Natural vegetation of the Carolinas: Classification and Description of Plant Communities of the Croatan and Down East

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By M. Forbes Boyle, Robert K. Peet, Thomas R. Wentworth, and Michael P. Schafale

Carolina Vegetation Survey
Curriculum in Ecology, CB#3275
University of North Carolina
Chapel Hill, NC 27599-3275

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INTRODUCTION

The peninsula south of the Neuse River basin and north of Onslow Bay is composed of a variety of alluvial and nonalluvial wetland communities that have previously not been examined. Southern Craven and Carteret Counties constitute the main portion of this land mass, and a majority of the western section of the peninsula is composed of the Croatan National Forest. The Maritime strand on the south and east of the peninsula is part of the Cape Lookout National Seashore, and composed of the barrier islands Core and Shackleford Banks. The Down East portion of North Carolina includes these barrier islands as well as the northeastern tip of the peninsula—Cedar Island National Wildlife Refuge.

An estimated 65,000+ hectares makes up the Croatan National Forest in Jones, Craven, Onslow, and Carteret Counties. The uplands of this forest are composed of both natural longleaf pine woodlands and planted loblolly pine plantations. Wetland communities form a unique matrix across the Croatan landscape and include both linear alluvial and stochastic nonalluvial types. Blackwater forests cover Holston and Hadnot Creek in the western portion of the National Forest, and along the southern drainage of the Neuse River. There are several large portions of the Croatan that contain a matrix of pocosin and other depression shrubland communities. Some of these include the Catfish Lake South Wilderness, Sheep Ridge Wilderness, and Pocosin Wilderness. The Patsy Pond Nature Trail in southern Carteret County cuts through limesink depression ponds that are composed of both Coastal Plain and Maritime species. Along the Jones and Onslow county border, the White Oak River drains an interesting array of tidal marsh, tidal woodland, and blackwater river marsh vegetation. Also, the rare red-cedar tidal forest is found along this river.

Southern Core Banks and Shackleford Banks contain a variety of Coastal Fringe vegetation types, including open upland grasslands, salt and brackish marshes, and maritime shrublands. These Atlantic coast communities have been formed overtime by wave and wind action. Constant disturbances are frequently reshaping the barrier island landscape and redistributing vegetation communities. Cedar Island National Wildlife Refuge contains one of the largest expanses of brackish black needlerush marsh in the eastern US. Other maritime tidal marshlands can be found along the island fringe at Pamlico Sound.

In July 2007, the Carolina Vegetation Survey conducted an initial inventory of natural communities within the Croatan and Down East portion of Craven and Carteret Counties, North Carolina. In spite of numerous floristic inventories, and field sampling of upland longleaf pine woodlands, there had never been a project designed to classify the diversity of natural wetland communities throughout this portion of North Carolina. Furthermore, the data captured from these plots will enable us to refine the community classification within the broader region. The goal of this report is to determine a classification structure based on the synthesis of vegetation data obtained from the July 2007 sampling event, and to use the resulting information to develop restoration targets for disturbed ecosystems location in this general region of North Carolina.

STUDY AREA AND FIELD METHODS

During July 2007, a total of 126 vegetation plots were established in the Croatan and Down East section of North Carolina (Figure 1). Focus locations within the study area included the Croatan National Forest (White Oak River, Hadnot Creek, Holston Creek, Pocosin Wilderness, Sheep Ridge Wilderness, Catfish Lake South Wilderness, Pond Pine Wilderness, Pauper's Island, Flanner Beach, Cedar Point Nature Trail and Patsy Pond Nature Trail), Rachel Carson Marine Estuary, Hammock's Beach State Park, Fort Macon State Park, Cedar Island National Wildlife Refuge, and Cape Lookout National Seashore (Core Banks and Shackleford Banks). Target natural communities included Coastal Plain Mesic Mixed Hardwood Forest, Dune Grass, Maritime Vine Tangle, Maritime Shrub, Maritime Dry Grasslands, Coastal Plain Small Stream Swamp, Tidal Cypress-Gum Swamp, Blackwater Bottomland Hardwoods, Coastal Plain Semipermanent Impoundment, Low Pocosin, High Pocosin, Pond Pine Woodland, Bay Forest, Small Depression Drawdown Meadows, Small Depression Ponds, Maritime Wet Grasslands, Tidal Freshwater Marsh, Tidal Swamp, Tidal Red Cedar Forest, and Salt Marsh.

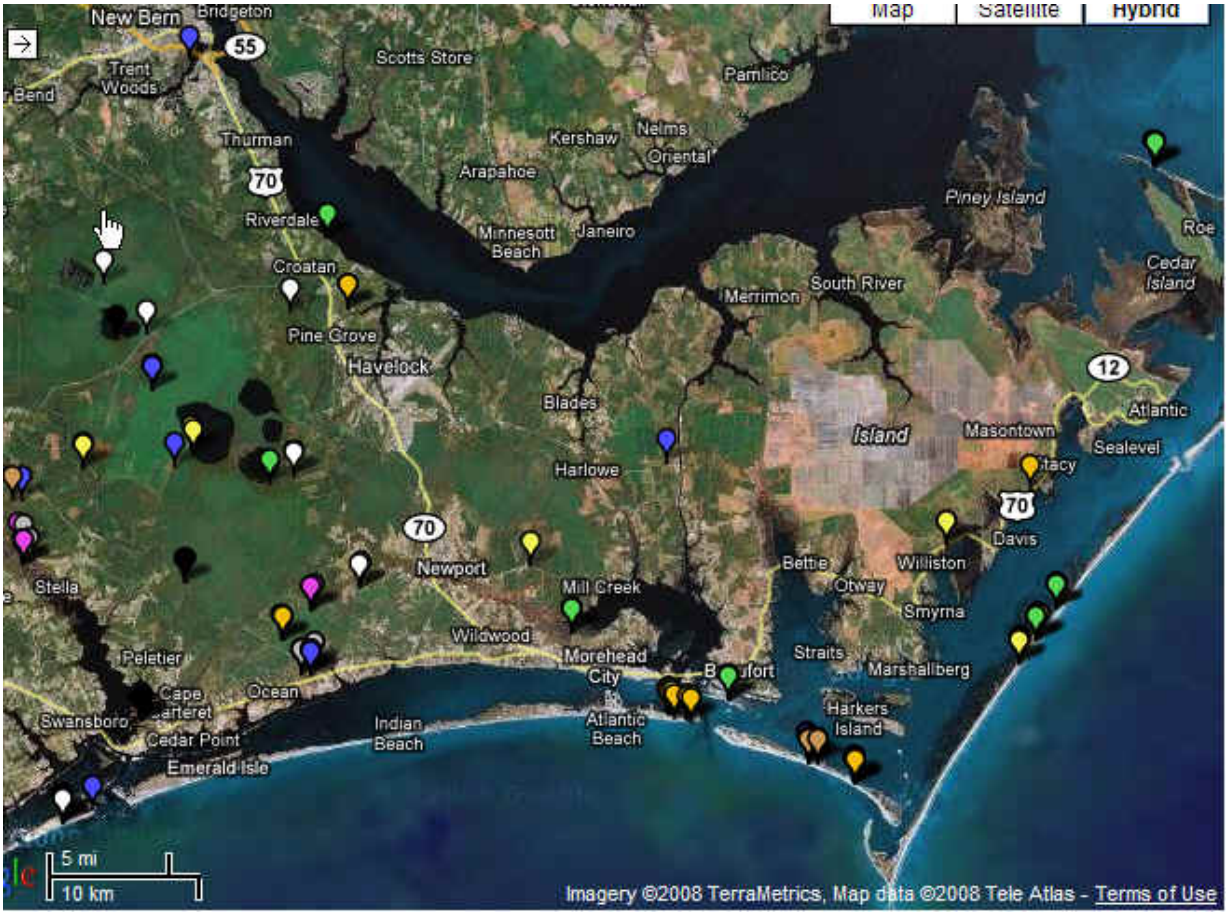


FIGURE 1. Pulse 2007b sample region and established plots: Pee Dee River Drainage, Sandhills Gamelands and Little River Drainage (Fort Bragg) (Map courtesy of VegBank: http://vegbank.org/vegbank/views/map_userplots.jsp?latlongfile=http://www.bio.unc.edu/faculty/peet/lab/CVS/maps/83-points.csv)

Vegetation was sampled following the North Carolina Vegetation Survey protocol described in Peet et al. (1998), and data collected conformed to established and proposed federal standards (see: Jennings et al. 2007, and Federal Geographic Data Committee 2007) http://www.fgdc.gov/standards/projects/FGDC-standards-projects/vegetation/index_html). Plots were subjectively located to best capture the composition of the target plant community. Each plot contained from 1 to 10 100 m^2 modules, the number reflecting the area of visually homogeneous vegetation available to sample. Species presence was recorded across a logarithmic sequence of subplot sizes including 0.01, 0.1, 1, 10, 100, and where sufficient modules were sampled 400 and 1000 m^2. Species cover was recorded individually for up to 4 intensively sampled modules (those containing the nested subplots), and overall cover for the plot was also recorded for species not found in intensively sampled modules. Soil samples were collected and sent to Brookside Laboratories for analysis. Soil nutrients were extracted by the Mehlich III technique. Mean soil nutrient and texture values are summarized by community in Appendix 1. Tree stems were recorded for each plot by diameter.

VEGETATION CLASSIFICATION

Plots were classified to association following the US National Vegetation Classification (NVC) standard (Grossman et al. 1998, Jennings et al. 2006) and the Carolina Vegetation Survey's "Vegetation of the Carolinas" project (http://cvs.bio.unc.edu/vegetation.htm). The 'association' is defined as a group of plots having similar species composition, structure, and habitat. Plot assignment was accomplished through a qualitative assessment of vegetation composition, landscape position, hydrologic regime, and soil characteristics. The associations were grouped into higher categories following the classification hierarchy developed by the "Vegetation of the Carolinas" project and include the Formation (e.g., Coastal Plain lowland evergreen forests and shrublands) and Ecological Group (e.g., White cedar forests) levels. The lowest, finest level of the classification scheme used was the NVC association.

Where possible, plots were assigned to an NVC association, identified by association name and unique CEGL identifier. Also, a degree of fit was applied to the classification scheme based on the plot's correspondence with its assigned association. The 5-level scale of fit we employ conforms to that the standards employed by the VegBank archive and the proposed US Federal standards (see Jennings et al. 2007): Excellent, Good, Fair, Poor (similar but wrong), and Bad (unambiguously wrong). In some cases it was necessary to assign a plot to more than one community because of its intermediate character. In 34 of the 52 cases (see Appendix 2), the fit was either fair or poor, suggesting a need for numerous revisions of the NVC to better represent the vegetation of this part of North Carolina.

For each community type to which we assigned plots, we provide a brief summery. We also provide hotlinks (with the CEGL codes) to the formal descriptions of these types in the National Vegetation Classification. Where the fit is weak or poor, we briefly explain the problem. Composition is shown in detail in Appendix 3 where the prevalent species (most frequent species with the number equal to the average number of species per 100 m^2 plot) are listed by constancy among plots, and mean

percent cover where present. Average cover class was calculated using the geometric mean of the true cover range for each cover class. Vegetation that was novel or failed to fit well in established associations of the National Vegetation Classification are summarized in Appendix 2. Botanical nomenclature follows Weakley 2006.

Our classification yielded assignments to 48 high-order community associations, from 27 Ecological Groups and 17 Formations. A community characterization is presented for each association below. Names are based on the naming system used in the U.S. National Vegetation Classification (NatureServe 2007). Names reflect species with high constancy and high cover; a "-" separates species within the same vertical strata, while a "/" separates species of different strata.

ASSOCIATIONS

I. Coastal Plain mixed mesic forests

A. Mesotrophic Mesic Forests

1) *Quercus alba - Carya glabra* / Mixed Herbs Coastal Plain Forest (CEGL007226)

NVC Fit = Fair Plots = 083-09-1141

This plot occurs on the Pauper's Island site in Craven County. This mesic forest community of the Atlantic and Gulf Coastal Plain has a canopy dominated by *Quercus alba*, *Carya alba*, and *Liquidambar styraciflua*. Other canopy and subcanopy associates include *Hamamelis virginiana var. virginiana, Ilex opaca var. opaca, Pinus taeda,* and *Oxydendrum arboreum*. The shrub stratum is moderately diverse, and includes such species as *Morella cerifera, Carpinus caroliniana var. caroliniana, Castanea pumila, Persea palustris,* and *Callicarpa americana*. Species in the herbaceous stratum of this plot include *Elephantopus nudatus, Hexastylis arifolia var. arifolia, Polygonatum biflorum, Athyrium asplenioides, Dichanthelium boscii, Dichanthelium laxiflorum*, and *Galium uniflorum*. This plot is categorized as a "fair" fit with association CEGL007226 because of the cooccurrence of Coastal Plain mesic forest species and Maritime forest species such as *Juniperus virginiana var. silicicola*, *Quercus hemisphaerica*, *Morella cerifera*, and *Magnolia tripetala*.

B. Bluff Forests

1) *Fagus grandifolia - Quercus alba - Quercus laurifolia / Galax urceolata* Forest (CEGL007863)

NVC Fit = Excellent Plots = 083-02-1130

This plot is also found along a bluff of the Neuse River in northern Craven County. The canopy here is dominated by *Fagus grandifolia var. caroliniana.* Other canopy and subcanopy species include *Acer rubrum, Carya ovalis, Quercus velutina, Oxydendrum arboreum*, and *Nyssa sylvatica*. The shrub

stratum is relatively sparse, but includes *Symplocos tinctoria* and *Rhododendron periclymenoides*. The soils of this community type are low pH, and typical acidic-tolerant herb species include *Galax urceolata, Hexastylis arifolia var. arifolia, Euonymus americanus, Monotropa uniflora,* and *Mitchella repens*.

II. Coastal Plain upland oak – pine forests

A. Acid Oak Forests

1) *Quercus falcata - Quercus alba - Carya alba / Oxydendrum arboreum / Vaccinium stamineum* Forest (CEGL007244)

NVC Fit = Fair Plots = 083-09-1140

This acidic oak forest is located throughout the Piedmont, Coastal Plain, and Interior Plateau of the southeastern US, usually over highly weathered Ultisols. It has not been described for the Outer Coastal Plain of North Carolina, which explains why this plot—found on the Pauper's Island site of Craven County—deviates from the NVC-defined association, CEGL007244. Unlike the association, this plot contains very little *Quercus falcata* in the canopy. It does include other association canopy species, such as *Quercus alba, Liriodendron tulipifera var. tulipifera*, *Carya alba* and *Oxydendrum arboreum*. The occurrence of *Quercus nigra* and *Quercus hemisphaerica* in the canopy and subcanopy also separate this

plot from the NVC association. Low growing trees and shrubs are diverse in this plot, and include *Persea palustris, Hamamelis virginiana var. virginiana, Cornus florida, Carpinus caroliniana var. caroliniana, Morella cerifera, Ilex opaca var. opaca*, and *Ilex glabra*. Several species of *Vaccinium (arboreum, elliottii,* and *fuscatum*) also are found in the shrub stratum. The herbaceous stratum is composed of acidic-tolerant species, such as *Hexastylis arifolia var. arifolia, Euonymus americanus*, and *Scleria oligantha*.

