

VEGETATIVE COVER TYPES OF ST. VINCENT ISLAND N.W.R.

Introduction:

St. Vincent Island National Wildlife Refuge was acquired in July of 1968. This 12,358 acre island lies between Apalachicola Bay on the north and the Gulf of Mexico on the south. The east end of the island fronts on the West Pass Channel leading into Apalachicola Bay while the west end of the island is separated from Indian Peninsular by only 400 yards.

St. Vincent Island is somewhat atypical of the barrier islands found along the north Florida, Alabama and Mississippi in that there exists a highly complex topographic and physiographic make up rather than the simple beach and dune structure. Vegetation from the beach to the interior consists of scrub oak ridges, slash pine timberlands, sawgrass marshes and tide marshes. The vegetative make up graduates from west to east where, for example, live oak replaces the scrub oak complex and open water replaces sawgrass marshes.

Objective:

The objectives of this study were:

1. To identify and describe the major plant communities and associations on St. Vincent Island.
2. Delineate the major plant communities on a map and/or photo-mosaic.

Methods:

Preliminary surveys were made using existing base maps and 1960 aerial photographs while traversing the extensive road system on the island. A number of roads were noted in error and/or did not appear on the photographs. A request was made and complete photographic coverage of the Island secured by Pilot-Biologist Ball in 1969.

An initial photomosaic of the island was made using Xerox 3600-III copies of the 1960 photographs with a 1 inch to 1360 feet scale. This scale proved too small to properly interpret and delineate the vegetative type. A photo-mosaic using the 1969 photograph was prepared with a 1 inch equals 860.56 feet scale. These mosaics were mounted on clear contact paper. Vegetative types were colored directly on the mosaic.

A series on one-hundred plots, a mil-acre in size, were randomly taken in each major vegetative type. All rooted plants were counted. A 10 factor prism was used at each plot to record the tree species. Relative abundance and relative frequency data were computed.

Physical areas defined by roads were numbered as convenient sub-units in which the basic cover types were measured with a planimeter and converted to acreage.

Results:

The vegetative cover on St. Vincent Island presents a very unique and interesting ecological complex. A Sand Pine-Scrub Oak plant association is present in old dunes from Carabelle to East Point, Florida yet only a small area of this association is found on the island. Cabbage Palm Hammocks are generally found only from St. Marks Refuge southward, but several fairly large nearly pure stands of Cabbage Palm are found on the island.

The geologic, physiographic and topographic features of the island are relatively unstudied at this time. The vegetative associations and their distribution over the island are most effected by the present topographic and hydrographic features. Generally, the dunes are highest on the south (Gulf side) and the very west end of the island. Likewise, the interdune areas are lowest near the center and east end of the island.

The vegetative types are quite distinctive in their alignment with the dunes as cross sectioned from north to south. The vegetative associations are less clear cut in an east-west cross section. (See Figures 1, 1A and 2)

Dunes:

The dunes or higher elevations are occupied by six vegetative types.

1. Scrub Oak Dunes. (1201.9 acres)

The Scrub Oak cover type is distributed primarily on the western half of the island. Rosemary (Ceratiola ericoides) is probably the best indicator plant species and occurs most frequently. Four species of oak, Sand Scrub Oak (Quercus myrtifolia), Twin Live Oak (Quercus geminata), Chapman's Oak (Quercus Chapmani), and Live Oak (Quercus virginiana) occur quite frequently.

These five species comprise most of the plant cover. Casual observations indicate this oak association to be fairly heavy and consistant mast producer. It is a mixture of complimentary species which required one or two years for the fruit to mature.

2. Mixed Live-Scrub Oak. (Intermediate Oak) (200.6 acres)

This type represents an intermediate ecological succession between the Scrub Oak and Live Oak types. The type is characterized by a mixture of Live Oaks and the Scrub Oak association with one or the other dominating from place to place. Rosemary is much less frequent in this type and often absent.

3. Live Oak Dunes. (504.9 acres)

The Live Oak dune type is located on the higher dunes on the eastern end of the island. Live Oak and Laurel Oak (Quercus laurifolia) characterize the dune tops. The dune slopes and lower dunes support Cabbage Palm (Sabal palmetto), occasional Magnolia (Magnolia grandifolia) and American Holly (Ilex opaca). There is a fairly wide variety of understory species of which Saw Palmetto (Serenoa repens) and several species of Vaccinium are most common.

4. Live Oak-Grass Dune. (154.7 acres)

A small acreage of Live Oak with a mixed grass understory exists near the east end of the island at the outer edges of the island. The ecological complex is probably maintained because of the close proximity to the salt water.

5. Sand Pine-Scrub Oak (6.8 acres)

This type is very limited in acreage but represents an unusual occurrence. Sand Pine-Scrub is common in the older dunes on the mainland between Lanark and East Point but has been found in only one area of St. Vincent Island. Why the type is not more extensive or even occurs on the Island is unknown. Plants species are similar to the Scrub Oak Type except that Sand Pine is present in overstory.

6. Hardwood Hammock. (185.3 acres)

This vegetative type is located primarily along one ridge (dune) on the north edge of the island. The site is generally quite high, contains a good bit of humus and is the site of numerous Indian middens. Water Oak (Q. nigra), Live Oak, Hickory (Hicora glabra), Magnolia, Cabbage Palm, Mulberry (Morus rubra), Laurel Oak, Myrtle Oak (Q. myrtifolia), and Cedar (Juniperus siberica) are present. The understory contains a wide variety such as Yucca, Beautyberry (Callicarpa americana), Musadine sp., Vita sp., Poison Ivy (Rhus radicans), Trumpet Vine (Bignonia radicans), Virginia Creeper (Parthenocissus quinquefolia), Hercule's Club (Zanthoxylum brevifolia), Simlax and Wax Myrtle (Myrica ceriferus).

Cabbage Palm. (221.0 acres)

Cabbage Palm exists as a pure type on a relatively limited acreage. Cabbage Palm is generally interspersed with other types. As a pure type, it occupies some of the relatively higher sites such as the Tahiti area where it is associated with Live Oak, Cedar or as a pure stand. Elsewhere Cabbage Palm does occur in the lower sites. Understory vegetation in Cabbage Palm is nearly absent. Whether this is due to extensive rooting by the numerous hogs or the dense canopy is unknown.

Pinelands.

