
COMMONWEALTH of VIRGINIA

A rare plant inventory of southeastern Virginia powerline rights-of-way

Submitted to:
Virginia Power
Department of Environmental Policy and Compliance
and Department of Forestry

Virginia Department of Conservation and Recreation
Division of Natural Heritage
Natural Heritage Technical Report 96-7
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Department of Conservation & Recreation
CONSERVING VIRGINIA'S NATURAL AND RECREATIONAL RESOURCES

**A RARE PLANT INVENTORY OF
SOUTHEASTERN VIRGINIA
POWERLINE RIGHTS-OF-WAY**

By:

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INTRODUCTION

Results of recent ecological studies (Fleming and Van Alstine 1994, Frost 1987, Oakley et al. 1995, Rawinski and Fleming 1993) strongly suggest that the presettlement vegetation of southeastern Virginia was heavily influenced by fire. Open-canopy forests (savannahs), pine barrens, woodlands, and natural grasslands are fire-maintained communities which, though quite rare in the region today, may have covered large acreages a few hundred years ago. Numerous plant species which are adapted to the open-canopy conditions are now extremely rare in Virginia. One well-known modern refuge for these species is powerline rights-of-way. These corridors are kept open to prevent woody growth from damaging the powerlines and interfering with line maintenance. Where left unplanted, the vegetation of these open corridors are usually herb-dominated, covered in meadows of native grasses, forbs, and, in many instances, rare plant species.

In March 1995, personnel from Virginia Power and the Virginia Department of Conservation's Division of Natural Heritage (DNH) met to discuss opportunities for protection of rare plant species populations which were known or suspected to be present in the open powerline rights-of-way of southeastern Virginia. These corridors are managed either by Virginia Power or the various electric cooperatives which service the region. To initiate discussions, a modest inventory was scheduled for 1995. This project was to be a cooperative effort in which botanists of DNH would join with biologists of Virginia Power to visit known rare species locations and seek new sites in Southeastern Virginia powerline rights-of-way. The study area chosen is shown on Figure 1. It was limited to portions of Virginia south of the James and Appomattox Rivers, from the Dismal Swamp west to eastern Halifax and Charlotte Counties.

DNH is the state agency responsible by statutory authority under the Virginia Natural Area Preserves Act for inventory, database maintenance, protection, and management of Virginia's Natural Heritage Resources. Natural Heritage Resources are defined as "the habitat of rare, threatened, or endangered plant and animal species, rare or state significant natural communities or geologic sites, and similar features of scientific interest" (Virginia Natural Area Preserves Act, Section 10.1-209 through 217, Code of Virginia). The Division provides the only comprehensive attempt to identify the Commonwealth's most significant natural areas through ongoing scientific biological survey. Data gathered during this state-wide survey are assembled and managed through a sophisticated Biological and Conservation Data System (BCD) in which information on ecosystems and species, their biology, habitats, locations, conservation status, and management needs is continually updated and refined. The Division is part of an international network of natural heritage programs, coordinated by The Nature Conservancy, which utilize standardized inventory methodologies and BCD technology.

Work on the inventory began in May of 1995 with a comprehensive review of existing information on rare plants in the region, focusing on occurrences known in or near powerline rights-of-way. Field surveys were performed from June through September, 1995. During this period, Virginia Power and DNH personnel performed 12 days of targeted surveys over the entire study area. All results of this inventory have been incorporated into the DNH Biological and Conservation Data System.

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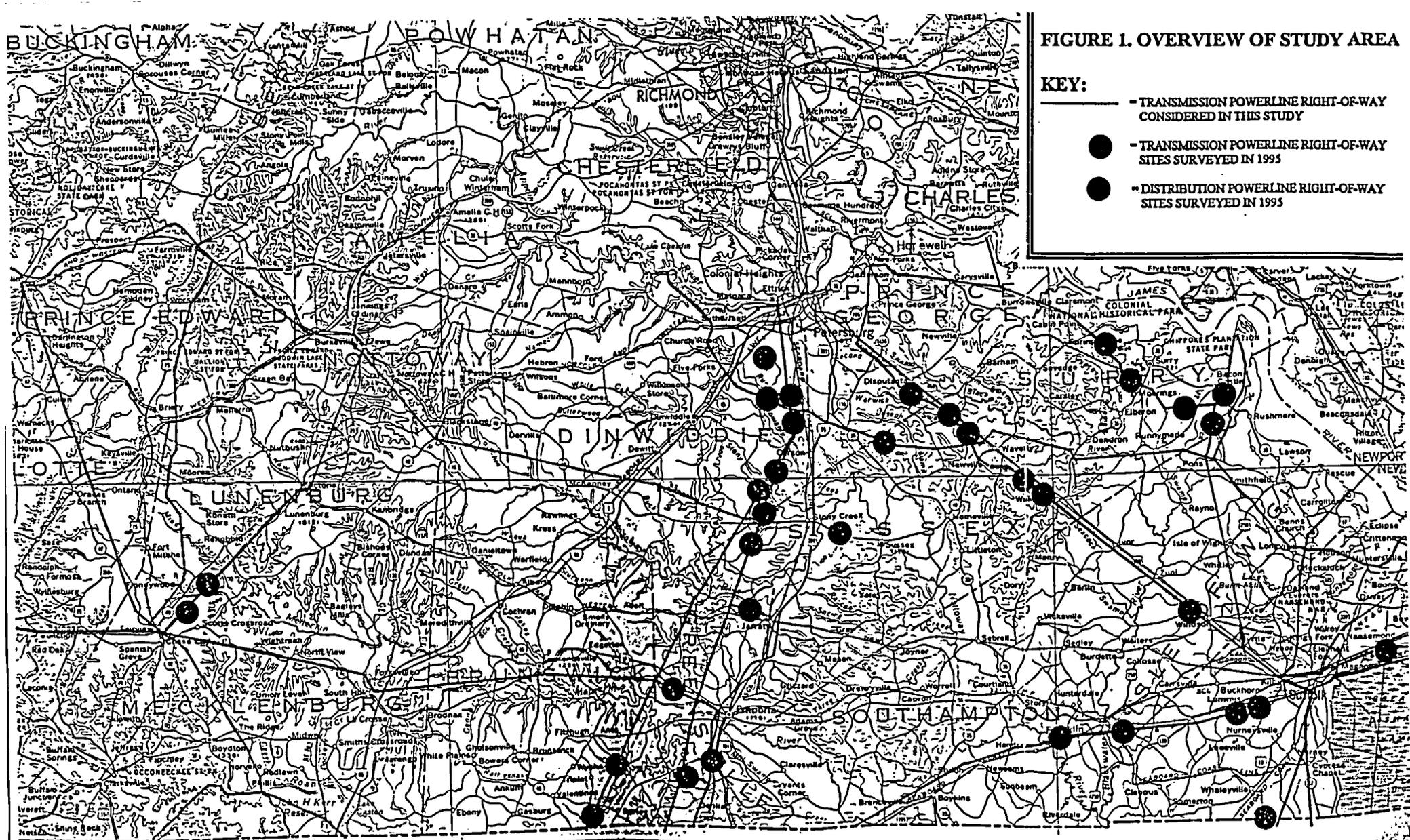
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FIGURE 1. OVERVIEW OF STUDY AREA

KEY:

- TRANSMISSION POWERLINE RIGHT-OF-WAY CONSIDERED IN THIS STUDY
- TRANSMISSION POWERLINE RIGHT-OF-WAY SITES SURVEYED IN 1995
- DISTRIBUTION POWERLINE RIGHT-OF-WAY SITES SURVEYED IN 1995



SITE NUMBERS / NAMES			
Transmission lines:	9. Foxtail Bogs	20. Black Swamp Powerline	31. Lummis Flatwoods
1. Difficut Creek	10. Sappony Creek	21. Finy Grove Powerline	32. Manning Powerline
2. South Crossroads	11. Winfield Mill Powerline	22. Brittes Millpond	33. North Dismal Swamp Powerline
3. Rocky Mill Flatwoods	12. Black Branch Powerline	23. Cypress Swamp Powerline	
4. Beddingfield Creek System	13. State Route 666 Powerline	24. Mercy Seat Church	
5. Brunswick Powerline	14. Halifax Road Powerline	25. Shrub Pocosin Powerlines	
6. Radium Flatwoods	15. Depot Road Powerline	26. Pierce Creek Powerline	
7. Cattail Creek Powerline	16. Oak Grove Church Powerline	27. Tuckers Pocosin Powerline	
8. Emporia Powerline	17. Cherry Orchard Powerline	28. Delaware Powerline	
	18. Upper Warwick Swamp Pond	29. Franklin Powerline	
	19. Warwick Swamp Powerline	30. Windsor Powerline	
			Distribution lines:
			34. Shands Bog
			35. Sussex Schoolhouse Swamp
			36. Saint Mary's Church

NATURAL HERITAGE INVENTORY METHODOLOGY

Inventory in the southeastern Virginia powerline rights-of-way was conducted through the five basic stages listed below. Although the inventory can logically be broken into these steps, in actuality the work proceeded in multiple directions simultaneously and was often iterative.

1) Review of aerial photographs. Aerial photographs of the survey area were reviewed in detail to identify features to be studied in the following stages. To aid in their interpretation, the photographs were compared with topographic and geologic maps.

2) Gathering existing information. Museum collection information on rare plant species in southeastern Virginia was reviewed by DNH staff. Published and unpublished information was collected and assimilated in conjunction with review of aerial photographs. Maps of lands within the survey area were gathered, BCD databases accessed, and the known distribution of natural heritage resources examined. Natural resource personnel and biologists knowledgeable about the area were consulted for additional information.

3) Planning for field survey. Based on preceding efforts, field plans were developed to maximize the productivity of the limited field time. Among the factors considered were: which rights-of-way had the highest likelihood for rare plant occurrences; when the survey could best be conducted; and how much time should be budgeted for completing the survey.

4) Field survey. During this stage, detailed information was collected on the rare plant species found in the powerline rights-of-way. During the field work, data were recorded during each survey including the site location, directions, and a site description, as well as land use, potential hazards, exotic flora and fauna, and off-site considerations. When rare plant species occurrences were encountered, additional data were recorded, including the date(s) when the species was found, population boundaries and concentrations within those boundaries, approximate number of individuals, reproductive and phenological status, and species viability. Habitat factors such as moisture, light, and associated species, as well as any apparent immediate or long-term threats to the occurrence were also noted. Photographs were taken or voucher specimens were collected to verify the identity of all rare species, and each occurrence was ranked on the basis of all available data.

5) Compilation of results and preparation of final report. As field work was completed, DNH biologists reviewed the information gathered and compiled the results on standardized field forms.

RESULTS OF THE RARE PLANT INVENTORY

Thirty-six targeted powerline right-of-way sites were visited in 12 days of inventory work. Thirty-three of these sites were under transmission powerline right-of-ways while three surveyed sites were on smaller distribution lines. Figure 1 shows the distribution of survey sites and provides numbers which correspond to the site names provided in this report. Among the 36 sites, 107 rare plant occurrences were found at 27 of the right-of-way sites. Table 1 summarizes these findings. Following table 1, individual site reports present information about each site where rare plant species were found. Maps of the rare species locations are provided with the summaries.

TABLE 1. RARE PLANT SPECIES FOUND DURING 1995 FIELD SURVEYS

SCIENTIFIC NAME	COMMON NAME	HERITAGE RANK*	SITE NUMBER
<i>Aletris aurea</i> Walt.	golden colicroot	G5/S1	4,9,10
<i>Asclepias rubra</i> L.	red milkweed	G4G5/S2S3	9,19,21,22,34
<i>Boltonia caroliniana</i> (Walt.) Fern.	Carolina boltonia	G47/S2	35
<i>Calamovilfa brevipilis</i> (Torr.) Scribn.	pine barrens reedgrass	G4/S1	8,21,34
<i>Carex barrattii</i> Schwein. & Torr.	Barratt's sedge	G4/S2	9,18
<i>Carex lupuliformis</i> Sartwell ex Dewey	false hop sedge	G37/S1	25
<i>Carex striata</i> Michx. var. <i>brevis</i>	a sedge	G4T47/S2S3	31,32
<i>Carphephorus bellidifolius</i> (Michx.) Torr. & Gray	sandy-woods chaffhead	G4/S1	29
<i>Carphephorus tomentosus</i> (Michx.) Torr. & Gray	woolly chaffhead	G4/S1	36
<i>Chelone cuthbertii</i> Small	Cuthbert turtlehead	G3/S2	13,15,16,17
<i>Cirsium carolinianum</i> (Walt.) Fern. & Schub.	Carolina thistle	G5/S1	1
<i>Cirsium virginianum</i> (L.) Michx.	Virginia thistle	G3G4/S2	10,35
<i>Cleistes divaricata</i> (L.) Ames	spreading pogonia	G4/S1	19
<i>Coelorachis rugosa</i> (Nutt.) Nash	wrinkled jointgrass	G5/S1	35
<i>Ctenium aromaticum</i> (Walt.) Wood	toothache grass	G5/S1	22,34
<i>Desmodium tenuifolium</i> Torr. & Gray	slim-leaf tick-trefoil	G3G4/S1	32,35
<i>Dichanthelium consanguineum</i> (Kunth) Gould & C.A. Clark	blood panic grass	G5/S1?	35
<i>Dichanthelium strigosum</i> (Muhl. ex Ell.) Freckmann var. <i>strigosum</i>	rough-hair panic grass	G5T5/S1?	28
<i>Echinacea laevigata</i> (C.L. Boynt & Beadle) Blake	smooth coneflower	G2G3/S2	1
<i>Eriocaulon decangulare</i> L.	ten-angle pipewort	G5/S2	34
<i>Eryngium yuccifolium</i> Michx. var. <i>yuccifolium</i>	rattlesnake-master	G5T7/S2	1
<i>Gentiana autumnalis</i> L.	pine-barren gentian	G3/S1	31
<i>Gymnopogon brevifolius</i> Trin.	short-leaved beardgrass	G5/S2S3	3,7,29
<i>Hypericum setosum</i> L.	a St.-john'swort	G4G5/S1	6,7,35
<i>Juncus elliotii</i> Chapman	bog rush	G4G5/S1S2	35
<i>Kalmia carolina</i> Small	Carolina sheep-laurel	G4/S2	36
<i>Lachnocaulon anceps</i> (Walt.) Morong	bog-buttons	G5/S2	9,17

INTRODUCTION TO THE SITE REPORTS

Brief site reports are provided for all sites where rare plants were located during this survey. The following standard reporting format is used for each site:

SITE NAME: Site names generally reflect a geographic locality and, in some cases, a prevalent landscape feature.

LOCALITY: The county (or counties) containing the site is listed.

QUADRANGLE: The name of the USGS 7.5' quadrangle(s) that includes the site is listed.

QUADRANGLE CODE: The code used by DNH for the quadrangle is listed. The first five digits of the code represent latitude and longitude (in degrees) of the quadrangle.

LOCATION: Location of the site using geographical landmarks, is given.

RARE PLANT SUMMARY TABLE: This field provides a synopsis of the rare plant species found at the site, together with their status ranks (global, state, USFWS and Virginia legal) and element occurrence ranks. See Appendix 1 for an explanation of natural heritage and legal ranks.

SITE INFORMATION: Information regarding the site and its rare plants is presented. In keeping with other Heritage inventory reports, the first reference to a species in a narrative is by scientific name, followed by its common name in parentheses. Subsequent references to the same species are by scientific name only.

SITE MAP: The site map, drawn on a copy of the USGS 7.5' quad(s), shows the location of rare plants identified during this inventory. These location maps are intended to provide resource managers with requisite site-specific information. However, since rare species are often sensitive to disturbance or may be sought out by collectors, we strongly recommend that this information not be shared with the general public or with persons not directly involved in the management of these sites.

BEDINGFIELD CREEK SWALE

LOCALITY: Brunswick County QUADRANGLE: Valentines QUADRANGLE CODE: 3607765

LOCATION: Transmission powerline right-of-way ca. 1.1 km south-southwest of State Route 600,
northeast of Bedingfield Creek.

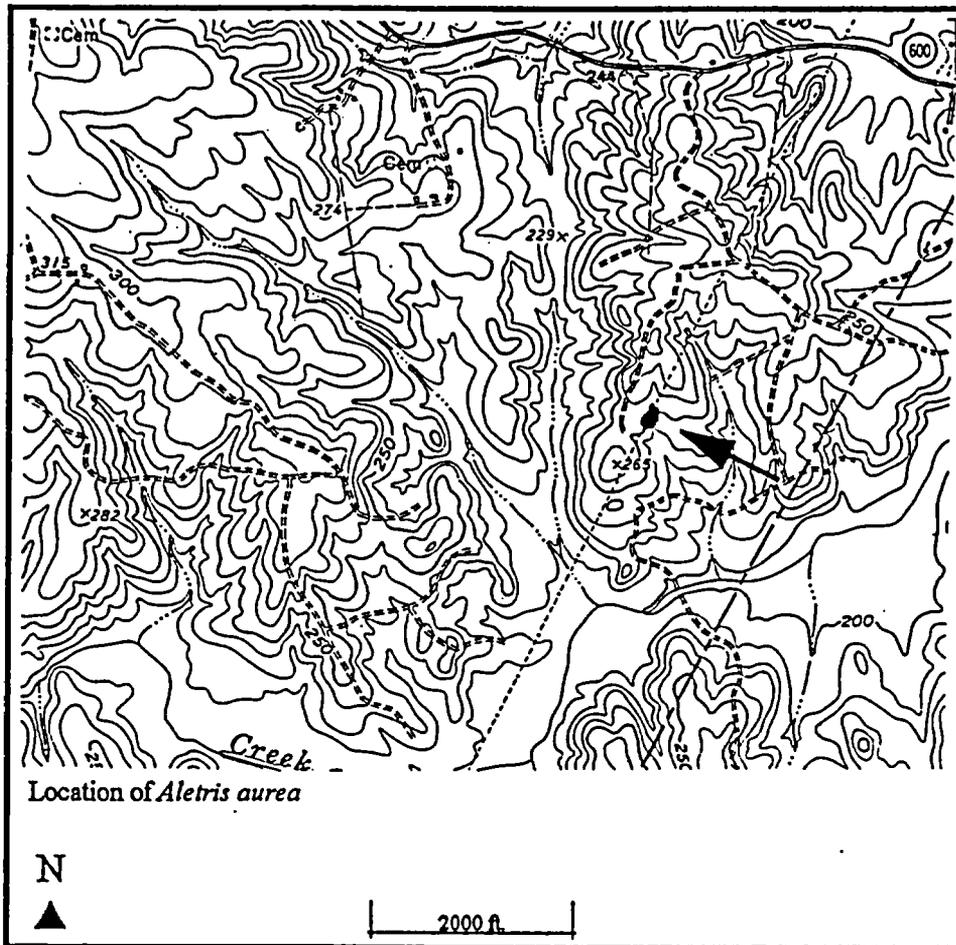
RARE PLANT SUMMARY TABLE

SCIENTIFIC NAME	COMMON NAME	GLOBAL RARITY RANK	STATE RARITY RANK	USFWS STATUS	VA LEGAL STATUS	ELEMENT OCCURRENCE RANK
<i>Aletris aurea</i>	golden colicroot	G5	S1	--	--	CD

SITE INFORMATION: This section of powerline right-of-way features a small sphagnous seepage area on a gentle slope within a scrubby, herb-dominated powerline right-of-way. The moist to wet clay soils of the seepage area are dominated by *Dichanthelium scoparium* (velvet panic grass) which forms nearly a solid cover except in some of the wetter seepage areas. In these gaps, a small population of the state rare lily, *Aletris aurea* (golden colicroot) was found. Pole numbers for the seepage area were not recorded.

Current management of the powerline vegetation by Virginia Power appears to have benefitted the rare species at the site.

BEDINGFIELD CREEK SWALE -- RARE PLANT LOCATION



BRITTLES MILLPOND

LOCALITY: Sussex County **QUADRANGLE:** Manray **QUADRANGLE CODE:** 3607781

LOCATION: Transmission powerline right-of-way, north of Brittles Millpond, ca. 0.8 km NW of powerline right-of-way's intersection with State Routes 664.