III. Coastal Plain brownwater river forests

A. Levee and Floodplain Forests

1) *Liquidambar styraciflua - Quercus (laurifolia, nigra) - (Pinus taeda) / Arundinaria gigantea / Carex abscondita* Forest (CEGL007732)

NVC Fit = Fair Plots = 083-07-1133

This floodplain forest is found along the White Oak River in eastern Jones County. This community experiences temporary flooding during certain times of the year, but the water level is usually much lower during the growing season. Dominant canopy species include *Liquidambar styraciflua, Quercus michauxii, Carya glabra, Quercus shumardii var. shumardii, Pinus taeda,* and *Quercus nigra*. The subcanopy lacks significant amounts of both *Carpinus caroliniana* and *Ilex opaca*, which are described as constant for this association. Subcanopy species include canopy plants and *Persea palustris*. The shrub -- high herb stratum is composed of dense *Arundinaria tecta*. Other herbaceous species include *Hexastylis arifolia var. arifolia, Galium uniflorum, Dichanthelium linearifolium,* and *Osmunda cinnamomea var. cinnamomea.* The lack of levee and floodplain species such as *Ulmus alata* and *Fraxinus sp*. also separates this plot from the NVC-defined association. The NVC recognizes the need to further assess the distribution of this community type.

IV. Coastal Plain blackwater river forests

A. Black-water Fringing Hardwood Forests

1) *Taxodium distichum - Fraxinus pennsylvanica - Quercus laurifolia / Acer rubrum / Saururus cernuus* Forest (CEGL007719)

NVC Fit = Poor to Fair Plots = 083-06-1140, 083-06-1145

This Atlantic and Gulf Coastal Plain swamp –hardwood forest transition occurs in sloughs and other alluvial flats with a large percentage of silt in the soil. These plots occur along blackwater sloughs of Jones and Carteret County, and are composed of a high diversity of canopy species. The canopy of these plots includes *Nyssa biflora, Ulmus americana var. americana, Liquidambar styraciflua, Quercus laurifolia, Acer rubrum var. rubrum,* and *Taxodium distichum.* Subcanopy species found in these plots

include *Carpinus caroliniana var. caroliniana, Fraxinus pennsylvanica, Fraxinus profunda, Persea palustris* and *Ilex opaca var. opaca*. The shrub stratum in these plots is rather sparse, while herb species diversity is moderately high. Herbaceous species with high constancy values include *Saururus cernuus, Woodwardia areolata, Leersia virginica, Osmunda regalis var. spectabilis, Rhynchospora miliacea,* and *Boehmeria cylindrica.* Vines such as *Smilax walteri, Smilax bona-nox, Smilax laurifolia, Toxicodendron radicans var. radicans, Mikania scandens,* and *Gelsemium sempervirens* are also abundant in these plots. This community type requires further investigation based on its composition in response to variable inundation frequencies throughout its range. Furthermore, these plots did not fit well with the NVC-defined association due to their low abundance of *Taxodium* in the canopy due to logging practices during the early-mid twentieth century.

B. Coastal Plain Small Stream Forests

1) *Nyssa biflora - Quercus nigra - Quercus laurifolia - Pinus taeda / Ilex opaca - Carpinus caroliniana* Forest (CEGL007350)

NVC Fit = Poor to Fair Plots = 083-08-1137, 083-09-1142

These plots are located on floodplains of small creeks within Jones and Craven Counties. Plot 083-09-1142 fits poorly with association CEGL007350 due to the lack of *Nyssa biflora* in the canopy. Although this plot occurs in a similar topographic position, the presence of *Quercus alba* in the canopy further separates this plot from the NVC association. Constant canopy species between these plots include *Acer rubrum var. rubrum*, *Liquidambar styraciflua*, and *Quercus laurifolia*. Plot 083-08-1137 contains *Nyssa biflora*, but lacks a substantial amount of bottomland oak species needed to define this

association. Herbs found in these plots include *Woodwardia areolata, Osmunda cinnamomea var. cinnamomea*, and *Saururus cernuus*. These small stream forests of the Coastal Plain clearly need to be reexamined based on their differentiating hydrologic regimes and geographical distributions.

V. Coastal Plain lowland deciduous forests

A. Coastal Plain Hardwood Flats

1) *Quercus michauxii - Quercus pagoda / Clethra alnifolia - Leucothoe axillaris* Forest (CEGL007449)

NVC Fit = Fair Plots = 083-01-1146, 083-08-1132

This community occurs on seasonally to nearly permanently saturated flats over mineral soils characterized with having a high water table. Canopy dominants include *Quercus mixauxii*, *Quercus nigra*, *Liquidambar styraciflua, Fagus grandifolia var. caroliniana*, and *Acer rubrum var. rubrum.* Subcanopy trees include *Persea palustris, Magnolia virginiana,* and *Ilex opaca var. opaca*. A dense shrub stratum is composed of *Leucothoe axillaris* and *Ilex coriacea*, and vines such as *Smilax laurifolia, Smilax rotundifolia,* and *Vitis rotundifolia var. rotundifolia*. Herbs found in this community include *Woowardia areolata*, *Osmunda cinnamomea var. cinnamomea,* and *Osmunda regalis var. spectabilis*. These plots, which occur on interstream flats within Craven and Carteret Counties, slightly differ from the NVC association because of absence of *Carpinus caroliniana* in the understory. Furthermore, plot 083-01-1146 has a substantial amount of *Osmanthus americanus* in the canopy. This species has not been described within this community type.

2) *Quercus virginiana - Quercus nigra - Quercus pagoda - Liquidambar styraciflua / Sabal minor - Ilex vomitoria* Forest (CEGL007851)

NVC Fit = Fair Plots = 083-08-1144

This plot occurs on a wet, interstream flat south of Lake Ellis Simon in Craven County. Alluvial flooding rarely occurs in this community type, although the soil may be permanently to seasonally saturated because of ground water influence. The canopy of this plot is co-dominated by *Quercus laurifolia* and *Quercus virginiana*. Subcanopy trees include *Ilex opaca var. opaca, Osmanthus americanu*s, and *Persea palustris*. The NVC describes this association as having a dense shrub stratum of *Sabal minor.* This plot lacks this species and does not contain a substantial shrub stratum of any species. The herbaceous stratum is low in species diversity, but includes *Mitchella repens, Arundinaria gigantea*, and *Chasmanthium laxum*.

VI. Coastal Plain lowland evergreen forests and shrublands

A. Bay Forests

1) *Gordonia lasianthus - Magnolia virginiana - Persea palustris / Sphagnum spp.* Forest (CEGL007044)

NVC Fit = Excellent Plots = 083-06-1130

This community is found on peaty seepage depressions on landforms with a high water table, and at the base of sandy slope rims of Carolina Bays. This plot occurs on the south side of Great Lake in Craven County. The canopy is dominated by a mixture of large diameter *Gordonia lasianthus, Persea palustris,* and *Magnolia virginiana var. virginiana*. Other canopy species include *Quercus nigra* and *Liquidambar styraciflua*. The shrub and vine component of this plot is diverse, but patchy, and includes

Lyonia lucida, Smilax laurifolia, Vaccinium formosum, Ilex glabra, Morella cerifera, and *Vitis rotundifolia var. rotundifolia.* The herbaceous stratum is open and composed mainly of *Woodwardia virginica* and *Osmunda cinnamomea var. cinnamomea*.

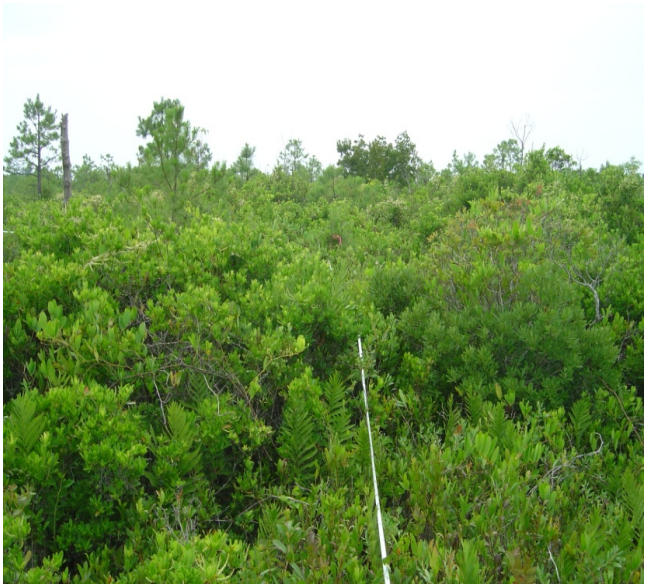
B. Pocosins

1) *Cyrilla racemiflora - Zenobia pulverulenta* Shrubland (CEGL003943)

NVC Fit = Fair to Excellent

Plots = 083-01-1130, 083-01-1131, 083-05-1139, 083-08-1131

This community is defined as a low pocosin of peat domes within the outer Coastal Plain of North Carolina. A mixture of both evergreen and deciduous species is found within this community, and canopy heights are generally low (<15m for the scattered trees and ~2m for the dominating shrubs). In these plots, the open canopy is composed of *Pinus serotina.* The extremely dense shrub stratum is composed of *Zenobia pulverulenta, Cyrilla racemiflora,* and *Lyonia lucida*. Plots 083-05-1139 and 083-08-1131 (pictured) occur at the Catfish Lake and Millis Road Pocosin sites of the Croatan NF, respectively. These two plots do not fit consistently with the NVC association CEGL003943 because of the codominance of other



shrub species such as *Kalmia carolina, Vaccinium tenellum, Persea palustris,* and *Persea borbonia.* Plots 083-01-1130 and 083-01-1131 both fit well with the NVC association, and occur at the Sheep Ridge Pocosin site within the Croatan NF.

2) *Pinus serotina / Lyonia lucida - Ilex glabra - (Cyrilla racemiflora)* Shrubland (CEGL003846)

NVC Fit = Fair Plots = 083-03-1140, 083-05-1137

This typical high pocosin of the Atlantic Coastal Plain occurs on peatlands and wet mineral soils. These plots are found on the Bay Rim and Millis Road Pocosin sites of the Croatan NF. The dense shrub stratum is composed of *Lyonia lucida, Cyrilla racemiflora, Ilex coriacea,* and *Smilax laurifolia.* An open canopy of *Pinus serotina* grows above the dense shrubs. These plots only fit moderately with the NVC-defined association due to the presence of *Zenobia pulverulenta* and *Gordonia lasianthus* in the shrub stratum. Furthermore, the shrub stratum is not tall enough to characterize these plots as high pocosin. Perhaps they occur on younger high pocosin sites, and represent an early seral stage of this community type.

3) *Chamaedaphne calyculata / Carex striata var. striata - Sarracenia (flava, purpurea, rubra ssp. rubra)* Dwarf-shrubland (CEGL004164)

NVC Fit = Good Plots = 083-03-1141, 083-09-1135, 083-09-1136

These mucky pocosins occur along the lowest topographic position of peat domes in the outer Coastal Plain of North Carolina, and usually intergrade with CEGL003943. These three plots occur within the Bay Rim site of the Croatan NF in Carteret County. Pocosin shrubs more typical of a low pocosin association grow in high density in these plots. Shrub species include L*yonia lucida, Zenobia pulverulenta, Smilax laurifolia*, and *Cyrilla racemiflora.* Herbaceous species diversity is high for a pocosin; species include *Carex striata var. striata, Rhynchospora fascicularis var. distans, Sarracenia rubra,* and *Utricularia subulata.*

4) *Pinus serotina / Zenobia pulverulenta - Cyrilla racemiflora - Lyonia lucida* Wooded Shrubland (CEGL004458)

NVC Fit = Fair to Excellent Plots = 083-05-1138, 083-08-1130

This typical high pocosin of the Atlantic Coastal Plain is composed of a very dense shrub stratum, up to 5 meters tall. Typical shrub species include *Ilex glabra, Smilax laurifolia, Cyrilla racemiflora,* and *Zenobia pulverulenta*. An open canopy of *Pinus serotina* is also characteristic of this community type. Plot 083-05-1138 occurs on the Millis Road Pocosin site of the Croatan NF. This plot fits well with the NVC description of this association. Plot 083-08-1130 occurs on the Catfish Road site of the Croatan NF, but does not fit well with the association. This is due to the high density of *Gaylussacia frondosa* within the plot.

C. Pondpine Forests and Woodlands

1) *Pinus serotina - Gordonia lasianthus / Lyonia lucida* Woodland (CEGL003671)

NVC Fit = Excellent Plots = 083-01-1141

This woodland occurs along peat-filled Carolina bays within the Outer Coastal Plain of the Carolinas. The canopy is open in this community and is co-dominated by *Pinus serotina* and *Gordonia lasianthus*. The dense shrub stratum is composed of *Cyrilla racemiflora, Lyonia lucida, Smilax laurifolia, Ilex glabra* and *Vaccinium fuscatum*. Herbaceous species are essentially absent from this association. This plot occurs within the Pocosin Wilderness of the Croatan NF.

VII. Coastal Plain ponds and marshes

A. Depression Pond Shrublands

1) *Dichanthelium wrightianum - Dichanthelium erectifolium* Herbaceous Vegetation (CEGL004105)

NVC Fit = Fair to Good Plots = 083-01-1132, 083-01-1134, 083-01-1135, 083-01-1136

These plots include limesinks at the Patsy Pond site within the Croatan NF. This community association is usually found on middle topographic positions of limesink ponds, and thus less influenced by saturation than lower sites. Dominant species found in these plots include *Lachnanthes caroliniana, Rhexia cubensis, Panicum tenerum,* and *Rhynchospora filifolia*. Although these plots fit with the described geomorphology of the NVC community type, they lack the nominal species necessary for accurate characterization. Limesink communities within the study area are in need of further examination to enhance the NVC understanding of Coastal Plain ponds and marshes.

2) *Panicum hemitomon - Eleocharis equisetoides - Rhynchospora inundata* Herbaceous Vegetation (CEGL004127)

NVC Fit = Poor To Fair Plots = 083-01-1133, 083-04-1133

These plots include limesinks at the Patsy Pond site within the Croatan NF. This community is found within outer Coastal Plain limesink ponds, usually at lower topographic positions. The dominant species found in these plots include *Panicum hemitomon*, *Lachnanthes caroliniana,* and *Rhexia cubensis.* Each sampled limesink pond in this NVC described community type has its own unique vegetation composition. There is a clear need for study of the broad range of limesink and other temporarily ponded depressions of the Carolina Coastal Plain.