1. Slash Pine-Mixed Understory. (2332.4 acres)

This is the largest upland type and occurs over the western two thirds of the island. This type is situated in the interdune areas at an elevation above the lower wet sloughs and up to the drier dune edge. The topographic and hydrographic situation could be best described as intermediate. Most of the island has been logged at one time or another, therefore, the Slash Pine (Pinus palustris) occurs in varying stockings. The understory is quite variable depending upon water condition. Generally, however, Saw Palmetto, Galberry (Ilex glabra), Lyonia sp. and Vaccinium are the most common. The understory vegetative grades from dry site (Saw Palmetto) on to wet site plants (Lyonia sp.) at the eastern extreme.

2. Slash Pine - Cabbage Palm Hammock. (1234.2 acres)

This type occupies a site somewhat lower and wetter than the Slash Pine-mixed understory. White Bay (Magnolia virginiana), Saw Palmetto, Persimmon (Diospyros virginiana), Vita sp. Musadine, and Trumpet Vine characterize the understory.

3. Slash Pine/Saw Palmetto/Ilex. (1040.4 acres)

This pine type replaces the Slash Pine-mixed understory type over the north eastern portion of the island. The presence of Yaupon (Ilex vomitoria) is the key indicator to this type. Mixed grass species (Aristida, Andropogon, Panicum) are more conspicuous in the understory especially on the very north side of the island.

4. Slash Pine/Grass. (144.5 acres)

This type is limited to a small acreage along the Gulf Coast of the island. This type is characterized by its park like appearance. A mixture of grass is the dominate understory. Like the Oak Grass dune, this type probably owes its ecological maintenance to the close proximity of the salt water.

Fresh Water Marshes.

1. Sawgrass/Emergent Marsh. (1404.2 acres)

The lower elevations of the interdune area are occupied by this type. The species composition varies from area to area but the dominate feature is Sawgrass (Cladium jamaicensis). An association of Hypericum sp. and Ascyrum sp. will occupy some low sites, while Willow (Salix carolinia), Baccharis and Buttonbush (Cephalanthus occidentalis) may occupy other sites. There are occasional remnants of more salt tolerant plant (Spartina Juncus) scattered throughout.

2. Cattail (57.8 acres)

This type is situated around the freshwater ponds and connecting waterways. It generally occupies a zone of deeper, more permanent water than tolerated by Sawgrass.

3. Fresh Water Pond. (244.8 acres)

Fresh water ponds are the lowest elevation into which most drainage of the Sawgrass sloughs terminate. Scirpus californicus, Sagittaria latifolia, Nelumbo lutea, Nymphaea odorata, Ceratophyllum demersum and Vallisneria americana are some plants common to ponds.

Tidal Area.

1. Tidal Marsh. (2898.5 acres)

Tidal marsh and the associated ponds constitute the largest vegetative type on the island. No attempt was made to further type the tide marsh although Distichlis spicata, Spartina sp., and Juncus sp. occur in large enough stands to be identified separately.

2. Salt Water Pond. (147.9 acres)

There are about 8 or 9 salt water ponds of any size and the accumulative acres are limited. Chara and Widgeon grass are present in varying quantities in these ponds.

3. Beach. (377.4 acres)

Most land classed as beach is along the Gulf Coast. Areas so typed included the tidal beach and first dune series. These dunes are vegetated by such primary invaders as Sea Oats, Railroad Vine, Lupine and Solidago.

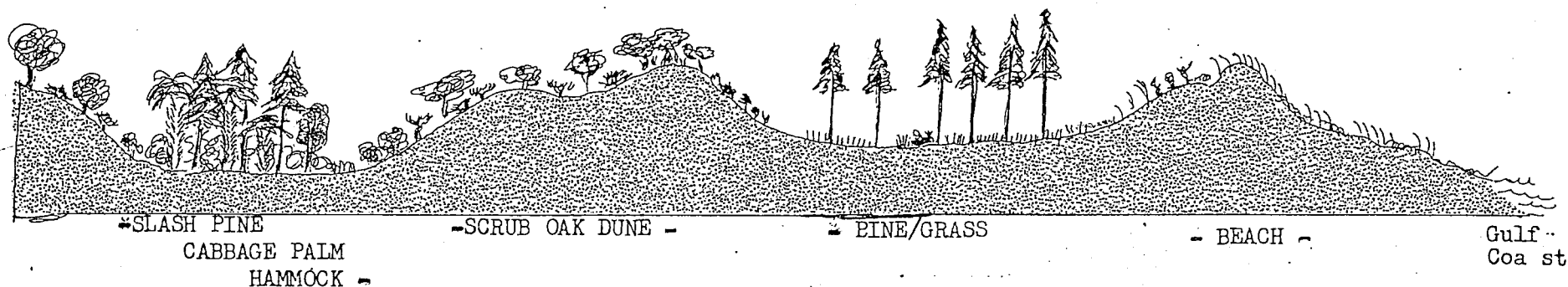
A tentative plant list is appended. This list has been developed from McAtee, W. L. 1913. A list of plants collected on St. Vincent Island, Florida. Proc. Biologist, Soc. of Washington, XXVI pp. 39-52 and the author's observation.

Data from sampling of three cover types is also appended. These lists will be expanded as plots are taken in other cover types. Transects are planned for both the salt and fresh marshes and will be appended to this report as supplements.

Several tables have been included which give the cover type break by units showing both acreage, percent of each unit and percent of entire island.

BASIC VEGETATIVE COVER TYPES

	<u>Acres</u>
Tidal Marsh	2898.5
Slash Pine - Mixed Understory	2332.4
Sawgrass, Brush, Hypericum Marsh	1404.2
Slash Pine/Cabbage Palm-Hammock	1234.2
Scrub Oak Dunes	1201.9
Slash Pine/Palmetto/Ilex	1040.4
Live Oak Dunes	504.9
Beach	377.4
Fresh Water Pond	244.8
Cabbage Palm	221.0
Mixed Live-Scrub Oak Dunes	200.6
Hardwood Hammock	185.3
Salt Water Pond	147.9
Live Oak/Grass Dune	154.7
Slash Pine/Grass Dune	144.5
Cattail	57.8
Sand Pine - Scrub Oak	6.8
TOTAL	12357.3



Sabal palmetto

Pinus palustris

Smilax auriculata

Muscadinia rotundifolia

Parthenocissus quinquefolia

Rhus radicans

Persea borbonia

Ilex glabra

Liquidambar styraciflua

Magnolia virginiana

Saururus cernuus

Nyssa sp.

Acer rubrum

Ceratiola ericoides

Quercus myrtifolia

Rhynchospora meglacarpus

Quercus geminata

Serenoa repens

Conradina glabra

Lyonia ferruginea

Quercus Chapmani

Vaccinium sp.

Quercus Rolfsii

Lichens

Pinus palustris

Aristida sp.