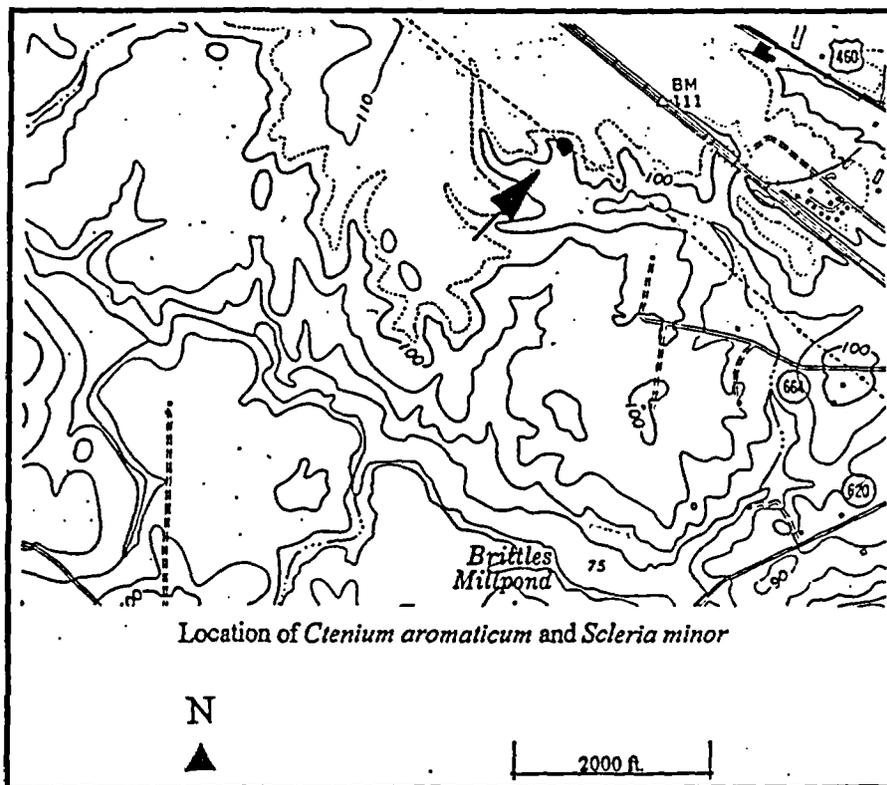
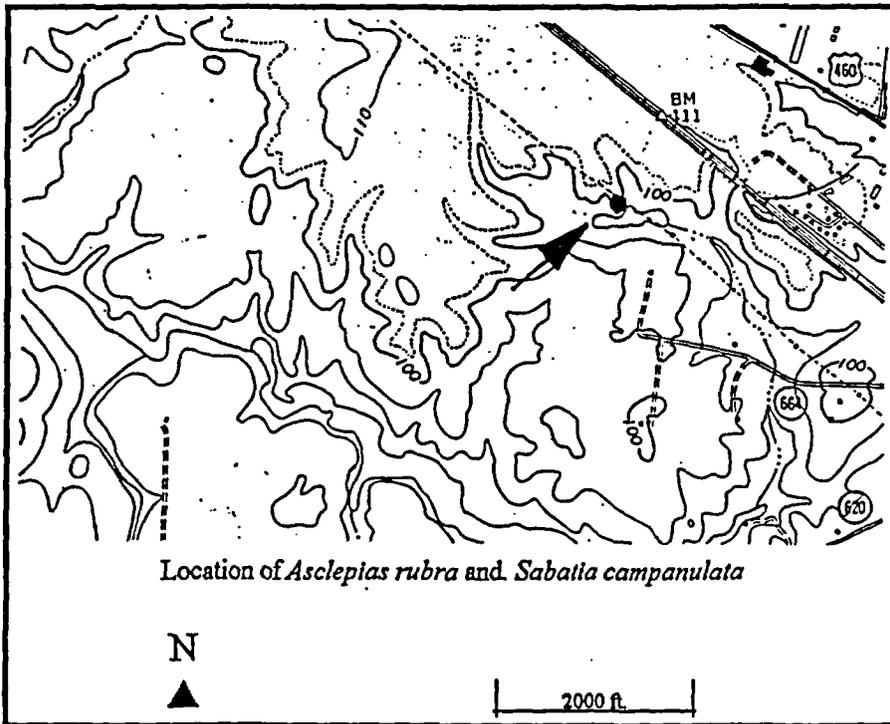
RARE PLANT SUMMARY TABLE

SCIENTIFIC NAME	COMMON NAME	GLOBAL RARITY RANK	STATE RARITY RANK	USFWS STATUS	VA LEGAL STATUS	ELEMENT OCCURRENCE RANK
<i>Asclepias rubra</i>	red milkweed	G4G5	S2S3	--	--	D
<i>Ctenium aromaticum</i>	toothache grass	G5	S1	--	--	CD
<i>Sabatia campanulata</i>	slender marsh rose-pink	G5	S2	--	--	D
<i>Scleria minor</i>	slender nutrush	G4	S2	--	--	C

SITE INFORMATION: This site has boggy, sphagnum seepage wetlands found in two adjacent swales in the powerline right-of-way. The saturated, low-nutrient conditions in the seepage wetlands inhibit woody plant growth and, in the past when fires were frequent, this site probably had uplands of pine savannah surrounding wetlands with shrub bog vegetation. These vegetation types would have featured scattered trees and suitable, open habitat for the rare plant species listed above. Currently, fire suppression is actively practiced and dense hardwood forests and pine plantations are the predominant vegetation throughout the region. At this site, rare plants still find suitable habitat in the wetlands of the herb-dominated transmission line corridor. All rarities are found between pole numbers 106-173 and 106-176.

Current management of the powerline vegetation by Virginia Power appears to have benefitted the rare species at the site. A late-season survey for rare plant species is recommended.

BRITTLES MILLPOND -- RARE PLANT LOCATIONS



CATTAIL CREEK POWERLINES

LOCALITY: Greensville County **QUADRANGLE:** Skippers **QUADRANGLE CODE:** 3607755

LOCATION: Along both transmission powerline rights-of-way intersecting just north of State Route 621
ca. 4 km west of Mitchells Mill.

RARE PLANT SUMMARY TABLE

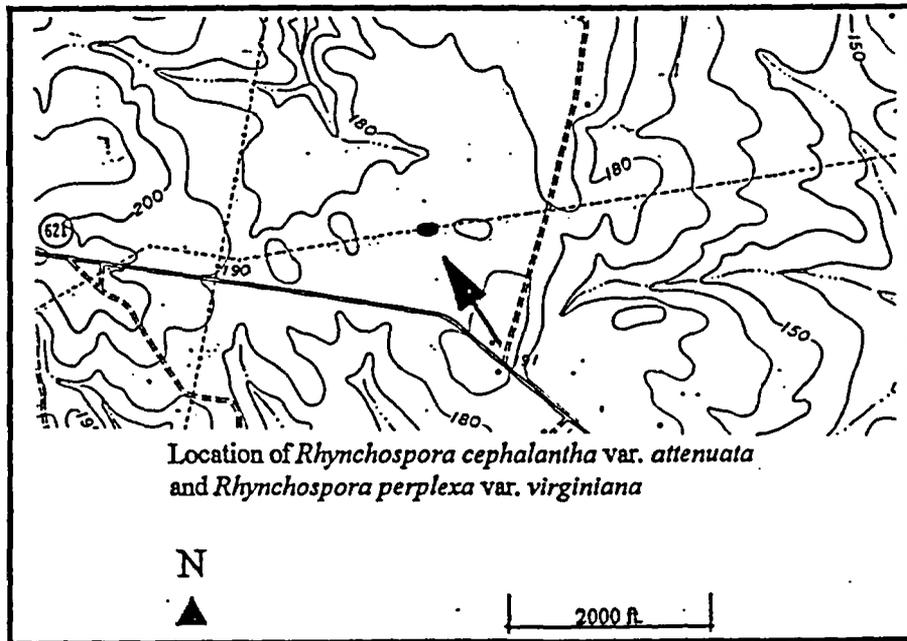
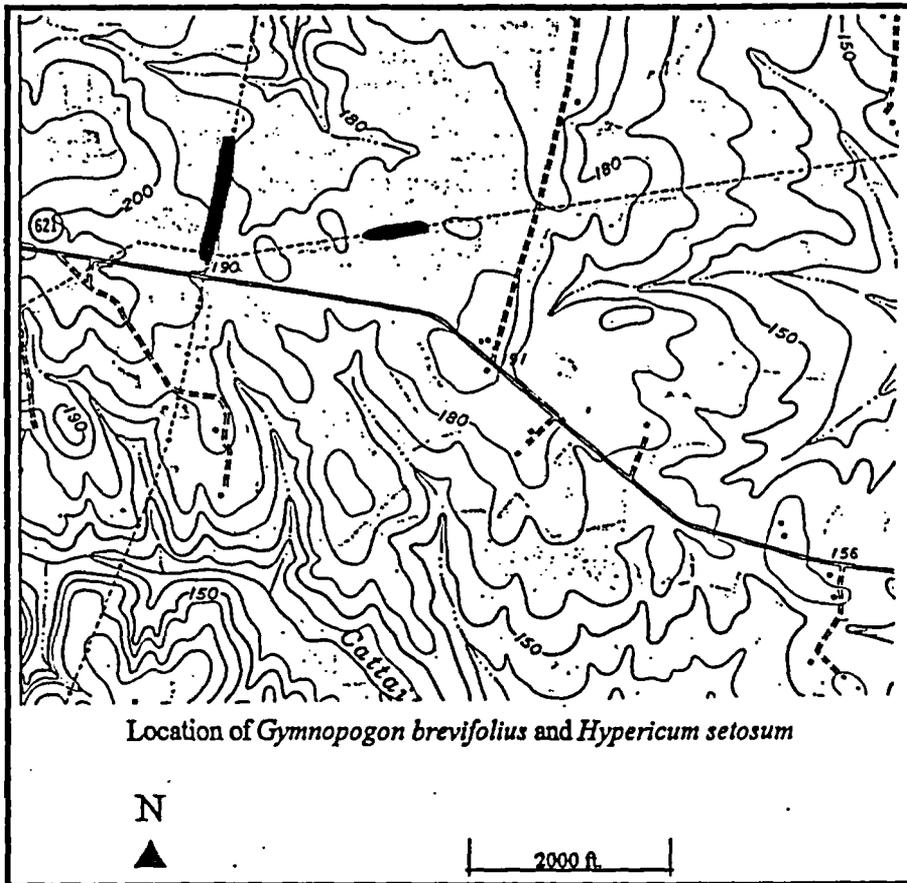
SCIENTIFIC NAME	COMMON NAME	GLOBAL RARITY RANK	STATE RARITY RANK	USFWS STATUS	VA LEGAL STATUS	ELEMENT OCCURRENCE RANK
<i>Gymnopogon brevifolius</i>	short-leaved beardgrass	G5	S2S3	--	--	B
<i>Hypericum setosum</i>	a St.-John'swort	G4G5	S1	--	--	B
<i>Rhynchospora cephalantha</i> var. <i>attenuata</i>	small capitate beakrush	G5T?	S1?	--	--	CD
<i>Rhynchospora perplexa</i> var. <i>virginiana</i>	a beakrush	G5T?	S1S2	--	--	BC

SITE INFORMATION: This site features two intersecting powerline rights-of-way which provide habitat for four rare plant species. The powerlines have seasonally-wet clay soils with hardpans which inhibit woody plant growth. In the past when fires were frequent, this region probably had open woodland and savannah vegetation with scattered trees and suitable, open habitat for the rare plant species listed above. Currently, fire suppression is actively practiced and dense hardwood forests and pine plantations are common throughout the region. At this site, rare plants still find suitable habitat in the herb-dominated vegetation of the transmission line corridors. Pole numbers were not recorded.

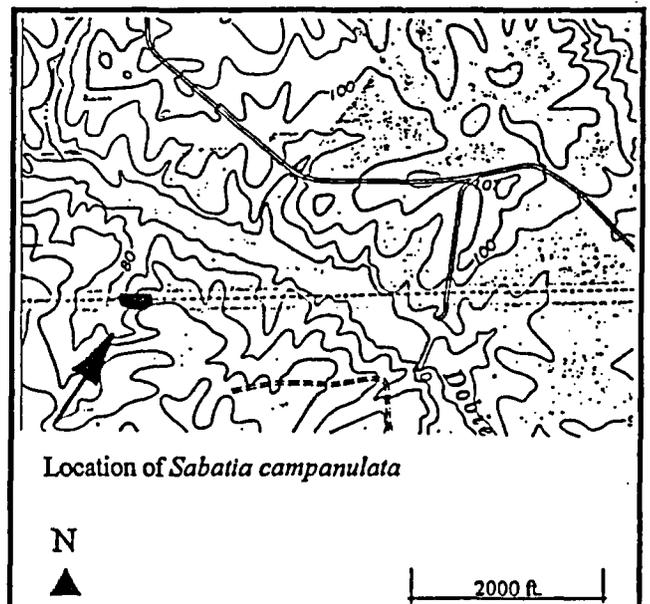
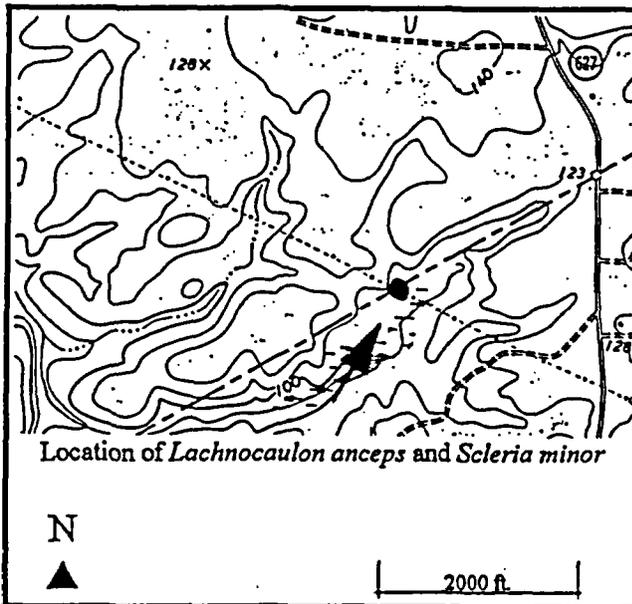
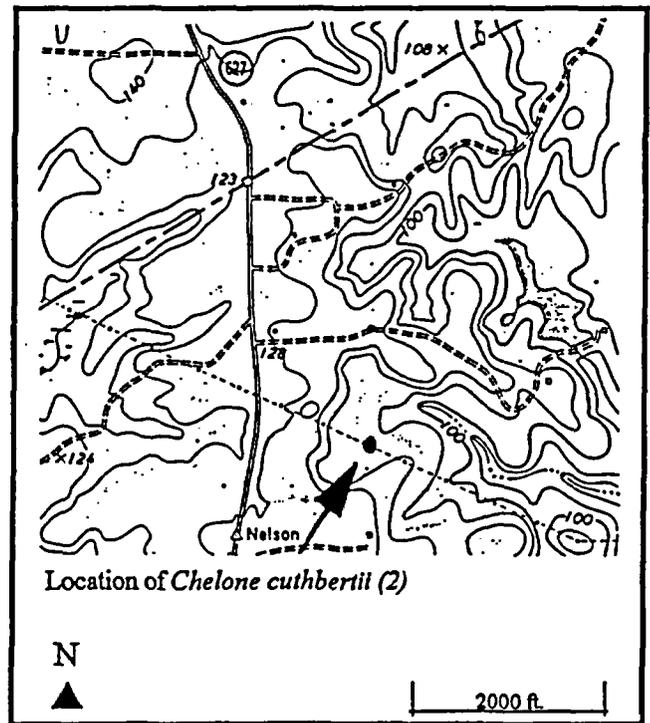
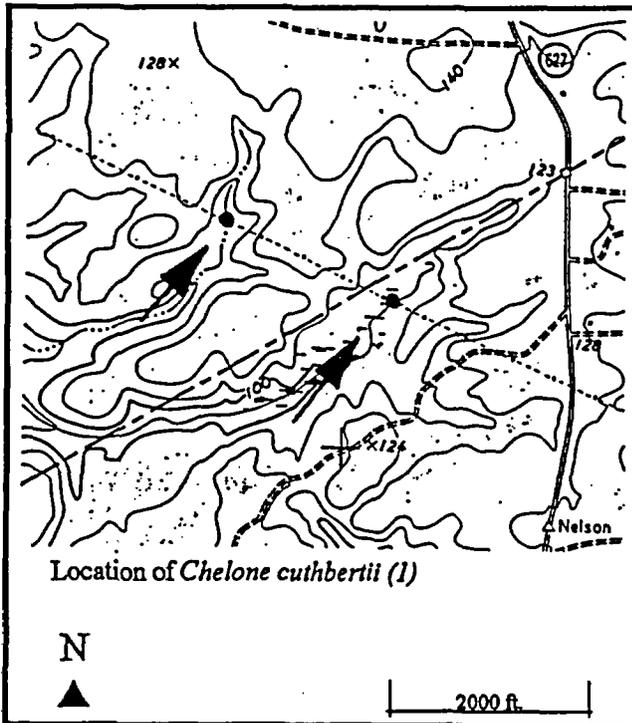
Two rare species found at this site, *Gymnopogon brevifolius* (short-leaved beardgrass) and *Hypericum setosum* (a St.-John'swort) are particularly abundant in the powerline which runs north/south at this site. There are no larger populations for these species known in Virginia.

Current management of the powerline vegetation by Virginia Power appears to have greatly benefitted the rare species at the site. Additional early-season inventory for rare plants is recommended at this site.

CATTAIL CREEK – RARE PLANT LOCATIONS



CHERRY ORCHARD POWERLINE -- RARE PLANT LOCATIONS



DELAWARE POWERLINE

LOCALITY: Southampton County QUADRANGLE: Franklin QUADRANGLE CODE: 3707668

LOCATION: Transmission powerline right-of-way just east of State Route 687 and just south of State Route 681, ca. 1.3 km east-northeast of Delaware, Virginia.

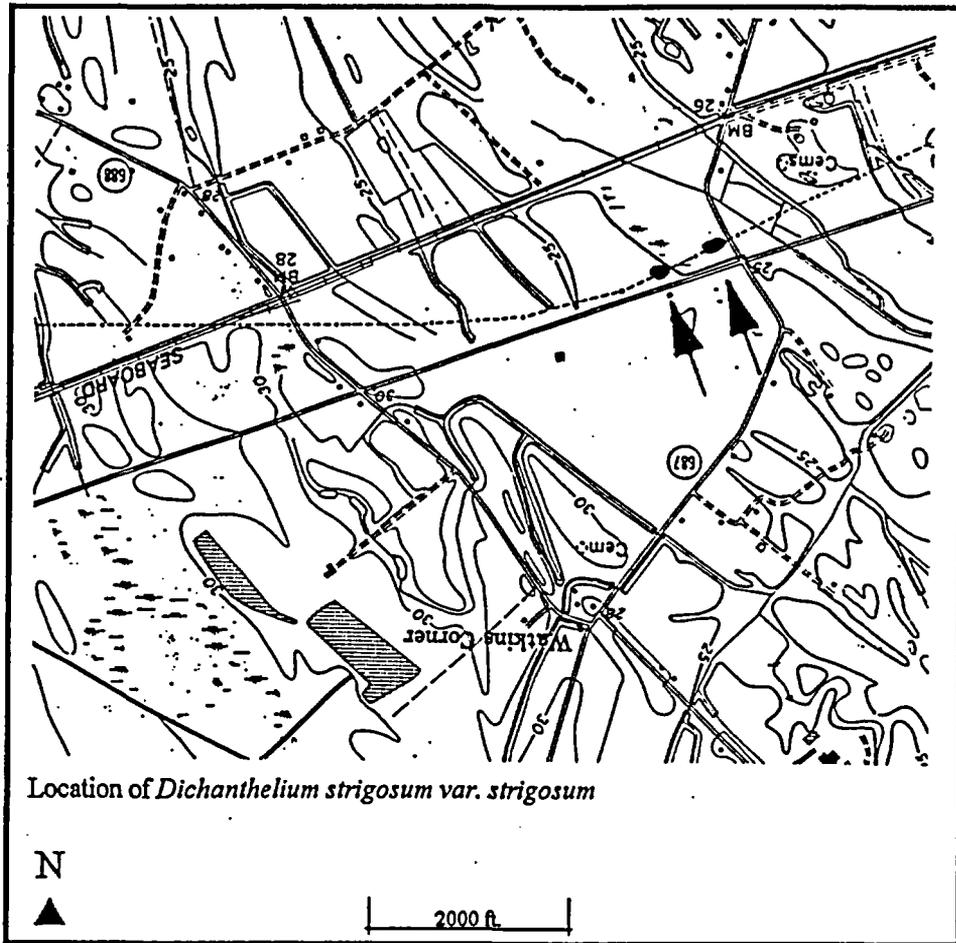
RARE PLANT SUMMARY TABLE

SCIENTIFIC NAME	COMMON NAME	GLOBAL RARITY RANK	STATE RARITY RANK	USFWS STATUS	VA LEGAL STATUS	ELEMENT OCCURRENCE RANK
<i>Dichanthelium strigosum</i> var. <i>strigosum</i>	rough-hair panic grass	G5T5	S1?	--	--	C

SITE INFORMATION: Amidst the coarse herbs and shrubs which dominate this transmission powerline right-of-way, a small population of the state rare grass species *Dichanthelium strigosum* var. *strigosum* (rough-hair panic grass) is established. This grass, unknown elsewhere in Virginia, grows in the seasonally-wet to dry, sandy soils of the right-of-way in two areas -- near the power station and on the east side of State Route 687. These areas have the least dense vegetation perhaps due to extremely droughty conditions. Pole numbers were not recorded.

Current management of the powerline vegetation by Virginia Power appears to have benefitted the rare species at the site. An early-season survey is recommended for this right-of-way.

DELAWARE POWERLINE -- RARE PLANT LOCATION



DEPOT ROAD POWERLINE

LOCALITY: Dinwiddie County QUADRANGLE: Carson QUADRANGLE CODE: 3707714

LOCATION: Transmission powerline right-of-way parallel and south of State Route 606, ca. 2 km north of Perkins Pond.

