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A BOTANICAL SURVEY OF THE FLORA
OF THE CHATTAHOOCHEE RIVER PALISADES
FULTON COUNTY, GEORGIA

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INTRODUCTION

The Chattahoochee River begins in the mountains of north-east Georgia and flows south where it joins the Flint River in Florida to form the Apalachicola, which flows into the Gulf of Mexico. The Chattahoochee has played an important role in structuring human occupation in Georgia and Florida.

Past archeological evidence indicates that particular sites along the Chattahoochee have had human occupation for approximately 10,000 years (Kelly, 1973). Beginning in the early 1970's, the Cobb-Fulton Archeological Survey has conducted research in the region of the upper Chattahoochee from Peachtree Creek in Atlanta, north to Buford Dam. The botanical survey described in this report is part of a larger study being correlated by the Survey, which includes geology, archeology, and land use data, in an attempt to understand the River Corridor in terms of physical, natural, and human interactions.

In 1976, the Survey issued a report by Richard Lee of a botanical survey of the west side of the Chattahoochee in Cobb County (hatched line areas on location map) for an entire growing season from fall 1973 through fall 1974. This area of the river is extensively floodplain and much of it has been in agriculture since prehistoric times. The three sites covered a variety of habitats including: riverbank, tributary creek bank, -field, pine-hardwood and hardwood forest. Lee identified 497 species belonging to 212 genera, a remarkable diversity of

species for the relatively small area surveyed.

The east side of the river, with which this study is concerned, has a very different set of plant habitats. Here, rock palisades or cliffs rise some fifty feet above the river and are interspersed with steep vegetated slopes. Over 400 million years ago the river cut through the underlying bedrock to form the palisades which "are composed of layers of metamorphic rock whose major minerals are quartz, feldspars, and micas in varying proportions" (Personal communication 1976, W.H. Grant, Professor of Geology, Emory University, Atlanta, Ga.). Additional palisades occur along the Chattahoochee in other regions of the Upper Piedmont and it is expected that a thorough sampling of one of them for an entire growing season will provide a model for predicting the flora of others.

The study area includes important archeological sites and it has been spared major alterations by man due to its rugged topography and relatively inaccessible location. Thus, the vegetation of the palisades is probably little different from that of prehistoric times, whereas the floodplains and other areas along the Chattahoochee have been drastically disturbed by agriculture and urbanization.

The proposed "Chattahoochee River National Park" will incorporate several hundred feet of riverside property on both sides of the river, stretching from Buford Dam to Peachtree Creek in Atlanta. Botanical surveys of a variety of habitats is expected to aid park planners in determining proper land usage and critical habitats within the park's boundaries.

METHODS

The study area is located in Fulton County approximately one half mile south of Morgan Falls Dam on the east side of the river (see location map). It is divided into the following four zones based on differences in location and vegetation cover:

1) palisades; 2) climax hardwood cove; 3) pine-hardwood forest; and 4) riverbank (see site map; note: riverbank was not delineated on the map because of its small size and obvious location).

Observations and collections were made one to three times per week beginning in late February 1976 and ending in early November of the same year. As plants came into flower, they were collected and data was obtained on their location and frequency of occurrence. Species were identified by means of standard manuals (Radford, et.al. 1968; Duncan and Foote 1975, Gleason 1963; Fernald 1950; Hitchcock 1950) and Emory University Herbarium specimens. Voucher specimens are on file at the Cobb-Fulton Archeological Survey Laboratory and the Emory University Herbarium.

Each species identified is listed alphabetically in Table 1. The scientific name, authority, and common name (if any) is given, along with habitat denoted by number [1) palisades, 2) climax hardwood cove, 3) pine-hardwood forest, and 4) riverbank] and frequency of occurrence denoted by letter [A) very rare (only one specimen seen), B) infrequent, C) frequent, D) abundant]. Frequency of occurrence determinations are subjective judgments based on fifty-six visits to the research area.

RESULTS AND DISCUSSION

281 species 146 genera 4/77

A total of 279 different species representing 194 genera were collected and identified from this site and are listed in Table 1 with data on their habitat and frequency of occurrence. When these data are combined with Lee's data, a total of 585 species of vascular plants representing 238 genera have been identified for this section of the Chattahoochee River.

