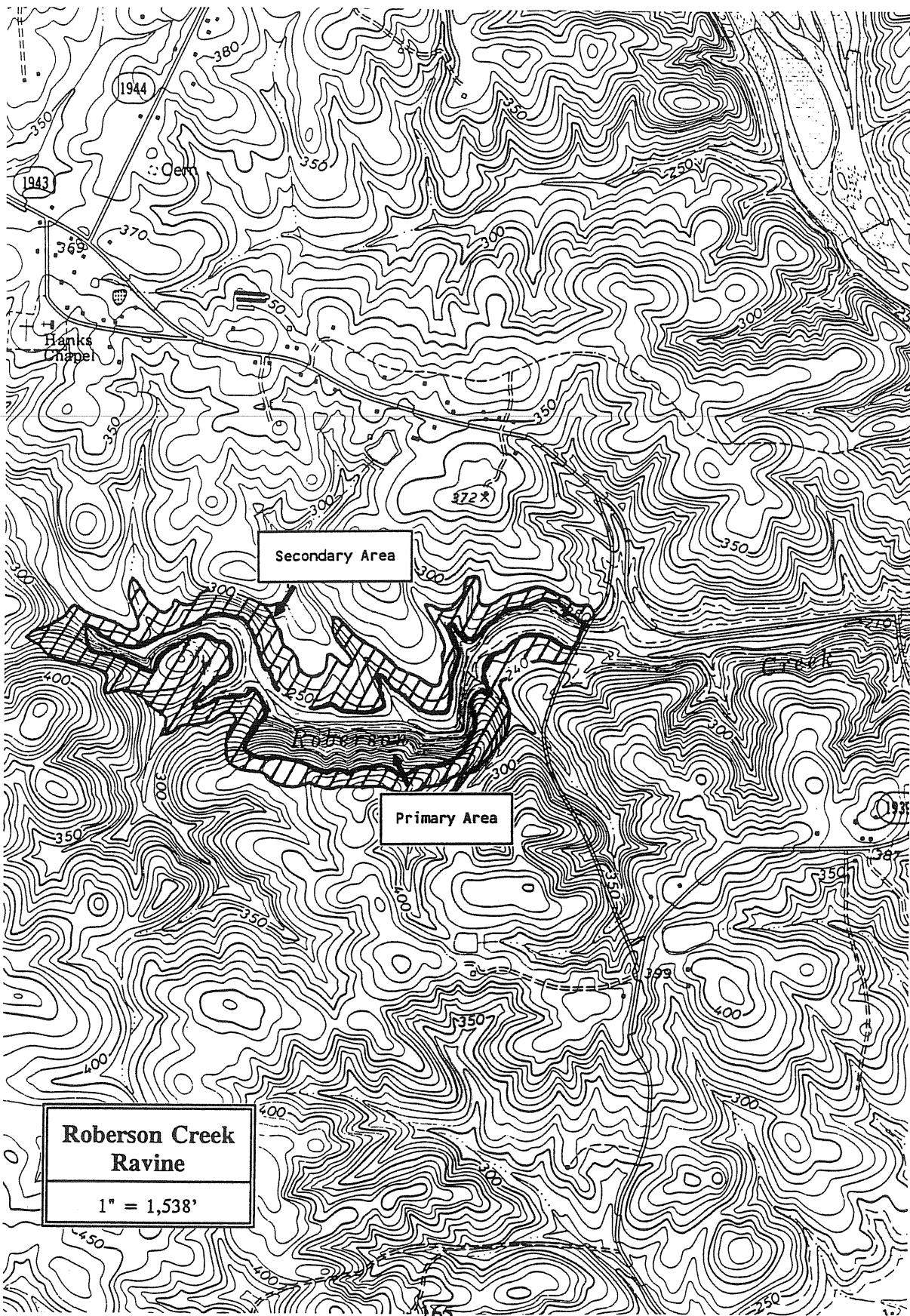
grandifolia); other species typical of this community include slippery elm (Ulmus rubra) and red oak (Quercus rubra). Even more indicative is the understory and shrub composed of basswood (Tilia floridana), redbud (Cercis canadensis), hophornbeam (Ostrya virginiana), ironwood (Carpinus caroliniana), pawpaw (Asimina triloba), fringetree (Chionanthus virginicus), storax (Styrax grandifolia), coralberry (Symphoricarpos orbiculatus), and wild hydrangea (Hydrangea arborescens). Perhaps most impressive of all is the high diversity of herbs present on only the richest soils: maidenhair fern (Adiantum pedatum), fumitory (Corydalis flavula), wild ginger (Asarum canadense), jack-in-the-pulpit (Arisaema triphyllum), black cohosh (Cimicifuga racemosa), may apple (Podophyllum peltatum), and bloodroot (Sanguinaria canadensis). Particularly noteworthy are barren strawberry (Waldsteinia fragarioides) and marginal shield fern (Dryopteris marginalis), both of which are quite rare in the county but abundant at this site. Tall thimbleweed (Anemone virginiana) and ground pine (Lycopodium obscurum) are less abundant but also highly restricted in Chatham.