3) *Cyrilla racemiflora / Xyris fimbriata - Utricularia purpurea - Lycopodiella alopecuroides* Shrubland (CEGL007829)

NVC Fit = Poor to Good Plots = 083-04-1132, 083-09-1131, 083-09-1132

These plots include shrublands of flooded depression ponds within the Croatan NF. The dominant shrub is *Cyrilla racemiflora*, but stunted *Nyssa biflora* and *Lyonia lucida* also occur. The herbaceous and aquatic strata are diverse, and include *Nymphaea odorata ssp. odorata, Sarracenia flava, Utricularia purpurea*, and *Iris virginica var. virginica*. This association has only been described for Lewis Ocean Bay in Horry County, South Carolina. Plot 083-09-1132 fits poorly with the NVC association due to the high cover class of *Iris virginica var. virginica*. These plots in Carteret County will help assess the range of variation between shrubland depression pond communities of the outer Coastal Plain.

4) *Hypericum fasciculatum / Rhynchospora (chapmanii, harperi)* Shrubland (CEGL003869)

NVC Fit = Poor Plots = 083-04-1134

According to the NVC, the dominant species occurring in these depressional wetlands is *Hypericum fasciculatum*. This species is not the dominant on plot 083-04-1134, located on the Patsy Pond site of the Croatan NF. Instead, it is dominated by *Andropogon capillipes var. 1*, *Andropogon virginicus*, and *Cladonia squamosa*.

5) *Cyrilla racemiflora - Lyonia lucida* Shrubland (CEGL003844)

NVC Fit = Poor Plots = 083-08-1138, 083-08-1139, 083-08-1140

These shrub-dominated wetlands occur on depression ponds of the southeastern US outer Coastal Plain. Except for the dominance of *Cyrilla racemiflora* in the shrub strata, these plots bare little resemblance to the NVC-described association. They occur on the Nine Mile Road site within Croatan NF. Other shrub species include *Ilex myrtifolia, Vaccinium corymbosum, Lyonia mariana*, and *Persea palustris*. An open, stunted canopy of *Pinus taeda* and *Nyssa biflora* occurs in plot 083-08-1139. The herbaceous stratum of these plots is dominated by *Litsea aestivalis*. Other species that occur with lower constancy include *Andropogon glaucopsis, Centella erecta*, *Drosera capillaris*, and *Drosera intermedia*.

B. Wooded Lake and Pond Shores

1) *Liquidambar styraciflua / Persea palustris* Forest (CEGL004481)

NVC Fit = Fair to Excellent Plots = 083-02-1143, 083-06-1131, 083-08-1145, 083-09-1130

This community is found along natural lakeshores of the outer Coastal Plain in North Carolina, where periodic saturation occurs during lake level fluctuations. The canopy and subcanopy of these plots are dominated by *Liquidambar styraciflua* and *Persea palustris*, with lesser amounts of *Ilex opaca var. opaca* and *Acer rubrum var. rubrum*. The canopy of plot 083-08-1145 is dominated by *Pinus taeda*,

which separates it from the NVC-described association. These plots are found on lakeshores throughout the Croatan NF. Sampled lakes include Catfish, Great, and Ellis Simon.

VIII. Coastal Plain aquatic vegetation

A. Nonalluvial Floating Aquatics

1) *Nymphaea odorata - Nuphar lutea ssp. advena - (Nymphoides aquatica, Xyris smalliana)* Herbaceous Vegetation (CEGL004326)

NVC Fit = Poor to Good Plots = 083-04-1130, 083-04-1131

This community type occurs in deep water zones of Coastal Plain limesink ponds. The dominant species in these plots are *Nymphaea cordata*, *Xyris sp,* and *Eriocaulon compressum.* Only plot 083-04-1130 fit well with the NVC described community. The other plot was composed of both floating aquatic species typical of this community type as well as high density of *Potamogeton sp.*

IX. Maritime subxeric forests and shrublands

A. Maritime Oak Forests

1) *Quercus virginiana - Quercus hemisphaerica - Pinus taeda / Persea borbonia* Forest (CEGL007027)

NVC Fit = Fair to Good Plots = 083-06-1134, 083-09-1133

This community occurs along lower slopes and sand flats of the Atlantic coastal fringe. It experiences very little flooding, but is affected by salt spray. Species diversity in this community is typically very low. These two plots are located on stabilized backdunes of Fort Macon State Park and Cedar Point Campground (Croatan NF). The canopy of this community type is dominated by *Quercus virginiana*, with lesser amounts of *Juniperus virginiana var. silicicola*. The subcanopy and shrub strata are well developed in these plots, and include such species as *Persea borbonia, Morella cerifera*, and *Ilex vomitoria*. The vine stratum is also well developed and includes dense cover of *Toxicodendron radicans var. radicans.* Herb diversity is low in this community type. Plot 083-09-1133 included several species from adjacent tidal salt marshes, such as *Spartina patens var. patens, Baccharis halimifolia*, and *Borrichia frutescens*. This explains the "fair" fit determination of this plot with the NVC-described association.

X. Maritime shrublands

A. Maritime Scrub

1) *Quercus virginiana - (Ilex vomitoria)* Shrubland (CEGL003833)

NVC Fit = Good Plots = 083-03-1131

This salt-spray influenced maritime shrub community can be found along the Atlantic coastal fringe of the southeastern US. The NVC describes this community as being dominated by a dense shrub stratum of *Quercus virginiana*, 0.5 to 3 meters tall. This plot, taken from Fort Macon State Park, is also dominated by a dense tangle of *Smilax auriculata*, *Morella cerifera, Ilex vomitoria*, and Juniperus *virginiana var. silicicola*. Herbaceous plants include *Commelina erecta var. angustifolia, Schizachyrium littorale,* and *Carex arenaria*.

B. Backdune Shrublands

1) *Smilax auriculata - Toxicodendron radicans* Vine-Shrubland (CEGL003885)

NVC Fit = Good to Excellent Plots = 083-02-1137, 083-06-1143

This association occurs on dune crests of the Atlantic coastal fringe of the southeastern US. A dense tangle of vines and shrubs, less than 1 meter in height, is the dominant growth form. These plots are from the southern end of Core Banks, along the Cape Lookout National Seashore. Dominant shrub and vine species include the association nominals, plus *Smilax bona-nox, Rubus trivialis, Morella cerifera, Ampelopsis arborea,* and *Iva frutescens var. frutescens*. Constant herbs include *Spartina patens var. patens, Heterotheca subaxillaris, Commelina erecta var. angustifolia*, and *Galium pilosum*.

2) *Morella cerifera - Baccharis halimifolia / Spartina patens* Shrubland (CEGL003809)

NVC Fit = Good Plots = 083-04-1138

This backdune shrub community is characterized by an open canopy of *Morella cerifera* and *Baccharis halimifolia*. Other species found within the shrub stratum include *Juniperus virginiana var. silicicola, Ipomoea sagittata, Baccharis angustifolia, Borrichia frutescens*, and *Iva frutescens var. frutescens*. This plot is found along Shackleford Banks, along the Cape Lookout National Seashore. Herbaceous species include *Hydrocotyle bonariensis, Galactia volubilis var. silicicola, Schizachyrium littorale, Solidago sempervirens, Spartina patens var. patens*, and *Fimbristylis castanea*.

XI. Maritime grasslands

A. Foredune Dry Grasslands

1) *Uniola paniculata - Hydrocotyle bonariensis* Herbaceous Vegetation (CEGL004040)

NVC Fit = Good Plots = 083-04-1136

This is a typical foredune grassland without the occurrence of *Schizachyrium* along the North Carolina coastal fringe. The dominant grass is *Uniola paniculata*, and other species include *Spartina patens var. patens* and *Hydrocotyle bonariensis.*

2) *Uniola paniculata - Schizachyrium littorale - Panicum amarum* Herbaceous Vegetation (CEGL004039)

NVC Fit = Good to Excellent Plots = 083-01-1142, 083-02-1132, 083-02-1136, 083-02-1139, 083-03-1130, 083-03-1132, 083-04-1135, 083-06-1132, 083-08-1141, 083-08-1143, 083-09-1138

According to the NVC, this foredune community is dominated by *Uniola paniculata*, but also includes *Schizachyrium littorale* and *Panicum amarum var. amarum*. These plots occur along foredunes from Hammock's Beach State Park in eastern Onslow County to Cedar Island National Wildlife Refuge in northeastern Carteret County. Other constant species found on these dunes include *Hydrocotyle bonariensis, Oenothera humifusa, Conyza canadensis*, and *Heterotheca subaxillaris*.

3) *Uniola paniculata* Herbaceous Vegetation (CEGL004038)

NVC Fit = Good Plots = 083-03-1136, 083-05-1130, 083-05-1131, 083-06-1141, 083-07-1130, 083-07-1131

This is the typical foredune beach vegetation in the southern Atlantic Coast, outside the range of *Schizachyrium littorale*. The dominating grass is *Uniola paniculata*. Other species include *Hydrocotyle bonariensis, Oenothera humifusa,* and *Conyza canadensis.*

B. Backdune and Interdunal Dry Grasslands

1) *Muhlenbergia filipes - Spartina patens - Eustachys petraea* Herbaceous Vegetation (CEGL004051)

NVC Fit = Poor to Fair Plots = 083-01-1137, 083-01-1138, 083-01-1143, 083-01-1144, 083-03-1143

These backdune grassland plots occur on Hammock's Beach State Park, Shackleford Banks, and Core Banks, in Onslow and Carteret Counties. This community type occurs on flat dunelands which occupy space between outer dunes and inland salt marsh creeks. The dominant species include *Spartina patens var. patens, Hydrocotyle bonariensis, Oenothera humifusa, Gaillardia pulchella* and *Eremochloa ophiuroides*. The lack of *Muhlenbergia filipes* and *Eustachys petraea* in these plots differentiates them from CEGL004051. Variability in species composition is extremely high between these five plots.

2) *Ammophila breviligulata - Panicum amarum var. amarum* Herbaceous Vegetation (CEGL004043)

NVC Fit = Good Plots = 083-03-1142

This maritime dune grassland community is dominated by *Panicum amarum var. amarum* and *Spartina patens var. patens.* Other species include *Commelina erecta var. angustifolia, Hydrocotyle bonariensis*, and *Oenothera humifusa*. This plot is located on Core Banks, of the Cape Lookout National Seashore.

3) *Spartina patens - Schoenoplectus pungens - Solidago sempervirens* Herbaceous Vegetation (CEGL004097)

NVC Fit = Poor to Fair Plots = 083-03-1135, 083-04-1137 083-06-1139, 083-06-1142

This interdunal grassland of the Atlantic coastal fringe represents a transition from xeric grass/shrub-dominated dune uplands to mesic grass-dominated wetlands. These plots are dominated by constant cover of *Spartina patens var. patens* and *Hydrocotyle bonariensis*. Other species include *Borrichia frutescens, Fimbristylis castanea, Iva frutescens var. frutescens*, and *Cynodon dactylon var. dactylon*. The lack of nominal species cohabitants sets these plots apart from the association. Except

for the constancy of *Spartina patens*, these plots do not seem to form any tight community clusters. Variability in species composition is extremely high between these four plots.

4) *Morella (pensylvanica, cerifera) / Schizachyrium littorale - Eupatorium hyssopifolium* Shrub Herbaceous Vegetation (CEGL004240)

NVC Fit = Fair Plots = 083-09-1137

The NVC describes this interdunal maritime grassland as being composed of >25% bunch grass cover with typical species including *Panicum amarum var. amarum* and *Schizachyrium littorale*. This plot, located on Core Banks, does not include the required high density of bunch grass cover and lacks *Schizachyrium littorale*. Other herbaceous species found on this plot include *Juncus roemerianus, Spartina patens var. patens,* and *Ampelopsis arborea*. The shrub stratum is dominated by *Morella cerifera*, *Ilex vomitoria*, and *Baccharis halimifolia*.

XII. Maritime wet shrublands

A. Swale Shrublands

1) *Morella cerifera / Spartina patens - (Juncus roemerianus)* Shrubland (CEGL003839)

NVC Fit = Good Plots = 083-03-1145, 083-03-1147, 083-06-1133

This community type is found on interdune, wet swales of the Atlantic Coast. The soil texture is dominated by mucky sand particles from the surface to 50 cm depth. The shrub canopy on these plots is moderately dense. Dominant species found in the shrub stratum include *Morella cerifera, Ilex vomitoria*, and *Juniperus virginiana var. silicicola.* Vine cover is dense in the shrub strata as well.

Species include *Smilax auriculata, Toxicodendron radicans var. radicans*, and *Rubus trivialis*. Herbaceous species diversity is variable between these plots. Species include *Erechtites hieracifoila var. hieracifoila, Schizachyrium littorale, Spartina patens var. patens*, and *Uniola paniculata.*

XIII. Interdune herbaceous wetlands

A. Maritime Wet Herbaceous Vegetation

1) *Typha domingensis - Setaria magna* Herbaceous Vegetation (CEGL004138)

NVC Fit = Poor Plots = 083-03-1146, 083-08-1142

This community occurs in nontidal, interdunal ponds of the southern US Atlantic coastal fringe. Water salinity in these ponds ranges from fresh to brackish. These plots are found on Hammock's Beach State Park, and bare little floristic similarity with CEGL004138. Both of these plots are dominated by a dense cover of *Erechtites hieracifoila var. hieracifoila*. Other species include *Andropogon glomeratus*, *Persicaria punctata, Typha latifolia*, *Scirpus cyperinus,* and *Mikania scandens*.

XIV. Freshwater tidal woodlands

A. Tidal Hardwood Swamps

1) *Juniperus virginiana var. silicicola / Morella cerifera / Kosteletzkya virginica - Bacopa monnieri* Woodland (CEGL007166)

NVC Fit = Good Plots = 083-04-1139, 083-05-1133

This community is found along oligohaline tidal creeks in the Atlantic Coastal Plain of North Carolina. These two plots occur on the floodplain of the White Oak River in southern Jones County. The canopy of this community is composed of *Juniperus virginiana var. silicicola,* with lesser amounts of *Persea palustris*. The shrub stratum is dominated by *Morella cerifera*. Herbaceous species such as *Kosteletzkya virginica var. virginica, Osmunda regalis var. spectabilis, Centella erecta*, and *Hydrocotyle verticillata* are located in gaps throughout the plot. A dense cover of *Triglochin striata* also characterizes these plots.

2) *Fraxinus pennsylvanica - Ulmus americana / Morella cerifera - Juniperus virginiana var. silicicola* Forest (CEGL004483)

NVC Fit = Fair Plots = 083-07-1134

This Atlantic Maritime tidal forest occurs on the White Oak River of Jones County. The canopy is dominated by *Fraxinus profunda* and *Acer rubrum var. rubrum*, while the subcanopy is composed of *Persea palustris, Juniperus virginiana var. silicicola, Ulmus rubra*, and canopy species. *Morella cerifera* dominates the shrub stratum. Herbs that are located on this plot include *Carex leptalea, Saururus cernuus, Osmunda regalis var. spectabilis, Peltandra virginica*, and *Hypericum virgatum*. The minor deviation between this plot and the NVC-described association is the switch between *Fraxinus pennsylvanica* and *Fraxinus profunda* as the canopy dominant.