The study area has a unique and interesting flora. Several plant associations which are unusual and uncommon in the Georgia Piedmont are found here, along with a number of very rare plants. The vegetation has a distinct affinity to that found in the mountains of North Georgia. Each habitat within the study area exhibits a somewhat different flora, nevertheless the entire area is dominated by woody members of the Heath family (Ericaceae).

The palisade habitat for plants consists of pockets of relatively shallow soil interspersed with rock. This limits the development of a thick tree canopy because poor root support causes top heavy trees to topple. The sparse canopy is dominated by Rock Chestnut Oak (Quercus prinus) and Loblolly Pine (Pinus taeda). The subcanopy is dominated by Mountain Laurel (Kalmia latifolia), which forms dense thickets, Carolina Rhododendron (Rhododendron minus), Rosebay Rhododendron (Rhododendron maximum), Sweetshrub (Calycanthus florida), and Horse Sugar (Symplocos tinctoria). Galax (Galax aphylla) and Bird's-Foot Violet (Viola pedata) are conspicuous herbs. Rare and unusual

plants of the palisades include Trailing Arbutus (Epigaea repens), which is protected by law in many states (Cambell, et.al., 1965), Turk's Cap Lily (Lilium michauxii) a colorful uncommon member of the Lily family (Liliaceae), and Heuchera parviflora, which according to Radford (1968) is rare and restricted to heavily shaded rocks and cliffs in the mountains.

The climax hardwood cove habitat consists of a rich moist ravine with steep slopes. Here the canopy is dominated by Rock Chestnut Oak and Umbrella Tree (Magnolia tripetala). The sub-canopy is dominated by Mountain Laurel, Rosebay Rhododendron, Flowering Dogwood (Cornus florida), and Silverbell (Halesia carolina). Major understory components include: Leucothoe (Leucothoe axillaris var. editorum), Yellow Root (Xanthorrhiza simplicissima), Hydrangea (Hydrangea arborescens), and New York Fern (Dryopteris noveboracensis). Rare and unusual plants in this area include Schisandra (Schisandra glabra) which is listed as "threatened" for Georgia on the Federal Register List of Endangered and Threatened Species. (1975), and Yellow Lady's Slipper (Cypripedium calceolus) which is listed as "unusual" for Georgia on a revision of the Federal Register list (1976). + *Parax*

The pine-hardwood habitat has most of the components found in the above two habitats except that Loblolly Pine (Pinus taeda) is much more frequent. In addition, this area has a greater incidence of "weedy" species due to the fact that a fence was placed here some time ago. Unusual species found here include American Chestnut (Castanea dentata) and a Gentian (Gentiana villosa).

The riverbank vegetation is affected by wide fluctuations of the waterlevel and here occur the greatest number of "weedy" species. Dominant tree species include River Birch (Betula nigra) and Tag Alder (Alnus serrulata). Leucothoe and Mountain Laurel are understory components, while "weedy" species such as Fireweed (Erechtites hieracifolia), Pokeweed (Phytolacca americana), and Wild Lettuce (Lactuca floridana) are common herbs.

The plant community makeup of the whole site is similar in appearance to the "Heath Balds" found further north at higher elevations because of the abundance of Mountain Laurel and associated Rhododendron species. The northeast facing exposure, the steep topography, and the cooler temperatures and high humidity seem to afford optimum sites for species such as Rosebay Rhododendron, Buffalo Nut (Pyrularia pubera), and Leucothoe which are typically found in the mountains. In addition, several species such as Trailing Arbutus reach the southernmost extension of their distribution range in this vicinity.

In conclusion, this site is of unique botanical value and should be given immediate protection.