Juncus sp.

Andropogon maritimus

Cyperus sp.

Uniola paniculata

Fimbristylis castanea

Cakile edentula

Panicum amarulum

Lupinus diffusus

Croton punctatus

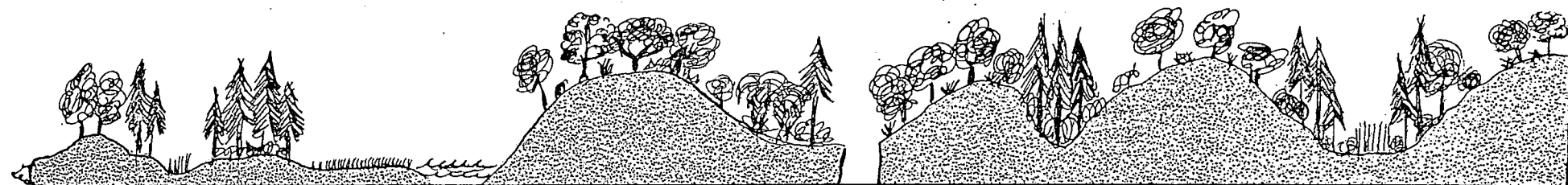
Ipomea Pes-Caprae

Rumex hastatulus

Yucca aloifolia

Hydrocotyle bonariensis

Figure 1. Mid island profile from Gulf to sound (south to north) Sheet 1.



* Intermed - SLASH - TIDE
iate PINE MARSH -
Oak ILEX -
RIDGE

* HARDWOOD
HAMMOCK -

- SLASH PINE SCRUB OAK
MIXED DUNE -
UNDERSTORY -

-SAWGRASS
SLOUGH -

Spartina alterniflora
Spartina bakeri
Distichlis spicata
Juncus Roemerianus
Baccharis halimifolia
Borrchia frutescens
Iva frutescens
Sesuvium portulacastrum
Salicornia perennis

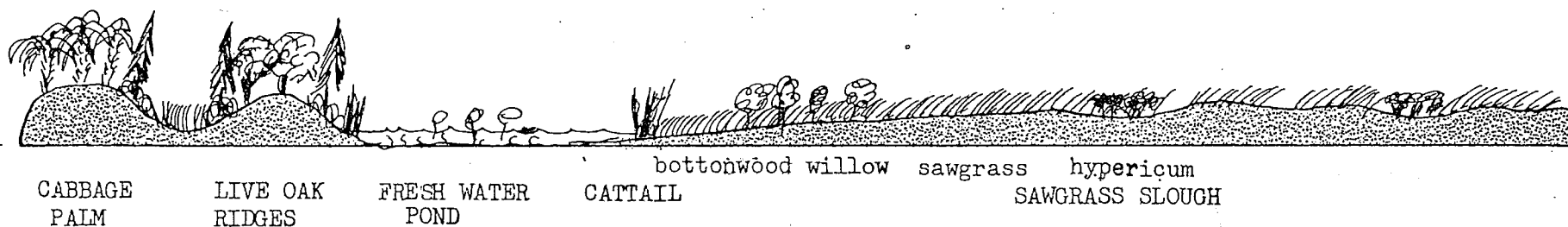
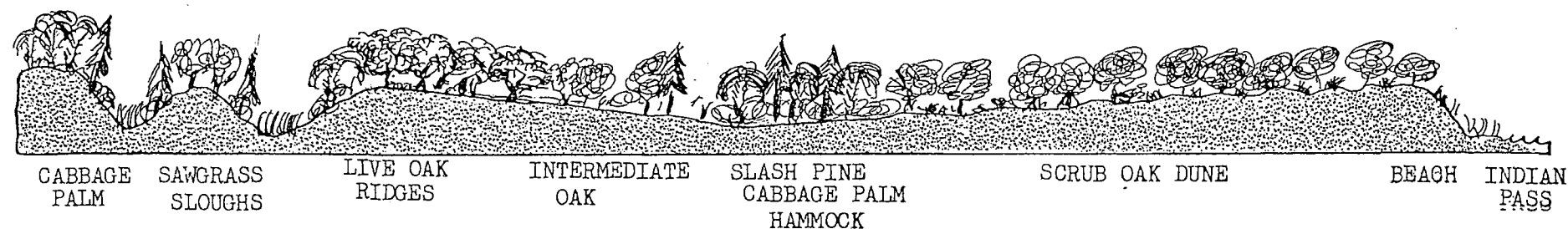
Magnolia grandiflora
Juniperus siberica
Quercus virginiana
Sabal palmetto
Quercus nigra
Morus rubra
Yucca aloifolia
Smilax Bona-Nox
Hicoria glabra
Rhus radicans
Callicarpa americana
Anisostichus crucigera
Zanthoxylum brevifolia
Ilex opaca

Pinus palustris
Serenoa repens
Vaccinium spp.
Ilex glabra
Aristida sp.
Lyonia fruticosa
Hypericum spp
Rhexia spp
Myrica ceriferus
Cliftonia monophylla

Cladium jamaicensis
Hypericum spp
Stillingia aquatica
Salix caroliniana
Thalia geniculata
Gyrotheca tinctoria
Hibiscus incanus
Diospyros virginiana
Asclepias incarnata
Ipomea sagittata
Chephalanthus occidentalis
Sambucus Simpsonii
Echinochloa spp
Cyperus spp
Rhynchospora spp.
Xyris spp

SLASH PINE*ILEX
Pinus palustris
Ilex vomitoris
Aristida sp.
Serenoa repens
Andropogon sp.
Yucca recurvifolia
Myrica ceriferus
Lyonia fruticosa

Figure 1A. Mid island profile from Gulf to sound (south to north) Sheet 2.