This ravine also contains one of the richest animal communities in the county. The cape fear shiner (Notropis mekistocholas) formerly inhabited the creek and the water quality is still high enough to support river otters (Lutra canadensis), mussels (Anodonta cataracta), and a diverse community of stream dragonflies (e.g., Nasiaesha pentacantha, Dromogomphus spinosus, Epicordulia princeps). The bottomland forest, although narrow and cut-over in the last twenty years, is still extensive enough to support Kentucky warblers (Oporornis formosus), hooded warblers (Wilsonia citrina), Louisiana waterthrushes (Seiurus motacilla), scarlet tanagers (Piranga olivacea), red-shouldered hawks (Buteo lineata), spicebush swallowtails (Papilio troilus) and white-lipped forest snails (Mesodon albolabris). One unusual member of this community is the Carolina anole (Anolis carolinus), a coastal plain species that penetrates the piedmont primarily along wide bottomland or swamp forests, such as are present in the Triassic Basin.

The slopes and adjoining ridges likewise support wide-ranging or forest-interior species, such as the ovenbird (Seiurus aurocapillus) and broad-winged hawk (Buteo platypterus), but the two most noteworthy members of this fauna (in absence of the cape fear shiner) are two disjunct montane species, the red-backed salamander (Plethodon cinereus) and a land snail (Mesomphix sp.). Both are characteristic members of the White Pines community, and the salamander is found only at these two sites in Chatham County. Although the snail is found at three additional sites, all are similar in possessing either steep, north-facing slopes or basic soils.

CONSERVATION RECOMMENDATIONS:

Most of this site is currently protected as a Jordan Lake Natural Area. The ridge above the steep slopes, however, is privately owned and should be acquired or preserved by means of a conservation easement in order to provide a buffer for the slope community. The bottomlands and south-facing slope should receive similar consideration.



Secondary Area

Primary Area

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

SITE SURVEY REPORT

Site name: Roberson Creek Ravine

County: Chatham

Date(s): 20/X/88, 3/IV/89, 13/V/89, 23/VI/89

Surveyors:

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

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

Size: 62 primary acres + 98 secondary acres = 160 total acres

Quad: Merry Oaks

Province: Piedmont

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

Location and directions: West side of Jordan Lake, upstream from bridge on NC 1943

Landowners and addresses:

Owners contacted and attitude:

General landscape description: See Site Description

Physical description

Aspect: North and south

Slope: 10-35; 35+ on steepest outcrops

Topographic position: Crest to alluvial flat

Hydrology: Terrestrial

Moisture: Moist

Elevation: 440 - 240'

Geology: Mapped as Felsic Crystalline Tuffs

Soils: not mapped

Comments on physical description: Contains one of the steepest north-facing slopes in the county

Biological description

Community # 1: Basic Mesic Forest

Vegetation structure: Forest

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

Quality and condition: High to good

Size:

Dominants (*) and important species:

Canopy:

Acer floridanum *
Carya glabra
Fagus grandifolia *
Liquidambar styraciflua
Liriodendron tulipifera
Quercus alba
Quercus rubra
Ulmus alata
Ulmus rubra

Subcanopy:

Acer rubrum
Carpinus caroliniana
Cercis canadensis
Cornus florida
Ilex opaca
Ostrya virginiana
Oxydendrum arboreum
Tilia floridana

Shrubs and vines:

Anisostichus capreolata
Asimina triloba
Chionanthus virginicus
Elaeagnus umbellata
Euonymus americanus
Hamamelis virginiana
Hydrangea arborescens

Shrubs (cont.):

Leucothoe racemosa
Lindera benzoin
Lonicera japonica
Parthenocissus quinquefolia
Rhododendron nudiflorum
Rhus radicans
Styrax grandifolia
Symphoricarpos orbiculatus
Vaccinium stamineum
Viburnum acerifolium