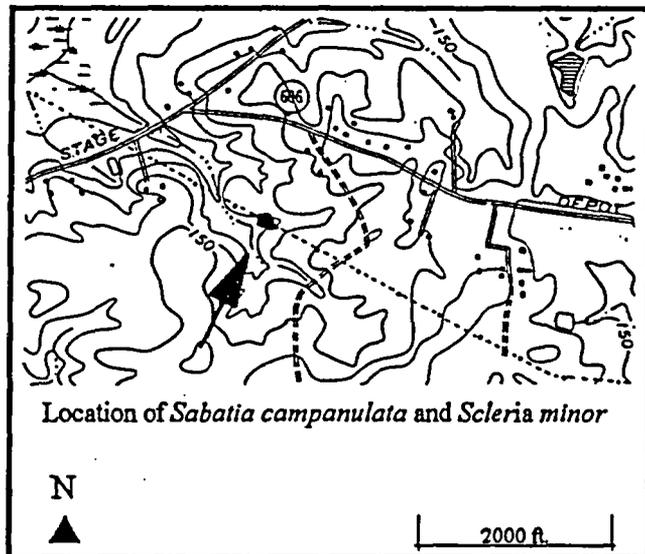
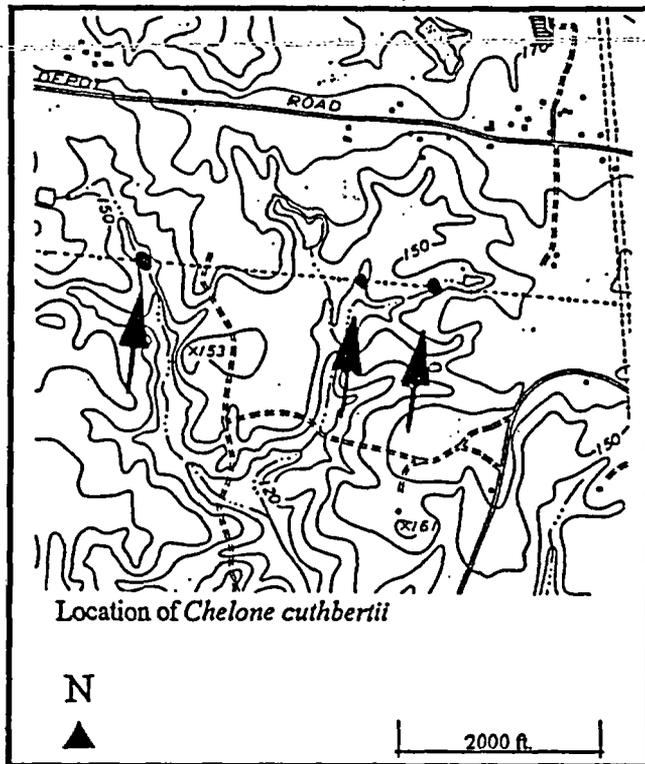
RARE PLANT SUMMARY TABLE

SCIENTIFIC NAME	COMMON NAME	GLOBAL RARITY RANK	STATE RARITY RANK	USFWS STATUS	VA LEGAL STATUS	ELEMENT OCCURRENCE RANK
<i>Chelone cuthbertii</i>	Cuthbert turtlehead	G3	S2	--	--	CD
<i>Sabatia campanulata</i>	slender marsh rose-pink	G5	S2	--	--	CD
<i>Sarracenia purpurea</i> ssp. <i>venosa</i>	southern purple pitcher- plant	G5T?	S2	--	--	D
<i>Scleria minor</i>	slender nutrush	G4	S2	--	--	D

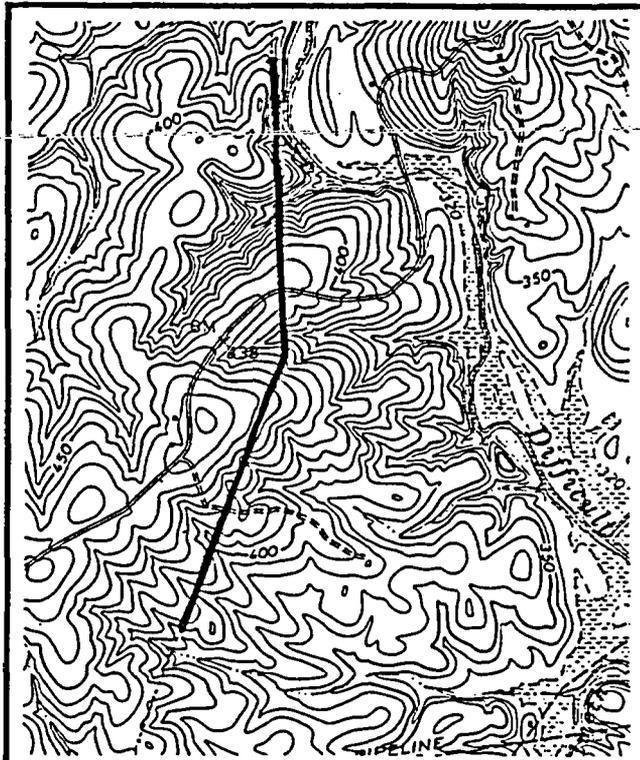
SITE INFORMATION: This section of powerline right-of-way features numerous low-nutrient sphagnum seepage areas in swales within a scrubby powerline right-of-way. The powerline in and around the seepage areas is dominated by *Rubus* (blackberry) species along with other woody plants which form a solid cover in many areas except in the wetter seepage areas where herbs dominate. In the eastern portion of this section, the herb-dominated gaps provide habitat for three subpopulations of the globally-rare herb *Chelone cuthbertii* (Cuthbert turtlehead). The other rare plant species were found in a seepage area in the western portion of this section of powerline right-of-way. Pole numbers for the seepage areas were not recorded.

Current management of the powerline vegetation by Virginia Power appears to have benefitted the rare species at the site. Additional early-season surveys for rare plant species are recommended.

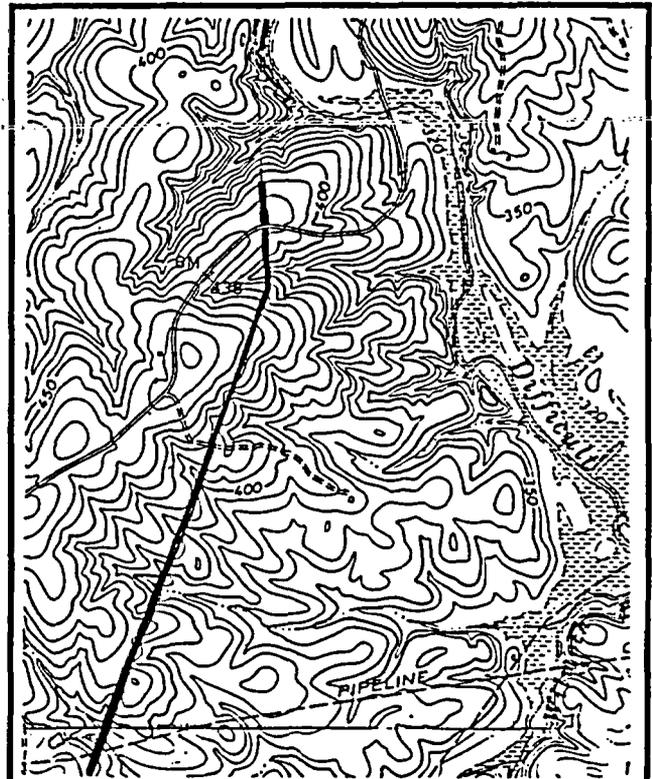
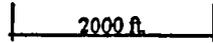
DEPOT ROAD POWERLINE -- RARE PLANT LOCATIONS



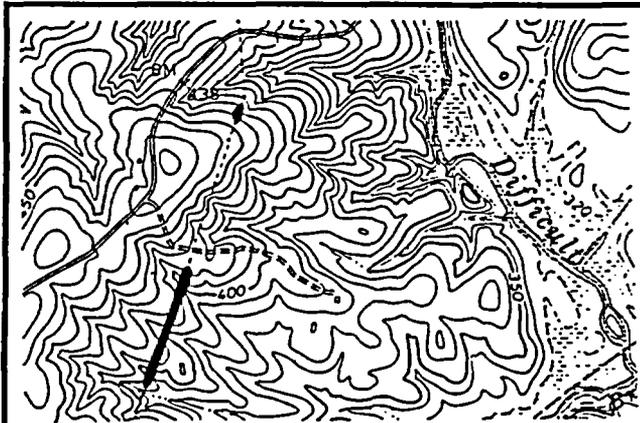
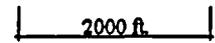
DIFFICULT CREEK – RARE PLANT LOCATIONS



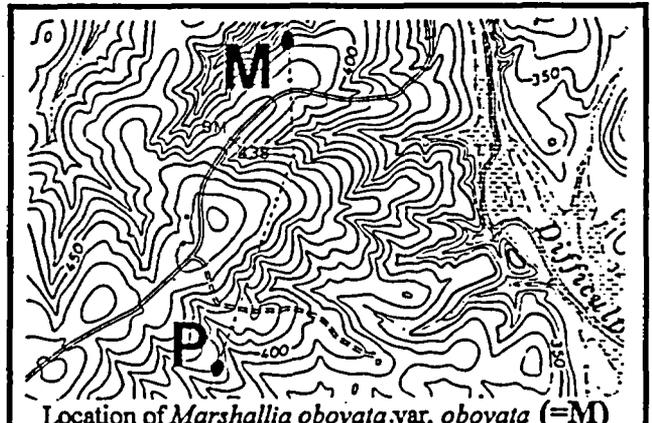
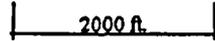
Location of *Cirsium carolinianum* and *Porteranthus stipulatus*



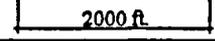
Location of *Eryngium yuccifolium*



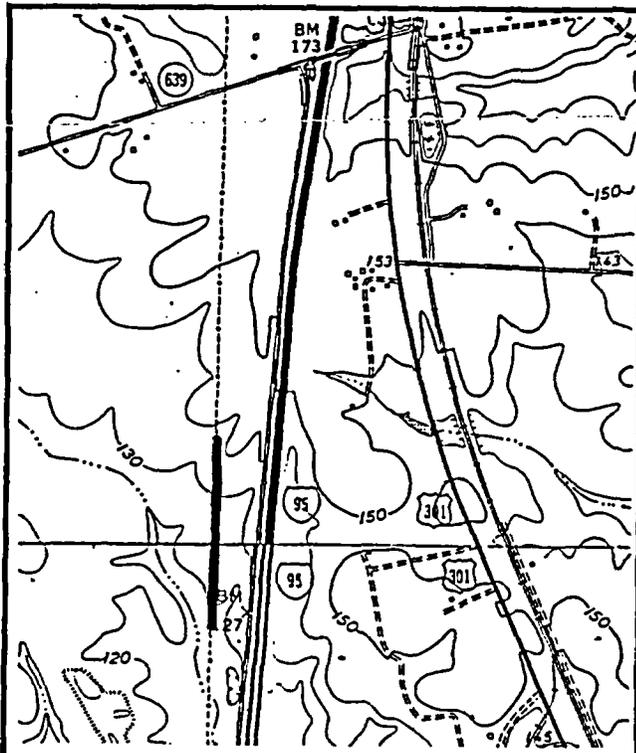
Location of *Echinacea laevigata*



Location of *Marshallia obovata* var. *obovata* (=M) and *Phlox nivalis* var. *hentzii* (=P)



EMPORIA POWERLINE -- RARE PLANT LOCATIONS

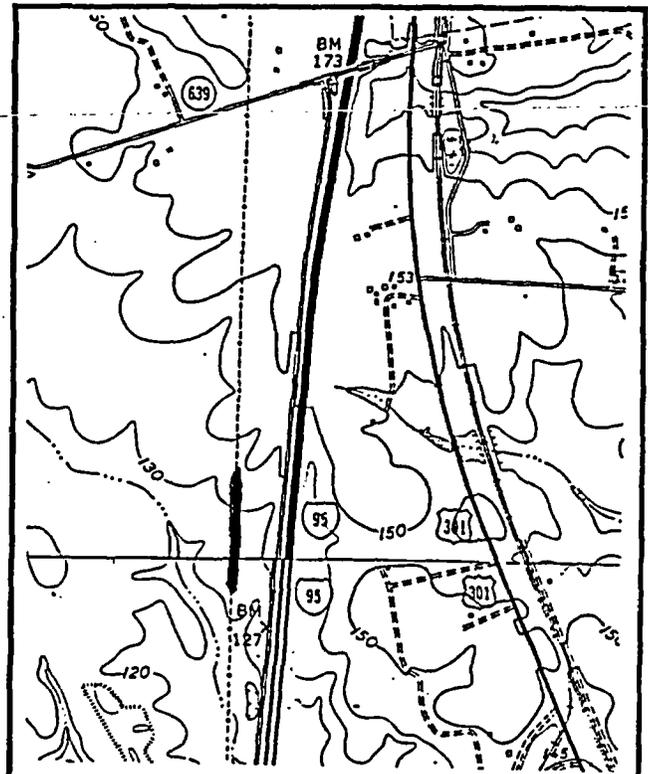


Location of *Calamovilfa brevipilis*

N



2000 ft.

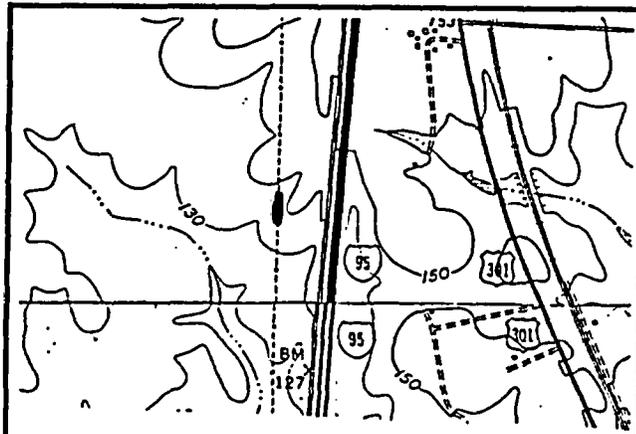


Location of *Zigadenus densus*

N



2000 ft.



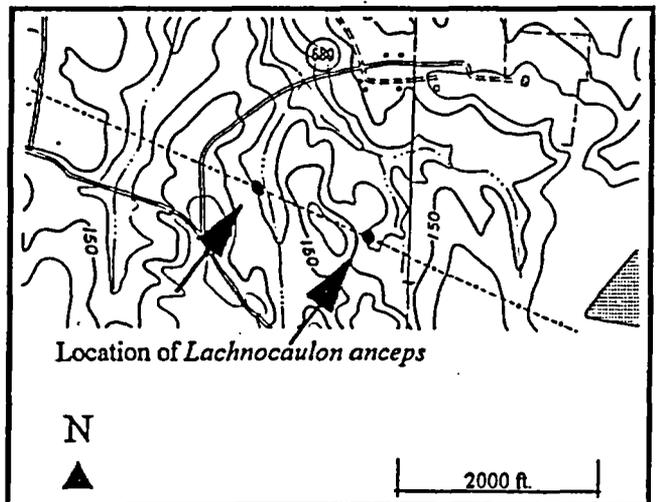
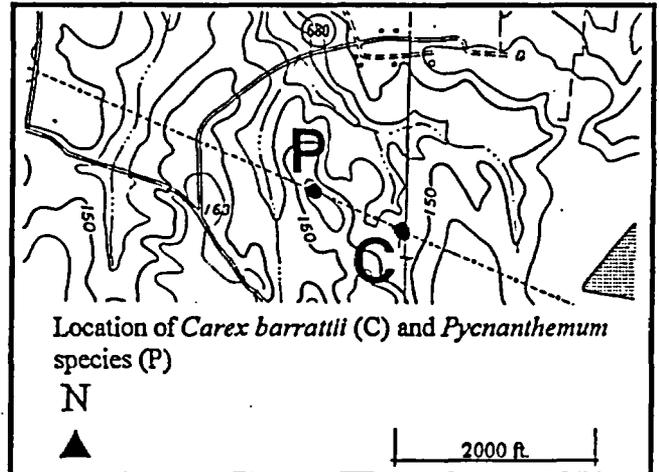
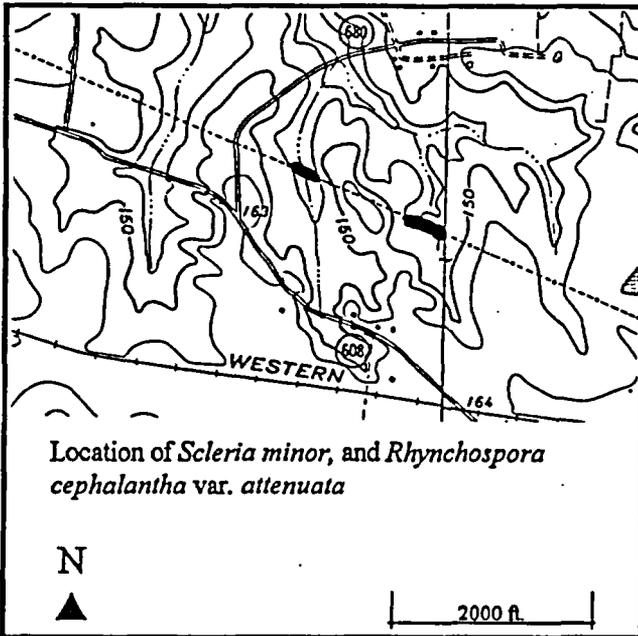
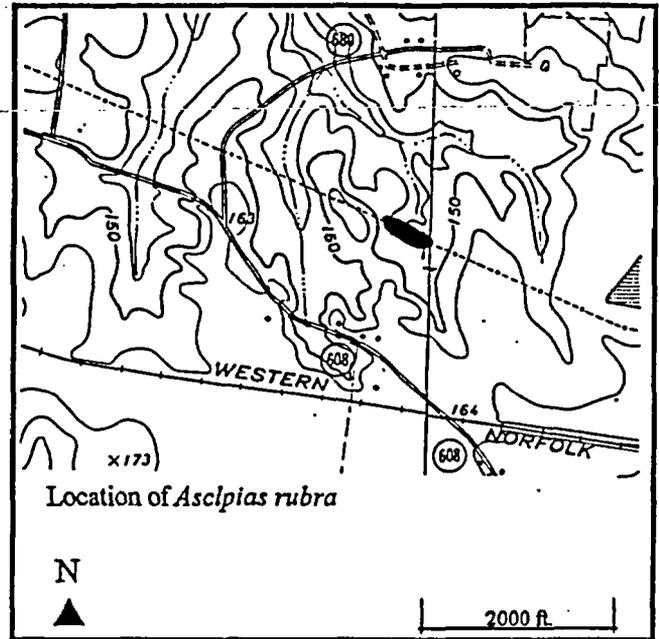
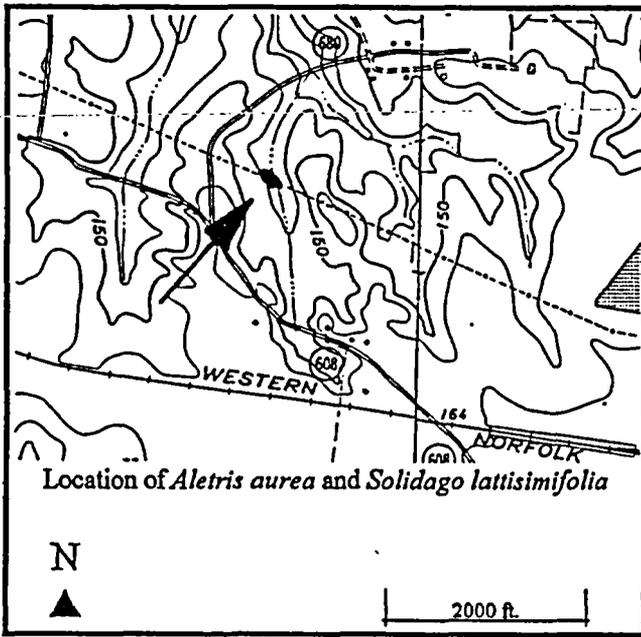
Location of *Prenanthes autumnalis*, *Rhexia petiolata*, *Scleria minor*, and *Rhynchospora cephalantha* var. *attenuata*

N



2000 ft.

FOXTAIL BOGS -- RARE PLANT LOCATIONS



FRANKLIN POWERLINE

LOCALITY: Southampton County **QUADRANGLE:** Franklin **QUADRANGLE CODE:** 3607668

LOCATION: Transmission powerline right-of-way between State Routes 617 and 618, ca 2.0 km east-southeast of Franklin.

RARE PLANT SUMMARY TABLE

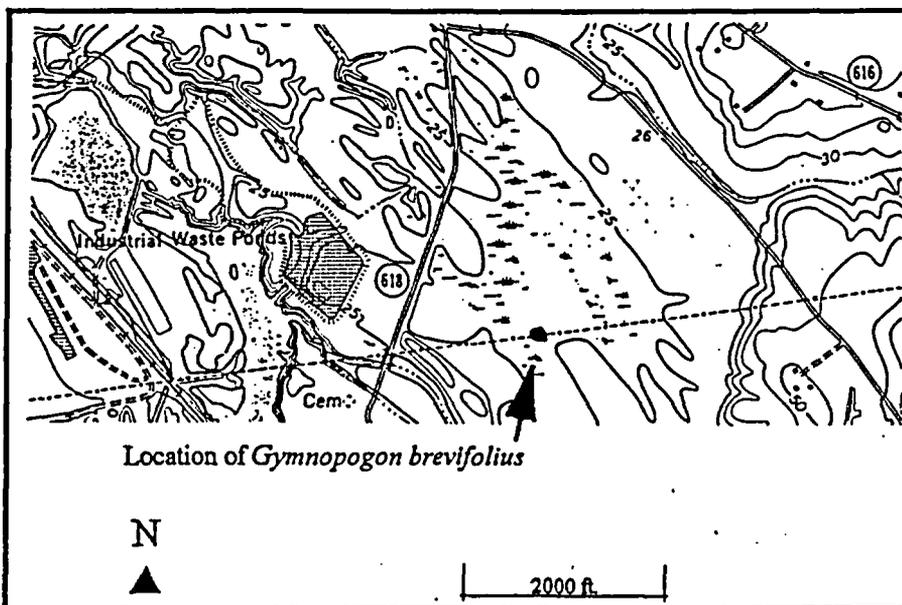
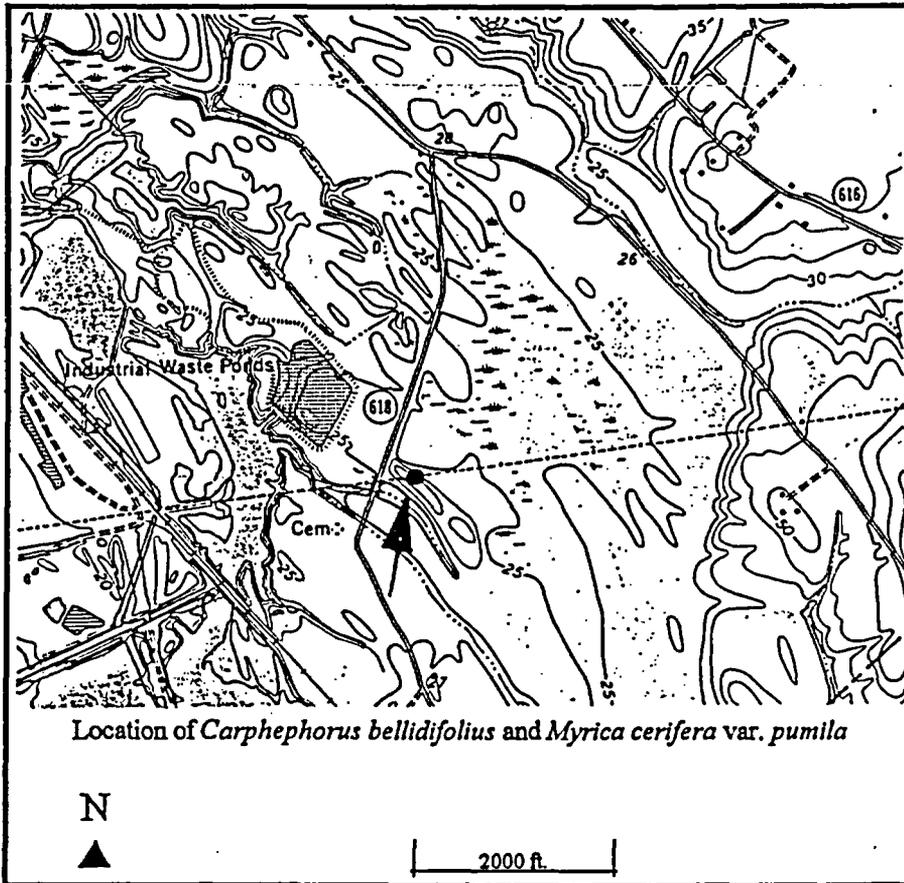
SCIENTIFIC NAME	COMMON NAME	GLOBAL RARITY RANK	STATE RARITY RANK	USFWS STATUS	VA LEGAL STATUS	ELEMENT OCCURRENCE RANK
<i>Carphephorus bellidifolius</i>	sandy-woods chaffhead	G4	S1	--	--	D
<i>Gymnopogon brevifolius</i>	short-leaved beardgrass	G5	S2S3	--	--	C
<i>Myrica cerifera</i> var. <i>pumila</i>	dwarf southern bayberry	G5T?	S1	--	--	D

SITE INFORMATION: The transmission powerline of this site intersects a xeric sandhill and a large wetland area. The sandhill provides habitat for a few individuals of two rare plant species, *Carphephorus bellidifolius* (sandy-woods chaffhead) and *Myrica cerifera* var. *pumila* (dwarf southern bayberry). These two species are probably scattered in the sandy thin woods adjoining the powerline where the xeric, sandy soils inhibit woody plant growth. In the past when fires were frequent, the woodlands in this area may have feature pine savanna vegetation with scattered trees and suitable, open habitat for the rare plant species listed above. In the wetland a third rarity, *Gymnopogon brevifolius* (short-leaved beardgrass), is found over a limited area.