LIVE OAK RIDGES
Quercus virginia
Quercus laurifolia
Sabal palmetto
Serenoa repens
Conradina glabra
Vaccinium arboreum
Rhynchospora meglocarpus
Smilax sp.
Ilex volmetoria
Vaccinium sp.
Ilex opaca

FRESH WATER POND
Vallisneria americana
Potamogeton pectinatus
Najas quadalupensis
Potamogeton pusillus
Lemna sp.
Alternanthera philoxeroides
Ceratophyllum demersum
Nelumbo lutea
Nymphaea odorata
Sagittaria latifolia
Scripus californicus
Eleocharis cellulosa
Rhynchospora corniculata
Pontederia cordata

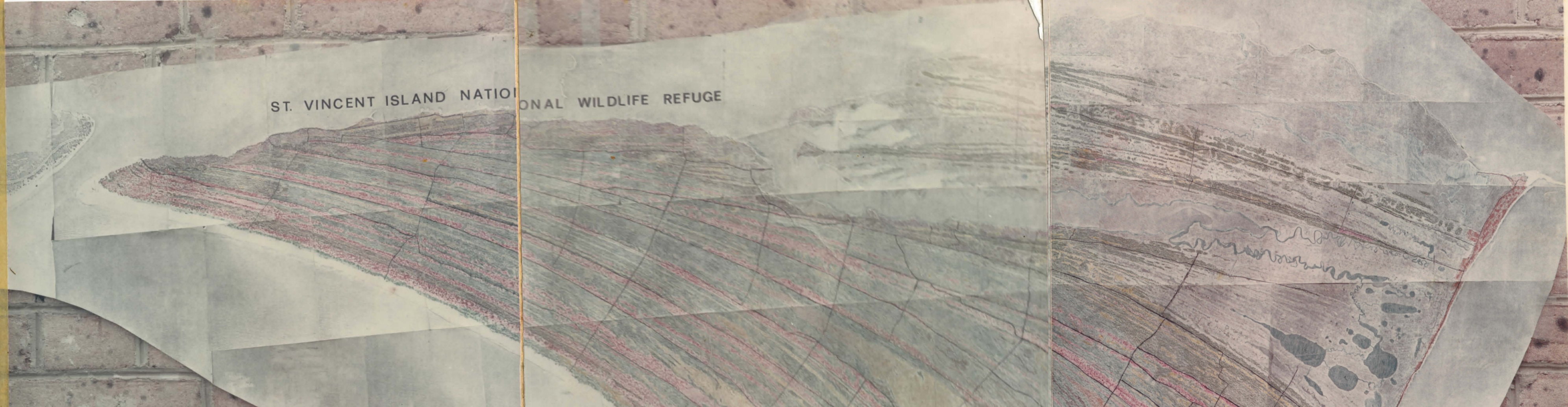
INTERMEDIATE OAK
Quercus virginia
Ceratiola ericoides
Conradina glabra
Serenoa repens
Quercus myrtifolia
Quercus geminata
Lyonia ferruginea
Vaccinium sp.
Quercus Rolfsii

CABBAGE PALM
Sabal palmetto
Quercus virginia
Juniperus siberica
Ilex volmetoria
Vita spp.
Opuntia sp.
Callicarpa americana

Figure 2.

Island vegetative profile from east to west showing relation of sand ridges (top) to inter-ridge or sloughs (bottom).

ST. VINCENT ISLAND NATIONAL WILDLIFE REFUGE



SCRUB OAK DUNE

Plant Name	Relative Frequency	Relative Abundance
Ceratiola ericoides (Rosemary)	83	11.1
Serenoa repens (Saw Palmetto)	42	4.5
Quercus myrtifolia (Sand Scrub Oak)	68	25.7
Vaccinium sp. (Unident. Blueberry)	16	1.8
Vaccinium sp. (Unident. Blueberry)	7	.9
Rynchospora meglococarpus	59	9.0
Conradina glabra	26	2.6
Quercus geminata (Twin Live Oak)	53	11.7
Lyonia ferruginea (Stagger Bush)	24	3.4
Solidago sp.	9	.9
Quercus Chapmani (Chapman's Oak)	21	3.1
Andropogon sp.	3	.4
Quercus Rolfsii (Rolf's Oak)	10	.5
Quercus virginiana (Live Oak)	3	.1
Vaccinium arboreum	7	1.6
Ilex glabra (Galberry)	12	6.1
Eupatorium capillifolium (Dog Fennel)	4	.2
Panicum sp.	6	.5
Aristida sp. (Wire Grass)	1	.1
Cuscuta compacta (Dodder)	1	----
Legume-centrosema sp.	2	----
Urtica sp. (Horse Nettle)	2	----
Lichens	100	----
Mushroom	present	
Unidentified 1	72	13.9
Unidentified 2	10	.7

SLASH PINE - MIXED UNDERSTORY

Plant Name	Relative Frequency	Relative Abundance
Pinus palustris (Slash Pine)	98	Basal Area 50
Ilex glabra	97	57.14
Lyonia ferruginea (Stagger Bush)	12	----
Serenoa repens (Saw Palmetto)	81	.02
Vaccinium sp. (Unident. Blueberry)	40	.04
Aristida sp. (Wire Grass)	28	.03
Grass (Unident.)	33	.02
Hypericum sp.	28	.04
Andropogon sp.	8	----
Conradina glabra	3	----
Lyonia fruticosa	73	14.90
Cladium jamaicensis (Saw Grass)	8	----
Ilex sp.	33	.04
Quercus geminata (Twin Live Oak)	3	----
Asclepias sp.	2	----
Rhexia sp. (Meadow Beauty)	10	.01

SLASH PINE - MIXED UNDERSTORY (CONT.)

Plant Name	Relative Frequency	Relative Abundance
Diospyros virginiana (Persimmon)	4	----
Panicum sp.	6	----
Vita sp. (Wild Grape)	6	----
Iponea saggitaria	2	----
Vaccinium sp.	2	----
Legume centrosema sp.	9	----
Baccharis halimifolia (Groundsel Tree)	4	----
Ascyrum sp.	5	----
Rhus radicans (Poison Ivy)	5	----
Rhus copallina (Shining Sumac)	1	----
Gyrotheca tinctoria (Red Root)	1	----
Asclepias sp. (Milk Weed)	1	----
Cyrilla racemiflora (White Titi)	----	----
Cuscuta compacta (Dodder)	2	----
Stillingia sp. (Queen's Delight)	2	----
Unknown	----	----
Unidentified	2	----
Leather fern	11	----
Unidentified fern	4	----

LIVE OAK RIDGES

Plant Name	Relative Frequency	Relative Abundance
Pinus palustris (Slash Pine)	1	20 BA
Quercus virginiana (Live Oak)	97	50 BA
Quercus laurifolia (Laurel Oak)	13	20 BA
Sabal palmetto (Cabbage Palm)	22	40 BA
Vaccinium arboreum (Sparkleberry)	33	.03
Serenoa repens (Saw Palmetto)	44	.05
Quercus Chapmani (Chapman's Oak)	1	----
Conradina glabra	48	.06
Ilex sp. (Unident. Holly)	16	.01
Ilex vomitoria	40	.09
Rhynchospora meglococarpus	64	.18
Vaccinium (Unident. Blueberry)	2	----
Vaccinium (Unident. Blueberry)	8	----
Vita sp.	21	.01
Unident. Grass	2	----
Panicum	34	.05
Oak seedlings (Quercus virginiana)	57	.19
Cyperus sp.	51	.13
Scleria sp.	24	.04
Lichen Unident.		
Ilax sp.	11	----
Magnolia grandiflora	3	----

LIVE OAK RIDGES (CONT.)

