# 2003 UNC Spring Phytogeographical Excursion

## *April 4-6, 2003*

***Savannah River Bluffs. Aiken County, SC. Back: Allison Weakley, Rhiannon Leila Fay Weakley, Alan Weakley, Lee Anne Jacobs, Amanda Senft. Front: Andrea Jones, Joel Gramling, Brooke Wheeler, Jeff Ott, Andy Gerschutz, Caroline Bernard, Robert Peet.***

## Friday, April 4:

Leave Chapel Hill 4:30pm. US15/501 s to US1 s to NC177 s to SC177 s to SC9 w to US1 s to Cheraw State Park (ignore sign to State Park), Co. 20 1 mile e across Juniper Crk (#1).

### *1. Hudsonia Island, Chesterfield Co., SC.*

Gradient from turkey oak scrub to pine woodland to bay forest. Only site for *Hudsonia ericoides* south of Delaware. One of four known sites for *Chrysoma pauciflosculosa* in the Carolinas. [Alas, we canceled this stop when we arrive after dark.]

Return w to US1, se to US601 (Camden), s 3 mi to I20, sw into Georgia. On SW side of Augusta, take GA 383 exit (63, or perhaps 194). Immediately south of I20 you should find the Best Western Motel, 452 Park West Dr., 706-651-9100. We have five rooms held in the name of Robert Peet, Confirmation number 85529.

## Saturday, April 5:

I20 sw to GA47/US221 (exit 61), n 2.7 mi to GA232, e (rt) 1.7 mi to first crossroads (S2122?) Lewisville Rd., long defunct Smitty's Grocery on corner), n (lft) 2.2 mi, park across from chainlink fence (walk e 0.7 mi; #2). The code for the gate lock is 5005.

### *2. Heggie's Rock, Columbia Co., GA*

This is the best remaining granite outcrop community left in the Southeast. Contains 21 or the 26 SE granite outcrop endemics.

S2122 ne to S2123 ne (rt) to GA104 nw (lft) across Kiokee Creek, dirt rd (Petersburg Rd.) n (rt) to Old Middleton Ferry Rd., e (rt) to Burks Mtn (#3).

### *3. Burk Mountain, Columbia Co., GA*

The best example of piedmont serpentine vegetation south of Maryland.

W to Pollard's Corner, US221 ne to Clark's Hill, Co.88 ne 1.1 miles to dirt rd, ne 400 yards to Stevens Creek (#4).

### *4. Steven's Creek, McCormick Co., SC*

Spectacular mesic herb vegetation of circumneutral soils. One of two known locations for Ribes echinellum.

Co.88 sw to SC28/US221 (Clark's Hill), SC28 se to I20, ne to first exit in SC = SC230, se (rt) 0.2 mi to first rt, 0.3 mi to end of pavement (#5).

### *5. Savannah River Bluffs, Aiken Co, SC*

Classic pleistocene refugial habitat with numerous rare, disjunct species (e.g., *Cladrastis kentukea, Aesculus parviflora, Forestiera ligustrina, Trillium reliquum*)

Backtrack to I20, ne (rgt) to SC19 (exit 18), S to US 1 in center of Aiken. Continue straight one block and turn rt on Hayne Ave. Continue to Dibble Rd. left on Dibble crossing RR and parking on turnbout on left side of road.

### *6. Hitchcock Woods, Aiken Co, SC*

Mixture of Longleaf pine types; excellent examples of mixed pine and evergreen heath communities on Vaucluse soils.

Backtrack to I20, ne to SC6 (exit 55). Right, almost immediately stopping at Ramada Limited Lexington. 1015 Southlake Drive, Lexington SC. 803-356-6533.

## Sunday, April 6:

S on SC6 to SC627, s (rt) to729, w to Souters Creek (#7)

### *7. Shealy Pond, Lexington Co., SC*

Excellent aquatic habitats, with adjacent seepage slope dominated by South Carolina's most extensive stand of white cedar. Only known site for *Vaccinium sempervirens*.

E to SC6, s 2.3 mi to SC635, n 0.3 mi (#8).

### *8. Peach Tree Rock, Lexington Co., SC*

Sandhill rock outcrop community that combines coastal plain (e.g., longleaf pine) and mountain (e.g., Mountain laurel) elements.

SC6 n to I20, I20 e to I77, n to SC9, w ca 4 mi to SC909, nw (rt) to SC72, nne (rt) ca 2.5 mi to county #82 (Chappel Rd)(sic), w (lft) 0.7 mi to Alex Miller House (#11), where we will regroup and exchange fluids. Continue w to dirt road, and continue north ca 0.5 mi.(#9)

### *9. Camassia Flat, York Co., SC*

Lowland montmorillonite soils supporting remnant populations of plants from the long-destroyed Charlotte prairies, including one of three populations of Camassia known from the Carolinas.

Backtrack to SC9, e to join US521 bypass, stay on 521 and shortly past 9 turns off, turn se on SC903, se (lft) ca 16 mi to US601, ne (lft) ca 1 mi to Flat Creek (#10).

### *10. Flat Creek Dike, Lancaster Co., SC*

Mesic forest over basic soils, one of the richest herb communities known from South Carolina.

ca 0.2 mi to SC27, (#11).

### *11. Forty-acre Rock, Lancaster Co., SC*

Classic granite outcrop community

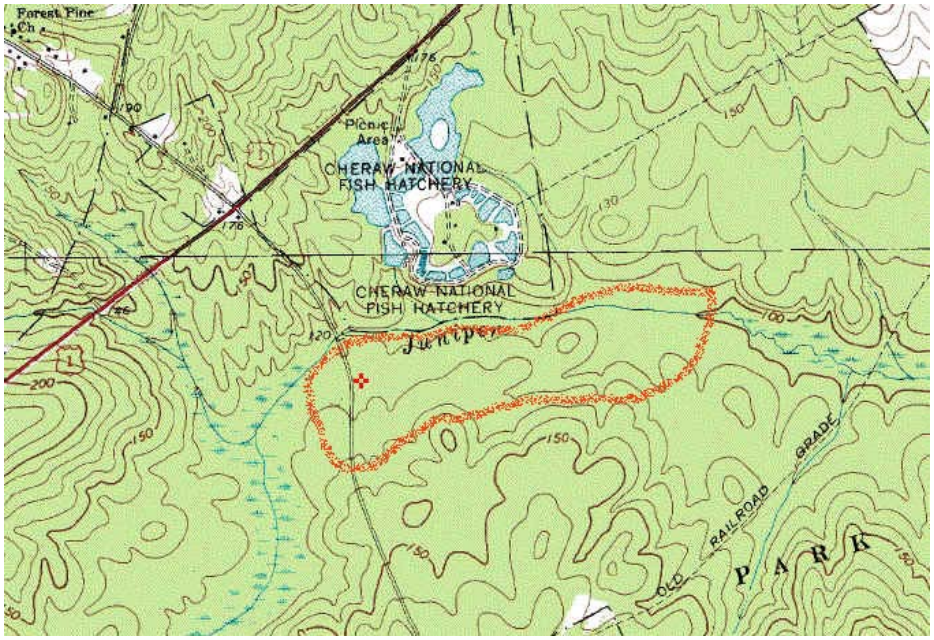
N on US601 to NC9, e to US1, N toUS15-501, N to Chapel Hill (#12)

### *12. Chapel Hill*

## #1. Hudsonia Island

**Location:** Lexington County, SC; 6 miles south of Cheraw, SC; 34˚37'11"N, 79˚56'25"W. Cash Quadrangle.

Cross Juniper Creek on Co. 20, and park on roadside.




**Site:** This site contains a gradient from interstream flat over coarse sand dominated by Quercus laevis, through Pinus palustris woodland to bay forest. Elevation 140-190', area ca 40 ha.

**Significance:** The shrub *Chrysoma (=Solidago) pauciflosculosa*, a sandhill dominant where it occurs, is known from only three sites in the Carolinas (Raubeson Co. NC, Lexington and Chesterfield Cos. SC), but is locally abundant farther south. This is the only known sites for *Hudsonia ericoides* south of Delaware. *Leiophyllum* has a somewhat less extreme disjunction in its range with populations in the New Jersey pine barrens, on rock outcrops in the high mountains and on the coastal plain of southeastern North Carolina and adjacent South Carolina.

**References:**

Bozeman, J.R. & Logue, J.F. 1968. A ranbge extension for *Hudsonia ericoides* in the southeastern United States. *Rhodora* 70:289-292.

Strand, A.E. & Wyatt, R. 1991. Geographical variation and biosystematics of sand myrtle. *Leiophyllum buxifolium* (Ericaceae). *Systematic Botany* 16:529-545.