Currently, fire suppression is actively practiced and dense hardwood forests and pine plantations surround the powerlines. At this site, rare plants still find suitable habitat in the herb-dominated vegetation of the transmission line corridor. Pole numbers were not recorded.

Current management of the powerline vegetation by Virginia Power appears to have greatly benefitted the rare species at the site. Additional early-season inventory for rare plants is recommended.

FRANKLIN POWERLINE -- RARE PLANT LOCATIONS



LUMMIS FLATWOODS

LOCALITY: Suffolk City **QUADRANGLE:** Buckhorn **QUADRANGLE CODE:** 3607666

LOCATION: Transmission powerline right-of-way ca. 1.0 km east and west of State Route 647, ca. 1.0 km south of Lummis.

RARE PLANT SUMMARY TABLE

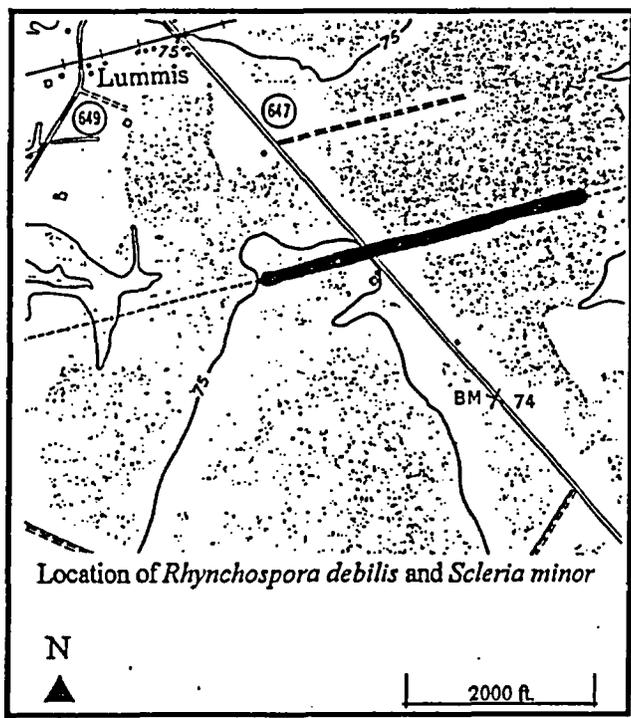
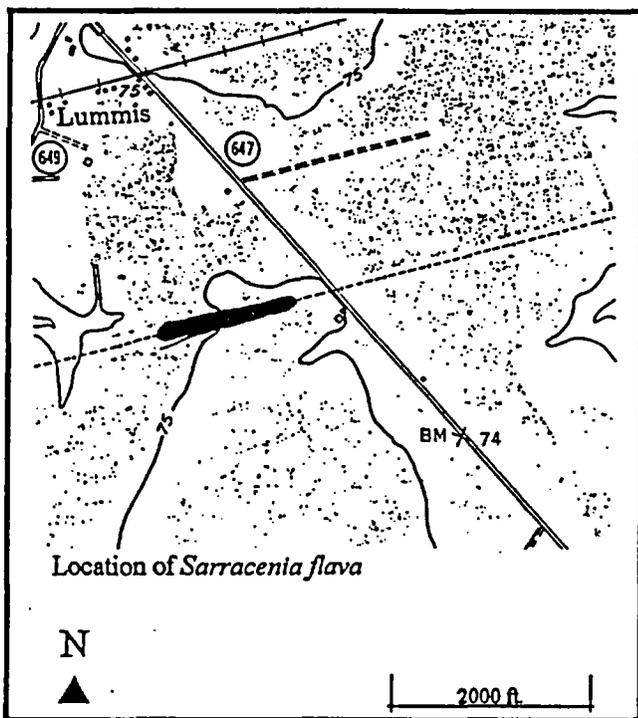
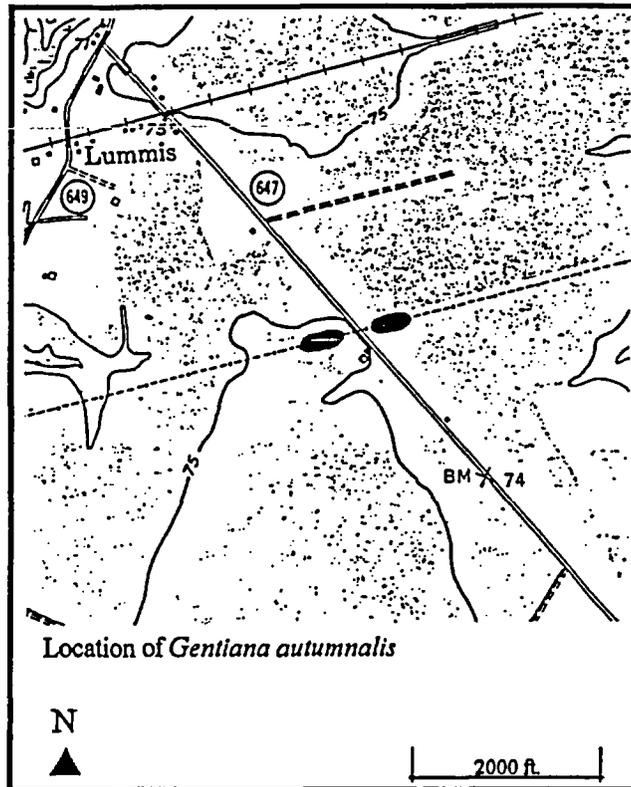
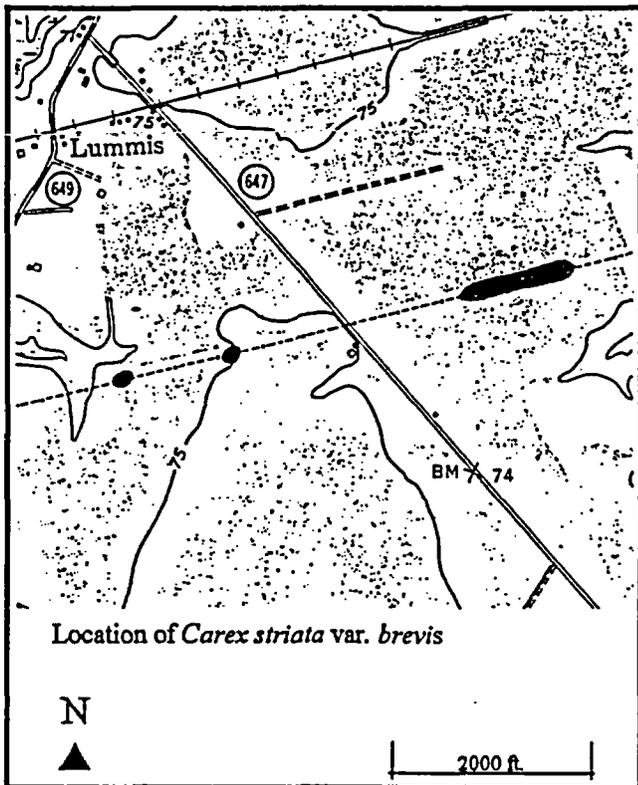
SCIENTIFIC NAME	COMMON NAME	GLOBAL RARITY RANK	STATE RARITY RANK	USFWS STATUS	VA LEGAL STATUS	ELEMENT OCCURRENCE RANK
<i>Carex striata</i> var. <i>brevis</i>	a sedge	G4T4?	S2S3	--	--	E
<i>Gentiana autumnalis</i>	pine-barren gentian	G3	S1	--	--	C
<i>Rhynchospora debilis</i>	savannah beakrush	G4?	S1	--	--	B
<i>Sarracenia flava</i>	yellow pitcher-plant	G4G5	S1	--	--	CD
<i>Scleria minor</i>	slender nutrush	G4	S2	--	--	BC

SITE INFORMATION: This site features a section of powerline right-of-way which has seasonally-wet clay soils with extensive hardpans. The nutrient-poor, saturated conditions of these wetlands inhibit woody plant growth. In the past when fires were frequent, this region probably had shrub bog and savannah vegetation with scattered trees and suitable, open habitat for the rare plant species listed above. An often-used term for shrub bog is pocosin and older topographic maps applied the name "Devils Pocosin" to this area. Currently, fire suppression is actively practiced and dense hardwood forests and pine plantations surround the powerlines. At this site, rare plants still find suitable habitat in the herb-dominated vegetation of the transmission line corridor. Pole numbers were not recorded.

Rhynchospora debilis (savannah beakrush) was particularly abundant in the powerline right-of-way and there are no other known Virginia populations for this rare species. Globally-rare *Gentiana autumnalis* (pine-barren gentian) was also of note with only one other Virginia occurrence.

Current management of the powerline vegetation by Virginia Power appears to have greatly benefitted the rare species at the site. Additional inventory for rare plants is recommended.

LUMMIS FLATWOODS -- RARE PLANT LOCATIONS



MANNING POWERLINE

LOCALITY: Suffolk City **QUADRANGLE:** Buckhorn **QUADRANGLE CODE:** 3607666

LOCATION: Transmission powerline right-of-way ca. 0.8 km east of State Route 645, ca. 0.7 km south-southeast of Manning.

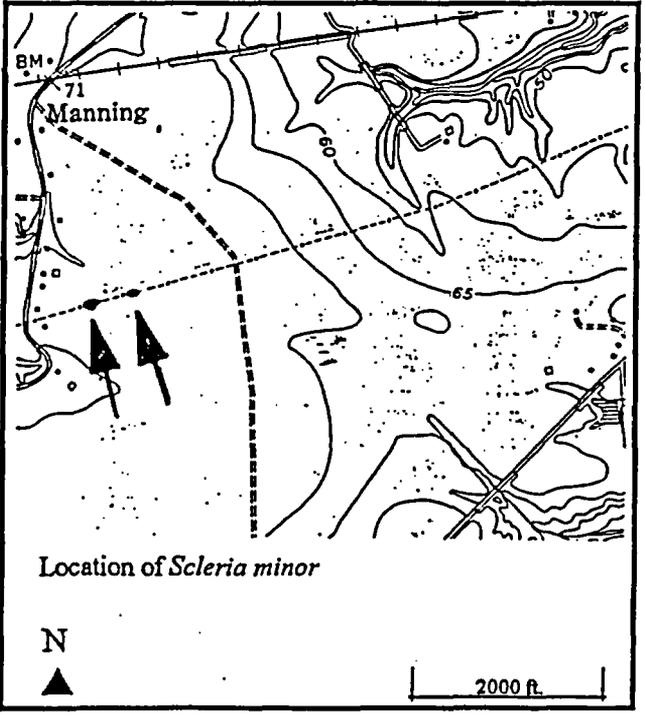
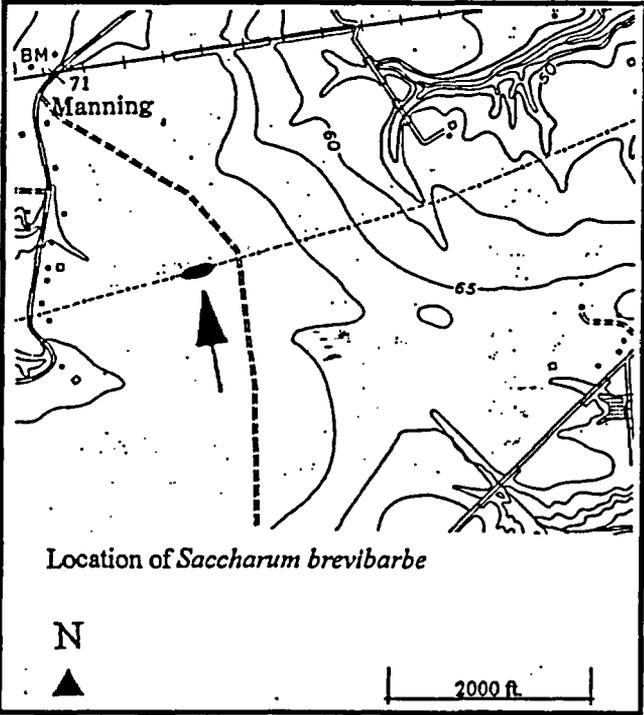
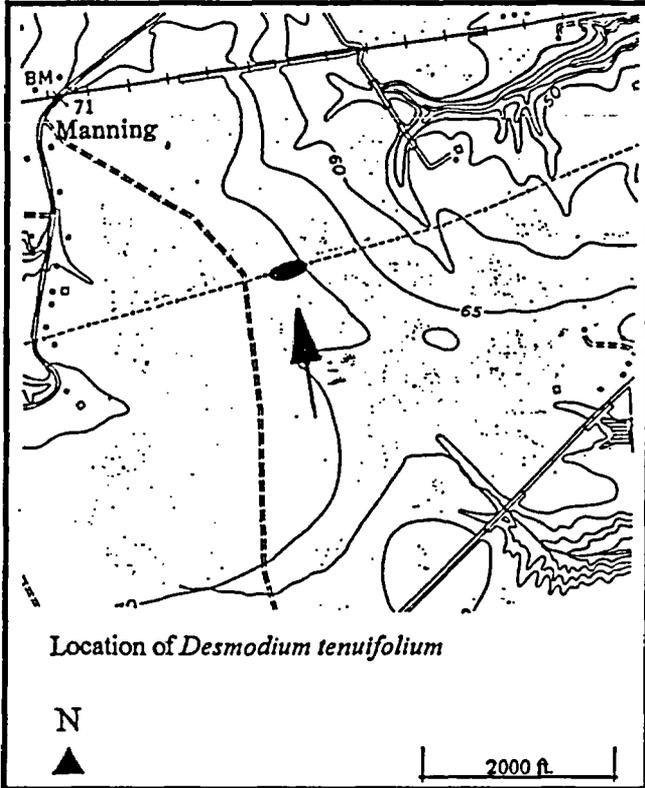
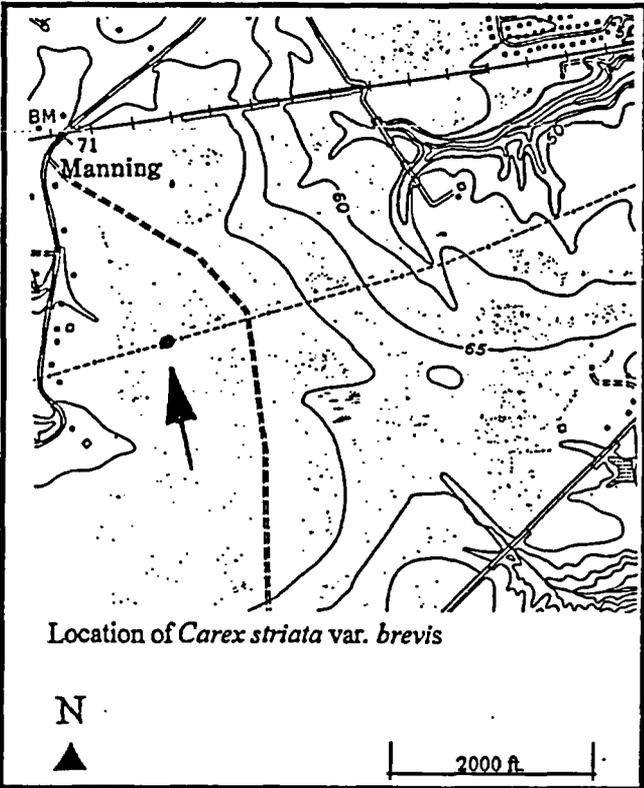
RARE PLANT SUMMARY TABLE

SCIENTIFIC NAME	COMMON NAME	GLOBAL RARITY RANK	STATE RARITY RANK	USFWS STATUS	VA LEGAL STATUS	ELEMENT OCCURRENCE RANK
<i>Carex striata</i> var. <i>brevis</i>	a sedge	G4T4?	S2S3	--	--	C
<i>Desmodium tenuifolium</i>	slim-leaf tick-trefoil	G3G4	S1	--	--	C
<i>Saccharum brevibarbe</i>	short-beard plumegrass	G3G5	S1	--	--	C
<i>Scleria minor</i>	slender nutrush	G4	S2	--	--	CD

SITE INFORMATION: This site features a section of powerline right-of-way which has seasonally-wet clay soils with extensive hardpans. The nutrient-poor, saturated conditions of these wetlands inhibit woody plant growth. In the past when fires were frequent, this region probably had shrub bog and savannah vegetation with scattered trees and suitable, open habitat for the rare plant species listed above. Currently, fire suppression is actively practiced and dense hardwood forests and pine plantations surround the powerlines. At this site, rare plants still find suitable habitat in the herb-dominated vegetation of the transmission line corridor between pole numbers 68-22 and 68-26. Just to the west of pole 68-24, this powerline right-of-way provides habitat for the only known extant Virginia population of the rare grass species *Saccharum brevibarbe* (short-beard plumegrass).

Current management of the powerline vegetation by Virginia Power appears to have greatly benefitted the rare species at the site. Additional June inventory for rare plants is recommended.

MANNING POWERLINE -- RARE PLANT LOCATIONS



✓
MERCY SEAT CHURCH

LOCALITY: Surry County QUADRANGLE: Claremont QUADRANGLE CODE: 3707628

LOCATION: Transmission powerline right-of-way ca. 0.6 km east-southeast of where powerline right-of-way crosses State Route 618 and ca. 1.2 km south of Mercy Seat Church.

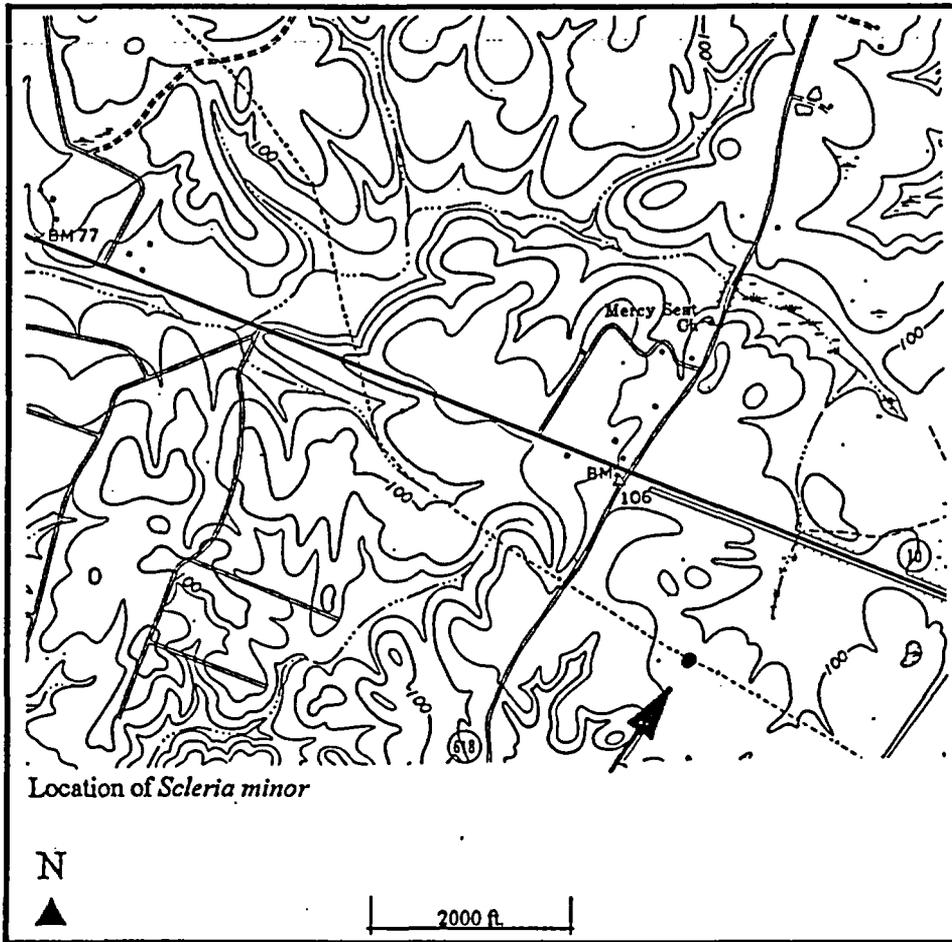
RARE PLANT SUMMARY TABLE

SCIENTIFIC NAME	COMMON NAME	GLOBAL RARITY RANK	STATE RARITY RANK	USFWS STATUS	VA LEGAL STATUS	ELEMENT OCCURRENCE RANK
<i>Scleria minor</i>	slender nutrush	G4	S2	--	--	D

SITE INFORMATION: This section of powerline right-of-way is herb-dominated and features large areas of nutrient-poor, seasonal wetlands. In one area, seasonally-wet clay soil provides favorable habitat for a small population of the state rare herb *Scleria minor* (slender nutrush). Pole numbers for the area where the rare species was found were not recorded.

Current management of the powerline vegetation by Virginia Power appears to have benefitted the rare species at the site.

MERCY SEAT CHURCH -- RARE PLANT LOCATION



NORTH DISMAL SWAMP POWERLINE

LOCALITY: Suffolk City **QUADRANGLE:** Bowers Hill **QUADRANGLE CODE:** 3607674
 Chesapeake City

LOCATION: Transmission powerline right of way paralleling U.S. Route 58 from due south of the Hampton Road airport west for ca. 3.0 km.