Plant Name	Relative Frequency	Relative Abundance
Ilex opaca (American Holly)	6	----
Mitella repens	6	.06
Myrica ceriferus	2	----
Legume-centrosema sp.	8	----
Solanum sp. (Horse Nettle)	1	----
Andropogon	1	----
Ascyrum sp.	1	----
Desmodium sp.	1	----
Rhus radicans (Poison Ivy)	3	----
Callicarpa americana (Beauty Berry)	1	----
Tradescantia sp. (Spiderwort)	4	----
Lyonia ferrugenea	3	----
Opuntia Drummondii (Prickly Pear)	1	----
Ambrosia sp. (Ragweed)	2	----
Unidentified Legume	2	----

TENTATIVE LIST OF PLANTS ON ST. VINCENT N.W.R.

Osmundaceae

- | | |
|--------------------|------------|
| Osmunda regalis | Royal Fern |
| Osmunda cinnamomea | |

Polypodiaceae

- | | |
|------------------------|---------------------|
| Anchistea virginica | Virginia Chain Fern |
| Pteridium aquilinum | |
| Dryopteris thelypteris | |

Pinaceae

- | | |
|--------------------|------------|
| Pinus clausa | Sand Pine |
| Pinus palustris | Slash Pine |
| Taxodium distichum | Cypress |

Juniperaceae

- | | |
|--------------------|-----------|
| Juniperus siberica | Red Cedar |
|--------------------|-----------|

Typhaceae

- | | |
|-------------------|--|
| Typha latifolia | |
| Typha domingensis | |

Naiadaceae

- | | |
|-------------------------|-------------------|
| Zannichellia palustris | Horned Pondweed |
| Utricularia maritima | Widgeongrass |
| Potamogeton illinoensis | Illinois Pondweed |
| Potamogeton perfoliatus | Redhead Grass |
| Potamogeton pusillus | Slender Pondweed |
| Potamogeton pectinatus | Sago Pondweed |

Zosteraceae

- | | |
|----------------|----------|
| Zostera marina | Eelgrass |
|----------------|----------|

Najasaceae

- | | |
|---------------------|--|
| Najas flexilis | |
| Najas guadalupensis | |

Alismaceae

- | | |
|-----------------------|-----------|
| Sagittaria platphylla | Arrowhead |
| Sagittaria latifolia | |

Eleodaceae

- | | |
|-----------------------|-------------|
| Vallisneria Americana | Wild Celery |
| Vallisneria spiralis | |

Poaceae

- | | |
|------------------------|--------------|
| Erianthus saccharoides | Plume Grass |
| Andropogon maritimus | Broom Grass |
| Andropogon glomeratus | Broom Grass |
| Andropogon capillipes | |
| Orghastrum Elliottii | Indian Grass |

<i>Syntherisma sanguinale</i>	Crab Grass
<i>Paspalum distichum</i>	Joint-Grass
<i>Paspalum vaginatum</i>	Salt Joint-Grass
<i>Panicum virgatum</i>	
<i>Panicum amarulum</i>	Beach Grass
<i>Panicum arenicoloides</i>	
<i>Panicum erectifolium</i>	
<i>Panicum commutatum</i>	
<i>Sacciolepis striata</i>	
<i>Echinochloa crus-galli</i>	Barnyard Millet
<i>Echinochloa walteri</i>	
<i>Chaetochloa viridis</i>	Green-Foxtail
<i>Chaetochloa magna</i>	
<i>Chaetochloa geniculata</i>	
<i>Cenchrus carolinianum</i>	Sand bur
<i>Aristida mohrii</i>	Wire Grass
<i>Aristida gyrans</i>	Wire Grass
<i>Aristida spiciformis</i>	Wire Grass
<i>Muhlenbergia capillaris</i>	Hair Grass
<i>Sporobolus indicus</i>	Drop Seed
<i>Capriola dactylon</i>	Bermuda Grass
<i>Spartina alterniflora</i>	Salt Cord Grass
<i>Spartina bakeri</i>	
<i>Chloris petraea</i>	Finger Grass
<i>Leptochloris fascicularis</i>	Feather (Salt) Grass
<i>Monanthochloe littoralis</i>	Key Grass
<i>Phragmites phragmites</i>	Common Reed
<i>Eragrostis refracta</i>	Love Grass
<i>Uniola paniculata</i>	Sea Oats
<i>Distichlis spicata</i>	Salt Spike Grass

Cyperaceae

<i>Cyperus compressus</i>	
<i>Cyperus virens</i>	
<i>Cyperus surinamensis</i>	
<i>Cyperus haspan</i>	
<i>Cyperus esculentus</i>	
<i>Cyperus ferax</i>	
<i>Cyperus Torreyi</i>	
<i>Cyperus globulosus</i>	
<i>Fimbristylis castanea</i>	
<i>Fimbristylis spadicea</i>	
<i>Fimbristylis geminata</i>	
<i>Stenophyllus capillaris</i>	Hair Sedge
<i>Eleocharis cellulosa</i>	Gulf Coast Spike Rush
<i>Eleocharis acicularis</i>	
<i>Eleocharis albida</i>	
<i>Scirpus americanus</i>	Three Square Bulrush

Juncaceae

Juncus roemerianus
 Juncus aristulatus
 Juncus scirpoides
 Juncus megacephalus

Needle Rush
 Needle Rush
 Needle Rush
 Needle Rush

Dracaenaceae

Yucca recurvifolia
 Yucca aloifolia

Curve Leaf Yucca
 Spanish Dogger

Smilacaceae

Smilax bona-nox
 Smilax laurifolia
 Smilax auriculata

Bullbrier
 Bamboo Vine
 Wild Bamboo

Haemadoraceae

Gyrotheca tinctoria
 Lophiola aurea

Red Root
 Gold Crest

Cannaceae

Canna flaccida

Golden Canna

Marantaceae

Thalia geniculata

Saururaceae

Saururus cernuus

Lizard's Tail

Juglandaceae

Hicoria ovata
 Hicoria glabra

Shag-Bark Hickory
 Pignut Hickory

Myricaceae

Myrica ceriferus
 Myrica pumilus

Wax Myrtle
 Dwarf Wax Myrtle

Salicaceae

Salix caroliniana

Willow

Fagaceae

Quercus laurifolia
 Quercus myrtifolia
 Quercus nigra

Laurel Oak
 Myrtle Oak
 Water Oak

Quercus virginiana	Live Oak
Quercus geminata	Twin Live Oak
Quercus Chapmani	Chapman's Oak
Quercus Rolfsii	Rolf's Oak