**Species list:**

Trees

*Acer rubrum tridens*
*Chamaecyparis thyoides*
*Ilex opaca*
*Pinus palustris*
*Pinus serotina*
*Pinus taeda*
*Quercus falcata*
*Quercus laevis*
*Taxodium ascendens*

Shrubs and vines

*Amelanchier obovalis*
*Aronia arbutifolia*
*Arundinaria gigantea tecta*
*Chrysoma pauciflosculosa*

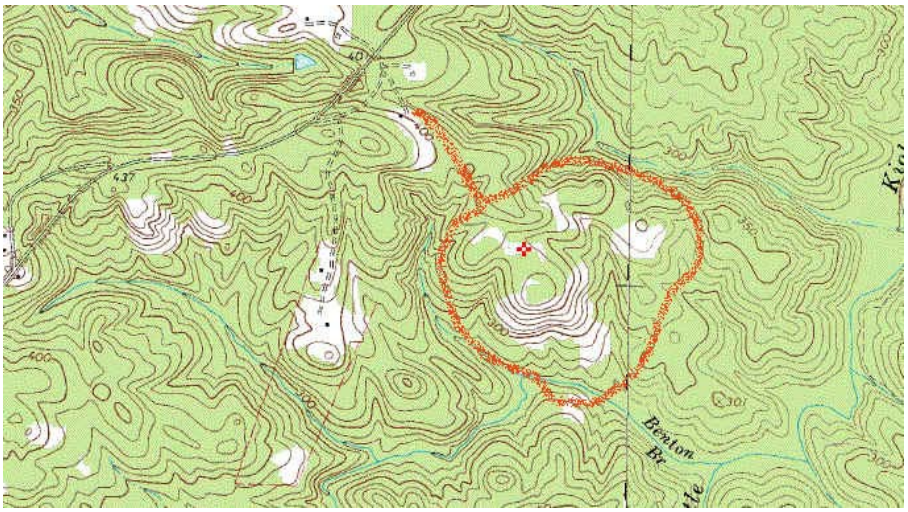
*Clethera alnifolia*
*Cyrilla racemosa*
*Fothergilla gardenii*
*Gaylussacia dumosa*
*Gelsemium sempervirens*
*Gordonia lasianthus*
*Hudsonia ericoides*
*Hypericum hypericoides*
*Ilex coriacea*
*Ilex glabra*
*Kalmia caroliniana*
*Leiophyllum buxifolium*
*Leucothoe racemosa*
*Lonicera japonica*
*Lyonia lucida*
*Lyonia mariana*
*Magnolia virginiana*
*Opuntia humifusa*
*Persea palustris*
*Phorodendron serotinum*
*Rhododendron viscosum*
*Rhus copallina*
*Smilax glauca*
*Smilax laurifolia*
*Symplocus tinctoria*
*Vaccinium attrococcum*
*Vaccinium crassifolium*
*Vaccinium formosum*
*Vaccinium tenellum*
*Vitis rotundifolia*
*Zenobia pulverulenta*

## Herbs

*Andropogon elliottii*
*Andropogon tenerius*
*Andropogon virginicus*
*Aristida stricta*
*Aster paternus*
*Aster tortifolius*
*Bigelowia nudata*
*Carex glaucescens*
*Cnidosculus stimulosus*
*Dichanthelium spp.*
*Drosera capillaris*
*Drosera intermedia*
*Iris verna verna*
*Juncus abortivus*
*Juncus canadensis*
*Juncus calidus*
*Lachnanthes carolinana*
*Lachnocaulon anceps*
*Lycopodium alopecuroides*
*Lycopodium appressum*
*Minuartia caroliniana*
*Muhlenbergia expansia*
*Osmunda cinnamomea*
*Pityopsis graminifolia*
*Polygala lutea*
*Polygonella polygama*
*Pteridium aquilinum pseudocaudatum*
*Pyxidanthera barbulata*
*Rhexia mariana*
*Rhexia petiolata*
*Rhyncospora inexpansa*
*Sarracenia rubra*
*Scirpus cyperinus*
*Selaginella arenicola*
*Seymeria cassioides*
*Solidago odora*
*Sporobolus pinetorum*
*Stipulicida setacea*
*Trilisia odoratissima*
*Utricularia juncea*
*Xyris carolinana*
*Zygadenus densus*

## #2. Heggie's Rock

**Location:** Columbia County, Georgia. Appling Quadrangle. 33˚32'30"N; 82˚15'05"W. Follow dirt road to ramshackel farmhouse. Trail follows the left (N) side of the field, just inside the woods.



**Site:** Flat granite outcrop of about 92 acres, owned by the Georgia Nature Conservancy. Primarily a porophyritic granite with large phenochrysts. Be sure to look at the range of habitats on top of the rock, and then follow it to the base to look at the seepage areas.

**Significance:** This is perhaps the best remaining example of a piedmont granite flatrock. This community complex is best known for the numerous endemics. Extensive research has also been done on the primary succession. Radford claims 11 of the 19 granite flatrock endemics occur here (*Isoetes melanospora, Isoetes tegetiformans, Panicum lithophilum, Cyperus granitophilus, Rhynchospora saxicola, Juncus georgianus, Sedum pusillum, Draba aprica, Oenothera linifolia gladulosa, Oenothera fruticosa subglobosa, Phacelia dubia georgiana, Amphianthus pusillus,* & *Viguiera porteri*).

Group admiring *Isoetes tegetiformans.*

**References:**


Burbanck, M.P. & Platt, R.G. 1964. Granite outcroppings of the Piedmont of Georgia. *Ecology* 45:292-306.

McVaugh, R. 1943. The vegetation of the granitic flatrocks of the southeastern United States. *Ecological Monographs* 13:119-166.

Sharitz, R.R. & McCormick, J.F. 1973. Population dynamics of two competing annual plant species. *Ecology* 54:723-740.

Shure, D.J. and H.J. Ragsdale. 1977. Ptterns of primary succession on granite outcrop surfaces. Ecology 58:993-1006

Georgia TNC. http://nature.org/wherewework/northamerica/states/georgia/preserves/art6696.html


**Species List:**

Trees, Shrubs and vines:

*Arundinaria gigantea tecta*
*Callicarpa americana*
*Campus radicans*
*Carya alba*
*Carya glabra*
*Chionanthus virginicus*
*Diospyrus virginiana*
*Euonymus americana*
*Forestiera ligustrina*

*Gelsemium sempervirens*
*Juniperus virginianus*
*Liquidambar styraciflua*
*Lonicera japonica*
*Mitchella repens*
*Nyssa sylvatica*
*Opuntia drummondii*
*Parthenocissus quinquefolia*
*Pinus taeda*
*Prunus serotina*
*Quercus georgiana*
*Quercus nigra*
*Quercus phellos*
*Quercus stellata*
*Quercus velutina*
*Rhamnus carolinana*
*Rhus copallina*
*Smilax bona-nox*
*Toxicodendron radicans*
*Ulmus alata*
*Vaccinium arboreum*
*Vitis rotundifolia*

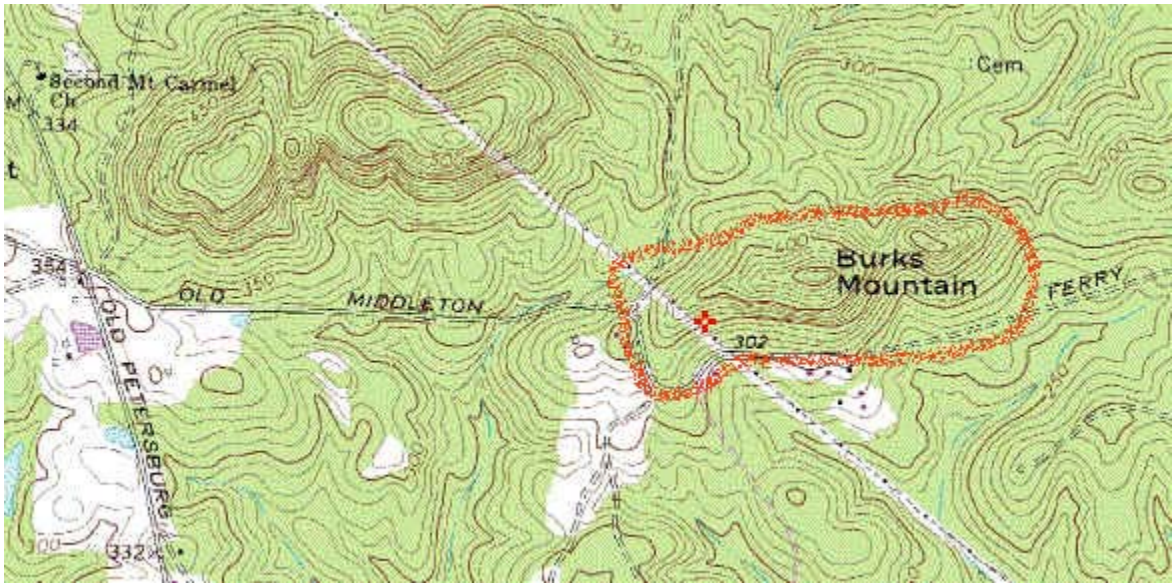
Herbs:

*Agrostis hyemalis*
*Amphianthus pusillus*
*Andropogon virginicus*
*Anemone berlandieri*
*Arabis laevigatus*
*Arabis missouriensis*
*Asplenium platyneuron*
*Cheilanthes lanosa*
*Coreopis lanceolata*
*Crontonopsis elliptica*
*Danthonia sericea*
*Delphinium carolinianum*
*Dichanthelium boscii*
*Dichanthelium laxiflorum*
*Dimorpha smallii*
*Erigeron strigosus*
*Gnaphalium purpurea*
*Hedyotis crassifolia*
*Hypericum gentianoides*
*Isoetes melanopoda*
*Isoetes tegetiformans*
*Juncus georgianus*
*Krigia virginica*
*Lindernia monticola*
*Matelia sp.*
*Melica mutica*
*Minuartia uniflora*
*Nothoscordum bivalve*
*Nuttalanthus canadensis*
*Oenothera perennis*
*Phacelia dubia georgiana*
*Piptochaetum avenacea*
*Plantago virginica*
*Sanicula sp.*
*Schoenolirion croceum*
*Scutellaria ovata*
*Sedum pusillum*
*Selaginella tortipila*
*Senecio tomentosus*
*Senecio anonymus*
*Talinum teretifolium*
*Tradescantia rosea rosea*
*Triodanus specularia*
*Yucca aloifolia*

*(Other characteristic outcrop specialties to watch for.)*
*Agrostis elliottiana*
*Arenaria groenlandica var glabra*
*Botrychium lunarioides*
*Commelina erecta*
*Cyperus granitophilus*
*Diamorpha cymosa*
*Draba aprica*
*Fimbristylis dichotoma*
*Houstonia pusilla*
*Lepuropetalon spathulatum*
*Lotus helleri*
*Nothoscordum bivalve*
*Oenothera linifolia glandulosa*
*Oenothera fruticosa subglobosa*
*Ophioglossum crotalophoroides*
*Panicum lithophilum*
*Polygala curtisii*
*Portulaca coronata*
*Riccia dictyospora*
*Rhyncospora saxicola*
*Scirpus koilolepis*
*Tradescantia hirsuticaulis*
*Trifolium carolinianum*
*Viguiera porteri*

## #3. Burks Mountain

**Location:** Columbia County, Georgia. Evans Quadrangle. 33˚37'10"N, 82˚13'00"W.




**Site:** Serpentine vegetation with open mixed-pine savanna on the southern exposure.

**Significance:** Burks Mountain is the only piedmont example of well-developed vegetation over serpentine south of Maryland. The mix of *Pinus palustris, P. echinata* and *Quercus marilandica* is also very unusual for the piedmont. *Elliotia racemosa* grows here.

**References:**

Brooks, R.R. 1987. *Serpentine and its vegetation: A multidisciplinary approach.* Diocorides Press.

Peet, R.K. & Allard, D.J. 1993. Longleaf pine vegetation of the Southern Atlantic and Eastern Gulf Coast regions: a preliminary classification. *Proc. Tall Timbers Fire Ecology Conf.* 18:45-80.

**Species List:**

Key
+ new to the 2003 trip
* seen on the 2003 trip and previous trip
** special interest

Trees
**Ilex opaca*
*+Ilex decidua*
**Liquidambar styraciflua*
**Pinus echinata*
**Pinus palustris*
*+Pinus taeda*
*Pinus virginiana*
*Quercus laevis*
**Quercus marilandica*
**Quercus rubra*
**Quercus stellata*

Shrubs and vines
*Callicarpa americana*
***Clematis albicoma*
**Clinopodium georgianum*
***Elliotia racemosa*
**Gelsemium sempervirens*
*+Lonicera sempervirens*
*Myrica cerifera*

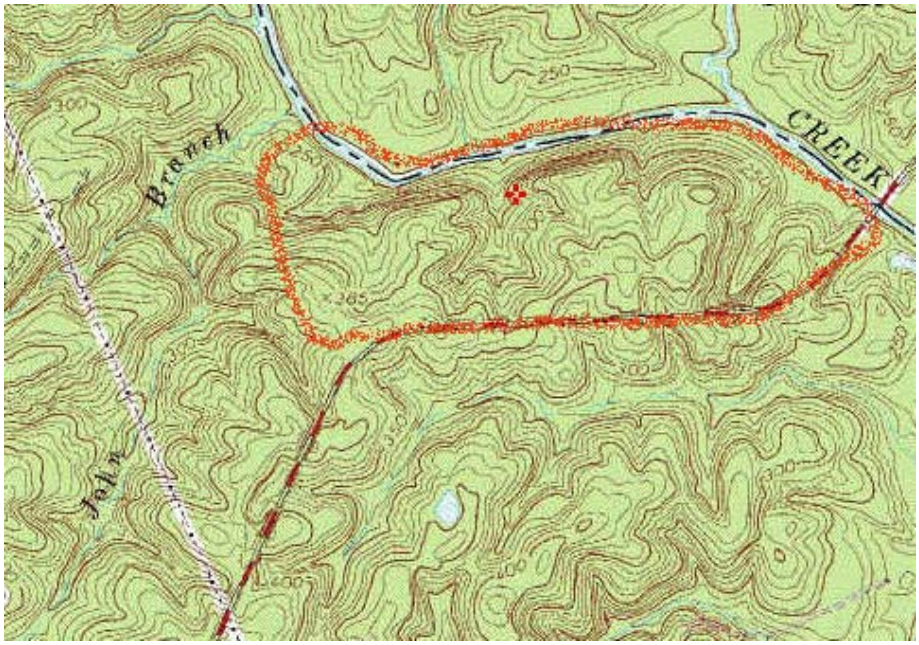
**Rhus copallinum*
**Smilax bona-nox*
*Smilax glauca*
**Smilax rotundifolia*
**Vaccinium arboreum*
*+Vaccinium elliottii*
**Vaccinium staminium melanocarpum*
**Vitis rotundifolia*

## Herbs

*Agalinis obtusifolia*
*Agave virginica*
*Allium bivalue*
**Andropogon glomeratus*
**Aristida purpurascens*
**Aristida sp.*
*+Ascelpias tuberosa*
**Baptisia alba*
*Baptisia pendula*
*+Berchemia scandens*
**Carex spp.*
*Centrosema virginiana*
**Chimaphila maculata*
*Clematis ochroluca*
*+Coryopsis major*
*Delphinium sp.*
*Desmodium marilandicum*
*Dichanthelium depauperatum*
*Elephantopus tomentosus*
*Eragrostis ciliaris*
*Erigeron sp.*
*+Eupatorium album*
*Eupatorium aromaticum*
*Eupatorium compositifolium*
*Euphorbia sp.*
*Galium pilosum*
*Helianthemum*
**Hieracium venosum*
*Houstonia longifolia*
*Hypericum drummondii*
*Hypericum gentianoides*
*Hypericum hypericoides*
*Hypericum perforatum*
**Hypoxis hirsuta*
*Lespedeza sp.*
*Liatris graminifolia*
*Oenothera*
*Oxalis acetosella*
*Pityopsis graminifolia*
***Polygonum tenue*
*+Potentialla canadensis*
**Potentialla simplex*
**Pteridium aquilinum pseudocaudatum*
*Ranunculus hispidus*
*Rhus copelina*
**Schizachrium scoparium*
*Scleria oligantha*
*Scutellaria elliptica*
*Silene antirrhina*
*+Smilax rotundifolia*
*Solidago arguta*
*Sorghastrum nutans*
*Spenopholis filiformis*
*Sporobolus sp.*
*Stylosanthes biflora*
*+Sisyrinchium sp.*
*Talinum teretifolium*
*Thaspium trifoliatum*
*Tragia urticifolia*
*Verbesina sp.*
*Viola emarginata*
**Viola pedata*
*Viola septemloba*
*Zizia aptera*

## #4. Stevens Creek

**Location:** McCormick County, SC; Clarks Hill Quadrangle. 33˚41'00"N, 82˚09'00"W.




**Site:** Relatively old-growth hardwood forest over circumneutral to basic soils with ph 7-8

**Significance:** This site and other mesic, nutrient-rich sites like it, such as the Savannah River Bluffs Preserve, probably contained isolated stands mesic hardwood forest throughout the Pleistocene. Disjunct, rare, and endemic plants form the basis for this interpretation. Stevens Creek is most famous for its large population of Ribes echinellum which is known only from this site and a couple plants at a second site in the Florida panhandle. Carex jamesii occurs here, disjunct in the coastal plain and piedmont region from the Roanoke River Bluffs in northern North Carolina. Four other species are (or were) known only from this one site in SC: Dicentra cucullaria, Isopyrum biternatum (subsequently found at Savanna River Bluffs), Lithospermum tuberosum and Urtica chamaedryoides.

***Dodecatheon meadii***

***Isopyrum biternatum***

**References:**

Radford, A.E. 1959. A relect plant community in South Carolina. *J. Elisha Mitchell Scientific Society* 75:33-34.

Radford, A.E. and D.L. Martin. 1975. *Potential Ecological Natural Landmarks: Piedmont Region, Eastern United States*. Dept. Botany. Univ. North Carlina, Chapel Hill.