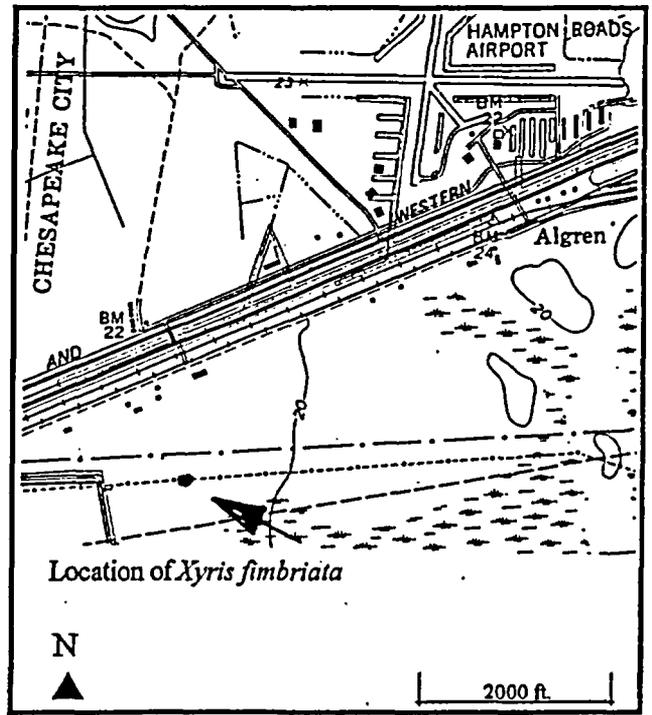
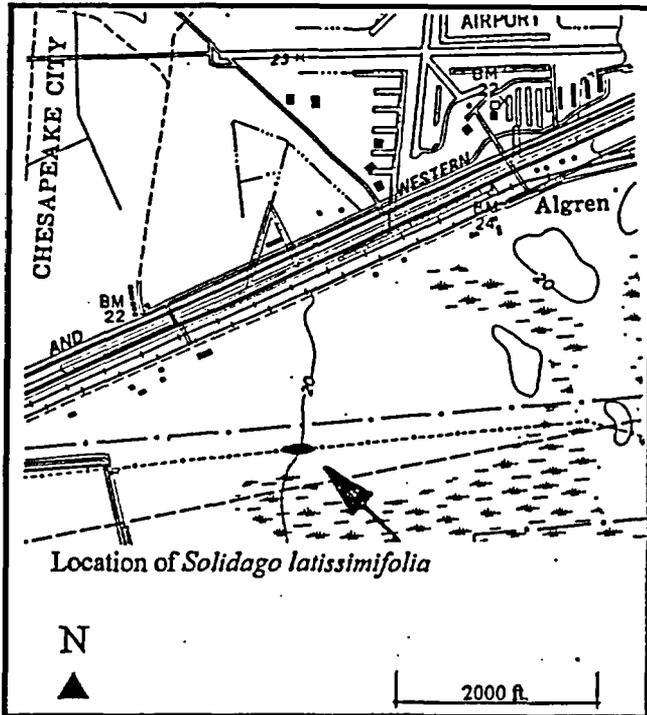
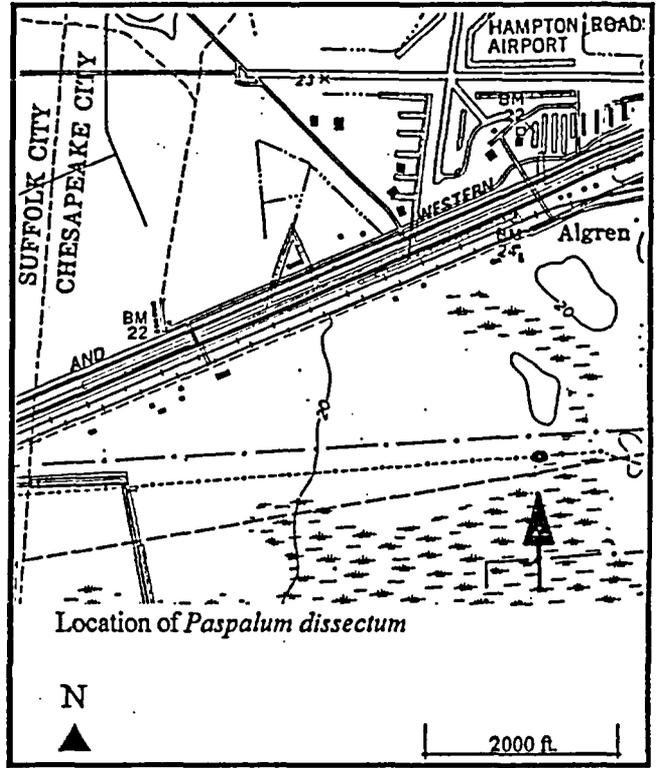
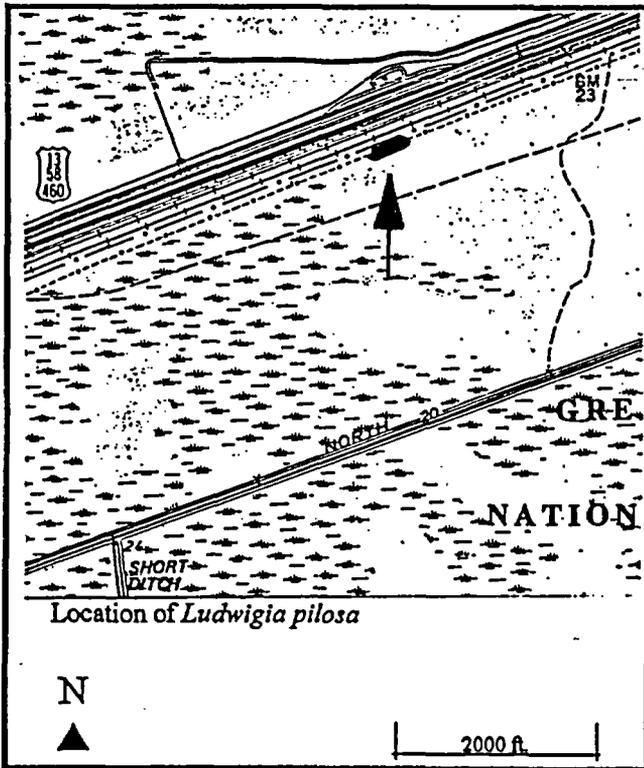
RARE PLANT SUMMARY TABLE

SCIENTIFIC NAME	COMMON NAME	GLOBAL RARITY RANK	STATE RARITY RANK	USFWS STATUS	VA LEGAL STATUS	ELEMENT OCCURRENCE RANK
<i>Ludwigia pilosa</i>	hairy seedbox	G5	S1	--	--	C
<i>Paspalum dissectum</i>	Walter paspalum	G4?	S1	--	--	B
<i>Solidago latissimifolia</i>	Elliot goldenrod	G5	S2	--	--	B
<i>Xyris fimbriata</i>	fringed yellow-eyed-grass	G5	S1	--	--	D

SITE INFORMATION: This site features a section of powerline right-of-way which has seasonally-wet clay soils with extensive hardpans. The nutrient-poor, saturated conditions of these wetlands inhibit woody plant growth. In the past when fires were frequent, this region probably had shrub bog and savannah vegetation with scattered trees and suitable, open habitat for the rare plant species listed above. Currently, fire suppression is actively practiced and dense hardwood forests and pine plantations surround the powerlines. At this site, rare plants still find suitable habitat in the herb-dominated vegetation of the transmission line corridor. Pole numbers were not recorded. This powerline right-of-way provides habitat for the only known Virginia extant population of the rare grass species *Paspalum dissectum* (Walter paspalum).

Current management of the powerline vegetation by Virginia Power appears to have benefitted the rare species at the site. Additional June inventory for rare plants is recommended.

NORTH DISMAL SWAMP POWERLINE RARE PLANT LOCATIONS



OAK GROVE CHURCH POWERLINE

LOCALITY: Dinwiddie County **QUADRANGLE:** Carson **QUADRANGLE CODE:** 3707714

LOCATION: Transmission powerline right-of-way between State Routes 606 and 669, ca. 0.8 km northwest of Oak Grove Church.

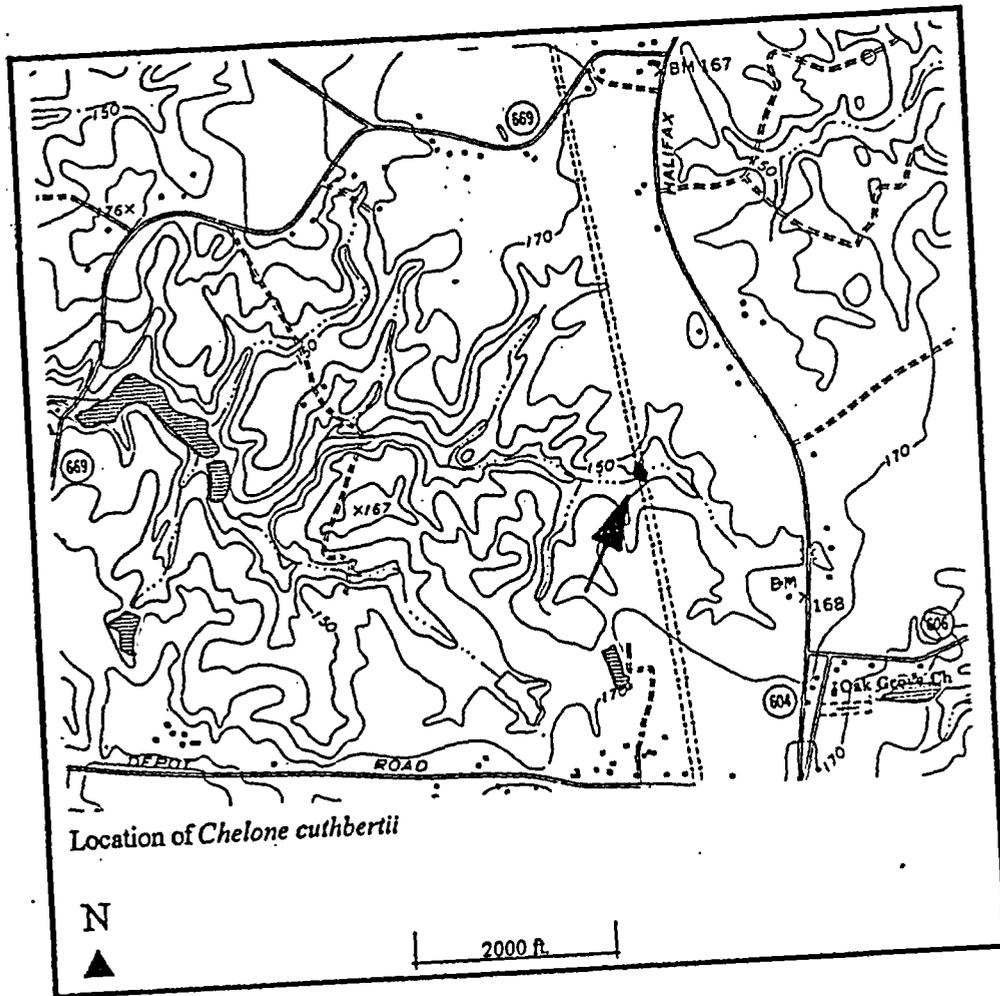
RARE PLANT SUMMARY TABLE

SCIENTIFIC NAME	COMMON NAME	GLOBAL RARITY RANK	STATE RARITY RANK	USFWS STATUS	VA LEGAL STATUS	ELEMENT OCCURRENCI RANK
<i>Chelone cuthbertii</i>	Cuthbert turtlehead	G3	S2	--	--	C

SITE INFORMATION: This section of powerline right-of-way features a low-nutrient sphagnous seepage area in a swale within an herb-dominated powerline right-of-way. The wetland provides habitat for a small population of the globally-rare herb *Chelone cuthbertii* (Cuthbert turtlehead). Pole numbers for the seepage area were not recorded.

Current management of the powerline vegetation by Virginia Power appears to have benefitted the rare species at the site.

OAK GROVE CHURCH POWERLINE -- RARE PLANT LOCATION



Location of *Chelone cuthbertii*

N
▲

2000 ft.

PINEY GROVE POWERLINE

LOCALITY: Sussex County **QUADRANGLE:** Manray **QUADRANGLE CODE:** 3607781

LOCATION: Transmission powerline right-of-way ca. 0.8 km north-northwest of Piney Grove Church and ca. 1.0 km, west-northwest of the junction of State Routes 604 and 460.

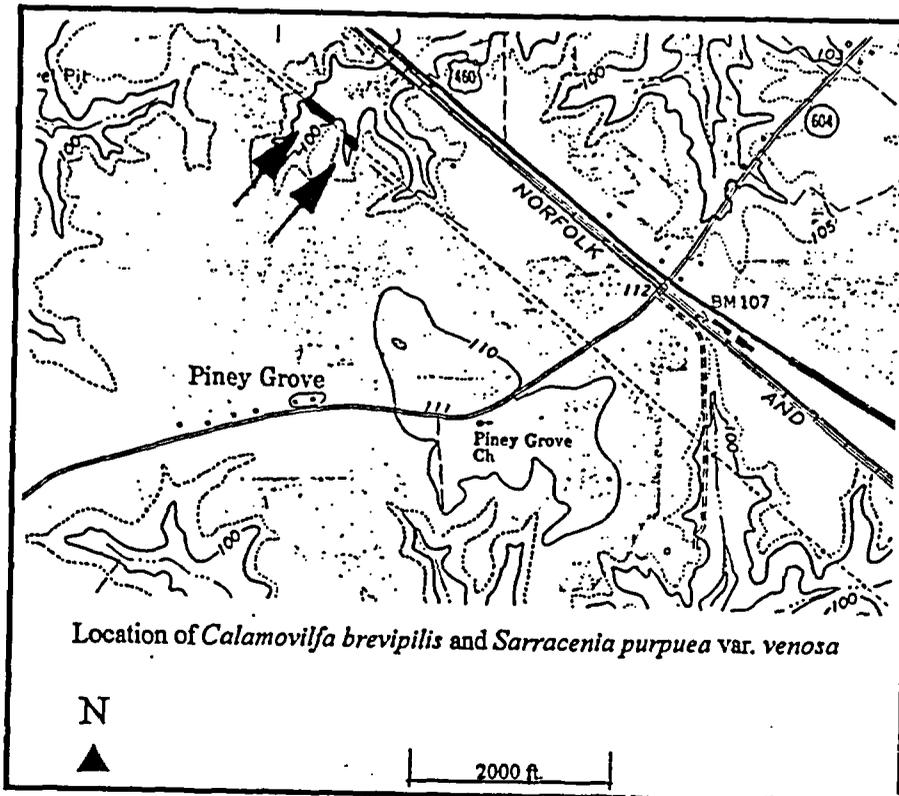
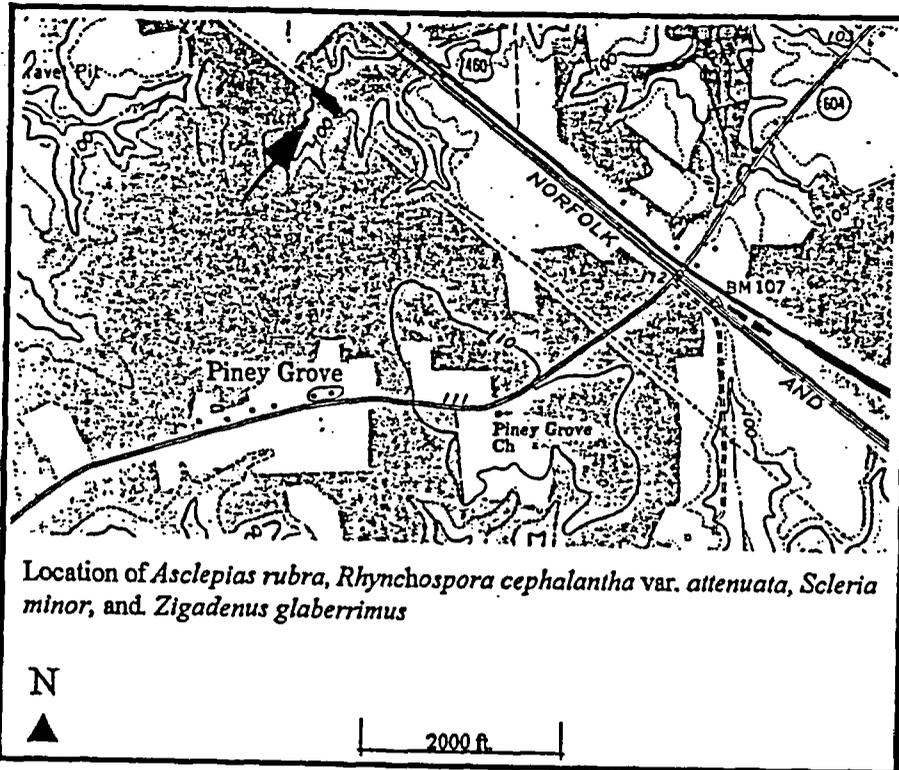
RARE PLANT SUMMARY TABLE

SCIENTIFIC NAME	COMMON NAME	GLOBAL RARITY RANK	STATE RARITY RANK	USFWS STATUS	VA LEGAL STATUS	ELEMENT OCCURRENCE RANK
<i>Asclepias rubra</i>	red milkweed	G4G5	S2S3	--	--	C
<i>Calamovilfa brevipilis</i>	pine barrens reedgrass	G4	S1	--	--	D
<i>Rhynchospora cephalantha</i> var. <i>attenuata</i>	small capitate beakrush	G5T?	S1?	--	--	C
<i>Sarracenia purpurea</i> ssp. <i>venosa</i>	southern purple pitcher-plant	G5T?	S2	--	--	BC
<i>Scleria minor</i>	slender nutrush	G4	S2	--	--	B
<i>Zigadenus glaberrimus</i>	large-flowered camas	G5	S1	--	--	D

SITE INFORMATION: This site has boggy, sphagnum seepage wetlands found in two adjacent swales in the powerline right-of-way. The saturated, low-nutrient conditions in the seepage wetlands inhibit woody plant growth and, in the past when fires were frequent, this site probably had uplands of pine savannah surrounding wetlands with shrub bog vegetation. These vegetation types would have featured scattered trees and suitable, open habitat for the rare plant species listed above. Currently, fire suppression is actively practiced and dense hardwood forests and pine plantations are the predominant vegetation throughout the region. At this site, rare plants still find suitable habitat in the wetlands of the herb-dominated transmission line corridor. All rare plants are found between pole numbers 106-161 and 106-162.

Current management of the powerline vegetation by Virginia Power appears to have benefitted the rare species at the site. However, the land-owner at this site has a herd of cattle which are grazing in the powerline wetlands and signs of damage to the vegetation and rare species were evident.

PINEY GROVE POWERLINE -- RARE PLANT LOCATIONS



RADIUM FLATWOODS

LOCALITY: Greenville County QUADRANGLE: Ante QUADRANGLE CODE: 3607766

LOCATION: Transmission powerline right-of-way ca. 0.3 km south of Radium.

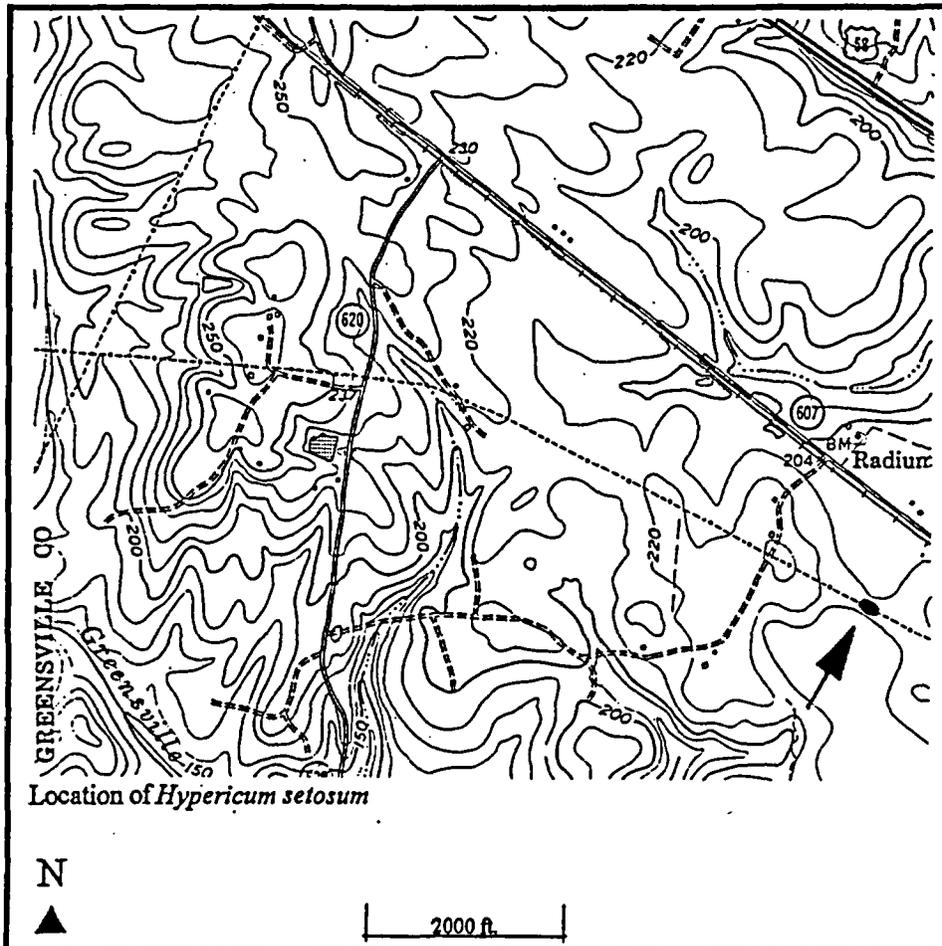
RARE PLANT SUMMARY TABLE

SCIENTIFIC NAME	COMMON NAME	GLOBAL RARITY RANK	STATE RARITY RANK	USFWS STATUS	VA LEGAL STATUS	ELEMENT OCCURRENCE RANK
<i>Hypericum setosum</i>	a St.-John'swort	G4G5	S1	--	--	C