Artocarpaceae

Morus rubra	Red Mulberry
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Polygonaceae

Rumex hastatulus	Dock
Polygonella brachystachya	Joint Weed
Polygonella gracilis	
Polygonum punctata	Dotted Smartweed
Polygonum lapathifolia	Pale Smartweed
Tracaulon sagittatum	Arrow Vine

Chenopodiaceae

Atriplex arenaria	Beach-Orach
Salicornia perennis	Woody Glasswort

anthaceae

nida cannabina	Water Hemp
nida tuberculata	
Acnida floridana	Cottonweed
Alternanthera philoxeroides	Alligatorweed
Froelichia floridana	Cottonweed

Corrigiolaceae

Odontonychia erecta	
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Tetragoniaceae

Mollugo verticillata	Indian Chickweed
Sesuvium portulacastrum	Sea Purslane

Caryophyllaceae

Silene alba	Snowy Campion
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Ceratophyllaceae

Ceratophyllum demersum	Coontail
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Magnoliaceae

Magnolia grandiflora	Southern Magnolia
Magnolia virginiana	Sweetbay

umbonaceae	
Nelumbo lutea	Lotus
Nymphaeaceae	
Nymphaea odorata	White Water Lily
Nymphaea mexicana	
Brassicaceae	
Lepidum virginicum	Poor Man's Pepper
Cakile edentula	Sea Rocket
Altingiaceae	
Liquidambar styraciflua	Sweet Gum
Rosaceae	
Rubus trivialis	Southern Dewberry
Cassiaceae	
Chamaecrista fasciculata	Partridge Pea
Fabaceae	
Lupinus diffusus	Lupine
Amorpha fruticosa	Indigo bush
Sesban Emers	
Daubentonia punicea	Purple Sesban
Meibomia stricta	Slick Tight
Meibomia paniculata	
Meibomia viridiflora	
Lespedeza hirta	
Lespedeza capitata	Dusty Clover
Dolicholus minimus	
Erythrina herbacea	Cardinal Spear
Galactia regularis	Milk Pea
Galactia volubilis	
Bradburya virginiana	Butterfly Pea
Canavali lineata	Baybean
Vicia acutifolia	Sand Vetch
Oxalidaceae	
Oxalis cymosa	
Balsaminaceae	
Impatiens capensis	Jewel Weed
Rutaceae	
Thalictrum Clava Herculis	Hercule's Club

Polygalaceae

Polygala brevifolia
Polygala lutea
Polygala baldwinii

Bog Bachelor's Button
White Bachelor's Button

Euphorbiaceae

Croton punctatus
Acalypha virginica
Stillingia aquatica
Cnidoscolus stimulosus
Chamaesyce maculata
Chamaesyce nutans

Dove-Weed
Tar-Weed
Corkwood
Spurge Nettle
Milk Purslane
Eye Bane

Empetraceae

Ceratiola ericoides

Rosemary

Anacardiaceae

Rhus radicans
Rhus copallina

Poison Ivy
Shining Sumac

llaceae

ritla racemiflora
Cliftonia monophylla

White Titi
Black Titi (Buckwheat)

Aquifoliaceae

Ilex glabra
Ilex vomitoria
Ilex opaca
Ilex myrtifolia

Galberry
Yaupon
American Holly

Aceraceae

Acer rubrum

Red Maple

Vitaceae

Vitis rufotomentosa
Muscadinia rotundifolia
Cissus incisa
Ampelopsis arborea
Parthenocissus quinquefolia

Wild Grape
Marine Ivy
Pepper Vine
Virginia Creeper

Malvaceae

Hibiscus incanus

Rose Mallow

Hypericaceae

Ascyrum hypericoides
 Ascyrum tetrapetalum
 Ascyrum linifolium
 Hypericum ambiguum

St. Andrews Cross

Cistaceae

Lechea minor

Pinweed

Opuntiaceae

Opuntia Drummondii

Prickly Pear

Lauraceae

Persea borbonia
 Persea pubescens

Red Bay
 Swamp Red Bay

Melastomaceae

Rhexia

Meadow Beauty

Lythraceae

Communnia coccinea

Tooth Cups

Onagraceae

Isnardia palustris
 Ludwigia alternifolia
 Oenothera biennis
 Gaura angustifolia

Marsh Purslane
 Seed Box
 Weedy Evening Primrose

Gunneraceae

Proserpinaca pectinata
 Myriophyllum

Mermaid Weed
 Milfoil

Nyssaceae

Nyssa sylvatica
 Nyssa aquatica
 Nyssa ogeche

Black Gum
 Tupelo Gum
 Ogeche Lime

Umbelliferae

Hydrocotyle umbellata
 Hydrocotyle ranunculoides
 Hydrocotyle bonariensis
 Centella repanda

Pennywort

Ericaceae

Kalmia hirsuta
Zenobia pulverulenta
Pieris nitida
Lyonia ferrugenea
Lyonia fruticosa

Laurel
 Fetter Bark

Vacciniaceae

Lasiococcus dumosa
Decachaena frondosa
Batodendron arboreum
Polycodium stamineum
Cyanococcus myrsinites

Dwarf Huckleberry
 Tangleberry
 Sparkleberry
 Buckberry
 Blueberry

Armeriaceae

Limonium nashii

Sea Lavender

Ebenaceae

Diospyros virginiana

Persimmon

Oleaceae

Osmanthus americana
Jasminum grandiflorum

Wild Olive

Spigeliaceae

Polypremum procumbens

Gentianaceae

Sabbatia dodecandra

Asclepiadaceae

Asclepias incarnata
Asclepias

Swamp Milkweed

Convolvulaceae

Ipomoea stolonifera
Ipomoea pes-caprae
Ipomoea sagittata

Morning Glory
 Railroad Vine

Cuscutaceae

Cuscuta compacta

Dodder

Solanaceae

Physalis angulata
Physalis angustifolia

Ground Cherry

Heliotropaceae

Heliotropium indicum

Verbenaceae

Verbena urticaefolia
Callicarpa americana

White Verbena
Beauty Berry

Lamiaceae

Teucrium nashii
Trichostema dichotomum
Monarda punctata
Conradina canescens
Mesosphaerum rugosum