SC Natural Heritage Trust. http://www.dnr.state.sc.us/wild/heritage/hp/stevenscrk/default.htm

**Species list**

Trees:

*Acer barbatum*
*Acer negundo*
*Bumelia lycioides*
*Carpinus carolinana*
*Carya glabra*
*Celtis laevigata*
*Cercis candensis*
*Cornus florida*
*Fagus grandifolia*
*Fraxinus americana*
*Fraxinus pensylvanica*
*Ilex opaca*
*Morus rubra*
*Ostrya virginica*
*Pinus taeda*
*Platanus occidentalis*
*Prunus serotina*
*Quercus alba*
*Quercus prinus*
*Quercus rubra*
*Tilia heterophylla*
*Ulnus rubra*

Shrubs and vines:

*Arundinaria gigantea*
*Bignonia capreolata*
*Calycanthus floridus*
*Cephalanthus occidentalis*
*Chimaphila maculata*
*Cornus alternifolia*
*Crataegus*
*Euonymus americana*
*Gelsemium sempervirens*
*Hamamalis virginiana*
*Lindera benzoin*
*Liriodendron tulipifera*
*Lonicera japonica*
*Parthenocissus quinquefolia*
*Philadelphus inodora*
*Rhododendron sp.*
*Ribes echinellum*
*Sambucus canadensis*
*Smilax bona-nox*
*Smilax rotundifolia*
*Staphylea trifoliata*
*Toxicodendron radicans*
*Viburnum prunifolium*
Viburnum rufidulum

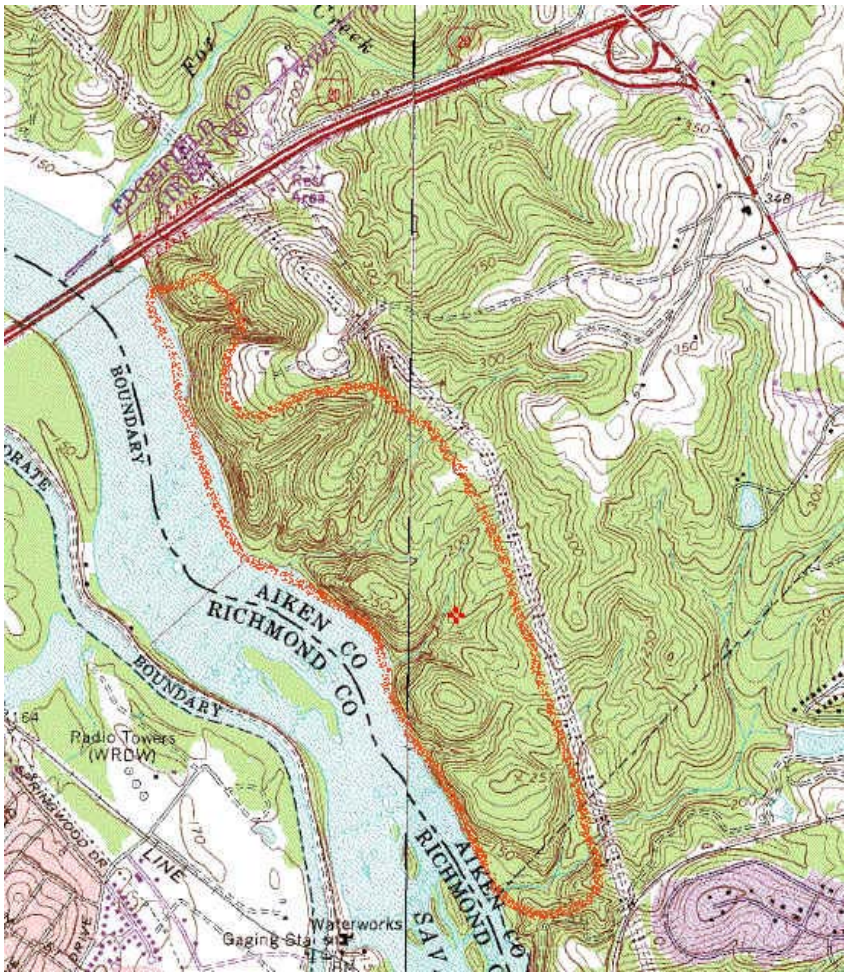
Herbs:

*Actaea sp.*
*Adiantum pedatum*
*Aesculus sylvatica*
*Amphicarpa bracteata*
*Anemonella thalictroides*
*Antennaria plantiginifolia*
*Arisaema triphyllum*
*Aristolochia serpentaria*
*Asarum canadense*
*Asplenium platyneuron*
**Cardamine angustata*
**Carex blanda*
*Carex jamesii*
**Carex retroflexa*
*Chrysogonum virginianum*
*Claytonia virginiana*
*Conopholis virginica*
**Corydalis flavula*
*Cynoglossum virginiana*
*Cystopteris protrusa*
*Danthonia spicata*
*Dicentra cucullaria*
*Dodecatheon meadia*
*Dryopteris marginalis*
*Duchesnea indica*
*Erythronium americanum*
**Euphorbia commutatus*
*Festuca obtusa*
*Galium aparine*
*Geranium maculatum*
*Goodyera pubescens*
*Hepatica americana*
*Heuchera americana*
*Hexastylis arifolia*
*Hieracium venosum*
*Houstonia caerulea*
*Hybanthus concolor*
*Impatiens capensis*
*Isopyrum biternatum*
*Laportia canadensis*
**Lithospermum tuberosum*
*Luzula echinata*
*Melica mutica*
*Nemophyla microcalyx*
*Nothoscordum bivalve*
*Obolaria virginica*
*Orobanche uniflora*
*Osmorhiza claytoni*
*Oxalis purpurea*
*Pedicularis candensis*
*Phacelia dubia*
*Phlox amoena*
*Piptochaetium avenaceum*
**Poa sylvestris*
*Podophyllum peltatum*
*Polygonatum biflorum*
*Polystichium acrosticoides*
*Prenanthes altitissima*
*Ranunculus abortivus*
*Ranunculus recurvatus*
*Rudbeckia laciniata*
*Sanicula gregaria*
*Saxifraga virginica*
*Senecio obovatus elliottii*
*Sisyrinchium albidum*
*Smilacina racemosa*
*Solidago sp.*
*Stellaria pubera*
*Thelypteris hexagonoptera*
*Tiarella cordifolia collina*
*Tradescantia virginiana*
**Trillium catesbaei*
*Trillium cernuum*
**Trillium cuneatum*
*Trillium discolor*
*Trillium lanceolatum*
*Urtica chamaedryoides*
*Uvularia perfoliata*
*Viola affinis*
**Viola papilionacea*
*Vitis rotundifolia*

## #5. Savanna River Bluffs

**Location:** Aiken County, SC; Southeast of I-20 on North bank of the Savannah River. From the intersection of I-20 and SC 230 (Martintown Road): go southeast on 230 (0.5 mi) toward North Augusta; turn at (most likely first) right onto Plantation Rd; go 0.2 mi and takefirst road on right; go 0.3 mi and park before the "private property" signs where the paved road ends, and before the barricade; walk 0.1 mi along the private property road and turn left onto the road; follow the road to powerline right-of-way and go left to the next ridge; track goes on an old road, loops within the property and comes back to the powerline.

**Site:** A 83.84 acre steep ravine adjacent to one of the last remaining Savannah River shoals along the edge of the coastal plain.




**Significance:** This site contains several disjunct mesophytic species that provide support for the hypothesis that mesic forest may have persisted here during the full glacial period and that the river bluffs may have formed a corridor for species migration.

There is a population of *Aesculus parviflora* which is disjunct nearly 300 km from the nearest sites in Alabama and SW Georgia. This may also be the site for collection of the type specimen collected by John Fraser and Andre Michaux in 1787. Another disjunct tree species is *Cladrastis kentukea*. Other rare species present at the sites include *Hymenocallis coronaria, Trillium reliquum, Forestiera ligustrina, Acer leucoderme, Delphinium tricorne* and *Isopyrum biternatum.*

**References:**

Wyatt, R. 1985. *Aesculus parviflora* in South Carolina: phytogeographic implications. *Bull. Torrey Bot. Club* 112:194-195.