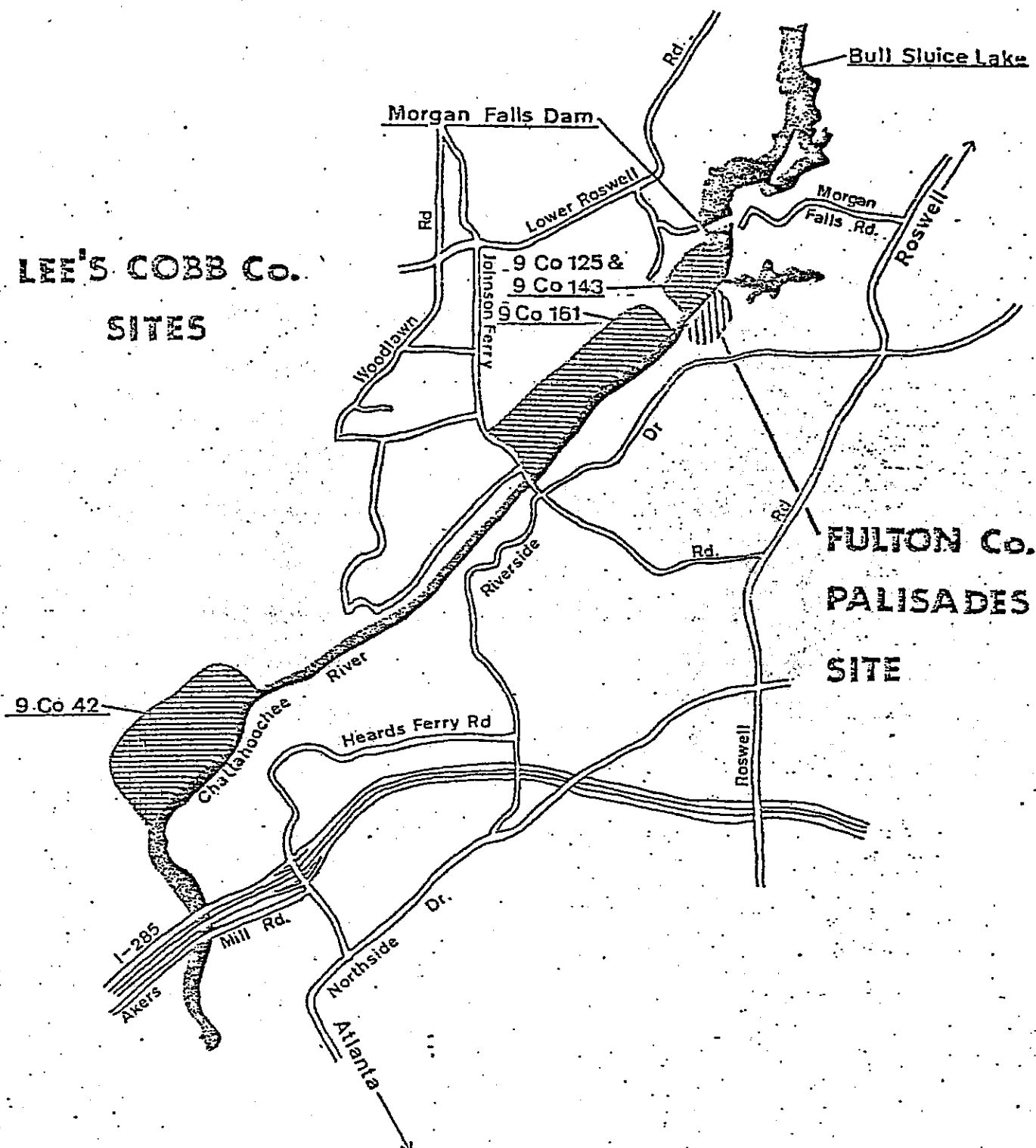
ACKNOWLEDGEMENTS

I wish to express special thanks to Dr. William H. Murdy, Professor of Biology, Emory University for his assistance and the use of the Emory University Herbarium.