3) *Nyssa biflora - Nyssa aquatica - Taxodium distichum / Saururus cernuus* Forest (CEGL004696)

NVC Fit = Good to Excellent Plots = 083-01-1140, 083-02-1144, 083-04-1141

This tidal influenced swamp forest is dominated by species from both tidal and non-tidal cypress-gum swamps and occurs on upper reaches of tidal rivers in Virginia and the Carolinas. Species diversity is relatively high in this community type, compared to other nontidal cypress-gum swamps.

These three plots occur on the White Oak and Neuse River drainages of Jones and Craven Counties. Canopy dominants include *Nyssa biflora, Liquidambar styraciflua, Fraxinus pennsylvanica, Acer rubrum,* and *Taxodium distichum*. The subcanopy is well-developed in this community type, and composed of canopy species, as well as *Persea palustris, Ilex opaca var. opaca*, and *Carpinus caroliniana var. caroliniana*. Characteristic herbaceous species include *Saururus cernuus, Osmunda regalis var. spectabilis*, and *Boehmeria cylindrica*.

B. Oligohaline Tidal Woodlands

1) *Pinus serotina / Morella cerifera / Cladium mariscus ssp. jamaicense - Osmunda regalis var. spectabilis* Woodland (CEGL003669)

NVC Fit = Good Plots = 083-03-1148

This woodland community is characterized by occurring on large peat domes on tidal wetlands of riverine systems of North Carolina. These nutrient rich sites are heavily influenced by wind-driven, seasonal tide episodes throughout the sample region of this study. *Pinus serotina*, *Acer rubrum var. trilobum,* and *Nyssa biflora* occur as canopy species in this community, with heights ranging from 10 to 17 meters. Shrubs that are found in this community include *Morella cerifera*, *Ilex glabra*, and *Lyonia lucida*. Diagnostic herbs include *Osmunda regalis var. spectabilis, Woodwardia virginica,* and *Cladium jamaicense*. This plot may intergrade with other tidal communities based on the degree of influence of wind versus lunar tides and the corresponding proportion of salinity in the water table.

XV. Shrubby tidal vegetation

A. Saline Tidal Shrublands

1) *Borrichia frutescens / (Spartina patens, Juncus roemerianus)* Shrubland (CEGL003924)

NVC Fit = Good to Excellent Plots = 083-01-1139, 083-08-1136, 083-09-1139

This saline shrubland community is found between drier upland sites and salt marsh flats influenced by daily tide fluctuations. Characteristic species of these three plots include *Borrichia frutescens, Juncus roemerianus, Iva frutescens var. frutescens, Seutera angustifolia,* and *Spartina patens var. patens*. Because of its topographic position, this community type does not experience daily flooding like the *Spartina* marsh. Rather, these plots incur irregular or monthly flooding due to storm surge or strong tides.

2) *Baccharis halimifolia - Iva frutescens - Morella cerifera - (Ilex vomitoria)* Shrubland (CEGL003920)

NVC Fit = Fair Plots = 083-06-1147

This shrub community occurs on raised ground within or edges of salt marshes along the Atlantic and Gulf Coast of the southeastern US. This plot is located on the Broad Creek Marsh, east of NC Highway 70 in Carteret County. The stunted, open canopy of this plot is dominated by *Quercus virginiana* and *Juniperus virginiana var. silicicola*. The presence of live oak in the canopy distinguishes this plot from CEGL003920. The shrub stratum is composed of *Ilex vomitoria, Borrichia frutescens, Iva frutescens var. frutescens, Baccharis halimifolia*, and *Baccharis angustifolia*. Other species found within the plot include *Cladium jamaicense, Spartina patens var. patens,* and *Limonium carolinianum.*

XVI. Open salt and brackish tidal vegetation

A. Tidal Salt Marshes

1) *Spartina alterniflora* Carolinian Zone Herbaceous Vegetation (CEGL004191)

NVC Fit = Good to Excellent Plots = 083-01-1145, 083-02-1131, 083-02-1134, 083-02-1142, 083-03-1133, 083-06-1135, 083-06-1137, 083-06-1144, 083-08-1135

This community represents regularly flooded tidal salt marshes from Cape Hatteras, NC to the Atlantic Coast of the Florida peninsula. This community experiences long exposure to high salinity water, and according to the NVC, can tolerate long submergence. The dominant tall grass found in this community type is *Spartina alterniflora*. Species diversity in this association is usually very low, and these plots often contain only the nominal species. A few other species may grade into these low marshes, and they include *Juncus roemerianus, Distichlis spicata*, and *Spartina patens var. patens*.

2) *Spartina patens - Distichlis spicata - Juncus roemerianus* Herbaceous Vegetation (CEGL004197)

NVC Fit = Fair to Good Plots = 083-02-1133, 083-02-1135, 083-02-1141, 083-03-1134, 083-03-1139

This salt marsh community occurs on higher topographic positions than adjacent, regularly flooded low salt marshes. *Spartina patens var. patens* is the dominant grass, but *Distichlis spicata* forms a codominant. Other frequently occurring species include *Juncus roemerianus, Fimbristylis castanea, Borrichia frutescens,* and *Iva frutescens var. frutescens.* These plots have few species in common with each other or with the diagnostic species of this NVC community type. Some bare more in common with low salt marshes (high abundance of *Spartina alterniflora*), and others with hypersaline salt flats (high abundance of *Sarcocornia pacifica*). Plots that did not fit well with association CEGL004197 represent ecotonal variants within salt marshes of North Carolina.

3) *Spartina alterniflora / (Ascophyllum nodosum)* Acadian/Virginian Zone Herbaceous Vegetation (CEGL004192)

NVC Fit = Good Plots = 083-03-1137

This community represents the northern variant of low salt marsh of the eastern US Atlantic coastal fringe. Its southerly range extends into the Outer Banks of North Carolina. Like other low salt marshes, this community experiences daily flooding from tidal events. Floristically, this community can be characterized by a single dense mat of *Spartina alterniflora*. Other species that are located on this plot—from Shackleford Banks—include *Sarcocornia pacifica* and *Juncus roemerianus*. This community type can be distinguished from the southern *Spartina alterniflora* marsh by its less extensive size across the landscape.

4) *Schoenoplectus americanus - Spartina patens* Herbaceous Vegetation (CEGL006612)

NVC Fit = Good Plots = 083-05-1136

This community occurs in-between *Spartina alterniflora low* salt marsh and *Spartina patens-Juncus roemerianus* irregularly flooded high marsh, usually on broad slopes within the tidal grassland landscape. Tidal flooding is irregular in this community type, owing to its slope position, but it occurs just above low salt marshes that may flood daily. Diagnostic species of this type include the association's nominal species, and *Kosteletzkya virginica var. virginica, Mikania scandens, Amaranthus cannabinus*, and *Osmunda regalis var. spectabilis*. This plot is located in the tidal grassland zone of the White Oak River, in Jones County.

B. Brackish Marshes

1) *Juncus roemerianus* Herbaceous Vegetation (CEGL004186)

NVC Fit = Fair to Excellent Plots = 083-03-1138, 083-03-1144, 083-05-1132, 083-05-1134, 083-06-1136, 083-06-1138, 083-07-1132, 083-08-1133, 083-09-1134

This is widely distributed salt marsh community throughout the coastal fringe area of the southeastern US. This type is typically found above the average high tide zone and thus experiences only irregular tidal floods. Dense mats of *Juncus roemerianus* are diagnostic of this community type, and occur in all of the plots included. There are no other diagnostic species, and composition is highly variable between plots. Those plots that do not fit well with the NVC-described association represent ecotones between other salt marsh community types.

2) *Cladium mariscus ssp. jamaicense* Tidal Herbaceous Vegetation (CEGL004178)

NVC Fit = Good Plots = 083-04-1140

This is a typical brackish marsh community found along the Atlantic Coast. It is dominated by a dense coverage of *Cladium jamaicense*. Other species include *Sagittaria lancifolia var. media, Kosteletzkya virginica var. virginica, Eleocharis fallax, Osmunda regalis var. spectabilis, Thelypteris palustris var. pubescens,* and *Lythrum lineare*. This plot is located in the tidally-influenced grasslands of the White Oak River, Jones County.

C. Hypersaline Pannes and Flats

1) *Sarcocornia perennis - Batis maritima - Distichlis spicata* Dwarf-shrubland (CEGL002278)

NVC Fit = Good Plots = 083-02-1138, 083-02-1140, 083-08-1134, 083-06-1148

This community type is found on hypersaline flats of the lower Atlantic and Gulf Coasts of the southeastern US. These plots are dominated by an herbaceous mat of *Sarcocornia pacifica* and *Distichlis spicata*. Other species include *Borrichia frutescens, Limonium carolinianum, Juncus roemerianus,* and *Spartina alterniflora*. These plots occur in poorly drained sections of salt marshes where evaporation of standing water increases salinity loads.

XVII. Open fresh and oligohaline vegetation

A. Oligohaline Tidal Marshes

1) *Spartina cynosuroides* Herbaceous Vegetation (CEGL004195)

NVC Fit = Good to Excellent Plots = 083-01-1147, 083-05-1135

This community type occurs along tidal creeks or outer Coastal Plain levees of oligohaline marshes. They are dominated by occasional monospecific stands of *Spartina cynosuroides*, but composition may vary due to proximity to more saline tidal types. These plots are dominated by the association nominal, as well as *Eleocharis sp., Hydrocotyle verticillata, Baccharis halimifolia*, and *Carex hyalinolepis*.

CONCLUSIONS AND FUTURE DIRECTIONS

Collected plots were assigned to 48 vegetation types. We sampled a variety of communities unique to this portion of North Carolina, including tidal red cedar forest, Patsy Pond limesinks, titi – pondspice depression shrubland, and fireweed – cattail interdunal wetland. We also sampled broader-reaching wetland communities that will help capture their full range of variation within the North Carolina Coastal Plain. In some cases the plots mapped well onto established types, but for the most part our plots deviated from the previous descriptions suggesting a need for substantial refinement of the NVC. Of the 126 total plots sampled, 42 marginally fit within the classification, and 14 seemed to not fit at all. Appendix 2 provides a summary table for identified groups that do not fit well into the current NVC schema. As illustrated in the above descriptions, much work is needed to refine hydric to mesic vegetation communities within the Croatan and Down East landscape of North Carolina. Additional plots established in this region of North Carolina will be needed to increase our understanding of these undersampled communities. For now, however, these current plots will provide a framework for future classification projects undertaken in the study area.

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Appendix 1: Soil Nutrient and Texture Values Summarized by Association. Specific soil variables include pH, Organic Matter (%), exchangeable cations (Ca, Mg, K, Na, Mn; ppm), texture class (clay, silt, sand; %).

		pH	Organic Matter	Calcium	Magnesium	Potassium	Sodium	Maganese	Clay%	Silt%	Sand%
I. COASTAL PLAIN MIXED MESIC FORESTS											
A. Mesotrophic Mesic Forests											
1)	CEGL007226	4.2	5	358	79	51	87	5	5	11	84
B. Bluff Forests											
1)	CEGL007863	4.6	5	180	66	43	28	3	10	15	74
II. COASTAL PLAIN UPLAND OAK - PINE FORESTS											
A. Acid Oak Forests											
1)	CEGL007244	4.4	4	277	96	36	28	5	6	10	83
III. COASTAL PLAIN BROWNWATER RIVER FORESTS											
A. Levee and Floodplain Forests											
1)	CEGL007732	5.1	5	782	136	39	66	1	3	8	89
IV. COASTAL PLAIN BLACKWATER RIVER FORESTS											
A. Black-water Fringing Hardwood Forests											
1)	CEGL007719	5.0	17	1673	131	55	80	2	10	20	70
B. Coastal Plain Small Stream Forests											
1)	CEGL007350	4.4	24	654	155	62	82	2	7	16	77
V. COASTAL PLAIN LOWLAND DECIDUOUS FORESTS											
A. Coastal Plain Hardwood Flats											
1)	CEGL007449	3.8	30	287	108	60	87	8	5	27	69
2)	CEGL007851	4.3	2	117	38	19	29	1	1	2	97
VI. COASTAL PLAIN LOWLAND EVERGREEN FORESTS AND SHRUBLANDS											
A. Bay Forests											
1)	CEGL007044	3.3	65	181	175	79	186	1	7	14	80
B. Pocosins											
1)	CEGL003943	3.5	79	258	209	55	122	1	2	18	80
2)	CEGL003846	4.3	65	1279	773	166	2516	4	--	--	--
3)	CEGL004164	3.6	53	174	122	47	108	1	2	19	79
4)	CEGL004458	3.6	40	118	134	42	75	1	1	8	91
C. Pondpine Forests and Woodlands											
1)	CEGL003671	3.1	92	260	174	36	166	1	--	--	--
VII. COASTAL PLAIN PONDS AND MARSHES											
A. Depression Pond Shrublands											
1)	CEGL004105	4.4	2	246	64	22	127	1	2	3	95
2)	CEGL004127	4.2	8	272	60	22	41	2	1	12	88
3)	CEGL007829	4.2	25	190	65	21	120	1	2	10	88
4)	CEGL003869	4.7	2	353	66	14	24	3	1	0	98
5)	CEGL003844	3.4	76	375	167	48	76	2	7	20	73
B. Wooded Lake and Pond Shores											
1)	CEGL004481	3.6	46	156	69	54	60	1	8	18	74
VIII. COASTAL PLAIN AQUATIC VEGETATION											
A. Nonalluvial Floating Aquatics											
1)	CEGL004326	4.6	2	136	56	17	145	1	1	1	98