Wood Sage
Blue Curls
Horse Mint

Rhinanthaceae

Monniera monniera
Agalinis plunkenetii
Agalinis setacea

False Foxglove

Pinguiculaceae

Utricularia peimila
Utricularia gibba
Utricularia foliosa

Bladderwort
Bladderwort
Bladderwort

Bignoniaceae

Bignonia radicans

Trumpet Vine

Rubiaceae

Cephalanthus occidentalis
Diodia teres
Galium latifolium
Mitchella repens

Buttonbush
Buttonweed
Bedstraw
Partridge Berry

Caprifoliaceae

Sambucus Simpsonii

Gulf Elder

Lobeliaceae

Lobelia brevifolia

rosiaceae

Ambrosia artemisiifolia

Ragweed

Iva frutescens

Marsh Elder

Carduaceae

Eupatorium serotinum

Eupatorium mikanioides

Eupatorium tortifolium

Eupatorium rotundifolium

Eupatorium capillifolium

Dog Fennel

Mikania scandens

Climbing Hempwood

Laciniaria tenuifolia

Blazing Star

Laciniaria chapmanii

Trilisa odoratissima

Deer's Tongue

Heterotheca subaxillaris

Champlor Plant

Chrysopsis graminifolia

Chrysopsis decumbens

Chrysoma pauciflosculosa

Euthamia graminifolia

Solidago petiolata

Goldenrod

Solidago chapmani

Aster coridifolius

Aster exilis

Erigeron fleabane

Laccharis halimifolia

Groundsel Tree

Laccharis angustifolia

False Willow

Pluchea foetida

Marsh Fleabane

Pluchea imbricata

Pluchea petiolata

Gnaphalium obtusifolium

Rabbit Tobacco

Borrchia frutescens

Sea Oxeye

Helianthus debilis

Sunflower

Coreopsis longifolia

Tickweed

Bidens cernua

Stick Tight

Erechtites hieracifolia

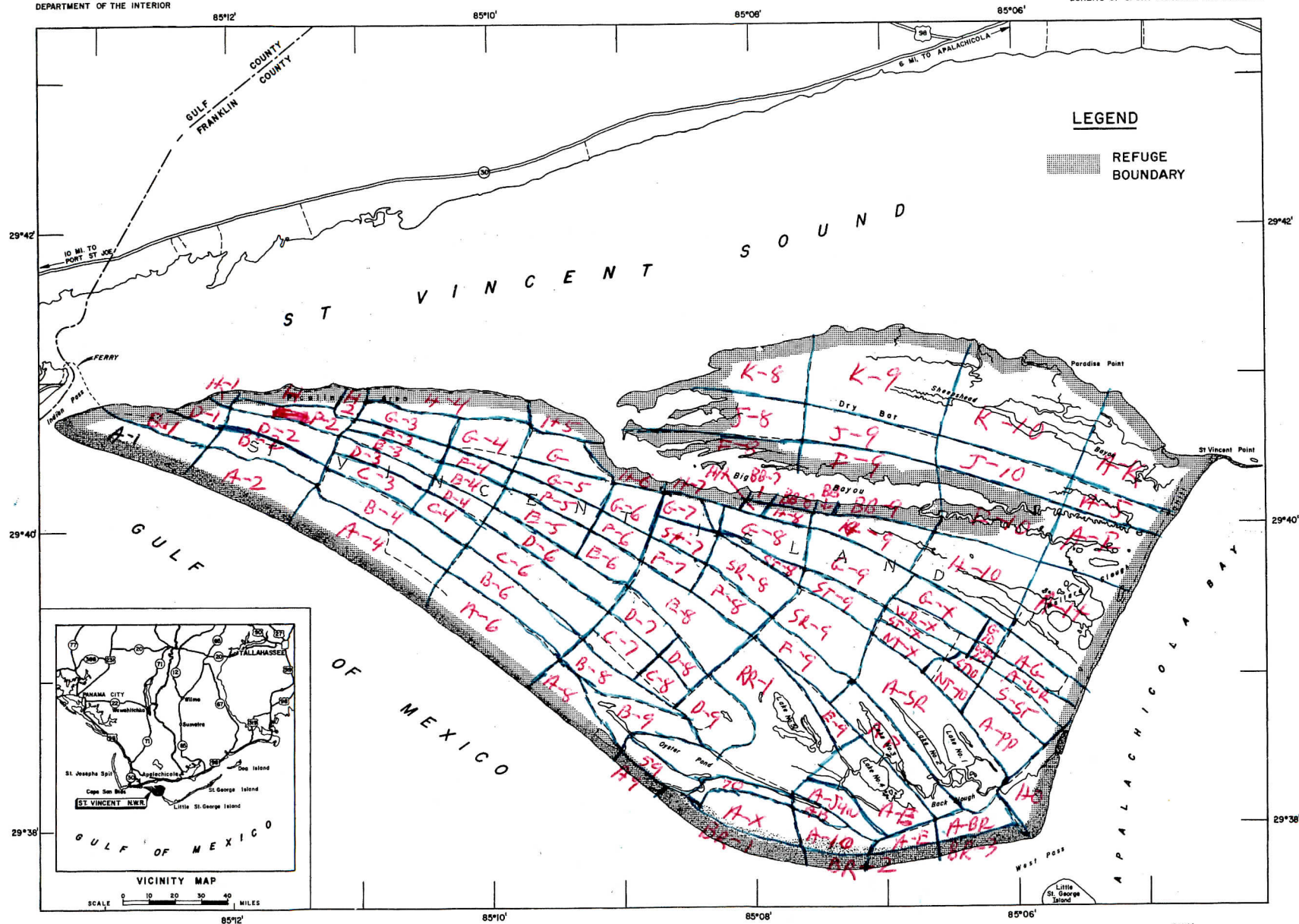
*Ranunculus**Lagerflora minutiflora*

ST. VINCENT NATIONAL WILDLIFE REFUGE

FRANKLIN COUNTY, FLORIDA

UNITED STATES
DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE



UNIT IDENTIFICATION NUMBERS FOR VEGETATIVE COMPOSITION TABLES.