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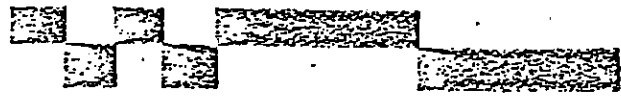
**LWT'S COBB Co.
SITES**



**FULTON Co.
PALISADES
SITE**

LOCATION MAP

Scale in miles



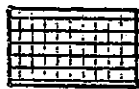
SITE MAP

MORGA FALLS DAM

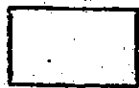
LEGEND



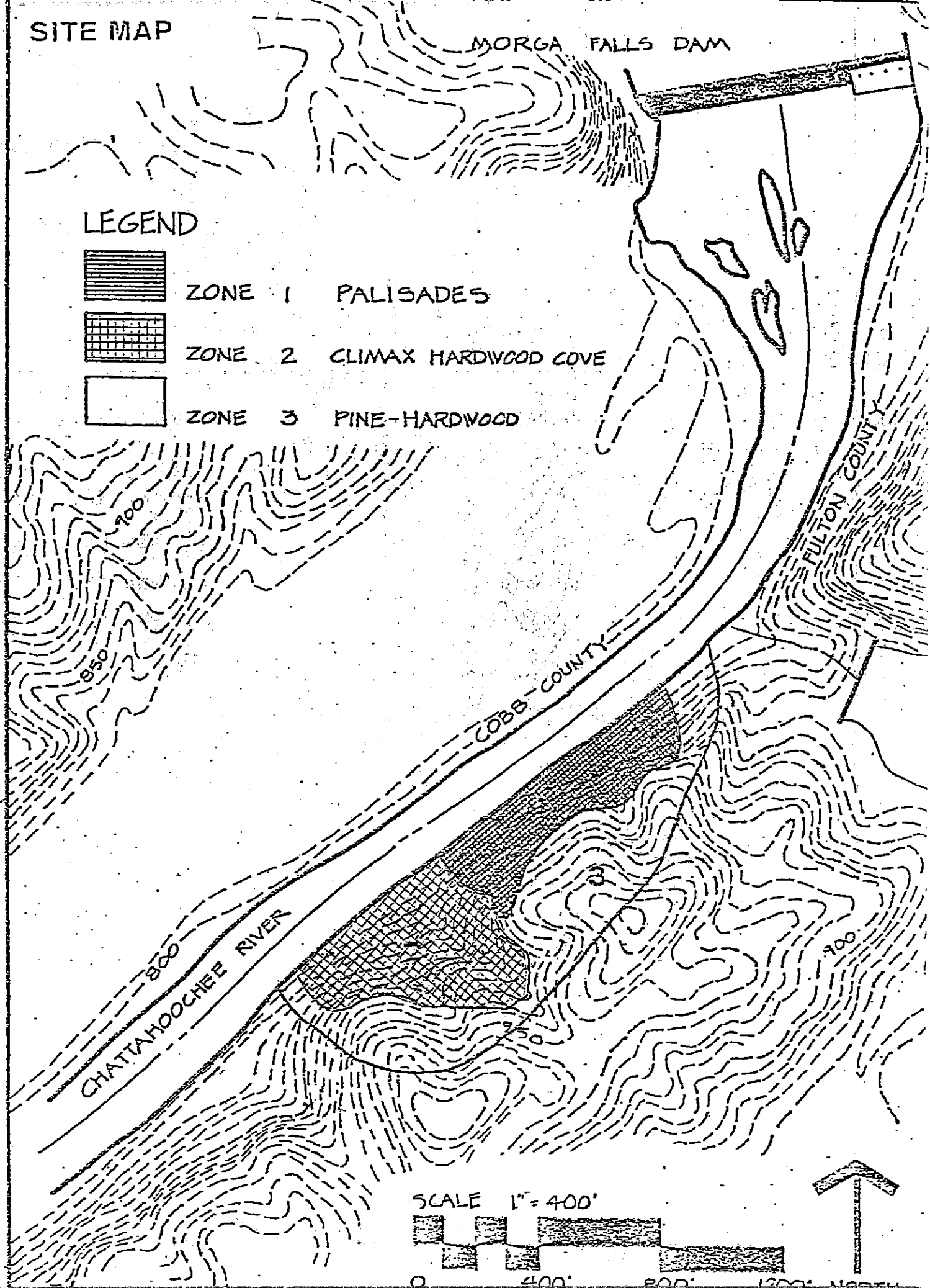
ZONE 1 PALISADES



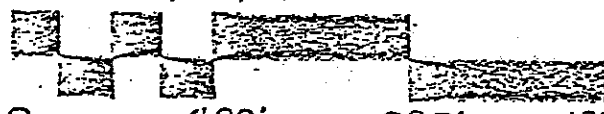
ZONE 2 CLIMAX HARDWOOD COVE



ZONE 3 PINE-HARDWOOD



SCALE 1" = 400'