		pH	Organic Matter	Calcium	Magnesium	Potassium	Sodium	Maganese	Clay%	Silt%	Sand%
IX. MARITIME SUBXERIC FORESTS AND SHRUBLANDS											
A. Maritime Oak Forests											
1)	CEGL007027	4.4	44	745	380	141	1718	3	2	13	86
X. MARITIME SHRUBLANDS											
A. Maritime Scrub											
1)	CEGL003833	6.4	19	3456	599	108	147	9	1	9	90
B. Backdune Shrublands											
1)	CEGL003885	8.1	1	1752	75	21	61	5	1	1	97
2)	CEGL003809	5.2	0	356	372	128	2219	1	3	3	94
XI. MARITIME GRASSLANDS											
A. Foredune Dry Grasslands											
1)	CEGL004040	7.6	0	3368	63	11	150	2	1	1	97
2)	CEGL004039	7.7	0	1698	59	13	83	2	1	1	98
3)	CEGL004038	7.6	0	2153	64	15	99	3	1	1	98
B. Backdune and Interdunal Dry Grasslands											
1)	CEGL004051	7.0	1	1051	69	35	86	1	1	0	99
2)	CEGL004043	6.7	0	5738	46	9	98	2	1	0	99
3)	CEGL004097	6.8	3	1781	299	89	1149	2	1	3	97
4)	CEGL004240	6.5	7	1817	820	146	1905	12	3	15	82
XII. MARITIME WET SHRUBLANDS											
A. Swale Shrublands											
1)	CEGL003839	5.9	1	1147	120	25	74	3	1	2	97
XIII. INTERDUNE HERBACEOUS WETLANDS											
A. Maritime Wet Herbaceous Vegetation											
1)	CEGL004138	5.1	17	3080	447	40	87	1	1	8	91
XIV. FRESHWATER TIDAL WOODLANDS											
A. Tidal Hardwood Swamps											
1)	CEGL007166	4.7	66	2125	2038	239	4095	2	7	15	78
2)	CEGL004483	4.8	76	2621	403	61	289	5	6	11	82
3)	CEGL004696	5.2	49	2375	459	151	351	9	16	25	59
B. Oligohaline Tidal Woodlands											
1)	CEGL003669	3.4	77	345	423	85	1164	1	3	18	79
XV. SHRUBBY TIDAL VEGETATION											
A. Saline Tidal Shrublands											
1)	CEGL003924	6.4	2	1273	763	233	4089	1	3	5	91
2)	CEGL003920	6.3	6	1024	1007	207	3152	1	9	15	76
XVI. OPEN SALT AND BRACKISH TIDAL VEGETATION											
A. Tidal Salt Marshes											
1)	CEGL004191	6.2	12	1230	1554	559	11111	1	7	13	79
2)	CEGL004197	6.0	18	3779	1002	326	6626	3	2	2	96
3)	CEGL004192	7.0	0	432	947	297	5667	1	5	0	95
4)	CEGL006612	3.6	9	277	213	50	289	1	1	7	92
B. Brackish Marshes											
1)	CEGL004186	5.7	8	1031	743	220	4270	1	3	7	90
2)	CEGL004178	4.6	32	1606	1093	411	5472	7	17	39	44
C. Hypersaline Pannes and Flats											
1)	CEGL004308	7.4	2	1248	963	301	6166	1	5	6	89
2)	CEGL002278	6.8	1	589	2585	529	15610	1	5	31	63
XVII. OPEN FRESH AND OLIGOHALINE VEGETATION											
A. Oligohaline Tidal Marshes											
1)	CEGL004195	5.4	48	1221	910	335	3053	37	6	32	62

Appendix 2: Association Groups with Poor or Fair Fit

CEGL	# of Plots	NVC Fit	Reason
Quercus alba - Carya glabra / Mixed Herbs Coastal Plain Forest (CEGL007226)	1	Fair	Cooccurrence of Coastal Plain and Maritime forest species
Quercus falcata - Quercus alba - Carya alba / Oxydendrum arboreum / Vaccinium stamineum Forest (CEGL007244)	1	Fair	Poor understanding of this oak – pine forest in the study region; lack of *Quercus falcata* in the canopy; presence of *Quercus nigra* and *Quercus hemisphaerica* in the canopy
Liquidambar styraciflua - Quercus (laurifolia, nigra) - (Pinus taeda) / Arundinaria gigantea / Carex abscondita Forest (CEGL007732)	1	Fair	Lack of levee species such as *Ulmus alata* and *Fraxinus sp.* in the canopy
Taxodium distichum - Fraxinus pennsylvanica - Quercus laurifolia / Acer rubrum / Saururus cernuus Forest (CEGL007719)	2	Poor to Fair	Lack of *Taxodium* in the canopy and poor understanding of this broadly defined blackwater river forest
Nyssa biflora - Quercus nigra - Quercus laurifolia - Pinus taeda / Ilex opaca - Carpinus caroliniana Forest (CEGL007350)	2	Poor to Fair	Lack of *Nyssa biflora* and bottomland *Quercus sp.* in the canopy
Quercus michauxii - Quercus pagoda / Clethra alnifolia - Leucothoe axillaris Forest (CEGL007449)	2	Fair	Lack of *Carpinus caroliniana* in the understory; presence of *Osmanthus americana* in the canopy
Quercus virginiana - Quercus nigra - Quercus pagoda - Liquidambar styraciflua / Sabal minor - Ilex vomitoria Forest (CEGL007851)	1	Fair	Lack of *Sabal minor* in the shrub stratum
Cyrilla racemiflora - Zenobia pulverulenta Shrubland (CEGL003943)	4	Fair to Excellent	Presence of shrubs such as *Kalmia carolina, Vaccinium tenellum*, and *Persea palustris*
Pinus serotina / Lyonia lucida - Ilex glabra - (Cyrilla racemiflora) Shrubland (CEGL003846)	2	Fair	Presence of *Zenobia pulverulenta* and *Gordonia lasianthus* in the shrub stratum
Pinus serotina / Zenobia pulverulenta - Cyrilla racemiflora - Lyonia lucida Wooded Shrubland (CEGL004458)	2	Fair to Excellent	Presence of *Gaylussacia frondosa* in the low shrub stratum
Dichanthelium wrightianum - Dichanthelium erectifolium Herbaceous Vegetation (CEGL004105)	4	Fair to Good	Absence of association nominals
Panicum hemitomon - Eleocharis equisetoides - Rhynchospora inundata Herbaceous Vegetation (CEGL004127)	2	Poor to Fair	Plots' floristic composition bare little resemblance to described community
Cyrilla racemiflora / Xyris fimbriata - Utricularia purpurea - Lycopodiella alopecuroides Shrubland (CEGL007829)	3	Poor to Good	Presence of dense stand of *Iris virginica var. virginica*
Hypericum fasciculatum / Rhynchospora (chapmanii, harperi) Shrubland (CEGL003869)	1	Poor	Lack of *Hypericum fasciculatum* as herbaceous dominant

CEGL	# of Plots	NVC Fit	Reason
Cyrilla racemiflora - Lyonia lucida Shrubland (CEGL003844)	3	Poor	Plots' floristic composition bare little resemblance to described community
Liquidambar styraciflua / Persea palustris Forest (CEGL004481)	4	Fair to Excellent	Presence of *Pinus taeda* in the canopy
Nymphaea odorata - Nuphar lutea ssp. advena - (Nymphoides aquatica, Xyris smalliana) Herbaceous Vegetation (CEGL004326)	2	Poor to Good	High density of *Potamogeton sp*.
Quercus virginiana - Quercus hemisphaerica - Pinus taeda / Persea borbonia Forest (CEGL007027)	2	Fair to Good	Presence of salt marsh species such as *Spartina patens, Baccharis halimifolia*, and *Borrichia frutescens*
Muhlenbergia filipes - Spartina patens - Eustachys petraea Herbaceous Vegetation (CEGL004051)	5	Poor to Fair	Absence of association nominals
Spartina patens - Schoenoplectus pungens - Solidago sempervirens Herbaceous Vegetation (CEGL004097)	4	Poor to Fair	Absence of association nominals
Spartina patens - Schoenoplectus pungens - Solidago sempervirens Herbaceous Vegetation (CEGL004240)	1	Fair	Absence of high density (>25%) bunch grass species
Typha domingensis - Setaria magna Herbaceous Vegetation (CEGL004138)	2	Poor	Plots' floristic composition bare little resemblance to described community
Fraxinus pennsylvanica - Ulmus americana / Morella cerifera - Juniperus virginiana var. silicicola Forest (CEGL004483)	1	Fair	*Fraxinus profunda,* not *pennsylvanica,* dominates this plot
Baccharis halimifolia - Iva frutescens - Morella cerifera - (Ilex vomitoria) Shrubland (CEGL003920)	1	Fair	Presence of *Quercus virginiana* in the stunted canopy
Spartina patens - Distichlis spicata - Juncus roemerianus Herbaceous Vegetation (CEGL004197)	5	Fair to Good	Plots' floristic composition bare little resemblance to described community
Juncus roemerianus Herbaceous Vegetation (CEGL004186)	9	Fair to Excellent	Composition bares more resemblance to low salt marsh communities

Appendix 3: Floristic tables for Association Groups

Floristic table for Group I.A.1: *Quercus alba* - *Carya glabra* / Mixed Herbs Coastal Plain Forest (CEGL007226)

NUMBER OF PLOTS	1		
RICHNESS	56		
SPECIES	COVER CLASS	SPECIES	COVER CLASS
Quercus alba	7	Carex	2
Carya alba	7	Quercus velutina	2
Ilex opaca var. opaca	6	Elephantopus nudatus	2
Pinus taeda	6	Hexastylis arifolia var. arifolia	2
Hamamelis virginiana var. virginiana	5	Liriodendron tulipifera var. tulipifera	2
Acer rubrum var. rubrum	5	Magnolia virginiana	2
Oxydendrum arboreum	5	Parthenocissus quinquefolia	2
Liquidambar styraciflua	5	Polygonatum biflorum	2
Castanea pumila	4	Prunus caroliniana	2
Persea palustris	4	Styrax americanus	2
Toxicodendron radicans var. radicans	4	Athyrium asplenioides	2
Quercus nigra	3	Carya pallida	2
Vitis rotundifolia var. rotundifolia	3	Dichanthelium boscii	2
Cornus florida	3	Dichanthelium laxiflorum	2
Juniperus virginiana var. silicicola	3	Eubotrys racemosa	2
Mitchella repens	3	Euonymus americanus	2
Carpinus caroliniana var. caroliniana	3	Galium circaezans	2
Quercus hemisphaerica	3	Galium uniflorum	2
Smilax laurifolia	3	Gaylussacia frondosa	2
Magnolia tripetala	3	Ilex glabra	2
Morella cerifera	3	Lonicera japonica	2
Asimina parviflora	3	Smilax bona-nox	2
Callicarpa americana	2	Smilax glauca	2
Nyssa sylvatica	2	Solidago	2
Aralia spinosa	2	Tillandsia usneoides	2
Morus rubra	2	Unknown	2
Vaccinium elliottii	2	Vitis	2
Vaccinium pallidum	2	Woodwardia areolata	2

Floristic table for Group I.B.1: *Fagus grandifolia - Quercus alba - Quercus laurifolia / Galax urceolata* Forest (CEGL007863)

NUMBER OF PLOTS	1		
RICHNESS	59		
SPECIES	COVER CLASS	SPECIES	COVER CLASS
Fagus grandifolia var. caroliniana	9	Monotropa uniflora	2
Acer rubrum	5	Phryma leptostachya var. leptostachya	2
Carya ovalis	5	Polygonatum biflorum var. biflorum	2
Quercus velutina	4	Rhododendron periclymenoides	2
Magnolia tripetala	4	Sanicula canadensis	2
Pinus taeda	4	Scleria	2
Oxydendrum arboreum	4	Vitis rotundifolia var. rotundifolia	2
Nyssa sylvatica	4	Hamamelis virginiana var. virginiana	2
Phegopteris hexagonoptera	3	Tillandsia usneoides	2
Polystichum acrostichoides	2	Smilax glauca	2
Symplocos tinctoria	2	Ilex opaca var. opaca	2
Stewartia malacodendron	2	Bignonia capreolata	2
Woodwardia areolata	2	Galax urceolata	2
Euonymus americanus	2	Persea palustris	2
Hexastylis arifolia var. arifolia	2	Smilax rotundifolia	2
Liriodendron tulipifera var. tulipifera	2	Toxicodendron radicans var. radicans	2
Mitchella repens	2		

Floristic table for Group II.A.1: *Quercus falcata - Quercus alba - Carya alba / Oxydendrum arboreum / Vaccinium stamineum* Forest (CEGL007244)

NUMBER OF PLOTS	1		
RICHNESS	56		
SPECIES	COVER CLASS	SPECIES	COVER CLASS
Quercus alba	6	Vaccinium fuscatum	2
Liriodendron tulipifera var. tulipifera	6	Callicarpa americana	2
Oxydendrum arboreum	6	Carex	2
Carya alba	5	Carex	2
Quercus nigra	5	Elephantopus nudatus	2
Vitis rotundifolia var. rotundifolia	4	Hexastylis arifolia var. arifolia	2
Quercus hemisphaerica	4	Dichanthelium commutatum var. commutatum	2
Cornus florida	4	Euonymus americanus	2
Hamamelis virginiana var. virginiana	4	Nyssa sylvatica	2
Persea palustris	4	Pinus taeda	2
Ilex opaca var. opaca	4	Quercus velutina	2
Liquidambar styraciflua	4	Smilax bona-nox	2
Magnolia tripetala	4	Toxicodendron radicans var. radicans	2
Mitchella repens	3	Solidago	2
Ilex glabra	3	Chasmanthium laxum	2
Morella cerifera	3	Dichanthelium boscii	2
Carya pallida	3	Dichanthelium laxiflorum	2
Quercus falcata	3	Gelsemium sempervirens	2
Carpinus caroliniana var. caroliniana	3	Lonicera japonica	2
Acer rubrum var. rubrum	3	Lonicera sempervirens var. sempervirens	2
Styrax americanus	2	Osmunda cinnamomea var. cinnamomea	2
Asimina parviflora	2	Prunus caroliniana	2
Vaccinium elliottii	2	Quercus phellos	2
Arundinaria gigantea	2	Scleria oligantha	2
Juniperus virginiana var. silicicola	2	Solidago	2
Vaccinium arboreum	2	Woodwardia areolata	2

Floristic table for Group III.A.1: *Liquidambar styraciflua - Quercus (laurifolia, nigra) - (Pinus taeda) / Arundinaria gigantea / Carex abscondita* Forest (CEGL007732)

NUMBER OF PLOTS	1		
RICHNESS	53		
SPECIES	COVER CLASS	SPECIES	COVER CLASS
Arundinaria tecta	7	Diospyros virginiana	2
Carya glabra	7	Clethra alnifolia	2
Quercus michauxii	7	Desmodium	2
Quercus shumardii var. shumardii	6	Hexastylis arifolia var. arifolia	2
Quercus nigra	6	Prenanthes serpentaria	2
Liquidambar styraciflua	6	Smilax bona-nox	2
Vitis rotundifolia var. rotundifolia	5	Vaccinium	2
Parthenocissus quinquefolia	5	Acer rubrum	2
Pinus taeda	5	Dichanthelium commutatum var. commutatum	2
Persea palustris	5	Galium uniflorum	2
Apios americana	4	Desmodium	2
Chasmanthium laxum	3	Dichanthelium linearifolium	2
Wisteria frutescens	3	Fothergilla	2
Carpinus caroliniana var. caroliniana	2	Osmunda cinnamomea var. cinnamomea	2
Eubotrys racemosa	2	Pleopeltis polypodioides ssp. michauxiana	2
Smilax glauca	2	Pteridium aquilinum	2
Smilax rotundifolia	2	Quercus	2
Toxicodendron radicans var. radicans	2	Quercus laurifolia	2
Woodwardia areolata	2		