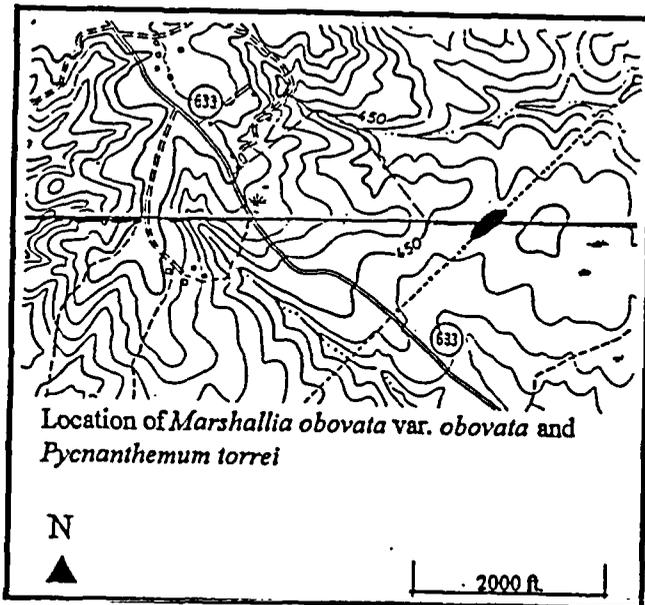
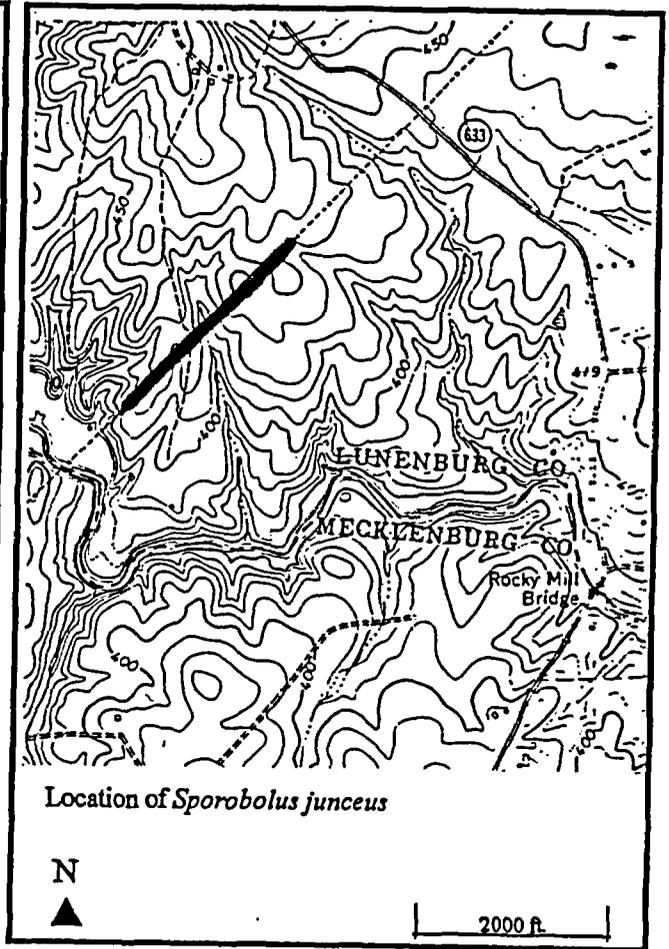
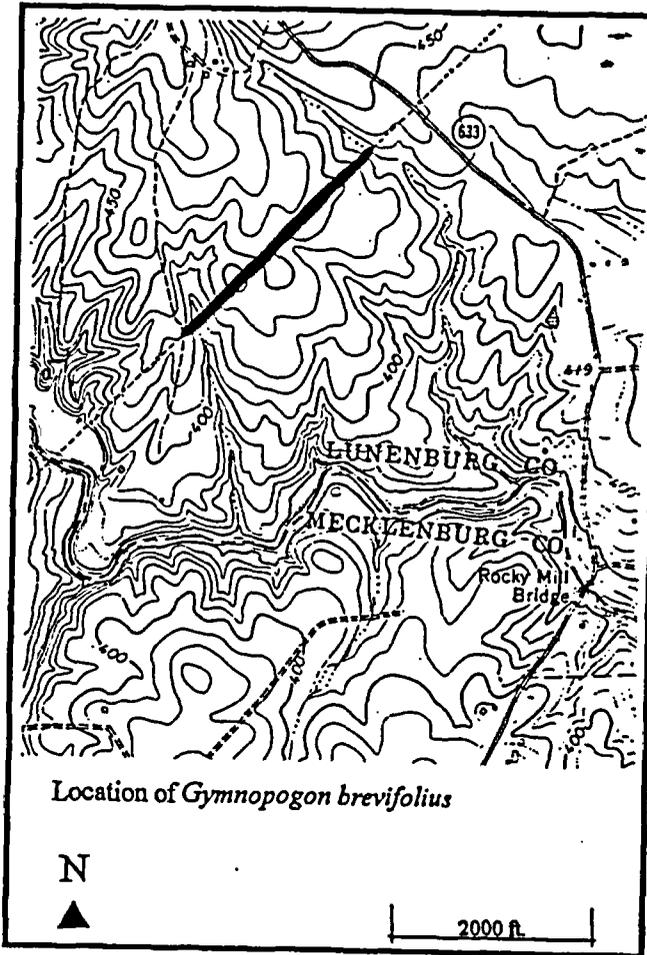
SITE INFORMATION: This section of powerline right-of-way is herb-dominated and features small areas of nutrient-poor, seasonal wetlands. In one area, seasonally-wet clay soil provides favorable habitat for a small population of the state rare herb *Hypericum setosum* (a St.-John'swort). Pole numbers for the area where the rare species was found were not recorded.

Current management of the powerline vegetation by Virginia Power appears to have benefitted the rare species at the site. Additional late-season survey for rare plant species is recommended.

RADIUM FLATWOODS -- RARE PLANT LOCATION



ROCKY MILL FLATWOODS -- RARE PLANT LOCATIONS



SAINT MARY'S CHURCH

LOCALITY: Suffolk City **QUADRANGLE:** Whaleyville. **QUADRANGLE CODE:** 3607655

LOCATION: Distribution powerline along the east side of State Route 677 from ca. 0.4 to 0.9 km south of Saint Mary's Church.

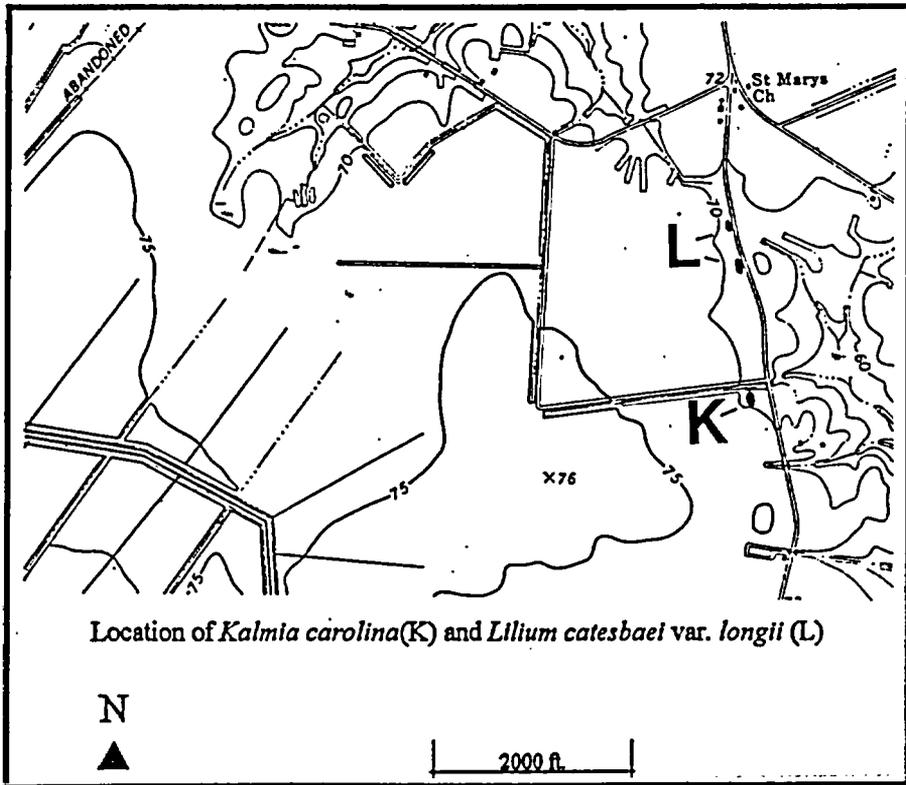
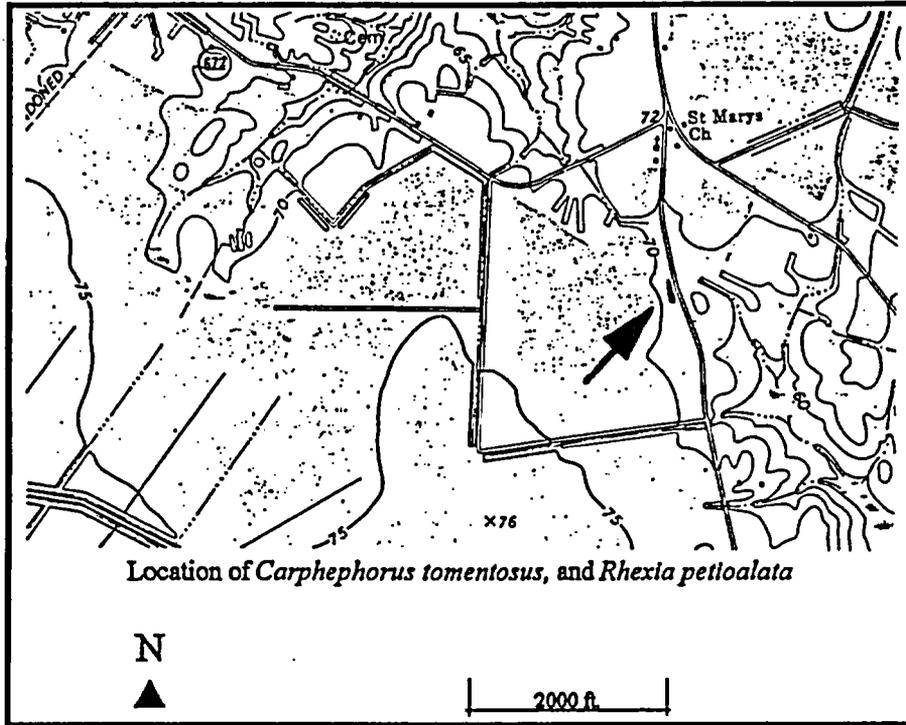
RARE PLANT SUMMARY TABLE

SCIENTIFIC NAME	COMMON NAME	GLOBAL RARITY RANK	STATE RARITY RANK	USFWS STATUS	VA LEGAL STATUS	ELEMENT OCCURRENCE RANK
<i>Carphephorus tomentosus</i>	woolly chaffhead	G4	S1	--	--	CD
<i>Kalmia carolina</i>	Carolina sheep-laurel	G4	S2	--	--	CD
<i>Lilium catesbaei</i> var. <i>longii</i>	southern red lily	G4T?	S1	--	--	CD
<i>Rhexia petiolata</i>	ciliate meadow-beauty	G3G5	S1	--	--	D

SITE INFORMATION: This site features a section of transmission powerline right-of-way which traverses seasonally-wet clay soils with extensive hardpans. The nutrient-poor, saturated conditions of the wetland inhibit woody plant growth. In the past when fires were frequent, the wetland probably featured shrub bog and/or pine savanna vegetation which provided suitable, open habitat for the rare plant species listed above. Currently, fire suppression is actively practiced and pine plantations surround the transmission line, however rare plants still find suitable habitat in the herb-dominated vegetation of the transmission line corridor.

This powerline provides habitat for the only known extant Virginia population of the rare and striking wildflower *Lilium catesbaei* var. *longii* (southern red lily). Current management of the powerline vegetation appears to have benefitted the rare species at the site. Additional June inventory is recommended.

SAINT MARY'S CHURCH -- RARE PLANT LOCATIONS



SAPPONY CREEK

LOCALITY: Sussex County QUADRANGLE: Stony Creek QUADRANGLE CODE: 3607784

LOCATION: Transmission powerline right-of-way from State Route 681 north for ca. 1.0 km north towards Sappony Creek.

RARE PLANT SUMMARY TABLE

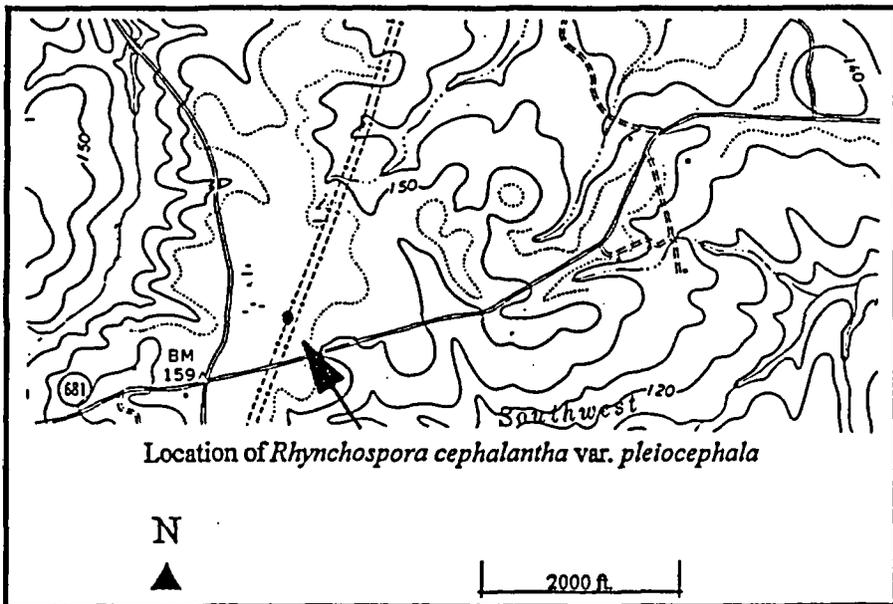
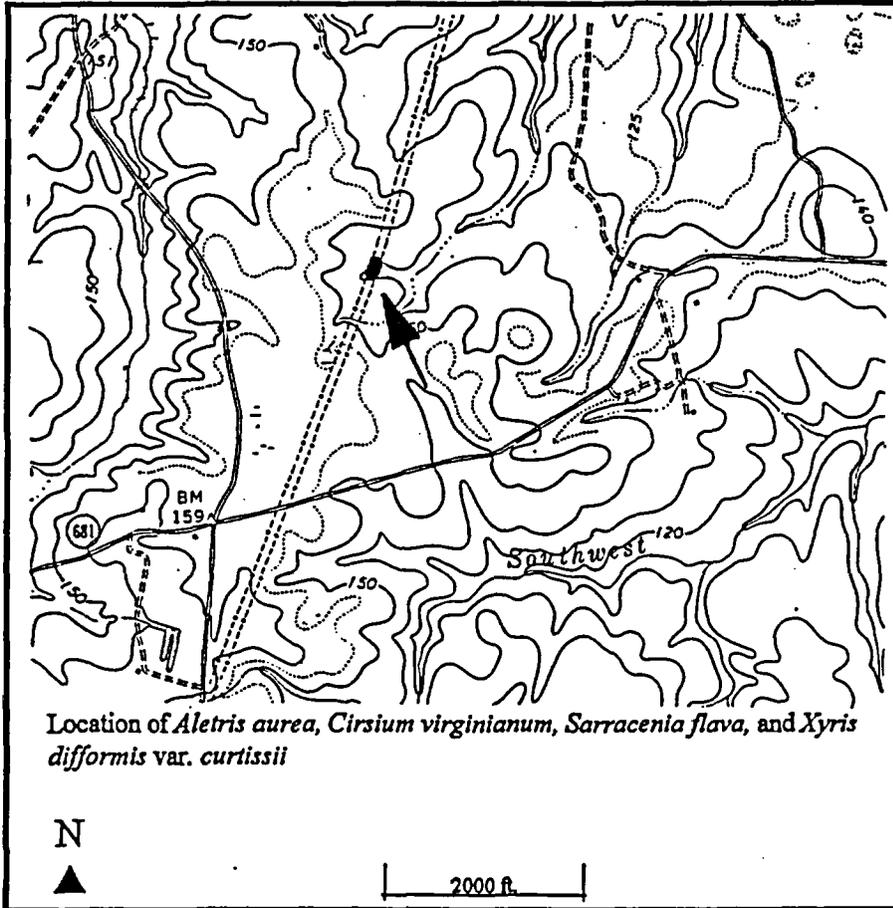
SCIENTIFIC NAME	COMMON NAME	GLOBAL RARITY RANK	STATE RARITY RANK	USFWS STATUS	VA LEGAL STATUS	ELEMENT OCCURRENCE RANK
<i>Aletris aurea</i>	golden colicroot	G5	S1	--	--	D
<i>Cirsium virginianum</i>	Virginia thistle	G3G4	S2	--	--	D
<i>Rhynchospora cephalantha</i> var. <i>pleiocephala</i>	many-headed bunched beakrush	G5T?	S2	--	--	B
<i>Sarracenia flava</i>	yellow pitcher-plant	G4G5	S1	--	--	CD
<i>Xyris difformis</i> var. <i>curtissii</i>	Curtiss' yellow-eyed- grass	G5T5	S1	--	--	CD

SITE INFORMATION: This site has two wetlands of interest. The first is near just north of State Route 681 where the powerline right-of-way intersects a seasonal pond with a thriving population of *Rhynchospora cephalantha* var. *pleiocephala* (many-headed bunched beakrush). The second wetland is farther north where the powerline right-of-way intersects a swale with a sphagnous seepage wetland. The low-nutrient, saturated conditions in this seepage wetland inhibit woody plant growth. In the past when fires were frequent, this site probably had uplands of pine savannah and wetlands with shrub bog vegetation. These vegetation types would have featured scattered trees and suitable, open habitat for the rare plant species listed above. Currently, fire suppression is actively practiced and dense hardwood forests and pine plantations are the predominant vegetation throughout the region. At this site, rare plants still find suitable habitat in the herb-dominated transmission line corridor.

Of particular note at the site is *Xyris difformis* var. *curtissii* (Curtiss' yellow-eyed-grass). This plant is currently unknown elsewhere in Virginia.

Current management of the powerline vegetation by Virginia Power appears to have benefitted the rare species at the site.

SAPPONY CREEK POWERLINE – RARE PLANT LOCATIONS



SHANDS BOG

LOCALITY: Dinwiddie County **QUADRANGLE:** Petersburg **QUADRANGLE CODE:** 3707724

LOCATION: Distribution powerline just to the east of its crossing a tributary of Arthur Swamp, ca. 0.4 km west of Vaughn Road, ca. 0.2 km north of Plank Road, and 0.8 km east of Squirrel Level Road.

RARE PLANT SUMMARY TABLE

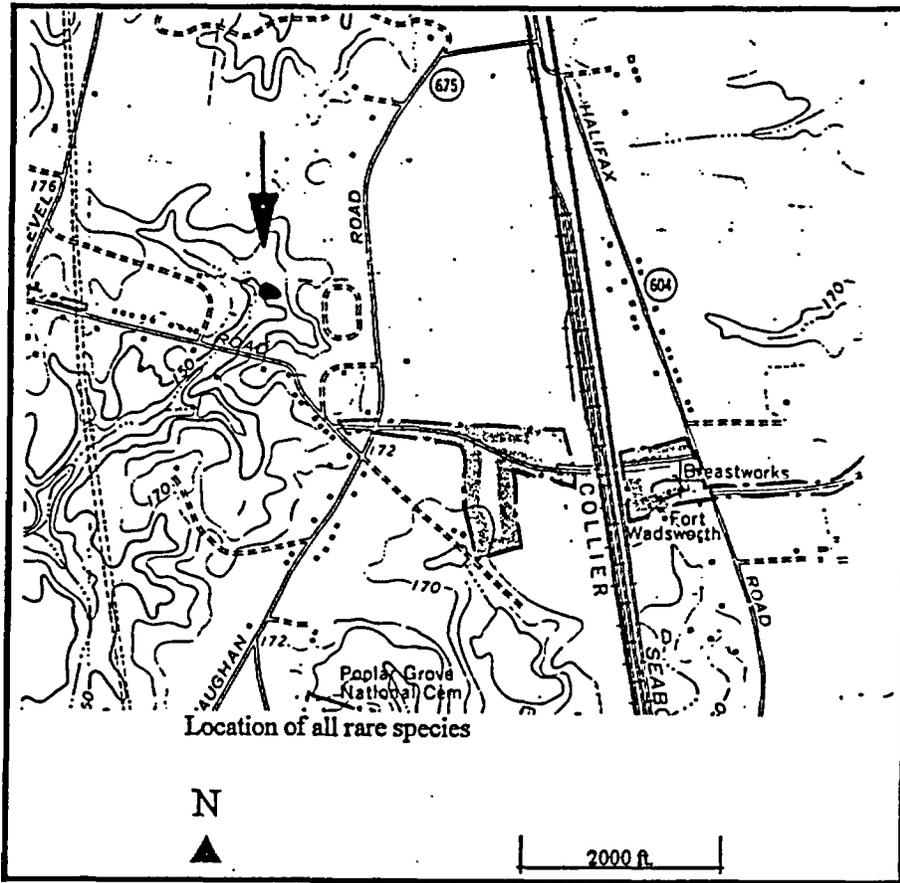
SCIENTIFIC NAME	COMMON NAME	GLOBAL RARITY RANK	STATE RARITY RANK	USFWS STATUS	VA LEGAL STATUS	ELEMENT OCCURRENCE RANK
<i>Asclepias rubra</i>	red milkweed	G4G5	S2S3	--	--	CD
<i>Calamovilfa brevipilis</i>	pine barrens reedgrass	G4	S1	--	--	BC
<i>Ctenium aromaticum</i>	toothache grass	G5	S1	--	--	C
<i>Eriocaulon decangulare</i>	ten-angle pipewort	G5	S2	--	--	C
<i>Paspalum praecox</i>	early paspalum	G4	S1	--	--	CD
<i>Platanthera blephariglottis</i> var. <i>conspicua</i>	large white fringed orchid	G4G5T3	S2	--	--	D
<i>Prenanthes autumnalis</i>	slender rattlesnake-root	G4G5	S2	--	--	D
<i>Sabatia campanulata</i>	slender marsh rose pink	G5	S2	--	--	CD
<i>Sarracenia flava</i>	yellow pitcher-plant	G4G5	S1	--	--	CD
<i>Zigadenus glaberrimus</i>	large-flowered camas	G5	S1	--	--	C

SITE INFORMATION: This site features a section of transmission powerline right-of-way which intersects a hillside seepage area. The nutrient-poor, saturated conditions of the seepage wetland inhibit woody plant growth. In the past when fires were frequent, the seep probably had shrub bog with saturated herb-dominated openings in the woody canopy which provided suitable, open habitat for the rare plant species listed above. Currently, fire suppression is actively practiced and dense hardwood forest surrounds the transmission line, however rare plants still find suitable habitat in the herb-dominated vegetation of the transmission line corridor. Pole numbers were not recorded.