SC Heritage Trust. http://www.dnr.state.sc.us/wild/heritage/hp/savannahrb/default.htm

**Species list:**

***** = seen in 2003

Trees

**Acer leucoderme*
**Acer negundo*
**Acer rubrum*
*Aesculus parviflora*
**Aesculus sylvatica*
**Amelanchier sp.*
**Carpinus caroliniana*
*Carya glabra*
**Carya carolinae-septentrionalis*
**Carya tomntosa*
**Celtis laevigata*
**Cercis canadensis*
**Cladrastis kentukea*
**Cornus florida*
**Crataegus uniflora*
*Diospyrus virginicus*
**Fagus grandifolia*
**Fraximus americana*
**Ilex opaca*
**Itea virginica*
**Juniperus virginiana*
**Liquidambar styraciflua*
**Liriodendron tulipifera*
**Morus rubra*
**Ostrya virginiana*
**Pinus taeda*
**Platanus occidentalis*
**Quercus alba*
**Quercus nigra*
**Quercus phellos*
*Quercus rubra*
**Taxodium distichum*
**Tilia americana caroliniana*
**Ulmus alata*

Shrubs and vines

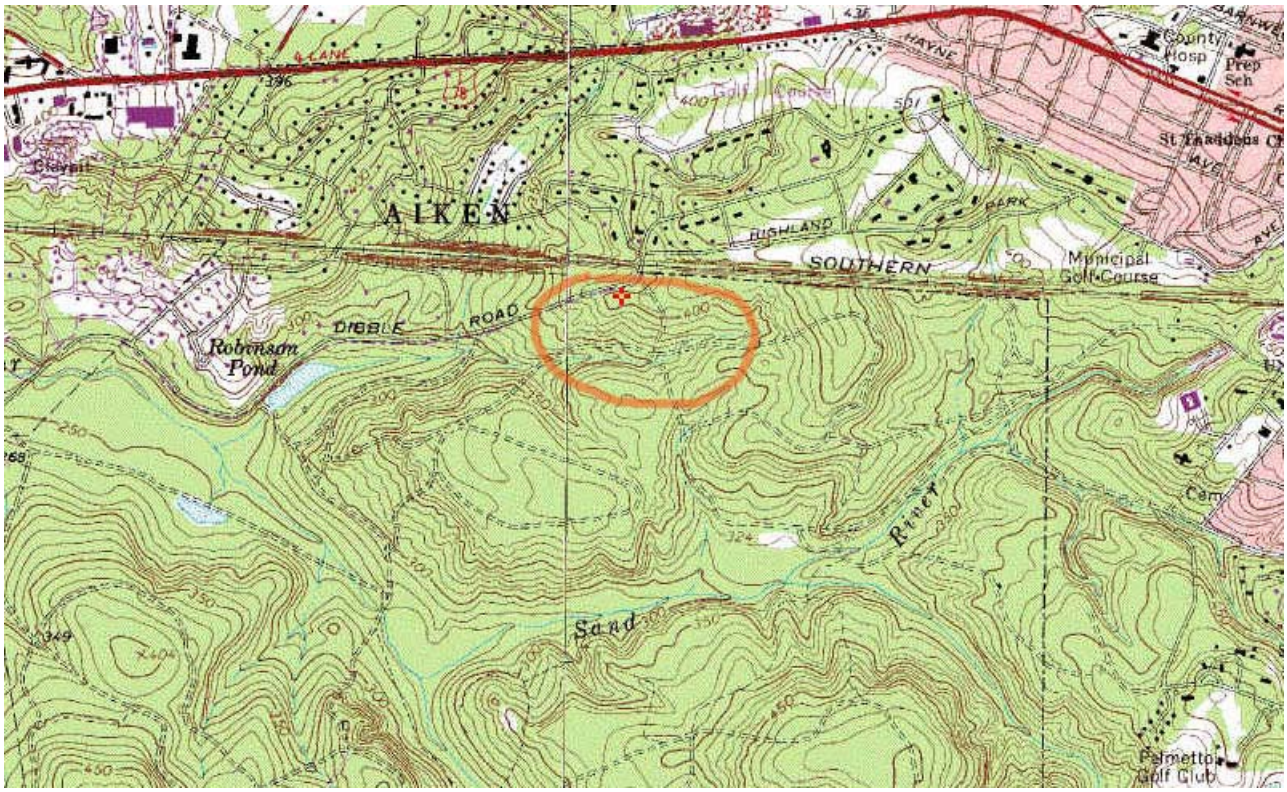
**Arundinaria gigantea tecta*
*Asimina triloba*
**Berchemia scandens*
**Bignonia capreolata*
**Bumelia lycoides*
**Callicarpa americana*
*Chionanthus virginicus*
**Clinopodium georgianum (Satureja g.)*
*Cornus alternifolia*
**Decumaria barbara*
*Forestiera ligustria*
**Hamamalis virginiana*
*Ilex vomitoria*
**Lonicera japonica*
*Mitchella repens*
**Nandina domestica*
**Parthenocissus quinquefolia*
**Philadelphus inodorus*
*Rhamnus caroliniana*
*Rhododendron nudicaulis*
**Sabal minor*
*Sambucus Canadensis*
**Smilax bona-nox*
**Styrax grandifolia*
**Toxicodendron radicans*
**Vaccinium arboretum*
**Vaccinium elloitii*
**Vaccinium stamineum*
**Vitis rotundifolia*

## Herbs

**Anemonella thalictroides*
*Aristolochia serpentaria*
*Asplenium platyneuron*
*Aureolaria virginica*
**Baptisia pendula or alba*
**Botrichium virginianum*
*Brachyelytrum erectum*
**Cardamine hirsuta*
*Carex debilis*
*Carex flaccosperma*
*Carex gracilescens*
*Carex oxylepis*
*Carex willdenowii*
**Caulophyllusm thalictroides*
**Chasmanthium sessiliflorum*
**Chrysogonum virginicum*
**Claytonia virginiana*
**Conopholus americana*
**Corydalis flavula*
**Cynoglossum sp.*
*Delphinium tricorne*
**Dichanthelium boscii*
*Dioscorea villosa*
**Dodecatheon meadia*
**Duchesnea indica*
**Euphorbia corollata*
**Erythronium americanum*
**Galium aparine*
**Geranium maculatum*
**Hepatica americana*
*Heuchera sp.*
*Hieracium venosum*
*Hymenocalis coronaria*
**Hypericum hypericoides*
**Hyxastylis arifolia*
**Isopyrum biternatum*
*Luzula echinata*
**Melica mutica*
**Microstegium vimineum*
*Myosotis verna*
**Nemophila microcalyx*
**Osmorhiza claytonii*
*Osmorhiza longistylis*
**Oxalis grandis*
**Oxalis violacea*
*Peltandra virginica ?*
**Phryma leptostachya*
**Piptochaetum avenacea*
**Polygonatum biflorum*
**Polypodium polypodioides*
**Polystichium acrosticoides*
**Potentilla sp.*
**Prenanthes sp.*
**Salvia lyrata*
*Sanicula canadensis*
*Saxifraga virginica*
**Senecio anonymus or obovatus*
**Sisyrinchium spp.*
*Smilacina racemosa*
**Solidago caesia*
**Stellaria pubera*
**Tillandsia usneoides*
**Tipularia discolor*
**Tradescantia subaspera*
**Trillium reliquum*
**Uvularia perfoliata*
**Valerianella sp.*
**Verbesina occidentalis*
*Viola affinus*
*Viola walteri*
**Zepheranthes atamasco*
*Zizia sp.*

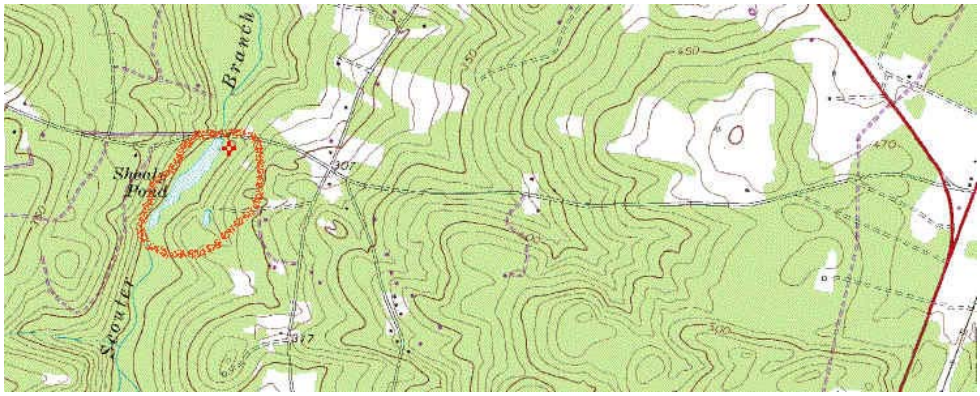
## #6. Hitchcock Woods

**Site:** Hitchcock woods is a large preserve in the center of Aiken. It was originally established for equestrian recreation, but now also serves to preserve the natural landscape of the South Carolina fall line sandhills. Much of the property suffered from fire suppression for many years, but fire is now routinely used as a management tool. We visited one of the few sites on the preserve where wiregrass is part of the natural ground cover.



## #7. Shealy Pond

**Location:** Lexington County, SC; Pelion East Quadrangle; 33˚51'40"N, 81˚14'00"W.




**Site:** Shealy Pond was formed in a valley containing seepage slopes by the damming of a fast moving stream with a road. An impermeable clay layer creates boggy conditions on the slope and allows *Chamaecyparis* to grow. The uplands are covered by fire-suppressed *Pinus palustris* woodland typical of the region.

**Significance:** This is the southern limit of *Chamaecyparis* as an important species until the Florida panhandle, although a few populations occur, such as Camp Gravatt in Aiken County SC and Fort Gordon, Richmond County, GA. The most interesting plant species here is *Vaccinium sempervirens*, a close relative of V. crassifolium (and perhaps just a variety of it.). *V. sempervirens* is endemic to Lexington County, SC and occurs only within about a two mile radius of Shealy Pond. The aquatics in the pond are quite diverse.

**References:**

Kirkman, W.B., T.R. Wentworth & J.R. Ballington. 1989. The ecology and phytosociology of the creeping blueberries, Vaccinium section Herpothamnus. Bull. Torrey Bot. Club 116:114-133.

Kirkman, W.B. & J.R. Ballington. 1990. Creeping Blueberries (Ericaceae: Vaccinium sect. Herpothamnus) - a new look at V. crassifolium including V. sempervirens. Systematic Botany 15:679-699.