- Aster curtissii T. & G. 2,B
Aster divaricatus L. 1,2,3,4,D
Aster dumosus L. 1,B
Aster infirmus Mich. 1,A
Aster lateriflorus (L.) Britt. 2,B
Aster lowrieianus Porter "Lowrie's Aster" 2,4,C
Aster patens Aiton 3,B
Aster paternus Cronquist "White Topped Aster" 1,C
Athyrium asplenoides (Mich.) A.A. Eaton "Southern Lady Fern" 2,B
Aureolaria flava (L.) Farwell 1,2,3,B
Aureolaria virginica (L.) Penn. 1,3,B
Betula nigra L. "River Birch" 1,C
Bidens frondosa L. 4,B
Boehmeria cylindrica L. "False Nettle" 4,B
Botrychium virginianum (L.) Swartz "Rattlesnake Fern" 3,A
Calycanthus florida L. "Sweetshrub" 1,2,4,D
Campanula divaricata Mich. "Bellflower" 1,C
Campsis radicans (L.) Seemann "Trumpet Vine" 1,B
Carex albicans Willd. Young 1,B
Carex crebriflora Wiegand 2,B
Carex digitalis Willd. 4,B
Carex incompta Bickn. 2,B
Carpinus caroliniana Walter "Ironwood" 1,2,4,C
Carya glabra (Miller) Sweet "Pignut Hickory" 1,2,3,C
Carya tomentosa (Poiret) Nuttall "Mockernut Hickory" 1,2,3,C
Cassia nictitans L. "Wild Sensitive Plant" 3,B

- Castanea dentata (Marshall) Borkh. "American Chestnut" 3,B
Castanea pumila (L.) Mill. "Chinquapin" 3,A
Catalpa speciosa Warder ex Engelm. "Catawba Tree" 2,A
Ceanothus americanus L. "New Jersey Tea" 1,3,C
Celtis occidentalis L. "Hackberry" 2,B
Cercis canadensis L. "Redbud" 2,B
Chamaelirium luteum (L.) Gray "Blazing Star" 3,B
Chimiphila maculata (L.) Pursh "Spotted Wintergreen" 2,3,C
Chionanthus virginicus L. "Fringe Tree" 4,B
Cimicifuga racemosa Nuttall 2,B
Clematis viorna L. 1,B
Clitoria mariana L. "Butterfly Pea" 3,B
Collinsonia canadensis L. 2,B
Coreopsis major Walt. 1,C
Cornus amomum Miller 2,A
Cornus florida L. "Flowering Dogwood" 1,2,3,C
Corylus cornuta Marshall "Beaked Hazelnut" 4,B
Crataegus phaenopyrum (L.F.) Medicus 3,A
Crataegus uniflora Muenchh. 3,B
Cuscuta compacta Jussiev "Compact Dodder" 4,B
Cypripedium calceolus L. "Yellow Lady's Slipper" 2,B
Danthonia sericea Nuttall "Downy Oat Grass" 1,C
Danthonia spicata (L.) Beauvois ex R. & S. 4,B
Decumaria barbara L. "Climbing Hydrangea" 1,C
Dentaria diphylla (Mich.) Wood. 2,B
Desmodium ciliare (Muhl. ex Willd.) DC. 1,B