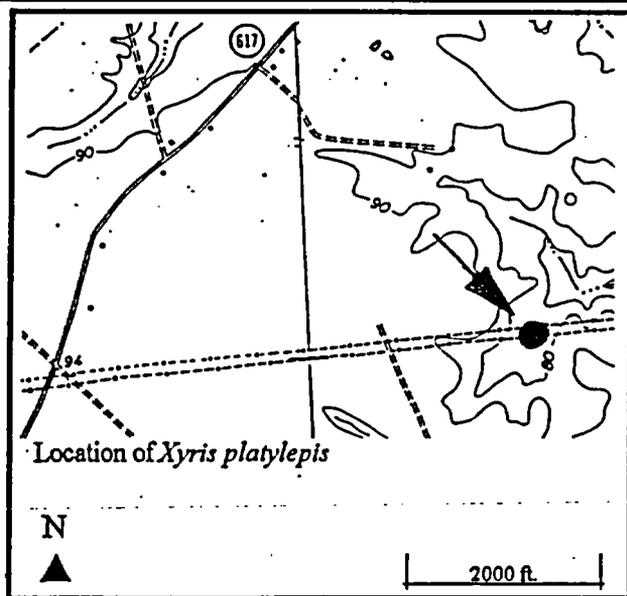
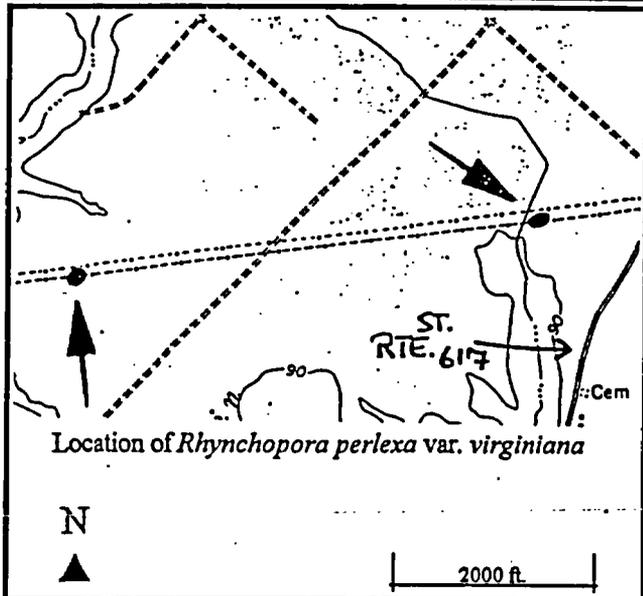
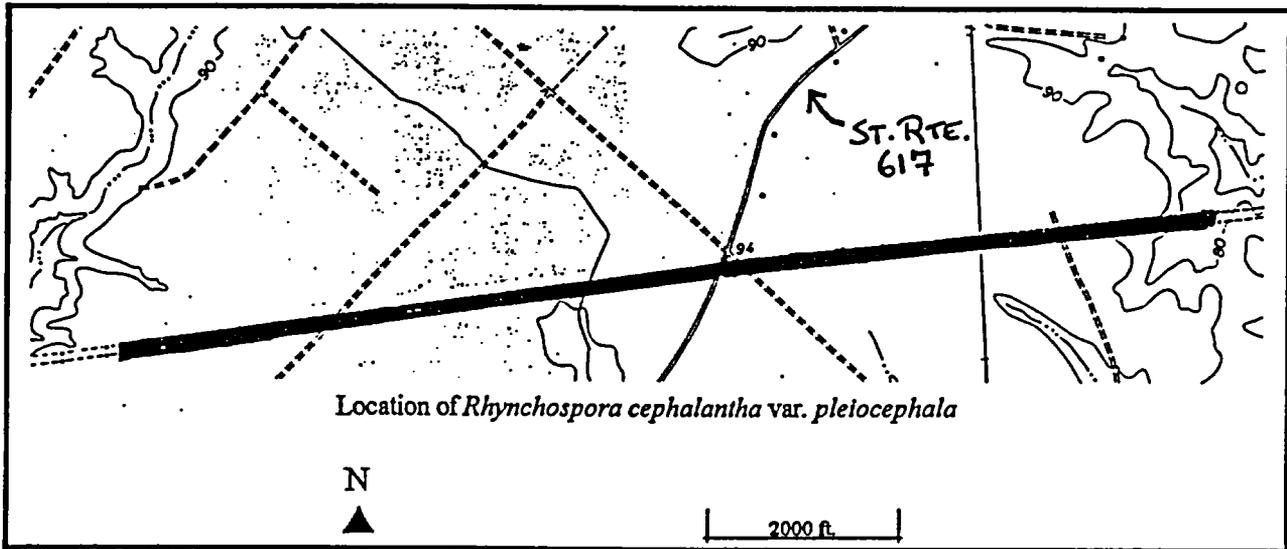
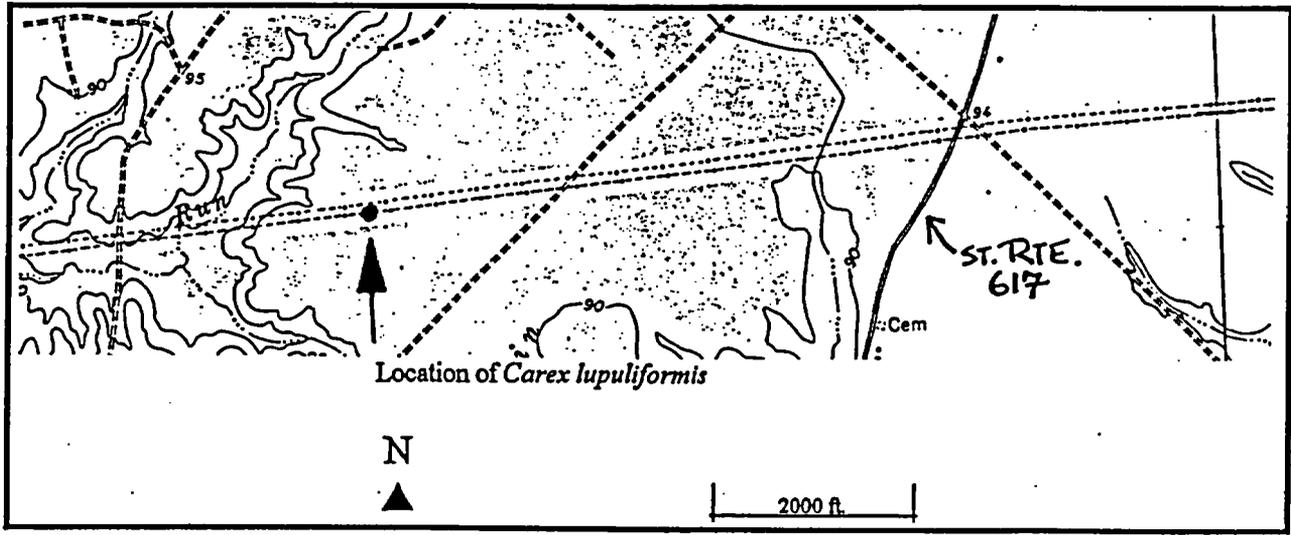
Along with the distribution line at Sussex Schoolhouse Swamp, this powerline right-of-way had the greatest concentration of rare plants recorded in any of the powerlines examined during this study. It provides habitat for the only known extant Virginia population of the rare grass species *Paspalum praecox* (early paspalum).

Current management of the powerline vegetation appears to have benefitted the rare species at the site. Additional June inventory for rare plants is recommended.

SHANDS BOG -- RARE PLANT LOCATION



SHRUB POCOSIN POWERLINES -- RARE PLANT LOCATIONS



STATE ROUTE 666 POWERLINE

LOCALITY: Dinwiddie County **QUADRANGLE:** Carson **QUADRANGLE CODE:** 3707714

LOCATION: Western transmission powerline right-of-way between State Routes 666 and 667, ca. 1.2 km northeast from State Route 666.

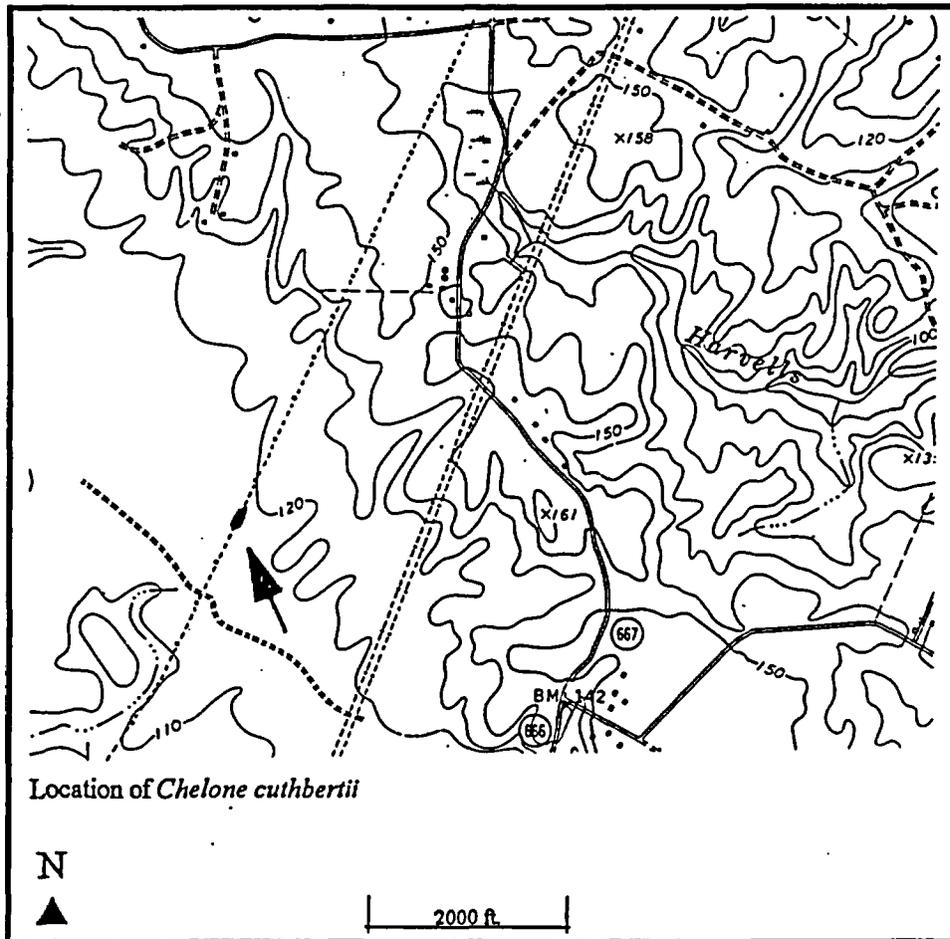
RARE PLANT SUMMARY TABLE

SCIENTIFIC NAME	COMMON NAME	GLOBAL RARITY RANK	STATE RARITY RANK	USFWS STATUS	VA LEGAL STATUS	ELEMENT OCCURRENCE RANK
<i>Chelone cuthbertii</i>	Cuthbert turtlehead	G3	S2	--	--	CD

SITE INFORMATION: This section of scrubby powerline right-of-way features large areas of nutrient-poor, seasonal wetlands. In one area, the seasonally-wet clay soils provide favorable habitat for a small population of the globally-rare herb *Chelone cuthbertii* (Cuthbert turtlehead). Pole numbers for the area where the rare species was found were not recorded.

Current management of the powerline vegetation by Virginia Power appears to have benefitted the rare species at the site. Additional early-season survey for rare plant species is recommended at this site.

STATE ROUTE 666 POWERLINE - RARE PLANT LOCATION



SUSSEX SCHOOLHOUSE SWAMP

LOCALITY: Sussex County **QUADRANGLE:** Sussex **QUADRANGLE CODE:** 3607783

LOCATION: Distribution powerline along the south side of State Route 40 and the east side of State Route 640, within ca. 0.5 km of the jct. of State Routes 40 and 640.

RARE PLANT SUMMARY TABLE

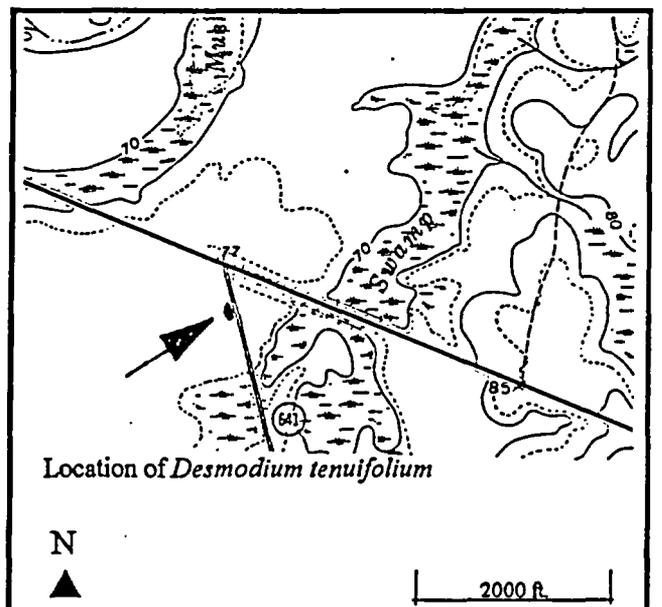
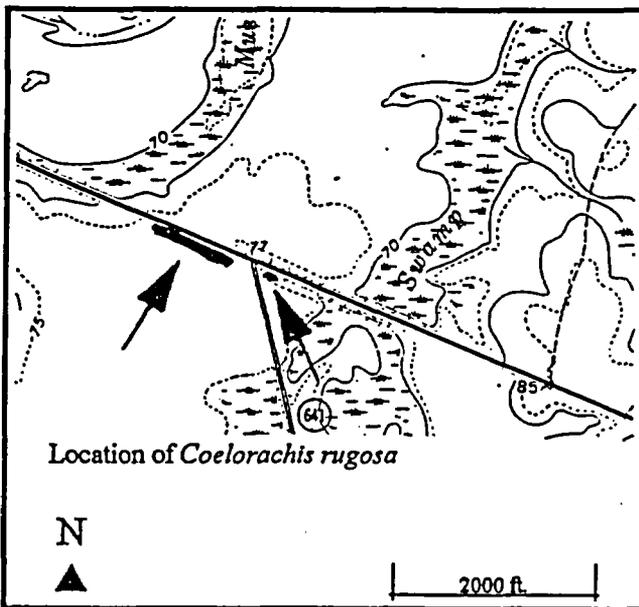
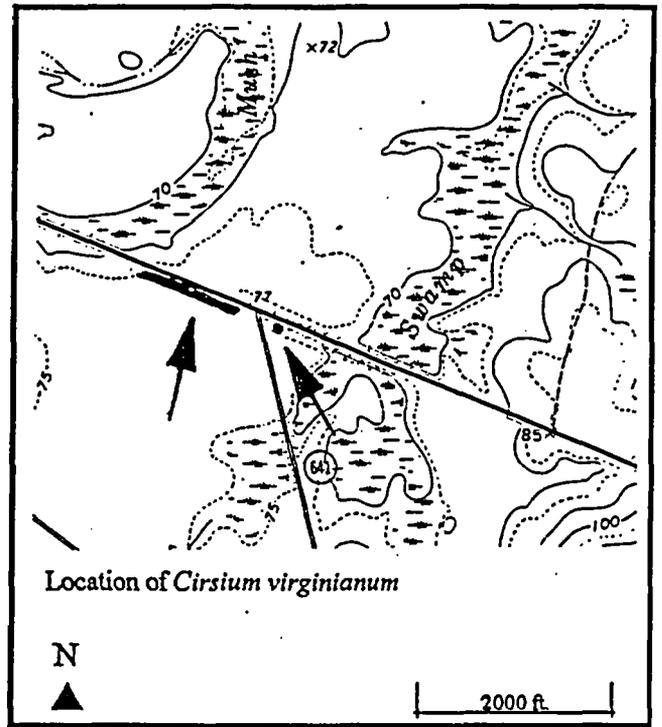
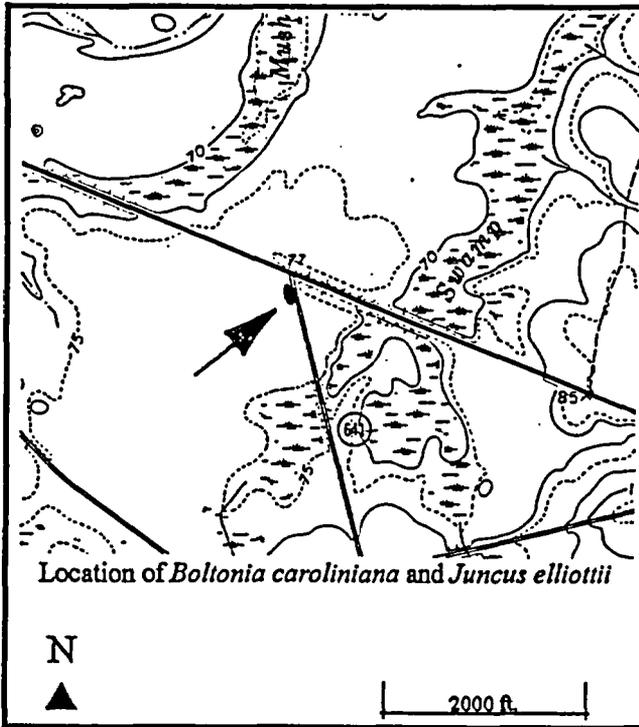
SCIENTIFIC NAME	COMMON NAME	GLOBAL RARITY RANK	STATE RARITY RANK	USFWS STATUS	VA LEGAL STATUS	ELEMENT OCCURRENCE RANK
<i>Boltonia caroliniana</i>	Carolina boltonia	G4?	S2	--	--	CD
<i>Cirsium virginianum</i>	Virginia thistle	G3G4	S2	--	--	BC
<i>Coelorachis rugosa</i>	wrinkled jointgrass	G5	S1	--	--	BC
<i>Desmodium tenuifolium</i>	slim-leaf tick-trefoil	G3G4	S1	--	--	D
<i>Dichanthelium consanguineum</i>	blood panic grass	G5	S1?	--	--	C
<i>Hypericum setosum</i>	a St.-john'swort	G4G5	S1	--	--	D
<i>Juncus elliotii</i>	bog rush	G4G5	S1S2	--	--	D
<i>Ludwigia hirtella</i>	Rafinesque's seedbox	G5	S1	--	--	D
<i>Prenanthes autumnalis</i>	slender rattlesnakeroot	G4G5	S2	--	--	C
<i>Solidago gracillima</i>	a goldenrod	G4?	S2	--	--	C

SITE INFORMATION: This site features a section of transmission powerline right-of-way which traverses seasonally-wet clay soils with extensive hardpans. The nutrient-poor, saturated conditions of the wetland inhibit woody plant growth. In the past when fires were frequent, the wetland probably had shrub bog and/or pine savanna vegetation which provided suitable, open habitat for the rare plant species listed above. Currently, fire suppression is actively practiced and dense hardwood forest and pine plantations surround the transmission line, however rare plants still find suitable habitat in the herb-dominated vegetation of the transmission line corridor.

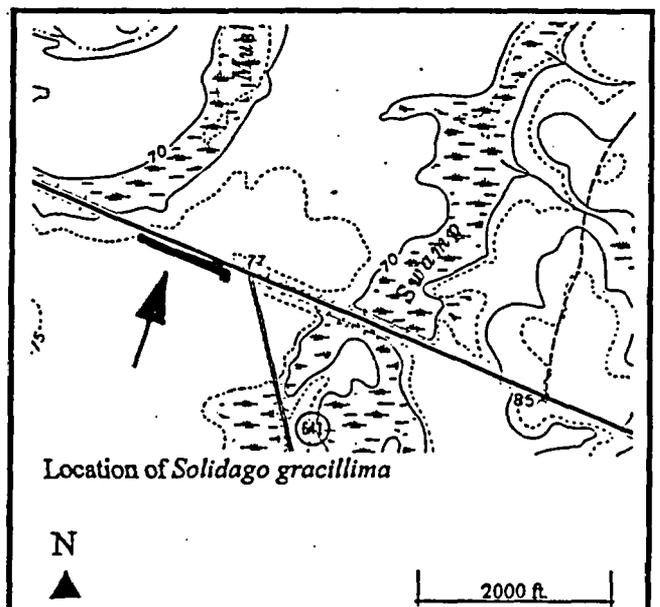
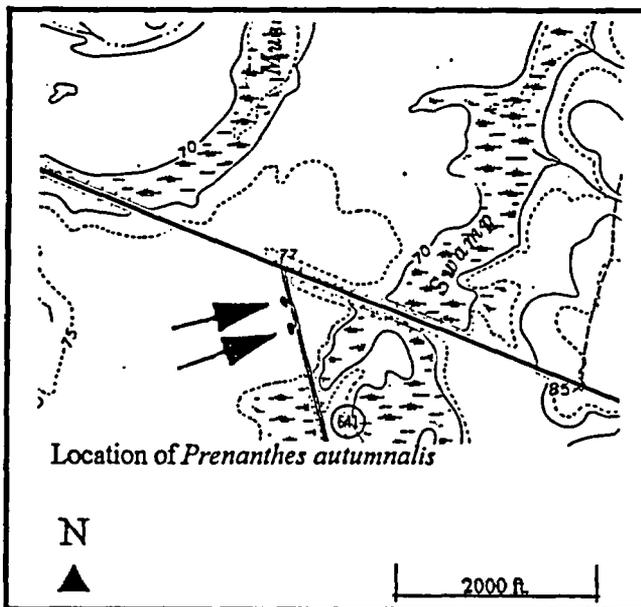
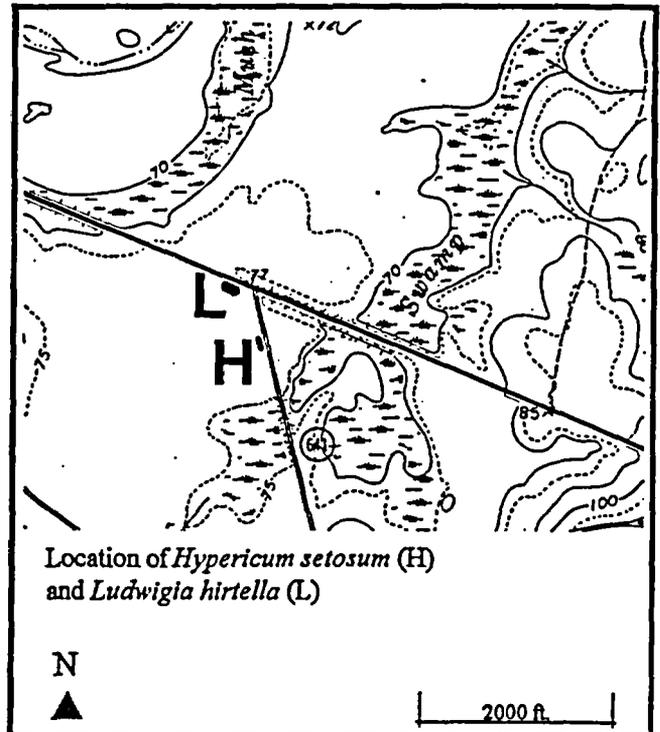
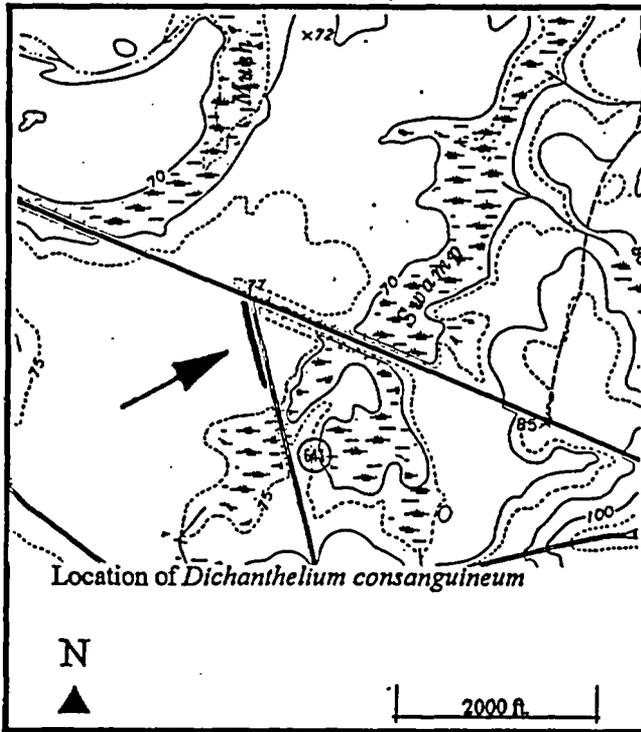
Along with the distribution line at Shands Bog, this powerline right-of-way had the greatest concentration of rare plants recorded in any of the powerlines examined during this study. It provides habitat for the only known extant Virginia population of the rare grass species *Coelorachis rugosa* (wrinkled jointgrass).