Floristic table for Group IV.A.1: *Taxodium distichum - Fraxinus pennsylvanica - Quercus laurifolia / Acer rubrum / Saururus cernuus* Forest (CEGL007719)

NUMBER OF PLOTS	2
AVERAGE RICHNESS	73
HOMOTENEITY	75

SPECIES	CONSTANCY	AVERAGE COVER CLASS	SPECIES	CONSTANCY	AVERAGE COVER CLASS
Nyssa biflora	100	6	Quercus nigra	50	5
Ulmus americana var. americana	100	5	Chasmanthium laxum	50	5
Quercus laurifolia	100	5	Carpinus caroliniana var. caroliniana	50	4
Liquidambar styraciflua	100	4	Fraxinus pennsylvanica	50	4
Saururus cernuus	100	4	Fraxinus profunda	50	4
Woodwardia areolata	100	4	Acer rubrum var. trilobum	50	3
Persea palustris	100	4	Carex	50	3
Ilex opaca var. opaca	100	4	Carex alata	50	2
Taxodium distichum	100	4	Moss	50	2
Leersia virginica	100	3	Lyonia lucida	50	2
Leucothoe axillaris	100	3	Quercus michauxii	50	2
Osmunda regalis var. spectabilis	100	3	Carex intumescens var. intumescens	50	2
Itea virginica	100	2	Carex leptalea var. harperi	50	2
Smilax walteri	100	2	Juncus effusus ssp. solutus	50	2
Sabal minor	100	2	Decumaria barbara	50	2
Rhynchospora miliacea	100	2	Lonicera sempervirens var. sempervirens	50	2
Parthenocissus quinquefolia	100	2	Campsis radicans	50	2
Boehmeria cylindrica	100	2	Lonicera japonica	50	2
Carex lonchocarpa	100	2	Carex lurida	50	2
Toxicodendron radicans var. radicans	100	2	Elymus glabriflorus var. glabriflorus	50	2
Persicaria	100	2	Ludwigia palustris	50	2

Floristic table for Group IV.A.1: *Taxodium distichum - Fraxinus pennsylvanica - Quercus laurifolia / Acer rubrum / Saururus cernuus* Forest (CEGL007719)…continued

SPECIES	CONSTANCY	AVERAGE COVER CLASS	SPECIES	CONSTANCY	AVERAGE COVER CLASS
Ligustrum sinense	100	2	Magnolia virginiana	50	2
Bignonia capreolata	100	2	Galium	50	2
Viola	100	2	Solidago	50	2
Pinus taeda	100	2	Carex comosa	50	2
Hydrocotyle verticillata	100	2	Cornus amomum	50	2
Smilax bona-nox	100	2	Sparganium americanum	50	2
Smilax laurifolia	100	2	Ampelopsis arborea	50	2
Unknown	100	2	Cornus foemina	50	2
Dichanthelium commutatum var. commutatum	100	2	Cyrilla racemiflora	50	2
Gelsemium sempervirens	100	2	Eleocharis vivipara	50	2
Morella cerifera	100	2	Hypericum hypericoides	50	2
Smilax glauca	100	2	Iris virginica var. virginica	50	2
Mitchella repens	100	2	Lonicera	50	2
Vitis rotundifolia var. rotundifolia	100	2	Sphagnum sp.	50	2
Mikania scandens	100	1	Tillandsia usneoides	50	2
Crataegus	100	1	Viburnum prunifolium	50	2
Acer rubrum var. rubrum	50	6			

Floristic table for Group IV.B.1: *Nyssa biflora - Quercus nigra - Quercus laurifolia - Pinus taeda / Ilex opaca - Carpinus caroliniana* Forest (CEGL007350)

NUMBER OF PLOTS	2
AVERAGE RICHNESS	54
HOMOTENEITY	68

SPECIES	CONSTANCY	AVERAGE COVER CLASS	SPECIES	CONSTANCY	AVERAGE COVER CLASS
Woodwardia areolata	100	6	Vaccinium fuscatum	50	2
Acer rubrum var. rubrum	100	6	Arundinaria	50	2
Persea palustris	100	5	Decumaria barbara	50	2
Liquidambar styraciflua	100	4	Lyonia lucida	50	2
Osmunda cinnamomea var. cinnamomea	100	4	Carpinus caroliniana var. caroliniana	50	2
Quercus laurifolia	100	3	Arisaema triphyllum	50	2
Toxicodendron radicans var. radicans	100	3	Prunus caroliniana	50	2
Fraxinus pennsylvanica	100	3	Toxicodendron vernix	50	2
Quercus nigra	100	3	Viburnum nudum	50	2
Itea virginica	100	2	Bignonia capreolata	50	2
Taxodium distichum	100	2	Smilax laurifolia	50	2
Liriodendron tulipifera var. tulipifera	100	2	Hexastylis arifolia var. arifolia	50	2
Saururus cernuus	100	2	Polygonum	50	2
Smilax rotundifolia	100	2	Rubus argutus	50	2
Osmunda regalis var. spectabilis	100	2	Smilax smallii	50	2
Mitchella repens	100	2	Carex leptalea var. harperi	50	1
Smilax glauca	100	2	Ulmus americana var. americana	50	1
Carex	100	2	Chasmanthium laxum	50	1
Parthenocissus quinquefolia	100	2	Cicuta maculata var. maculata	50	1
Pinus taeda	50	6	Clethra alnifolia	50	1
Nyssa biflora	50	6	Dichanthelium boscii	50	1

Floristic table for Group IV.B.1: *Nyssa biflora - Quercus nigra - Quercus laurifolia - Pinus taeda / Ilex opaca - Carpinus caroliniana* Forest (CEGL007350)…continued

SPECIES	CONSTANCY	AVERAGE COVER CLASS	SPECIES	CONSTANCY	AVERAGE COVER CLASS
Morella cerifera	50	5	Elephantopus nudatus	50	1
Quercus alba	50	4	Peltandra	50	1
Eubotrys racemosa	50	4	Quercus velutina	50	1
Ilex opaca var. opaca	50	3	Rosa palustris	50	1
Hamamelis virginiana var. virginiana	50	3	Scutellaria integrifolia	50	1
Magnolia virginiana	50	3	Thelypteris palustris var. pubescens	50	1
Ilex glabra	50	2	Viburnum prunifolium	50	1
Nyssa sylvatica	50	2	Viola	50	1
Alnus serrulata	50	2	Vitis rotundifolia var. rotundifolia	50	1
Aralia spinosa	50	2	Carex lonchocarpa	50	1
Callicarpa americana	50	2	Boehmeria cylindrica	50	1
Campsis radicans	50	2	Ilex verticillata	50	1
Cyrilla racemiflora	50	2	Leucothoe axillaris	50	1

Floristic table for Group V.A.1: *Quercus michauxii - Quercus pagoda / Clethra alnifolia - Leucothoe axillaris* Forest (CEGL007449)

NUMBER OF PLOTS	2
AVERAGE RICHNESS	26
HOMOTENEITY	81

SPECIES	CONSTANCY	AVERAGE COVER CLASS	SPECIES	CONSTANCY	AVERAGE COVER CLASS
Quercus nigra	100	7	Smilax rotundifolia	100	2
Vitis rotundifolia var. rotundifolia	100	6	Woodwardia areolata	100	2
Quercus michauxii	100	6	Smilax glauca	100	2
Ilex opaca var. opaca	100	6	Ilex coriacea	50	6
Acer rubrum var. rubrum	100	6	Osmanthus americanus	50	5
Persea palustris	100	6	Liriodendron tulipifera var. tulipifera	50	3
Leucothoe axillaris	100	6	Nyssa biflora	50	3
Magnolia virginiana	100	5	Sassafras albidum	50	2
Liquidambar styraciflua	100	5	Decumaria barbara	50	2
Fagus grandifolia var. caroliniana	100	3	Bignonia capreolata	50	2
Symplocos tinctoria	100	3	Toxicodendron radicans var. radicans	50	2
Parthenocissus quinquefolia	100	2	Gelsemium sempervirens	50	2
Smilax laurifolia	100	2	Osmunda cinnamomea var. cinnamomea	50	2

Floristic table for Group V.A.2: *Quercus virginiana - Quercus nigra - Quercus pagoda - Liquidambar styraciflua / Sabal minor - Ilex vomitoria* Forest (CEGL007851)

NUMBER OF PLOTS	1
RICHNESS	23
SPECIES	COVER CLASS
Quercus laurifolia	8
Ilex opaca var. opaca	6
Quercus virginiana	5
Vitis rotundifolia var. rotundifolia	4
Persea palustris	3
Osmanthus americanus	3
Pinus taeda	2
Liquidambar styraciflua	2
Tillandsia usneoides	2
Acer rubrum var. rubrum	2
Arundinaria gigantea	2
Gelsemium sempervirens	2
Mitchella repens	2
Smilax glauca	2
Smilax walteri	2
Symplocos tinctoria	2

Floristic table for Group VI.A.1: *Gordonia lasianthus - Magnolia virginiana - Persea palustris / Sphagnum spp.* Forest (CEGL007044)

NUMBER OF PLOTS	1
RICHNESS	23
SPECIES	COVER CLASS
Persea palustris	7
Gordonia lasianthus	6
Quercus nigra	5
Magnolia virginiana	5
Lyonia lucida	4
Liquidambar styraciflua	4
Smilax laurifolia	3
Vaccinium formosum	3
Woodwardia virginica	2
Vitis rotundifolia var. rotundifolia	2
Moss	2
Gelsemium sempervirens	2
Ilex glabra	2
Morella cerifera	2
Osmunda cinnamomea var. cinnamomea	2
Smilax glauca	2
Toxicodendron radicans var. radicans	2

Floristic table for Group VI.B.1: *Cyrilla racemiflora - Zenobia pulverulenta* Shrubland (CEGL003943)

NUMBER OF PLOTS	4	
AVERAGE RICHNESS	19	
HOMOTENEITY	79	
SPECIES	CONSTANCY	AVERAGE COVER CLASS
Cyrilla racemiflora	100	8
Lyonia lucida	100	6
Sphagnum sp.	100	6
Pinus serotina	100	6
Smilax laurifolia	100	6
Zenobia pulverulenta	100	5
Ilex glabra	100	4
Gordonia lasianthus	75	5
Morella caroliniensis	75	5
Kalmia carolina	75	3
Vaccinium tenellum	75	3
Aronia arbutifolia	75	3
Persea palustris	75	3
Woodwardia virginica	75	3
Vaccinium crassifolium	75	2
Carex striata	50	3
Rhynchospora fascicularis	50	2
Magnolia virginiana	50	2
Sarracenia flava	50	2

Floristic table for Group VI.B.2: *Pinus serotina / Lyonia lucida - Ilex glabra - (Cyrilla racemiflora)* Shrubland (CEGL003846)

NUMBER OF PLOTS	2	
AVERAGE RICHNESS	17	
HOMOTENEITY	74	
SPECIES	CONSTANCY	AVERAGE COVER CLASS
Smilax laurifolia	100	7
Cyrilla racemiflora	100	7
Lyonia lucida	100	6
Pinus serotina	100	6
Sphagnum sp.	100	5
Ilex glabra	100	4
Zenobia pulverulenta	100	4
Gordonia lasianthus	100	3
Ilex coriacea	50	4
Morella caroliniensis	50	4
Woodwardia virginica	50	4
Magnolia virginiana	50	4
Persea borbonia	50	3
Sarracenia flava	50	3
Thelypteris palustris var. pubescens	50	3
Acer rubrum var. trilobum	50	2
Lyonia ligustrina	50	2

Floristic table for Group VI.B.3: *Chamaedaphne calyculata / Carex striata var. striata - Sarracenia (flava, purpurea, rubra ssp. rubra)* Dwarf-shrubland (CEGL004164)

NUMBER OF PLOTS	3	
AVERAGE RICHNESS	21	
HOMOTENEITY	60	
SPECIES	CONSTANCY	AVERAGE COVER CLASS
Sphagnum sp.	67	7
Carex striata var. striata	67	6
Lyonia lucida	67	6
Zenobia pulverulenta	67	6
Smilax laurifolia	67	5
Magnolia virginiana	67	4
Cyrilla racemiflora	67	4
Pinus serotina	67	4
Ilex coriacea	67	3
Rhynchospora fascicularis var. distans	67	3
Sarracenia rubra	67	2
Utricularia subulata	67	2
Vaccinium crassifolium	67	2
Aronia melanocarpa	67	2
Sarracenia purpurea var. venosa	67	2
Chamaedaphne calyculata	67	2
Woodwardia virginica	67	2
Smilax auriculata	33	7
Ilex vomitoria	33	6
Morella cerifera	33	6
Juniperus virginiana var. silicicola	33	4

Floristic table for Group VI.B.4: *Pinus serotina / Zenobia pulverulenta - Cyrilla racemiflora - Lyonia lucida* Wooded Shrubland (CEGL004458)

NUMBER OF PLOTS	2	
AVERAGE RICHNESS	16	
HOMOTENEITY	69	
SPECIES	CONSTANCY	AVERAGE COVER CLASS
Ilex glabra	100	7
Smilax laurifolia	100	6
Cyrilla racemiflora	100	6
Pinus serotina	100	5
Zenobia pulverulenta	100	4
Vaccinium crassifolium	100	4
Gordonia lasianthus	50	5
Gaylussacia frondosa	50	5
Kalmia carolina	50	4
Aronia arbutifolia	50	4
Andropogon ternarius var. ternarius	50	3
Aristida stricta	50	3
Magnolia virginiana	50	3
Rhynchospora fascicularis var. distans	50	3
Thelypteris palustris var. pubescens	50	3
Eupatorium	50	2

Floristic table for Group VI.C.1: *Pinus serotina - Gordonia lasianthus / Lyonia lucida* Woodland (CEGL003671)

NUMBER OF PLOTS	1
RICHNESS	11
SPECIES	COVER CLASS
Cyrilla racemiflora	9
Lyonia lucida	8
Pinus serotina	7
Gordonia lasianthus	6
Ilex glabra	6
Persea palustris	4
Smilax laurifolia	4
Aronia arbutifolia	2
Vaccinium fuscatum	2
Woodwardia virginica	2

Floristic table for Group VII.A.1: *Dichanthelium wrightianum - Dichanthelium erectifolium* Herbaceous Vegetation (CEGL004105)

NUMBER OF PLOTS	4	
AVERAGE RICHNESS	18	
HOMOTENEITY	67	
SPECIES	CONSTANCY	AVERAGE COVER CLASS
Sphagnum sp.	75	7
Lachnanthes caroliniana	75	6
Rhexia cubensis	75	4
Xyris	75	4
Litsea aestivalis	75	4
Andropogon	75	4
Eupatorium	75	3
Panicum hemitomon	75	3
Pluchea baccharis	75	2
Dichanthelium portoricense	75	2
Proserpinaca pectinata	75	2
Juncus abortivus	75	2
Panicum tenerum	50	7
Pinus taeda	50	6
Rhynchospora filifolia	50	6
Ilex myrtifolia	50	3
Centella erecta	50	2
Nyssa biflora	50	2