Rayner, D.A. and J. Henderson. 1980. Vaccinium sempervirens (Ericaceae), a new species from Atlantic white cedar bogs in the sandhills of South Carolina. Rhodora 82:503-507.

**Species List:**
* = Seen in 2003

## A. Dry, upland sites

### Trees
Juniperus virginianus
*Pinus palustris
*Pinus taeda
*Quercus laevis
Quercus margaretta
*Quercus marilandica
Quercus stellata
*Sassafras albidum

### Shrubs and vines
*Ceratiola ericoides
*Gelsemium sempervirens
*Leiophyllum buxifolium
Opuntia humifusa
*Vaccinium arboreum
*Vaccinium stamineum
*Vaccinium tenellum

### Herbs
Aristida lanosa
Aristida tuberculosa
Aureolata pectinata
Baptisia tincoria
Carex tenax
Chrysopsis gossypina
Krigia biflora
Lespedeza capitata
Minuartia caroliniana
Selaginella arenicola
Stipulicida setacea

## B. Seepage slope and pond

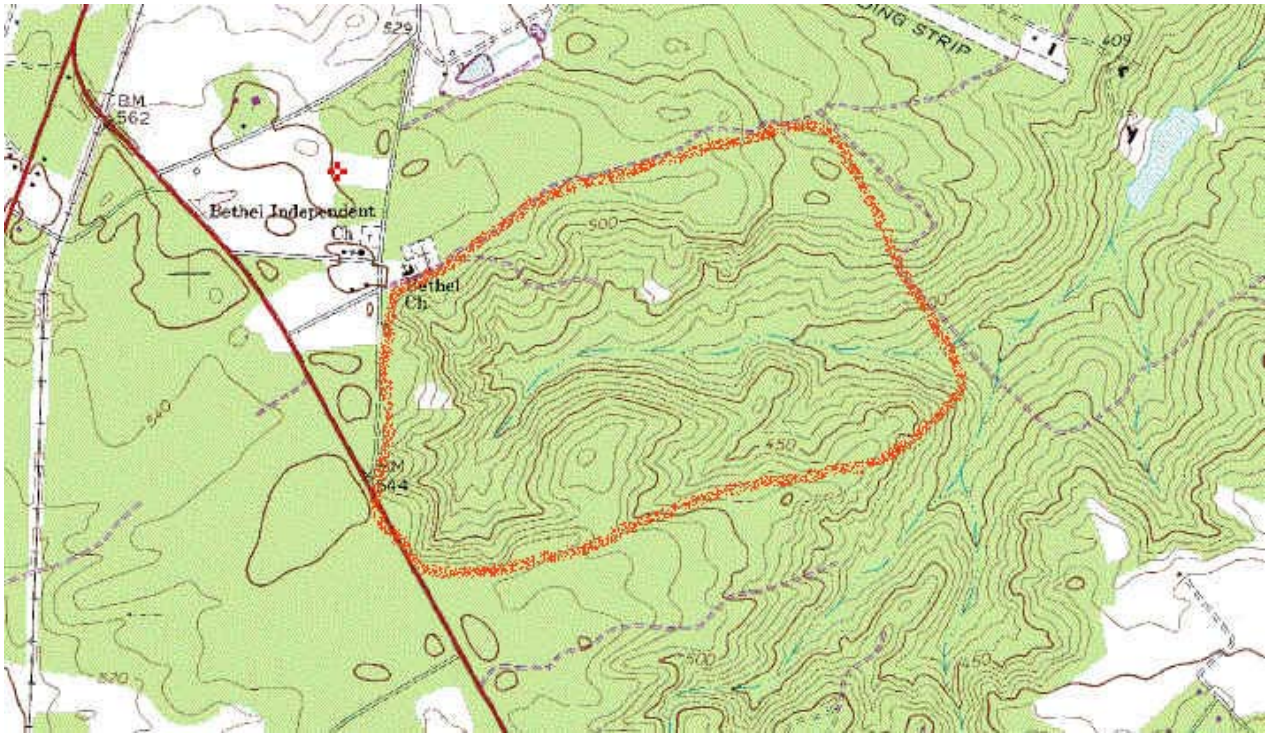
### Trees
*Acer rubrum tridens
*Chamaecyparis thyoides
*Gordonia lasianthus
Juniperus virginianus
*Magnolia virginiana
*Nyssa biflora
*Persea palustris
*Pinus serotina

### Shrubs and vines
*Alnus serrulata
*Aronia arbutifolia
*Clethera alnifolia
*Cyrilla racemiflora
Gaylussacia frondosa
*Gelsemium sempervirens
*Ilex coriacea
*Ilex glabra
*Lyonia lucida
*Myrica heterophylla
Rhododendron viscosum
Smilax rotundifolia
Smilax glauca
*Smilax laurifolia
Styrax americana
Toxicodendron vernix
*Vaccinium sempervirens
*Vaccinium atrococcum
*Vaccinium formosum
*Viburnum nudatum
*Vitis rotundifolia

### Herbs
Allium sp.
Andropogon virginicus
Andropogon gyrans
Arundinaria gigantea tecta
Asplenium platyneuron
Aster novi-belgii
Bacopa caroliniana
Bartonia capitata
Brasenia schreberi
Burmannia biflora
Carex glaucescens
Carex leptalea
Carex tenax
*Drosera capillaris
*Drosera intermedia
Drosera rotundifolia
Dulichium arundinaceum
Eleocharis robbinsii
Erianthus giganteus
*Eriocaulon compressum
Eryngium integrifolium
Fuirena squarrosa
Goodyera pubescens
Hypericum canadensis
Hypericum mutilum
Hypericum perforatum
Juncus biflorus
Lachnocaulon anceps
Lobelia pubera
Lobelia sp.
Lycopodium appressum
Lycopodium caroliniana
Lycopus cokeri
Mayaca aubletii
Myriophyllum sp.
Nuphar adventa
*Nymphaea odorata
Nymphoides cordata
Onoclea sensibilis
*Orontium aquaticum
Osmunda cinnamonea
*Osmunda regalis
Peltandra virginica
Platanthera clavellata
Polygala lutea
*Proserpinaca pectinata
Pteridium aquilinum pseudocaudatum
Rhyncospora spp.
*Sarracenea flava
*Sarracenia purpurea
*Sarracenia rubra
Sarracenia x catesbyana
Scirpus etuberculatus
Scirpus subterminalis
Solidago patula strictula
Sparganium americanum
Tipularia discolor
Utricularia cornuta
Utricularia juncea
*Woodwardia areolata
*Xyris sp.

## #8. Peach Tree Rock

**Location:** Lexington County, SC; Pelion East Quadrangle.




**Major Habitats:**

***Mesic sheltered slopes:*** The first habitat encountered is the moist slope, characterized by a tupelo-evergreen shrub bog. Around the waterfall, one might find mountain laurel, maple leafed viburnum, and the crane-fly orchid. There are also several neat fern communities.

***Sand Barren:*** The trail goes from the moist lowlands into a sparse community of longleaf pine and turkey oak emerging from blazing white sand. Here there is no understory save for a few patches of grass

***Upland longleaf with Leiophyllum:*** A dense thicket of sand myrtle and grasses with long leaf towering over them

**Significance:** One of the few preserved longleaf pine areas in the sandhill south of Columbia. While the site, like all others, has a history of fire suppression, the Nature Conservancy has been aggressively reintroducing growing-season fire. Nice examples of Vaucluse soils with Kalmia thickets. Some *Ceratiola* occurs on the dry sandy uplands

**Species List:**

*Amsonia ciliata*
**Andropogon sp.*
*Aronia arbutifolia*
**Arundinaria gigantea tecta*
*Asclepias sp.*
*Asplenium platyneuron*
*Aster sp.*
**Aureolaria sp.*
*Baptisia sp.*
*Bonamia sp.*
**Bulbostylis sp.*
*Carphephorus*
*Carya palida*
*Calycanthus florida*
*Carex debilis*
*Carex folliculata australis*
*Carex nigromarginata*
**Carya pallida*
*Ceanothus sp.*
**Ceratiola ericoides*
**Cheilanthes tomentosa*
**Chimaphila maculata*
*Chionanthus virginicus*
**Chrysogonum virginianum*
**Clethera alnifolia*
**Coreopsis verticillata*
**Cornus florida*
**Crataegus sp.*
*Cuscata sp.*
*Danthonia sericea*
*Desmodium sp.*
**Dichanthelium spp.*
**Diospyrus virginicus*
*pigaea repens*
**Eriogonum tomentosum*
**Eupatorium ipecacuanhae*
*Euphorbia corollata*
*Galactia sp.*
*Galax aphylla*
*Gaylussacia sp.*
*Gelsemium sempervirens*
*Gnaphalium sp.*
*Gordonia lasianthus*
*Gymnopogon sp.*
*Hamamelis virginiana*

**Hexastylis sp.*
**Hieracium venosum*
**Hieracium gronovii*
**Hypericum hypericoides*
*Hypericum lloydii*
**Ilex opaca*
*Iris verna verna*
**Kalmia latifolia*
**Leiophyllum buxifolium*
*Liatris sp.*
**Liquidambar styraciflua*
*Lespedeza sp.*
**Lonicera sempervirens*
*Lupinus diffuses*
**Lyonia lucida*
**Lyonia mariana*
*Lysimachia quadrifolia*
**Magnolia virginiana*
*Marshallia sp.*
*Mitchella repens*
**Minuartia caroliniana*
*Monotropa uniflora*
**Nuttalanthus canadensis*
**Nyssa sylvatica*
.