- Desmodium fernaldii Schub. 3,B
Desmodium laevigatum (Nuttall) DC. 3,B
Desmodium nudiflorum (L.) DC. 2,B
Desmodium paniculatum (L.) DC. 3,B
Digitaria ischaemum (Schreber) Schreber ex Muhl. 4,B
Diodia virginiana L. 4,B
Dioscorea villosa L. "Wild Yam" 1,2,3,C
Diospyros virginiana L. "Persimmon" 1,2,3,C
Dryopteris hexagonoptera (Mich.) C. Chr. "Beech Fern" 2,C
Dryopteris marginalis Gray "Marginal Wood Fern" 1,C
Dryopteris noveboracensis (L.) Gray "New York Fern" 2,D
Eclipta alba (L.) Hass Karl 4,B
Elaeagnus pungens Thunberg "Silverberry" 2,A
Elephantopus carolinianus Willd. 3,B
Elephantopus tomentosus L. 3,B
Epigea repens L. "Trailing Arbutus" 1,C
Erechtites hieracifolia (L.) Raf. "Fireweed" 4,B
Erianthus contortus Baldwin ex. Ell. "Plumegrass" 4,B
Erigeron canadensis L. "Horseweed" 4,B
Erigeron pulchellus Mich. "Robins-Plantain" 3,B
Erigeron strigosus Muhl. ex Willd. "Daisy Fleabane" 1,B
Euonymus americanus L. "Strawberry Bush" 1,2,B
* Eupatorium fistulosum Barratt "Joe-Pye-Weed" 2,A
Eupatorium hyssopifolium L. 1,B
Eupatorium purpureum L. 2,B
* Eupatorium album L. 3,B

- Eupatorium rugosum Houttuyn 3,B
Eupatorium sessilifolium L. 3,B
Euphorbia corollata L. "Flowering Spurge" 3,B
Fagus grandifolia Ehrh. "Beech" 4,B
Fraxinus americana L. "White Ash" 3,B
Galax aphylla L. "Galax" 1,3,C
Galium aparine L. "Bedstraw" 2,B
Galium ciraezans Mich. 3,B
Gelsemium sempervirens (L.) Aiton "Yellow Jessamine" 1,C
Gentiana villosa L. 3,A
Geranium maculatum L. "Wild Geranium" 2,C
Geum canadense Jacquin 2,B
Gillenia trifoliata (L.) Moench. "Indian Physic" 1,3,B
Gnaphalium purpureum L. "Cudweed" 4,B
Halesia carolina L. "Silverbell" 1,2,3,4,C
Hamamelis virginiana L. "Witch Hazel" 1,3,C
Helenium flexuosum Raf. "Sneezeweed" 4,B
Helianthus microcephalus T. & G. 3,B
Hepatica americana (DC.) Ker. "Liverleaf" 2,B
Heterotheca graminifolia (Mich.) Shinnars 1,C
Heterotheca mariana (L.) Shinnars 1,C
Heuchera americana L. "Alum Root" 1,2,C
Heuchera parviflora Bartling 1,B
Hexastylis arifolia (Mich.) Small 2,3,C
Hieracium gronovii L. 4,B
Hieracium venosum L. "Rattlesnake-Weed" 1,3,C

- Houstonia longifolia Gaertner 1,3C
Hydrangea arborescens L. "Hydrangea" 1,2,3,C
Hypericum hypericoides (L.) Crantz "St. Andrew's Cross" 1,4,B
Hypericum mutilum L. 1,4,B
Hypericum punctatum Lam. "Spotted St. John's-wort" 1,3,B
Ilex ambigua var. montana (T. & G.) Ahles "Mountain Holly" 2,B
Impatiens capensis Meerb. "Jewelweed" 4,B
Iris cristata Aiton "Dwarf Iris" 2,B
Itea virginica L. "Virginia Willow" 4,B
Juniperus virginiana L. "Red Cedar" 1,B
Kalmia latifolia L. "Mountain Laurel" 1,2,3,4,D
Krigia virginica (L.) Willd. 1,B
Lactuca canadensis L. "Wild Lettuce" 2,A
Lactuca floridana L. "Wild Lettuce" 4,B
Lespedeza cuneata (Dumont) G. Don "Sericea" 1,B
Lespedeza hirta (L.) Hornemann 3,B
Lespedeza intermedia (Watson) Britton 1,B
Lespedeza repens (L.) Barton 3,B
Leucothoe axillaris var. editorum (Fern. & Schub.) Ahles "Leucothoe" 2,4,D
Liatris spicata (L.) Willd. "Blazing Star" 1,C
Lilium michauxii Poiret "Turk's Cap Lily" 1,B
Linaria canadense (L.) Dumont "Toad Flax" 1,B
Liquidambar styraciflua L. "Sweetgum" 1,3,B
Liriodendron tulipifera L. "Tulip Poplar" 1,2,3,4,B
Lobelia amoena Mich. 4,C
Lonicera japonica Thunberg "Japanese Honeysuckle" 1,B