Floristic table for Group VII.A.2: *Panicum hemitomon - Eleocharis equisetoides - Rhynchospora inundata* Herbaceous Vegetation (CEGL004127)

NUMBER OF PLOTS	2	
AVERAGE RICHNESS	15	
HOMOTENEITY	63	
SPECIES	CONSTANCY	AVERAGE COVER CLASS
Panicum hemitomon	100	7
Sphagnum sp.	100	6
Lachnanthes caroliniana	100	6
Ilex myrtifolia	100	4
Rhexia cubensis	50	5
Andropogon	50	4
Nyssa biflora	50	4
Centella erecta	50	3
Dichanthelium wrightianum	50	2
Smilax laurifolia	50	2
Smilax walteri	50	2
Cyrilla racemiflora	50	2
Rhynchospora macrostachya	50	2
Eupatorium compositifolium	50	2
Litsea aestivalis	50	2

Floristic table for Group VII.A.3: *Cyrilla racemiflora / Xyris fimbriata - Utricularia purpurea - Lycopodiella alopecuroides* Shrubland (CEGL007829)

NUMBER OF PLOTS	3	
AVERAGE RICHNESS	20	
HOMOTENEITY	68	
SPECIES	CONSTANCY	AVERAGE COVER CLASS
Sphagnum sp.	100	7
Cyrilla racemiflora	100	7
Nyssa biflora	100	5
Lyonia lucida	100	4
Nymphaea odorata ssp. odorata	67	6
Magnolia virginiana	67	5
Ilex myrtifolia	67	3
Eubotrys racemosa	67	3
Sarracenia flava	67	3
Carex	67	2
Drosera intermedia	67	2
Morella cerifera	67	2
Pinus palustris	67	2
Dulichium arundinaceum var. arundinaceum	67	2
Pinus serotina	67	2
Smilax walteri	67	2
Andropogon	67	1
Utricularia	33	7
Iris virginica var. virginica	33	6
Woodwardia virginica	33	5

Floristic table for Group VII.A.4: *Hypericum fasciculatum / Rhynchospora (chapmanii, harperi)* Shrubland (CEGL003869)

NUMBER OF PLOTS	1
RICHNESS	29
SPECIES	COVER CLASS
Andropogon capillipes var. 1	5
Andropogon virginicus	5
Cladonia squamosa	4
Euthamia	4
Hypericum fasciculatum	4
Lyonia mariana	4
Pinus serotina	4
Centella erecta	3
Cladina	3
Eupatorium recurvans	3
Panicum hemitomon	3
Panicum virgatum var. virgatum	3
Quercus geminata	3
Quercus virginiana	3
Vaccinium formosum	3
Cyrilla racemiflora	2
Dichanthelium portoricense	2
Juncus abortivus	2
Lachnanthes caroliniana	2
Lyonia lucida	2
Panicum	2
Pinus palustris	2
Quercus hemisphaerica	2
Scleria muehlenbergii	2
Smilax glauca	2
Smilax laurifolia	2

Floristic table for Group VII.A.5: *Cyrilla racemiflora - Lyonia lucida* Shrubland (CEGL003844)

NUMBER OF PLOTS	3	
AVERAGE RICHNESS	19	
HOMOTENEITY	60	
SPECIES	CONSTANCY	AVERAGE COVER CLASS
Cyrilla racemiflora	100	8
Pinus taeda	100	4
Litsea aestivalis	100	4
Smilax laurifolia	100	2
Sphagnum sp.	67	7
Ilex myrtifolia	67	5
Vaccinium corymbosum	67	5
Nyssa biflora	67	4
Lyonia mariana	67	3
Dichanthelium portoricense	67	2
Lyonia lucida	67	2
Rhynchospora fascicularis var. distans	33	5
Persea palustris	33	3
Vaccinium fuscatum	33	3
Andropogon glaucopsis	33	2
Carex	33	2
Centella erecta	33	2
Crataegus	33	2
Dichanthelium	33	2

Floristic table for Group VII.B.1: *Liquidambar styraciflua / Persea palustris* Forest (CEGL004481)

NUMBER OF PLOTS	4	
AVERAGE RICHNESS	18	
HOMOTENEITY	75	
SPECIES	CONSTANCY	AVERAGE COVER CLASS
Persea palustris	100	7
Liquidambar styraciflua	100	7
Symplocos tinctoria	100	5
Ilex opaca var. opaca	100	4
Vitis rotundifolia var. rotundifolia	100	3
Toxicodendron radicans var. radicans	100	2
Smilax glauca	100	2
Gelsemium sempervirens	100	2
Smilax rotundifolia	75	2
Tillandsia usneoides	75	2
Lyonia lucida	50	6
Acer rubrum var. rubrum	50	6
Nyssa biflora	50	6
Smilax laurifolia	50	3
Chasmanthium laxum	50	2
Mitchella repens	50	2
Moss	50	2
Woodwardia areolata	50	1

Floristic table for Group VIII.A.1: *Nymphaea odorata - Nuphar lutea ssp. advena - (Nymphoides aquatica, Xyris smalliana*) Herbaceous Vegetation (CEGL004326)

NUMBER OF PLOTS	2	
AVERAGE RICHNESS	7	
HOMOTENEITY	71	
SPECIES	CONSTANCY	AVERAGE COVER CLASS
Nymphoides cordata	100	5
Xyris	100	5
Eriocaulon compressum	100	3
Potamogeton	50	6
Nymphaea odorata ssp. odorata	50	5
Rhynchospora filifolia	50	4
Dicotyledon	50	2
Eleocharis baldwinii	50	2
Pluchea	50	2
Rhexia cubensis	50	2

Floristic table for Group IX.A.1: *Quercus virginiana - Quercus hemisphaerica - Pinus taeda / Persea borbonia* Forest (CEGL007027)

NUMBER OF PLOTS	2	
AVERAGE RICHNESS	14	
HOMOTENEITY	68	
SPECIES	CONSTANCY	AVERAGE COVER CLASS
Quercus virginiana	100	7
Toxicodendron radicans var. radicans	100	6
Ilex vomitoria	100	6
Juniperus virginiana var. silicicola	100	6
Persea borbonia	100	3
Morella cerifera	50	6
Spartina patens var. patens	50	5
Smilax laurifolia	50	3
Vitis rotundifolia var. rotundifolia	50	3
Parthenocissus quinquefolia	50	3
Distichlis spicata	50	2
Fimbristylis vahlii	50	2
Ipomoea sagittata	50	2
Juncus roemerianus	50	2

Floristic table for Group X.A.1: *Quercus virginiana - (Ilex vomitoria)* Shrubland (CEGL003833)

NUMBER OF PLOTS RICHNESS	1 16
SPECIES	COVER CLASS
Smilax auriculata	9
Morella cerifera	8
Ilex vomitoria	7
Juniperus virginiana var. silicicola	5
Quercus virginiana	5
Commelina erecta var. angustifolia	3
Parthenocissus quinquefolia	3
Schizachyrium littorale	3
Vitis rotundifolia var. rotundifolia	3
Carex arenaria	2
Galium pilosum	2
Heterotheca subaxillaris	2
Rubus flagellaris	2
Smilax bona-nox	2
Solidago sempervirens	2

Floristic table for Group X.B.1: *Smilax auriculata* - *Toxicodendron radicans* Vine-Shrubland (CEGL003885)

NUMBER OF PLOTS	2	
AVERAGE RICHNESS	21	
HOMOTENEITY	76	
SPECIES	CONSTANCY	AVERAGE COVER CLASS
Spartina patens var. patens	100	5
Smilax auriculata	100	5
Hydrocotyle bonariensis	100	4
Smilax bona-nox	100	4
Toxicodendron radicans var. radicans	100	4
Rubus trivialis	100	3
Heterotheca subaxillaris	100	3
Commelina erecta var. angustifolia	100	2
Galium pilosum	100	2
Ipomoea sagittata	100	2
Uniola paniculata	100	2
Ampelopsis arborea	50	6
Morella cerifera	50	4
Iva frutescens var. frutescens	50	3
Baccharis halimifolia	50	2
Conyza canadensis	50	2
Diospyros virginiana	50	2
Elymus virginicus var. halophilus	50	2
Gaillardia pulchella var. drummondii	50	2
Galactia volubilis var. volubilis	50	2
Lactuca canadensis	50	2

Floristic table for Group X.B.2: *Morella cerifera - Baccharis halimifolia / Spartina patens* Shrubland (CEGL003809)

NUMBER OF PLOTS	1
RICHNESS	28
SPECIES	COVER CLASS
Morella cerifera	8
Baccharis halimifolia	7
Hydrocotyle bonariensis	7
Ipomoea sagittata	6
Juniperus virginiana var. silicicola	5
Galactia volubilis var. volubilis	4
Andropogon	3
Baccharis angustifolia	3
Borrichia frutescens	3
Iva frutescens var. frutescens	3
Parthenocissus quinquefolia	3
Schizachyrium littorale	3
Solidago sempervirens	3
Spartina patens var. patens	3
Ambrosia artemisiifolia	2
Andropogon	2
Commelina erecta var. angustifolia	2
Distichlis spicata	2
Fimbristylis castanea	2
Juncus marginatus	2
Juncus polycephalus	2
Phyla nodiflora	2
Rhynchospora colorata	2
Setaria parviflora	2
Stenotaphrum secundatum	2

Floristic table for Group XI.A.1: *Uniola paniculata - Hydrocotyle bonariensis* Herbaceous Vegetation (CEGL004040)

NUMBER OF PLOTS	1
RICHNESS	4
SPECIES	COVER CLASS
Uniola paniculata	8
Hydrocotyle bonariensis	2
Spartina patens var. patens	2

Floristic table for Group XI.A.2: *Uniola paniculata - Schizachyrium littorale - Panicum amarum* Herbaceous Vegetation (CEGL004039)

NUMBER OF PLOTS	11	
AVERAGE RICHNESS	11	
HOMOTENEITY	55	
SPECIES	CONSTANCY	AVERAGE COVER CLASS
Uniola paniculata	91	6
Hydrocotyle bonariensis	91	3
Oenothera humifusa	73	2
Conyza canadensis	64	2
Heterotheca subaxillaris	64	2
Schizachyrium littorale	55	6
Cenchrus tribuloides	36	1
Lepidium virginicum var. virginicum	36	1
Smilax bona-nox	36	1
Smilax auriculata	27	2
Spartina patens var. patens	27	2

Floristic table for Group XI.A.3: *Uniola paniculata* Herbaceous Vegetation (CEGL004038)

NUMBER OF PLOTS	6	
AVERAGE RICHNESS	11	
HOMOTENEITY	61	
SPECIES	CONSTANCY	AVERAGE COVER CLASS
Uniola paniculata	100	7
Oenothera humifusa	100	3
Hydrocotyle bonariensis	83	3
Conyza canadensis	83	3
Commelina erecta var. angustifolia	67	2
Eremochloa ophiuroides	67	2
Croton punctatus	50	2
Gaillardia pulchella	33	2
Opuntia pusilla	33	1
Diodia teres	33	1
Seutera angustifolia	17	2

Floristic table for Group XI.B.1: *Muhlenbergia filipes - Spartina patens - Eustachys petraea* Herbaceous Vegetation (CEGL004051)

NUMBER OF PLOTS	5	
AVERAGE RICHNESS	24	
HOMOTENEITY	56	
SPECIES	CONSTANCY	AVERAGE COVER CLASS
Spartina patens var. patens	100	7
Hydrocotyle bonariensis	100	4
Oenothera humifusa	100	2
Conyza canadensis	100	2
Sabatia stellaris	80	2
Juncus marginatus	80	2
Gaillardia pulchella	60	5
Juncus megacephalus	60	4
Morella cerifera	60	3
Eremochloa ophiuroides	40	6
Rhynchospora colorata	40	5
Juncus roemerianus	40	3
Phyla nodiflora	40	3
Centella erecta	40	3
Ampelopsis arborea	40	2
Dichanthelium species 5	40	2
Eragrostis spectabilis	40	2
Opuntia humifusa var. humifusa	40	2
Muhlenbergia sericea	40	2
Schoenoplectus pungens var. pungens	40	2
Heterotheca subaxillaris	40	2
Juniperus virginiana var. silicicola	40	2
Baccharis halimifolia	40	2
Phyla lanceolata	40	2

Floristic table for Group XI.B.2: *Ammophila breviligulata - Panicum amarum var. amarum* Herbaceous Vegetation (CEGL004043)

NUMBER OF PLOTS	1
RICHNESS	14
SPECIES	COVER CLASS
Panicum amarum var. amarum	6
Spartina patens var. patens	5
Commelina erecta var. angustifolia	3
Hydrocotyle bonariensis	3
Oenothera humifusa	3
Smilax auriculata	3
Uniola paniculata	3
Cenchrus tribuloides	2
Chamaesyce bombensis/polygonifolia	2
Conyza canadensis	2
Diodia teres	2
Oenothera laciniata	2
Strophostyles helvula	2

Floristic table for Group XI.B.3: *Spartina patens - Schoenoplectus pungens - Solidago sempervirens* Herbaceous Vegetation (CEGL004097)

NUMBER OF PLOTS	4	
AVERAGE RICHNESS	16	
HOMOTENEITY	58	
SPECIES	CONSTANCY	AVERAGE COVER CLASS
Spartina patens var. patens	100	6
Hydrocotyle bonariensis	100	3
Borrichia frutescens	75	5
Fimbristylis castanea	75	4
Iva frutescens var. frutescens	50	4
Cynodon dactylon var. dactylon	50	3
Baccharis halimifolia	50	2
Conyza canadensis	50	2
Diodia teres	50	2
Physalis walteri	50	2
Solidago sempervirens	50	2
Juncus roemerianus	50	2
Morella cerifera	50	2
Seutera angustifolia	50	1
Uniola paniculata	50	1
Stenotaphrum secundatum	25	5

Floristic table for Group XI.B.4: *Morella (pensylvanica, cerifera) / Schizachyrium littorale - Eupatorium hyssopifolium* Shrub Herbaceous Vegetation (CEGL004240)

NUMBER OF PLOTS	1
RICHNESS	21
SPECIES	COVER CLASS
Morella cerifera	6
Panicum amarum var. amarum	6
Baccharis halimifolia	5
Ilex vomitoria	5
Juncus roemerianus	5
Spartina patens var. patens	5
Ampelopsis arborea	4
Iva frutescens var. frutescens	4
Smilax bona-nox	4
Baccharis angustifolia	3
Ipomoea sagittata	3
Phyla lanceolata	3
Seutera angustifolia	3
Smilax auriculata	3
Borrichia frutescens	2
Poaceae	2
Poaceae	2
Strophostyles helvula	2
Toxicodendron radicans var. radicans	2