Current management of the powerline vegetation appears to have benefitted the rare species at the site.

SUSSEX SCHOOLHOUSE SWAMP -- RARE PLANT LOCATIONS 1



SUSSEX SCHOOLHOUSE SWAMP – RARE PLANT LOCATIONS 2



✓
TUCKERS POCOSIN POWERLINE

LOCALITY: Surry County **QUADRANGLE:** Bacons Castle **QUADRANGLE CODE:** 3707616

LOCATION: Transmission powerline right-of-way ca. 0.5 to 1.0 km south-southwest of Ferguson Grove Church.

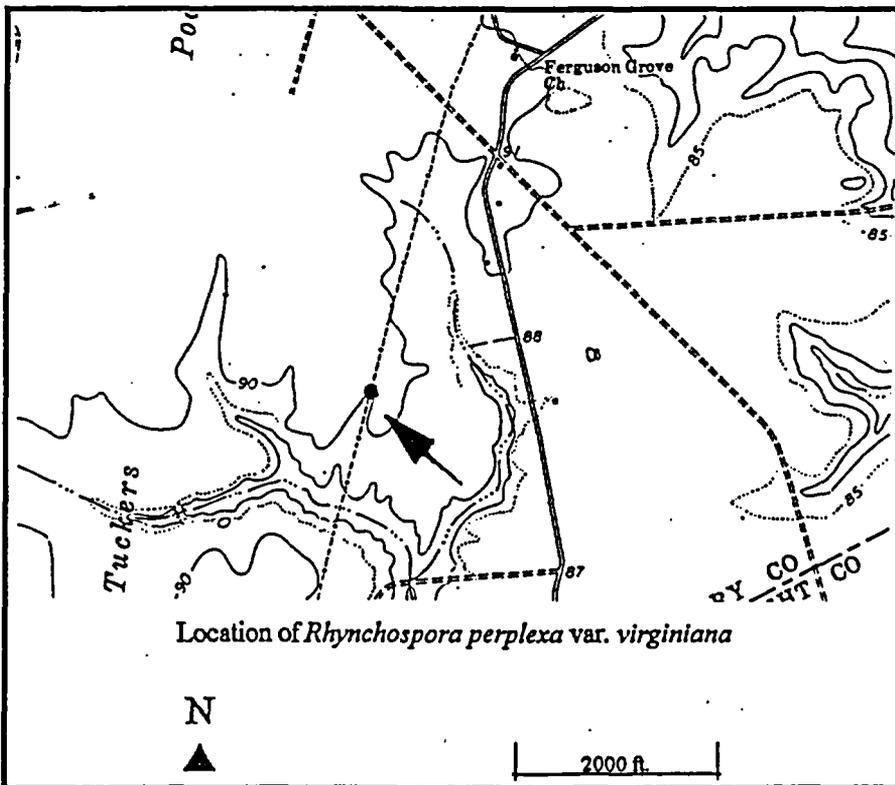
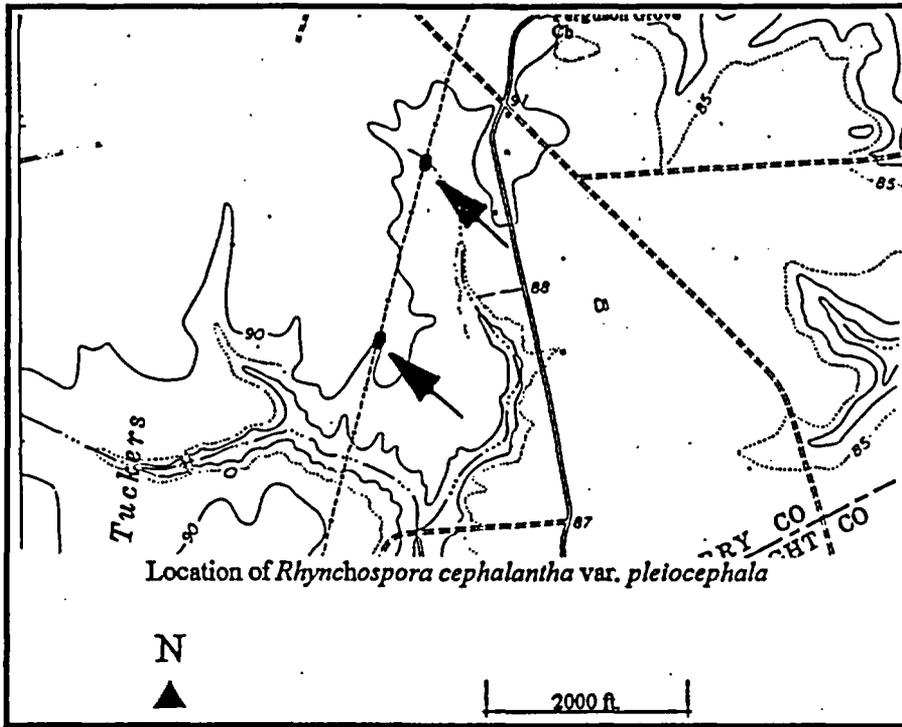
RARE PLANT SUMMARY TABLE

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>GLOBAL RARITY RANK</u>	<u>STATE RARITY RANK</u>	<u>USFWS STATUS</u>	<u>VA LEGAL STATUS</u>	<u>ELEMENT OCCURRENCE RANK</u>
<i>Rhynchospora cephalantha</i> var. <i>pleiocephala</i>	many-headed bunched beakrush	G5T?	S1?	--	--	AB
<i>Rhynchospora perplexa</i> var. <i>virginiana</i>	a beakrush	G5T?	S1S2	--	--	BC

SITE INFORMATION: This site features a transmission powerline right-of-way which has seasonally-wet clay soils with extensive hardpans. The nutrient-poor, saturated conditions of these seasonal wetlands inhibit woody plant growth. In the past when fires were frequent, this region probably had shrub bog and savannah vegetation with scattered trees and suitable, open habitat for the rare plant species listed above. An often-used term for shrub bog is pocosin and current topographic maps still apply the name "Tuckers Pocosin" to the site. Currently, fire suppression is actively practiced and dense hardwood forests and pine plantations surround the powerlines. At this site, rare plants still find suitable habitat in the herb-dominated vegetation of the transmission line corridor. Pole numbers were not recorded.

Current management of the powerline vegetation by Virginia Power appears to have greatly benefitted the rare species at the site.

TUCKERS POCOSIN -- RARE PLANT LOCATIONS



UPPER WARWICK SWAMP POND

LOCALITY: Prince George County **QUADRANGLE:** Disputanta South **QUADRANGLE CODE:** 3707712

LOCATION: Transmission powerline right-of-way between State Routes 618 and 625, ca. 1.2 km south-southwest Disputanta.

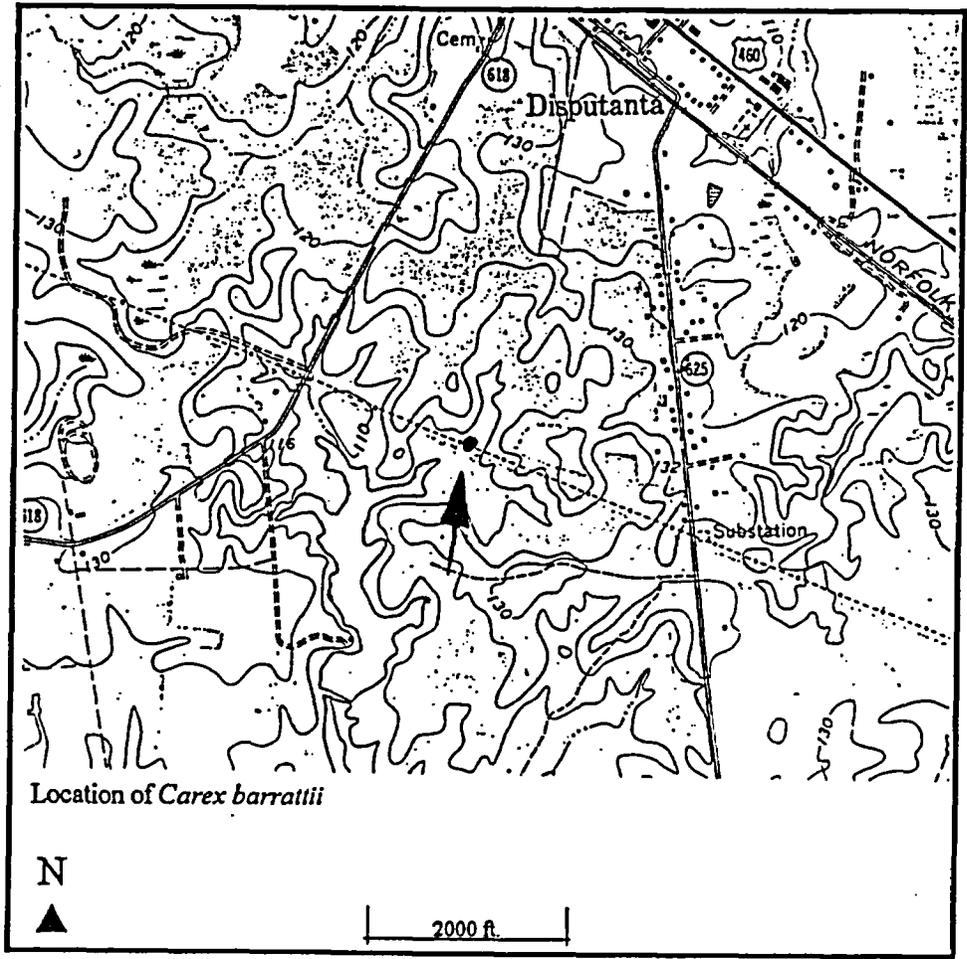
RARE PLANT SUMMARY TABLE

SCIENTIFIC NAME	COMMON NAME	GLOBAL RARITY RANK	STATE RARITY RANK	USFWS STATUS	VA LEGAL STATUS	ELEMENT OCCURRENCE RANK
<i>Carex barrattii</i>	Barratt's sedge	G4	S2	--	--	C

SITE INFORMATION: This section of powerline right-of-way intersects a stream which has a large wetland that was ponded and enlarged by beaver activity. Within the powerline right-of-way in the upper portions of the beaver wetland, an area of lower-nutrient seepage was found which provided habitat for *Carex barrattii* (Barratt's sedge). Pole numbers for the site were not recorded.

Current management of the powerline vegetation by Virginia Power appears to have benefitted the rare species at the site. Additional early-season survey for rare plant species is recommended.

UPPER WARWICK SWAMP POND -- RARE PLANT LOCATION



WARWICK SWAMP POWERLINE

LOCALITY: Prince George County **QUADRANGLE:** Disputanta South **QUAD. CODE:** 3707712

LOCATION: Transmission powerline right-of-way ca. 0.3 km northwest of State Route 602, ca. 0.7 km south of State Route 460.

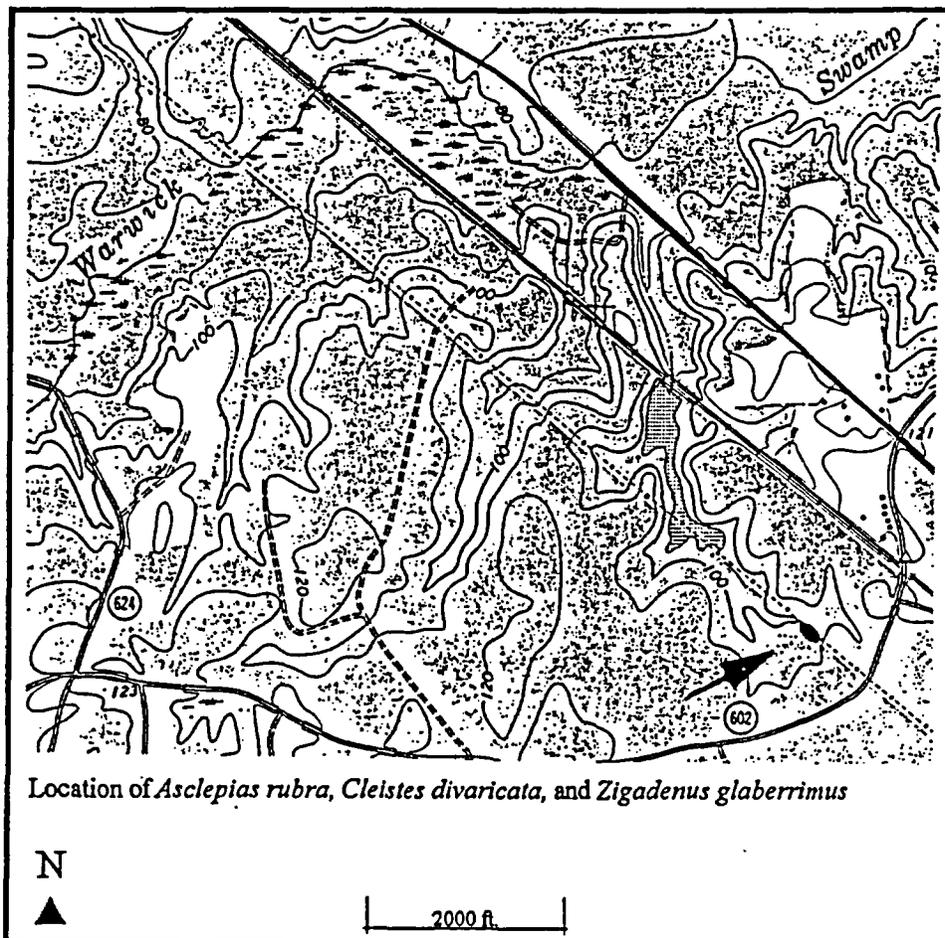
RARE PLANT SUMMARY TABLE

SCIENTIFIC NAME	COMMON NAME	GLOBAL RARITY RANK	STATE RARITY RANK	USFWS STATUS	VA LEGAL STATUS	ELEMENT OCCURRENCE RANK
<i>Asclepias rubra</i>	red milkweed	G4G5	S2S3	--	--	D
<i>Cleistes divaricata</i>	spreading pogonia	G4	S1	--	--	D
<i>Zigadenus glaberrimus</i>	large-flowered camas	G5	S1	--	--	D

SITE INFORMATION: This site features a sphagnous seepage wetland which intersects a transmission powerline right-of-way. The low-nutrient, saturated conditions in this seepage wetland inhibit woody plant growth. In the past when fires were frequent, this site probably had uplands of pine savannah and wetlands with shrub bog vegetation. These vegetation types would have featured scattered trees and suitable, open habitat for the rare plant species listed above. Currently, fire suppression is actively practiced and dense hardwood forests and pine plantations are the predominant vegetation throughout the region. At this site, rare plants still find suitable habitat in the herb-dominated transmission line corridor. Pole numbers at this site were not recorded.

Current management of the powerline vegetation by Virginia Power appears to have benefitted the rare species at the site.

WARWICK SWAMP POWERLINE -- RARE PLANT LOCATION



DISCUSSION

The results of this preliminary inventory indicate that Virginia's powerline rights-of-way provide a significant refuge for many rare plant species. To fully identify and protect this resource, further inventory, management, and protection is recommended.

While most of the known rare plant sites which occur in southeast Virginia powerline and transmission rights-of-way were visited, only a small portion of potentially-significant rare plant habitat has been checked. Exploration of the remaining unchecked lines as well as powerlines in other portions of Virginia is likely to yield impressive results.

This inventory could be carried out as a low-level, long-term project over a period of two to five or more years, the level of work per year depending on numerous factors including manpower and financial commitments of Virginia Power and the Division of Natural Heritage.

ACKNOWLEDGMENTS

This project was initiated by Virginia Power's Department of Environmental Policy and Compliance and Department of Forestry. In large part credit for this project is due to the initiative and guidance of Bill Bolin and Roger Leadman, respective directors in those departments.

Bill Bolin's continued assistance in the provision of administrative and field support was indispensable. Bill, Johnnie Wallin, and Rick Willis provided direct access and transportation to transmission line sites as well as generous support with field supplies. To these and other involved Virginia Power staff, our sincere thanks is offered.

Gary Fleming, Inventory Ecologist for DNH, volunteered his services without pay to apply his botanical talents to this undertaking. Gary collected hundreds of specimens for this project and was invaluable to its competent completion. Gary and other DNH staff, including Allen Belden, Caren Caljouw, Steve Carter-Lovejoy, Mellisa Donnoff, Sandra Erdle, Larry Smith, and Leslie Trew also assisted with field support, administrative support, and writing/editing portions of this report. Grateful acknowledgment is offered to involved DNH staff.

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APPENDIX 1.

EXPLANATION OF THE NATURAL HERITAGE RANKING SYSTEM

Each of the significant natural features (species, community type, etc.) monitored by DNH is considered an element of natural diversity, or simply an element. Each element is assigned a rank that indicates its relative rarity on a five-point scale (1 = extremely rare; 5 = abundant; Table 1). The primary criterion for ranking elements is the number of occurrences, i.e. the number of known distinct localities or populations. Also of great importance is the number of individuals at each locality or, for highly mobile organisms, the total number of individuals. Other considerations include condition of the occurrences, number of protected occurrences, and threats. However, emphasis remains on the number of occurrences, so that ranks essentially are an index of known biological rarity. These ranks are assigned in terms of an element's rarity within Virginia (its State or S-rank) and the element's rarity over its entire range (its Global or G-rank). Subspecies and varieties are assigned a Taxonomic (T-) rank in addition to their G-rank. Taken together, these ranks give an instant picture of an element's rarity. For example, a rank of G5/S1 indicates an element which is abundant and secure range-wide, but extremely rare in Virginia. Ranks for community types are provisional or lacking, due to ongoing efforts by the Natural Heritage network to classify community taxa. Rarity ranks used by DNH are not legal designations, and they are continuously updated to reflect new information.

Table 1. Definition of Natural Heritage state rarity ranks. Global ranks are similar, but refer to a species' range-wide status. Note that GA and GN are not used and GX means extinct. Sometimes ranks are combined (e.g. S1S2) to indicate intermediate or somewhat unclear status. Elements with uncertain taxonomic validity are denoted by the letter Q, after the global rank. Ranks for most community types have not been generated due to ongoing community classification efforts. These ranks should not be interpreted as legal designations.

- S1 Extremely rare; usually 5 or fewer occurrences in the state; or may have a few remaining individuals; often especially vulnerable to extirpation.
- S2 Very rare; usually between 5 and 20 occurrences; or few occurrences with many individuals; often susceptible to becoming endangered.
- S3 Rare to uncommon; usually between 20 and 100 occurrences; may have fewer occurrences, but with a large number of individuals in some populations; may be susceptible to large-scale disturbances.
- S4 Common; usually more than 100 occurrences, but may be fewer with many large populations; may be restricted to only a portion of the state; usually not susceptible to immediate threats.
- S5 Very common; demonstrably secure under present conditions.
- SA Accidental in the state.
- SH Historically known from the state, but not verified for an extended period, usually more than 15 years; this rank is used primarily when inventory has been attempted recently.
- SN Regularly occurring migrants or transient species which are non-breeding, seasonal residents. (Note that congregation and staging areas are monitored separately).
- SU Status uncertain, often because of low search effort or cryptic nature of the element.

SX Apparently extirpated from the state

The spot on the landscape that supports a natural heritage resource is an element occurrence. DNH has mapped over 9,000 element occurrences in Virginia. Information on the location and quality of these element occurrences is computerized within the Division's BCD system, and additional information is recorded on maps and in manual files.

- LE** Listed endangered
- LT** Listed threatened
- PE** Proposed to be listed as endangered
- PT** Proposed to be listed as threatened
- S** Synonyms
- C** Candidate: status data supports listing of taxon as endangered or threatened, but listing has been delayed by pending proposals of higher priority taxa.
- SOC** Species of Concern: evidence of vulnerability, but insufficient status data exists.