- Luzula acuminata Raf. 1,B
Luzula multiflora (Retzius) Lej. 1,C
Lycopus virginicus L. 4,B
Lysimachia quadrifolia L. "Whorled Loosestrife" 3,B
Magnolia tripetala L. "Umbrella Magnolia" 2,C
Melica mutica Walter "Melic Grass" 2,A
Microstegium vimineum (Trinius) A. Camus 1,C
Mitchella repens L. "Partridge Berry" 1,4,B
Monotropa hypopithys L. "Pine Sap" 3,B
Monotropa uniflora L. "Indian Pipe" 3,A
Morus rubra L. "Red Mulberry" 2,B
Nyssa sylvatica Marshall "Black Gum" 1,2,3,4,C
Ostrya virginiana Muhl. "Hop Hornbeam" 1,2,3,4,C
Oxalis floridana Salisbury 3,B
Oxalis stricta L. 3,B
Oxydendrum arboreum (L) DC. "Sourwood" 1,B
Panicum boshii Poir 1,3,C
Panicum commutatum Schultes 1,3,C
Panicum depauperatum Muhl. 1,B
Panicum dichotomum L. 1,2,3,4,C
Panicum laxiflorum Lam. 2,3,B
Panicum polyanthes Schultes 1,C
Parthenocissus quinquefolia L. "Virginia Creeper" 1,2,3,4,C
Passiflora lutea L. 2,B
Philadelphus indorus L. "Mock Orange" 2,B
Phoradendron serotinum (Raf.) M.C. Johnston "Mistletoe" 4,B
- Mededa virginiana 2,B
 Indian Cucumber Root
- Panax quinquefolia L. 2,B
 Ginseng

- Phytolacca americana L. "Pokeweed" 4,B
Pinus echinata Miller "Short-leaf Pine" 3,B
Pinus taeda L. "Loblolly Pine" 1,2,3,4,C
Plantanus occidentalis L. "Sycamore" 4,B
Poa annua L. 4,B
Poa cuspidata Nuttall 1,B
Podophyllum peltatum L. "May Apple" 2,C
Polygala polygama Walter 3,4,B
Polygonatum biflorum (Willd.) Pursh "Solomn's Seal" 1,2,C
Polygonum cespitosum (De Bruyn) Stewart 1,4,B
Polypodium polypodioides (L.) Watt "Resurrection Fern" 1,B
Polystichum acrostichoides (Mich) Schott
Potentilla canadensis L. "Fivefingers" 3,B
Prenanthes altissima L. 2,3,B
Prunella vulgaris L. "Heal-all" 4,B
Prunus serotina Ehrhart "Black Cherry" 1,3,B
Prunus umbellata Ell. 3,B
Ptelea trifoliata L. "Wafer-Tree" 4,A
Pteridium aquilinum (L.) Kuhn "Bracken Fern" 1,3,C
Pycnanthemum incanum (L.) Mich. "Horse Mint" 3,B
Pyrularia pubera Mich. "Buffalo Nut" 1,2,C
Quercus alba L. "White Oak" 1,2,3,4,B
Quercus coccinea Muenchh. "Scarlet Oak" 3,C
Quercus falcata Mich. "Southern Red Oak" 3,B
Quercus lyrata Walter "Overcup Oak" 1,B
Quercus nigra L. "Water Oak" 1,3,B