Floristic table for Group XII.A.1: *Morella cerifera / Spartina patens - (Juncus roemerianus)* Shrubland (CEGL003839)

NUMBER OF PLOTS	3	
AVERAGE RICHNESS	15	
HOMOTENEITY	58	
SPECIES	CONSTANCY	AVERAGE COVER CLASS
Morella cerifera	100	7
Smilax auriculata	67	4
Ilex vomitoria	67	3
Toxicodendron radicans var. radicans	67	2
Rubus trivialis	67	2
Uniola paniculata	67	2
Erechtites hieracifolia var. hieracifolia	67	2
Schizachyrium littorale	67	2
Smilax bona-nox	67	2
Spartina patens var. patens	67	2
Juniperus virginiana var. silicicola	33	6
Commelina erecta var. angustifolia	33	2
Ctenium aromaticum	33	2
Eupatorium capillifolium	33	2
Galium pilosum	33	2

Floristic table for Group XIII.A.1: *Typha domingensis* - *Setaria magna* Herbaceous Vegetation (CEGL004138)

NUMBER OF PLOTS	2	
AVERAGE RICHNESS	12	
HOMOTENEITY	92	
SPECIES	CONSTANCY	AVERAGE COVER CLASS
Erechtites hieracifolia var. hieracifolia	100	9
Andropogon glomeratus	100	6
Persicaria punctata	100	5
Typha latifolia	100	5
Mikania scandens	100	4
Hydrocotyle bonariensis	100	4
Carex albolutescens	100	4
Galium tinctorium	100	2
Carex comosa	100	2
Eupatorium capillifolium	100	2
Juncus marginatus	50	2
Setaria geminata	50	2
Scirpus cyperinus	50	2

Floristic table for Group XIV.A.1: *Juniperus virginiana var. silicicola / Morella cerifera / Kosteletzkya virginica - Bacopa monnieri* Woodland (CEGL007166)

SPECIES	CONSTANCY	AVERAGE COVER CLASS	SPECIES	CONSTANCY	AVERAGE COVER CLASS
Juniperus virginiana var. silicicola	100	7	Parthenocissus quinquefolia	100	2
Triglochin striata	100	7	Polygonum	50	5
Morella cerifera	100	6	Eleocharis fallax	50	4
Osmunda regalis var. spectabilis	100	5	Persicaria hydropiper	50	4
Kosteletzkya virginica var. virginica	100	5	Peltandra virginica	50	3
Toxicodendron radicans var. radicans	100	5	Apios americana	50	2
Centella erecta	100	4	Cicuta maculata var. maculata	50	2
Persea palustris	100	4	Dichanthelium dichotomum var. nitidum	50	2
Hydrocotyle verticillata	100	4	Dichanthelium ensifolium	50	2
Pontederia cordata	100	3	Dicotyledon	50	2
Solidago sempervirens	100	3	Galium tinctorium	50	2
Amaranthus cannabinus	100	2	Lycopus virginicus	50	2
Pleopeltis polypodioides ssp. michauxiana	100	2	Peltandra sagittifolia	50	2
Andropogon	100	2	Rubus	50	2
Mikania scandens	100	2	Samolus parviflorus	50	2
Smilax laurifolia	100	2	Thelypteris palustris var. pubescens	50	2
Ptilimnium capillaceum	100	2	Tillandsia usneoides	50	2

Floristic table for Group XIV.A.2: *Fraxinus pennsylvanica - Ulmus americana / Morella cerifera - Juniperus virginiana var. silicicola* Forest (CEGL004483)

NUMBER OF PLOTS	1		
RICHNESS	55		
SPECIES	COVER CLASS	SPECIES	COVER CLASS
Morella cerifera	7	Hydrocotyle verticillata	2
Fraxinus profunda	6	Mikania scandens	2
Acer rubrum var. rubrum	6	Persicaria hydropiperoides	2
Carex leptalea	6	Toxicodendron radicans var. radicans	2
Persea palustris	5	Vaccinium fuscatum	2
Juniperus virginiana var. silicicola	5	Pilea pumila	2
Saururus cernuus	4	Rosa multiflora	2
Osmunda regalis var. spectabilis	4	Sabal minor	2
Cicuta maculata var. maculata	4	Sagittaria lancifolia var. media	2
Peltandra virginica	4	Viburnum nudum	2
Ulmus rubra	3	Samolus parviflorus	2
Ilex glabra	3	Ilex opaca var. opaca	2
Parthenocissus quinquefolia	3	Cuscuta	2
Hypericum virgatum	2	Rubus trivialis	2
Nyssa biflora	2	Cornus foemina	2
Decumaria barbara	2	Spiranthes vernalis	2

Floristic table for Group XIV.A.3: *Nyssa biflora - Nyssa aquatica - Taxodium distichum / Saururus cernuus* Forest (CEGL004696)

NUMBER OF PLOTS	3
AVERAGE RICHNESS	67
HOMOTENEITY	66

SPECIES	CONSTANCY	AVERAGE COVER CLASS	SPECIES	CONSTANCY	AVERAGE COVER CLASS
Nyssa biflora	100	7	Rosa palustris	67	2
Toxicodendron radicans var. radicans	100	5	Viola	67	2
Persea palustris	100	5	Pleopeltis polypodioides ssp. michauxiana	67	2
Ilex opaca var. opaca	100	4	Ampelopsis arborea	67	2
Saururus cernuus	100	4	Rubus	67	2
Osmunda regalis var. spectabilis	100	4	Woodwardia areolata	67	2
Liquidambar styraciflua	100	4	Vaccinium formosum	67	2
Decumaria barbara	100	3	Itea virginica	67	2
Smilax laurifolia	100	2	Quercus michauxii	67	2
Parthenocissus quinquefolia	100	2	Habenaria repens	67	2
Smilax rotundifolia	100	2	Ulmus rubra	67	2
Cicuta maculata var. maculata	100	2	Mikania scandens	67	2
Boehmeria cylindrica	100	2	Rhynchospora miliacea	67	2
Galium	100	1	Peltandra virginica	67	2
Osmunda cinnamomea var. cinnamomea	100	1	Juncus coriaceus	67	1
Lycopus	100	1	Senecio	67	1
Fraxinus pennsylvanica	67	7	Taxodium ascendens	33	6

Floristic table for Group XIV.A.3: *Nyssa biflora - Nyssa aquatica - Taxodium distichum / Saururus cernuus* Forest (CEGL004696)…continued

SPECIES	CONSTANCY	AVERAGE COVER CLASS	SPECIES	CONSTANCY	AVERAGE COVER CLASS
Acer rubrum	67	6	Arundinaria tecta	33	6
Carpinus caroliniana var. caroliniana	67	5	Carex striata var. striata	33	5
Taxodium distichum	67	5	Cornus foemina	33	5
Quercus laurifolia	67	4	Acer rubrum var. trilobum	33	4
Fraxinus caroliniana	67	4	Polygonum	33	3
Alnus serrulata	67	4	Juniperus virginiana var. silicicola	33	3
Morella cerifera	67	4	Arundinaria	33	2
Carex	67	3	Athyrium asplenioides	33	2
Eubotrys racemosa	67	3	Cyrilla racemiflora	33	2
Pontederia cordata	67	3	Dichanthelium commutatum var. commutatum	33	2
Ulmus americana var. americana	67	3	Dioscorea villosa	33	2
Clematis	67	2	Eryngium aquaticum var. aquaticum	33	2
Vaccinium fuscatum	67	2	Prenanthes	33	2
Geum canadense	67	2	Smilax walteri	33	2
Mitchella repens	67	2	Thalictrum macrostylum	33	2
Lamiaceae	67	2	Viburnum	33	2
Sabatia calycina	67	2			

Floristic table for Group XIV.B.1: *Pinus serotina / Morella cerifera / Cladium mariscus ssp. jamaicense - Osmunda regalis var. spectabilis* Woodland (CEGL003669)

NUMBER OF PLOTS	1
RICHNESS	31
SPECIES	COVER CLASS
Pinus serotina	6
Lyonia lucida	6
Morella cerifera	6
Osmunda regalis var. spectabilis	6
Nyssa biflora	5
Woodwardia virginica	5
Acer rubrum var. trilobum	5
Persea palustris	4
Osmunda cinnamomea var. cinnamomea	4
Ilex glabra	3
Magnolia virginiana	3
Smilax rotundifolia	3
Cladium jamaicense	2
Rubus trivialis	2
Smilax laurifolia	2
Solidago	2
Thelypteris palustris var. pubescens	2
Aronia arbutifolia	2
Toxicodendron radicans var. radicans	2
Morella caroliniensis	2
Vaccinium fuscatum	2

Floristic table for Group XV.A.1: *Borrichia frutescens / (Spartina patens, Juncus roemerianus)* Shrubland (CEGL003924)

NUMBER OF PLOTS	3	
AVERAGE RICHNESS	7	
HOMOTENEITY	76	
SPECIES	CONSTANCY	AVERAGE COVER CLASS
Juncus roemerianus	100	9
Borrichia frutescens	100	7
Iva frutescens var. frutescens	67	5
Seutera angustifolia	67	4
Spartina patens var. patens	67	4
Fimbristylis castanea	67	2
Limonium carolinianum	67	2

Floristic table for Group XV.A.2: *Baccharis halimifolia - Iva frutescens - Morella cerifera - (Ilex vomitoria)* Shrubland (CEGL003920)

NUMBER OF PLOTS	1
RICHNESS	13
SPECIES	COVER CLASS
Juncus roemerianus	6
Quercus virginiana	6
Ilex vomitoria	5
Juniperus virginiana var. silicicola	5
Borrichia frutescens	5
Cladium jamaicense	4
Spartina patens var. patens	4
Iva frutescens var. frutescens	3
Distichlis spicata	2
Ipomoea sagittata	2
Baccharis angustifolia	2
Baccharis halimifolia	2
Limonium carolinianum	2

Floristic table for Group XVI.A.1: *Spartina alterniflora* Carolinian Zone Herbaceous Vegetation (CEGL004191)

NUMBER OF PLOTS	9	
AVERAGE RICHNESS	4	
HOMOTENEITY	44	
SPECIES	CONSTANCY	AVERAGE COVER CLASS
Spartina alterniflora	100	7
Juncus roemerianus	33	2
Distichlis spicata	22	4
Spartina patens var. patens	22	4

Floristic table for Group XVI.A.2: *Spartina patens - Distichlis spicata - Juncus roemerianus* Herbaceous Vegetation (CEGL004197)

NUMBER OF PLOTS	5	
AVERAGE RICHNESS	7	
HOMOTENEITY	51	
SPECIES	CONSTANCY	AVERAGE COVER CLASS
Distichlis spicata	80	7
Spartina patens var. patens	60	5
Juncus roemerianus	60	4
Spartina alterniflora	40	5
Fimbristylis castanea	40	4
Borrichia frutescens	40	4
Iva frutescens var. frutescens	40	3

Floristic table for Group XVI.A.3: *Spartina alterniflora / (Ascophyllum nodosum)* Acadian/Virginian Zone Herbaceous Vegetation (CEGL004192)

NUMBER OF PLOTS	1
RICHNESS	5
SPECIES	COVER CLASS
Sarcocornia pacifica	6
Spartina alterniflora	6
Juncus roemerianus	2

Floristic table for Group XVI.A.4: *Schoenoplectus americanus - Spartina patens* Herbaceous Vegetation (CEGL006612)

NUMBER OF PLOTS	1
RICHNESS	15
SPECIES	COVER CLASS
Schoenoplectus americanus	9
Spartina patens var. patens	7
Eleocharis	5
Kosteletzkya virginica var. virginica	5
Mikania scandens	5
Amaranthus cannabinus	4
Osmunda regalis var. spectabilis	4
Lythrum lineare	3
Ludwigia	2
Persicaria hydropiper	2
Rumex verticillatus	2
Samolus parviflorus	2
Solidago sempervirens	2
Thelypteris palustris var. pubescens	2

Floristic table for Group XVI.B.1: *Juncus roemerianus* Herbaceous Vegetation (CEGL004186)

NUMBER OF PLOTS	9	
AVERAGE RICHNESS	9	
HOMOTENEITY	42	
SPECIES	CONSTANCY	AVERAGE COVER CLASS
Juncus roemerianus	100	8
Borrichia frutescens	56	4
Distichlis spicata	44	4
Spartina patens var. patens	44	3
Mikania scandens	33	6
Baccharis halimifolia	33	2
Spartina alterniflora	22	4
Cuphea carthagenensis	22	2
Boehmeria cylindrica	22	2

Floristic table for Group XVI.B.2: *Cladium mariscus ssp. jamaicense* Tidal Herbaceous Vegetation (CEGL004178)

NUMBER OF PLOTS	1
RICHNESS	26
SPECIES	COVER CLASS
Cladium jamaicense	8
Sagittaria lancifolia var. media	6
Kosteletzkya virginica var. virginica	5
Acer rubrum var. rubrum	4
Cyperus	4
Eleocharis fallax	4
Lythrum lineare	4
Osmunda regalis var. spectabilis	4
Thelypteris palustris var. pubescens	4
Morella cerifera	3
Persicaria hydropiper	3
Pontederia cordata var. lancifolia	3
Typha latifolia	3
Dicotyledon	2
Gratiola	2
Hydrocotyle verticillata	2
Ludwigia alata	2
Mikania scandens	2
Persicaria sagittata	2
Pluchea	2
Rhynchospora latifolia	2
Solidago sempervirens	2
Stachys	2
Toxicodendron radicans var. radicans	2

Floristic table for Group XVI.C.1: Sarcocornia perennis - Batis maritima - Distichlis spicata Dwarf-shrubland (CEGL002278)

NUMBER OF PLOTS	4	
AVERAGE RICHNESS	5	
HOMOTENEITY	80	
SPECIES	CONSTANCY	AVERAGE COVER CLASS
Sarcocornia pacifica	100	6
Borrichia frutescens	75	5
Distichlis spicata	75	4
Spartina alterniflora	75	2
Limonium carolinianum	75	2

Floristic table for Group XVII.A.1: *Spartina cynosuroides* Herbaceous Vegetation (CEGL004195)

NUMBER OF PLOTS	2	
AVERAGE RICHNESS	17	
HOMOTENEITY	59	
SPECIES	CONSTANCY	AVERAGE COVER CLASS
Spartina cynosuroides	100	9
Eleocharis	100	6
Hydrocotyle verticillata	100	2
Baccharis halimifolia	50	6
Carex hyalinolepis	50	5
Juncus roemerianus	50	4
Distichlis spicata	50	3
Mikania scandens	50	3
Galium tinctorium	50	2
Lauraceae	50	2
Ludwigia alata	50	2
Lythrum lineare	50	2
Parthenocissus quinquefolia	50	2
Persicaria	50	2
Phyla lanceolata	50	2
Ptilimnium capillaceum	50	2
Ranunculus	50	2