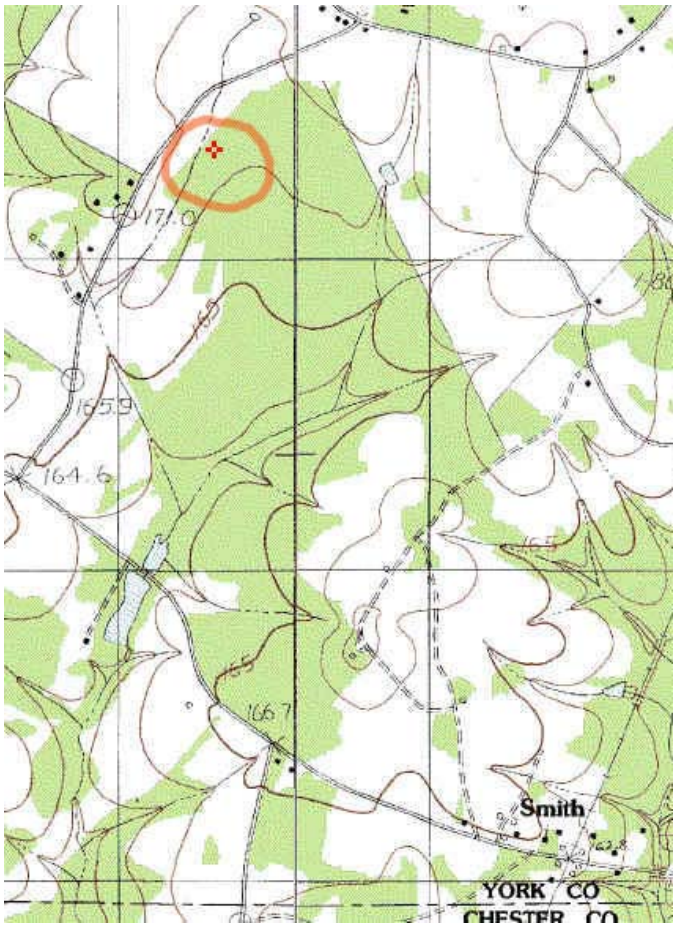
**Opuntia humifusa*
**Osmunda cinnamomea*
**Panicum sp.*
*Passiflora lutea*
*Penstemon sp.*
**Persea palustris*
**Pinus palustris*
**Pityopsis graminifolia*
**Pleopeltis polypodioides*
**Polygonella polygama*
**Prunus serotina alabamense*
**Prunus serotina serotina*
**Pteridium aquilinum*
**Pteridium pseudocaudata*
**Quercus falcata*
**Quercus hemispherica*
**Quercus laevis*
*Quercus incana*
**Quercus marilandica*
*Quercus velutina*
**Sassafras albidum*
**Satureja georgia*
*Schrankia sp.*
*Scutellaria sp.*

**Selaginella arenicola*
**Silene caroliniana*
**Silphium compositum*
**Smilax ecirrhata hugeri*
**Smilax laurifolia*
*Solidago sp.*
**Sporobolus junceus*
**Stipulicida tinctoria*
*Symplocos tinctoria*
*Tephrosa sp.*
**Pilularia discolor*
**Toxicodendron pubescens*
**Tradescantia sp.*
*Uvualaria sp.*
**Vaccinium arboretum*
**Vaccinium crassifolium*
***Vaccinium sempervirens*
**Vaccinium stamineum*
**Vaccinium tenellum*
**Viburnum acerifolium*
*Woodsia obtusa*
**Yucca filamentosa*

** = Seen in 2003*

## #9. Camassia Flat

**Location:** York County, SC; Lowrys and Edgemoor Quadrangles; 34˚50'00"N, 81˚07'30"W.




**Significance:** Camassia flats is in the center of a region underlain by Gabbro which has weathered to calcareous shink-swell clays. The entire region was keep as open grassy savanna in presettlement times, but grew up to woodland by 1800 as a consequence of fire suppression. Camassia flats is the best example of the moist or meadow flats of this prairie or savanna region and still contains many species of midwestern prairie affinities. In the wet seasons the soils become very sticky and hard to work; they belong ot the Iredell or Elbert series (Hapludalfs) in theory, but seem much more like vertisols than the more "normal" Iredell soils of mafic piedmont sites. *Camassia scilloides* is the most famous species present and is known from only two other sites in the Carolinas (the best known being Camassia slopes on the Roanoke bluffs). *Camassia* and *Zephyranthes atamasco* can dominate the aspect in the spring months. Another rare prairie herb present is *Ranunculus fascicularis*, which is not presently known to occur elsewhere in the Carolinas. This is the only site in SC for *Scutellaria parvula* and the second site for *Carex laxiculmis*. The abundance of Quercus bicolor and Q. palustris is also peculiar to wettish mafic soils that probably supported oak savannas in presettlement landscape.

**2003 Status Report:** Much to our dismay, we arrived to find that most of the forest at this site had been cleared, although the riparian strip where the *Camassia* occurs had been left intact. Because of this we did not remain long at this site and did not attempt to list all species encountered. A sample of the species we encountered is denoted by asterisks below. Subsequent discussion with the landowner led us to conclude that uncut forest land of similar character may be left on the property. This needs to be explored.

**Species List:**

Trees

**Acer barbatum*
*Acer negundo*
*Carya carolinae-septentrionalis*
*Carya ovata*
*Celtis canadensis*
*Cornus florida*
*Fraxinus pensylvanica*
**Gleditsia tricanthos*
*Juniperus virginiana*
**Liquidambar styraciflua*
*Morus rubra*
*Prunus serotina*
**Quercus bicolor*
*Quercus michauxii*
*Quercus palustris*
**Quercus phellos*
*Quercus shumardii*
*Quercus stellata*
**Ulmus alata*
**Ulmus americana*
*Ulmus rubra*

Shrubs and vines

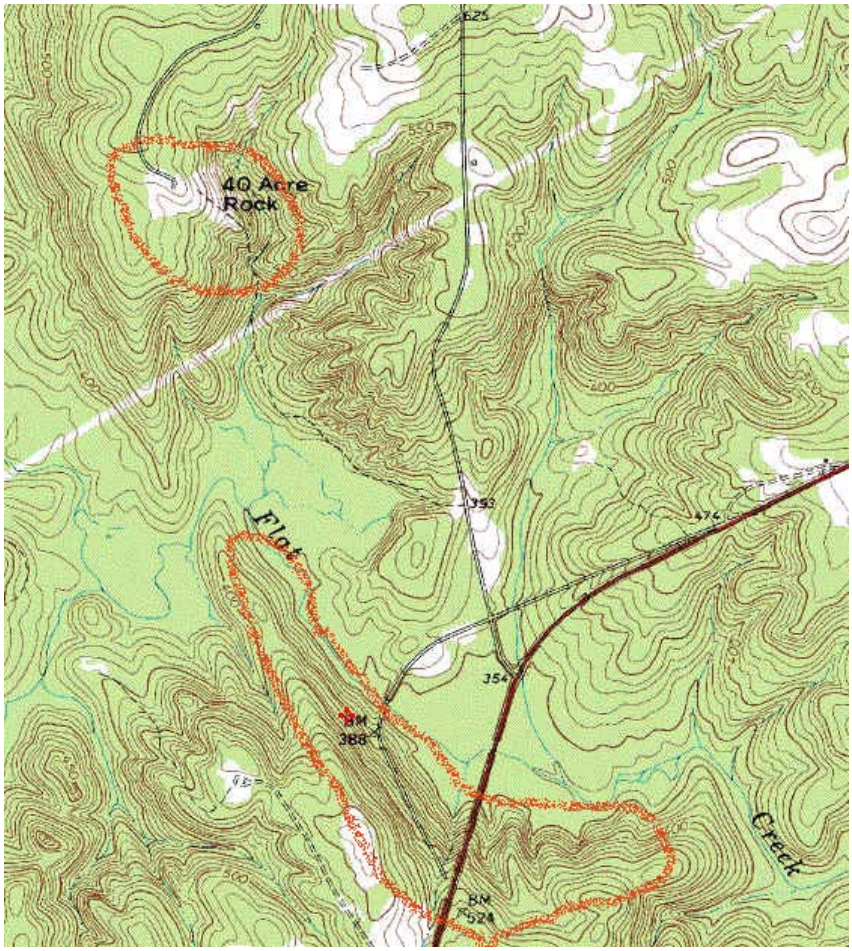
**Campsis radicans*
*Clematis viorna*
*Euonymous americana*
*Hypericum hypericoides*
*Lonicera japonica*
*Parthenocissus quinquefolia*
*Rhamnus caroliniana*
*Rubus sp.*
*Symphoricarpos orbiculatus*
**Toxicodendron radicans*
*Viburnum prunifolium*
*Vitis sp.*