Quercus prinus L. "Rock Chestnut Oak" 1,2,3,C

Quercus rubra L. "Northern Red Oak" 1,3,B

Quercus stellata Wang "Post Oak" 3,A

Ranunculus recurvatus Poiret 2,B

Rhododendron maximum L. "Rosebay Rhododendron" 1,2,3,4,D

Rhododendron minus Mich. "Carolina Rhododendron" 1,2,3,C

Rhododendron nudiflorum (L.) Torr. "Wild Azalea" 1,2,3,4,B

Rhus copallina L. "Winged Sumac" 3,B

Rhus glabra L. "Smooth Sumac" 3,A

Rhus radicans L. "Poison Ivy" 1,2,3,4,D

Robinia pseudo-acacia L. "Black Locust" 4,B

Rubus argutus Link 3,B

Rubus betulifolius L. 3,B

Rudbeckia hirta L. "Black-Eyed Susan" 3,B

Salvia lyrata L. 3,B

Sambucus canadensis L. "Elderberry" 2,A

Samolus parviflorus Raf. "Water Pimpernel" 4,B

Sanguinaria canadensis L. "Bloodroot" 2,A

Sanicula canadensis L. 2,B

Sassafras albidum (Nutt.) Nees "Sassafras" 1,2,3,C

Saxifraga virginiana Mich. "Early Saxifrage" 1,2,B

Shrankia microphylla Macbride "Sensitive Brier" 3,B

Schisandra glabra (Brickell) Rehder 2,B

Senecio smallii Britton 1,C

Silene stellata Aiton f. "Starry Campion" 3,A

Silene virginica L. "Fire Pink" 3,B

- Silphium compositum Mich. 1,3,C
Silphium dentatum Ell. "Starry Rosin-weed" 3,B
Smilacina racemosa (L.) Desf. "False Solomon's Seal" 1,2,C
Smilax bonanox L. 4,B
Smilax glauca 1,2,3,4,B
Smilax rotundifolia L. 3,B
Solidago bootii Hooker 3,4,C
Solidago caesia L. 1,4,B
Solidago curtissii T. & G. 2,B
Solidago erecta Pursh 3,B
Solidago odora Ait. 1,B
Sphenopholis nitida (Sprengel) Scribn. "Wedge Grass" 3,B
Stellaria pubera Mich. "Giant Chickweed" 2,C
Stenanthium gramineum (Ker) Morong "Featherbells" 1,B
Stipa avenacea L. "Needle Grass" 3,B
Stylosanthes biflora L. BSP. "Pencil Flower" 1,B
Styrax grandifolia Aiton "Big Leaf Snowbell" 3,4,B
Symplocos tinctoria (L.) L'Her. "Horse Sugar" 1,2,3,4,C
Tephrosia virginiana (L.) Persoon "Goat's Rue" 1,C
Thalictrum clavatum DC. 4,B
Thalictrum thalictroides (L.) Boivin "Wind Flower" 2,C
Tiarella cordifolia L. "Foam Flower" 2,C
Tilia heterophylla Vent. "Basswood" 2,4,B
Tipularia discolor (Pursh) Nutt. "Crane-Fly Orchid" 2,B
Tradescantia ohiensis Raf. "Spiderwort" 3,A
Trifolium dubium Sibthorp "Low Hop Clover" 4,B

Trillium catesbaei Ell. 2,A

Trillium cernuum L. "Nodding Trillium" 2,C

Trillium cuneatum Raf. "Little Sweet Betsy" 2,B

Ulmus alata Mich. "Winged Elm" 4,A

Uniola latifolia Mich. 2,4,C

Uniola laxa (L.) BSP. 1,2,4,C

Uvularia perfoliata L. "Bellwort" 2,A

Vaccinium atrococcum (Gray) Porter "Black Highbush Blueberry" 1,B

Vaccinium arboreum Marsh 1,3,C

Vaccinium staminium L. "Squaw Huckleberry" 1,3,B

Vaccinium vacillans Torrey 1,C

Viburnum acerifolium L. "Maple-leaved Viburnum" 1,2,3,C

Viburnum rufidulum Raf. "Blue Haw" 1,3,B

Viola hastata Mich. "Spear-leaved Violet" 2,C

Viola papilionacea Pursh 2,B

Viola pedata L. "Bird's-foot Violet" 1,D

Viola primulifolia L. "Primrose leaved Violet" 1,4,B

Vitis labrusca L. "Fox Grape" 3,B

Vitis rotundifolia Mich. "Muscadine" 1,2,3,4,C

Xanthorhiza simplicissima Marshall "Yellow Root" 1,2,3,4,D

Yucca filamentosa L. "Bear Grass" 2,B

Species was not determined for the following:

Carex sp.

Desmodium sp. 1

Desmodium sp. 2

Lobelia sp.

Rhododendron sp.

Solidago sp.