Herbs:

rr *Adiantum pedatum*
Anemone virginiana
Antennaria solitaria
Arisaema triphyllum
Asarum canadense
Asplenium platyneuron
Cardamine angustata
Cardamine hirsuta
Chimaphila maculata
Cimicifuga racemosa
Claytonia virginica
Corydalis flavula
Cunila organoides
Dioscorea villosa
Dryopteris marginalis
Epifagus virginiana
Erythronium umbilicatum

Herbs (cont.):

Galium tinctorium
Goodyera pubescens
Hepatica americana
Hexastylis arifolia
Hexastylis minor
Hieraceum venosum
Houstonia caerulea
Houstonia purpurea
Iris cristata
Lamium purpureum
Luzula echinata
rr Lycopodium obscurum
Mitchella repens
Oxalis violacea
Podophyllum peltatum
Polygonatum biflorum
Polypodium virginianum
Polystichum acrostichoides
Prenanthes altissima
Ranunculus abortivus
Salvia lyrata
Sanguinaria canadensis
Sanicula canadensis
Saxifraga virginensis
Stellaria pubera
Thalictrum thalictroides
Thaspium barbinode
Tiarella cordifolia
Uvularia perfoliata
Uvularia sessilifolia
Viola papilionacea
Waldsteinia fragarioides
Zizia aurea

Special status species

State-listed species:

Animals:

fe Notropis mekistocholas (probably extirpated)

Potential for other special status species: Medium; could contain significant plant and mussel species; springs could harbor Tachopteryx (looked for but not found during its flight period)

Other noteworthy species or features:

Plants:

rr Adiantum pedatum
rr Lycopodium obscurum

Animals:

rr Lutra canadensis
rr Anolis carolinensis
rr Plethodon cinereus
rr Mesomphix sp.

Communities:

Basic Mesic Forest

Site condition

Site integrity: High to good

Average DBH of canopy trees: 35 cm

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: Yes

ORV damaged: No

Other disturbances: Yes; horse trail runs along bottomland, creating some erosion

Adjacent Land Uses: Forest and lake

Significance of site: Regional

Discussion: See Site Description

Protection considerations and management needs: This area of Corps lands should be managed as a natural area, not for forestry; buffer-strips are needed on the privately owned lands on top of the slopes.

Determination of survey boundaries: Encloses area of steepest slopes and richest bottomlands upstream from SR 1943.

Priority for further study: Medium; continued presence of the Cape Fear Shiner needs confirmation.

Specimens collected:

Photographs: *Anemone virginiana*, *Waldsteinia fragarioides*, *Dryopteris marginalis*, *Plethodon cinereus*

Others knowledgeable about the site: Julie Moore

References:

Moore, J. 1986. Jordan Lake Natural Areas.

Topo map: Attached

Sketch map: None

Plant Species List: See Community # 1

List is: Nearly Complete

ANIMAL SPECIES LIST

List is: Medium-thorough

Vertebrates:

i Buteo lineatus
 i Buteo platypterus
 i Coccyzus erythrophthalmus
 Archilochus colubris
 Picoides pubescens
 Empidonax virescens
 Sayornis phoebe
 Parus carolinensis
 Parus bicolor
 Thryothurus ludovicianus
 Hylocichla mustelina
 Vireo flavifrons
 Vireo olivaceus
 Parula americana
 Dendroica dominica
 Dendroica pinus
 i Seiurus aurocapillus
 i Seiurus motacilla
 i Oporornis formosus
 i Wilsonia citrina
 Piranga olivacea
 Cardinalis cardinalis
 Carduelis tristis
 Sciurus carolinensis
 Castor canadensis
 Procyon lotor
 rr Lutra canadensis
 Odocoileus virginianus

Vertebrates (cont.):

rr Anolis carolinesis
 Opheodrys aestivus
 rr Plethodon cinereus
 Acris crepitans
 Rana clamitans
 Rana palustris
 fe Notropis mekistocholas *

Invertebrates:

Papilio glaucus
 Papilio troilus
 Anthocharis midea
 Celastrina ladon
 Libytheana bachmanii
 Polygonia interrogationis
 Limenitis arthemis astyanax
 Hermeuptychia hermes sosybius
 Dromogomphus spinosus
 i Nasiaeschna pentacantha
 Epicordulia princeps
 Libellula incesta
 Libellula vibrans
 Anodonta cataracta
 rr Mesomphix sp.
 i Triodopsis albolabris

* Natural Heritage Program Database