Herbs

*Agrimonia parviflora*
*Schoenolirion bivalve*
*Allium canadense*
*Aspenium platyneuron*
*Aster dumosus*
*Aster sp.*
*Botrychium sp.*
**Callitriche heterophylla*
**Camassia scilloides*
*Cardamine rhomboidea*
**Cardamine douglassii*
*Carex blanda*
*Carex caroliniana/complanata*
*Carex cephalophora*
*Carex debilis*
*Carex flaccosperma*
*Carex oxylepis*
*Casmanthium latifolium*
*Cinna sp.*
**Claytonia virginica*
*Eleocharis flavescens/olivacea*
*Galium aparine*
*Galium obtusum filifolium*
*Galium tinctorium*
*Galium triflorum*
**Geranium carolinianum*
*Geum canadense*
*Geum laciniata*
*Houstonia caerulea*
*Hypericum hypericoides*
*Isoetes engelmannii/melanopoda*
*Lysimachia ciliata*
*Melanthium virginicum*
*Melica mutica*
**Muscari armeniacum*
**Myosurus sp.*
**Nothoscordum*
*Oxalis acetosella*
*Phlox nivalis hentzii*
*Polygonatum biflorum*
*Potentilla simplex*
*Prunella vulgaris*
*Ranunculus abortivus*
**Ranunculus fascicularis*
*Ruellia carolinensis*
*Sanicula sp.*
*Saxifraga virginiensis*
*Scutellaria parvula*
*Sisyrinchium mucronatum*
*Smilax herbacea*
*Solidago sp.*
**Taenidia integerrima*
**Viola septemloba*
**Viola sororia/papilionacea*
**Zephyranthes atamasco*

## #10. Flat Creek Dike

**Location:** Lancaster County, SC; Taxahaw Quadrangle; 34˚39'20"N, 80˚31'10"W.




**Significance:** An exceptionally rich mesic forest occurs along a diabase dike. Radford described it as the most impressive in the Carolinas before it was logged in 1957(?). Rarities include Caulophylum thalictroides (only site in SC), Euonymous atropurpureus (only site in SC), Trillium cernuum (only here and Stevens Creek in SC) and Phlox stolonifera (three sites in the Carolina piedmont. This community type is classified as a Basic Mesic Forest, Piedmont Subtype (Shafale and Weakley 1990). Basic Mesic Forests occur on deep, well-drained soils with circumneutral or higher pH, on slopes, ravines and on small stream bottoms. These communities are characterized by a canopy dominated with mesophytic trees and a dense and very diverse herbaceous layer.

**Species List:**
The asterisk (*) denotes species that were observed in 2003 as well as during previous visits to the site. The plus sign (+) denotes species that were recorded for the first time during the 2003 trip.

Trees:

**Acer leucoderme*
**Acer negundo*
*+Asimina triloba*
*+Carpinus caroliniana*
*+Carya cordiformis*
*+Cercis canadensis*
**Cornus florida*
*+Cornus alternifolia*
**Fraxinus americana*
*+Ilex opaca*
**Liquidambar styraciflua*
*+Liriodendron tulipifera*
**Platanus occidentalis*
*+Quercus alba*
*+Quercus michauxii*
**Quercus muehlenbergii*
*+Quercus rubra*
**Ulmus americana*

Shrubs and Vines:

**Aesculus sylvatica*
**Arundinaria gigantea tecta*
**Bignonia capreolata*
*Euonymous atropurpureus*
*+Gelsemium sempervirens*

**Lonicera japonica*
**Parthenocissus quiquefolia*
**Sambucus canadensis*
*+Smilax sp.*
**Staphylea trifolia*
*+Viburnum rufidulum*

Herbs:

**Actaea pachypoda*
*Amsonia tabernaemontana*
**Arisaema triphyllum triphyllum*
**Asarum canadense*
*+Asplenium platyneuron*
**Botrychium virginianum*
*Carex blanda*
**Caulophyllum thalictroides*
*Clematis virginiana*
**Collinsonia canadensis*
**Corydalis flavula*
**Cynoglossum virginianum*
**Dentaria lacinata*
*Duchesnia indica*
**Erythronium americanum*
*Festuca obtusa*
*Fragaria virginiana*
**Galium aparine*
*+Galium circaezans*
**Galium triflorum*
*Geranium maculatum*
*Geum canadense*
**Hexastylis sp.*
*Hybanthus concolor*
**Osmorhiza longistylis*
*Panax quiquefolium*
*Phacelia maculata*
*Phlox stolonifera*
**Podophyllum peltatum*
**Polygonatum biflorum*
**Polystichium acrostichoides*
*+Prenanthus sp.*
*+Ranunculus sp.*
*Rudbeckia laciniata*
**Sanguinaria canadensis*
**Sanicula gregaria*
*Senecio glabellus*
*+Smilacina racemosa*
*Smilax herbacea*
**Stellaria pubera*
**Tiarella cordifolia*
*+Tipularia discolor*
**Tovaria virginiana*
*Trillium catesbaei*
*Trillium cernuum*
*Valerianella sp.*
*+Viola canadensis*
**Viola tripartita*
*+Woodwardia areolata*

## #11. Forty Acre Rock

**Location:** Lancaster County, SC; Taxahaw Quadrangle; 34°40'05"N, 80°31'40"W.

**Significance:** Forty Acre Rock is the most extensive flatrock exposure in the eastern piedmont of South Carolina. The outcrop covers 5.6 ha and is part of the 581 ha Flat Creek Heritage Preserve. A number of the classic flatrock endemics are present, though the area has been damaged by decades of recreational activity.

**References:**

Huntley, D. 1939. A survey of vegetation of Forty-acre Rock, Lancaster County, South Carolina. Master's Thesis, Duke University.

South Carolina Heritage Trust.
http://www.dnr.state.sc.us/wild/heritage/hp/fortyar/default.htm
http://web.infoave.net/~piedmonthp/farmain.html

**Species List:**
The asterisk (*) denotes species that were observed in 2003 as well as during previous visits to the site. All other species listed below were recorded for the first time during the 2003 trip.

### *Successional wood*

Trees:
*Acer rubrum*
*Cercis canadensis*
*Cornus florida*
*Ilex opaca*
*Juniperus virginiana*
*Liquidambar styracifolia*
*Pinus ecinaeda*
*Pinus serotina*
*Pinus taeda*
*Pinus viriniana*
**Prunus serotina*
*Quercus nigra*
*Quercus rubra*
*Quercus velutina*

Shrubs and Vines:
*Bignonia capreolata*
*Lonicera japonica*
*Smilax glauca*
*Smilax rotundifolia*
*Vaccinium fuscatum*
*Vitis rotundifolia*

Herbs:
*Apocynum sp*
*Arundinaria gigantea.*
*Chimaphila maculate*
*Hypericum hypericoides*
*Packera anonyma*
*Phlox divaricata*
*Polygonatum biflorum*

### *Trail to Outcrop (Ascending):*

Trees:
*Carpinus caroliniana*
**Quercus montana*
**Ulmus elata*

Shrubs and Vines:
*Philadelphus indorus*
*Vaccinium arboreum*

Herbs:
*Antennaria plantaginifolia*
*Arabis laevigata*
*Arnoglossum atriplicifolium*
*Collinsonia canadensis*
**Phlox nivalis hentzii*
*Sanguinaria canadensis*

### *Outcrop:*

Outcrops are xeric, high-light, thin-soiled areas of mostly open rock, where vegetation is restricted to pockets or depressions of soil. The plants occupying these vegetation mats are often zoned according to soil depth within the depression. Outcrops are noted for their high number of endemic and disjunct species.

Trees:
*Carya sp.*
*Juniperus virginiana*
*Pinus taeda*

Shrubs and Vines:
*Gelsimium sempervirens*
*Opuntia sp.*
*Vaccinium sp.*

Herbs:
*Amphianthus pusillus*
*Crotonopsis elliptica*
**Diamorpha smallii*
*Dicanthelium sp.*
**Erythronium americanum*
*Eupatorium capilifolium*
*Hypericum gentianoides*
**Hypericum lloydii*
*Isoetes sp.*
**Juncus georgianus?*
*Krigia virginica*
**Minuartia uniflora*
**Minuartia glabra*
**Nothoscordium bivalve*
**Phacelia maculate*
*Rumex acetosella*
*Rumex hastatulus*
**Sedum pusillum *Packera tomentosus*
**Viola pedata*
*Yucca filamentosa*

### **Descent from Outcrop (Stream area):**

Herbs:
*Athyrium asplenioides*
*Hexastylis sp.*
*Hieracium venosum*
*Sanguinaria canadensis*
*Viola sp.*

**Several additional species were observed prior to (but not on) the 2003 trip:**

*Agrostis hyemalis*
*Amsonia tabernaemontana*
*Arabis missouriensis*
*Carex styloflexa*
*Desmodium rotundifolium*
*Fragaria virginiana*
*Heuchera sp.*
*Luzula echinata*

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