Sawgrass	.20	.02	.04	.01	.08	.12	.12	.08	.09	.06	.04	.06	.15	.02	.16	.05	.12	.08	.05	.11	.02	.09	.08	.11	.11	.46	.12	.19	.01	.12	.02	.13	.06	.01	.02	.13	.01	.09	.06	.15	.05	.06	.13	.09				
Pine/Cab. Hammock	.15	.28	.15	.02	.23	.02	.04	.06	.22	.09	.09	.16											.16	.14	.21							.30	.04				.15	.23	.37	.30	.13	.01	.04					
Cabbage Palm			.01	.01					.01															.01					.01				.19						.02		.02	.09	.09	.01				
Intermediate Oak																									.15	.16	.20								.02				.02	.09	.09	.01						
Live Oak																									.11	.02											.12	.35	.17	.09	.11							
Pine/Ilex																																																
Pine/Grass-Dune	.09				.13							.16													.17														.02									
Oak/Grass-Dune																									.05														.01									
Cattail																																																
Freshwater Ponds																																																
Tide Marsh																																																
Saltwater Ponds																																																
Beach	.35				.26							.46														.17																	.12					
Hardwood Hammock			.27	.09					.08	.02	.08														.30																							
Sand Pine/Scrub Oak																				.04	.01																											

TOTAL	1.91	.44	.59	.15	1.62	.59	1.11	.61	.46	.30	.24	2.20	1.49	.60	.75	.42	.44	.63	.44	.48	.42	.30	1.01	1.01	1.89	1.48	1.49	1.41	.72	.57	.52	.70	.48	.67	.53	.79	.42	.68	1.11	.79	.56	.60	.60	.55
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Plot Number	E-8	F-8	F-7	SR-8	ST-7	SP-8	Q-8	G-7	H-7	HH	H-7	BB-8	BB-7	F-9	59	D-9	F-9	SR-9	ST-9	G-9	H-9	BB-9	BB	BA-9	A-2	70	KK-9	E-9	A-F	A-59	NT-10	NT-9	ST-10	ST-9	WR-10	WR-9	GC-10	G-2	BA-9	A-10	A-B	AT-9	A-F	BR-3			
Scrub Oak		.01	.01	.27	.24	.11	.06	.05								.01		.05	.30	.12										.05		.16		.01		.02	.13		.01								
Pine-Mixed Underst.	.49	.38	.31	.66	.22	.09	.93	.28								.22	.28	.82	.35	.49							.04	.02	.11	.31	.02	.06	.01	.17		.06											
Sawgrass	.79	.01	.02	.02	.02	.01	.05	.04	.04	.02	.02	.02	.01		.01	.39	.01	.02	.02	.11	.19	.01	.01	.01	.02	-	1.62	.31	.31	.51	.01	.02	.15	.05	.06	.05	.08	.11	.01	.01		.08		.02			
Pine/Cab. Hammock		.11		.01					.20	.06	.12	.06	.02	.02	.13	.06	.50	.19			-		.01	.26	.70	.17	.42	.66	.26	.55	.04								.17	.26	.06	.24		.23			
Cabbage Palm	.05	.04													-	.12	.01	.08								.01	.46		.04	.09											.01	-					
Intermediate Oak							.01	.01			.02																				.23		.02		.04												
Live Oak	.02	.12	.08											.02	.20	.53	.04	-							.13	.15	.17	.19	-	.19	.28									.04	.13	.31	.04				
Pine/Ilex						.04		.09				.01								.56	.71	.28	.04								.08		.22	.06	.13	.11	.37	.50									
Pine/Grass-Dune														.09										.08																.12					.08		
Oak/Grass-Dune														.02											.08	-														.30	.05			.01	.24		
Cattail																											.11		.23	.12																	
Freshwater Ponds	.01															.01	.01										.12		.15	.48																	
Tide Marsh										.01		.01										.37	.20																								
Saltwater Ponds																						.04																									
Beach														.23											.28																						
Hardwood Hammock																							.01																		.31				.27		
Sand Pine/Scrub Oak										.08	.11																																				

TOTAL	1.55	.68	.44	.97	.49	.22	1.11	.39	.34	.09	.27	.22	.05	.42	.35	1.37	.86	1.19	.68	1.29	1.27	.55	.08	.78	.96	.37	2.98	.41	1.30	3.42	.39	.26	.41	.31	.27	.37	.45	.63	.93	.37	.22	.64	.05	.86
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Plot Number	A-8R	HQ	A-A	A-ST	A-WR	AG	AH	A-10	A-E	E-10	A-J	J-10	A-K	K-10	I-9	J-9	K-9	I-8	J-8	K-8	OYSTER POND
Scrub Oak																					9.7
Pine-Mixed Underst.																					18.9
Sawgrass		.15	.08	.11	.04	.13				.01		.02			.06	.01					11.4
Pine/Cab. Hammock	.15	.19	.34	.01																	10.0
Cabbage Palm							.05		.06		.02		.66								1.8
Intermediate Oak			.20	.05	.12				.02						.01	.01	.02	.06	.01	-	1.6
Live Oak	.06	.20	.06	.02	.01	.01			.01		.02		.05								4.1
Pine/Ilex			.23	.53	.35	.43	.17	.19	.04	.09	.03	.27	.20	.34	.34	.49	.46	.20	.27	.56	8.4
Pine/Grass-Dune		.08																			1.2
Oak/Grass-Dune	.08	.19																			1.3
Cattail																					.5
Freshwater Ponds																					.90
Tide Marsh							2.04	1.93	1.62	1.62	.74	.89	1.88	3.74	.91	.79	3.53	.76	.96	1.19	23.4
Saltwater Ponds							.57	.19	.20	.13	.03										1.2
Beach		.27			.01	.01	.68		.02		.01		.08								3.0
Hardwood Hammock																		.01	.02	.09	1.5
Sand Pine/Scrub Oak																					-

COVER TYPES EXPRESS AS A PERCENTAGE OF ENTIRE ISLAND'S TOTAL VEGETATIVE COVER.

TOTAL	.30	1.07	1.00	.74	.55	.64	2.94	2.32	2.00	1.97	.89	1.19	2.29	4.08	1.23	1.32	4.03	.99	1.27	1.85
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COVER TYPES EXPRESS AS A PERCENTAGE OF ENTIRE ISLAND'S TOTAL VEGETATIVE COVER.

Plot Number	A-1	B-1	D-1	H-1	A-2	B-2	D-2	F-2	A	H-2	H-3	A-4	B-4	C-4	D-4	E-4	F-4	G-4	H-4	A-5	B-5	C-5	D-5	E-5	F-5	G-5	H-5	A-6	B-6	C-6	D-6	E-6	F-6	G-6	H-6	A-7	B-7	C-7	D-7	E-7	F-7	G-7	H-7		
Scrub Oak	45	19	14		36	4	36	20	9	23	11	35	28	45	24	10	16	28	56	11	6	18	25	12	11	19	29	25	12	19	47	9	-	4	26	40	3								
Pine-Mixed Underst.	2	9	5		20	70	50	55	2	13		16	62	50	54	77	54	54	31	57	84	50	50		30	37	49	61	84	60	47	20		65	69	43	3	2		21	17	43	32	53	
Sawgrass	11	6	7	9	5	21	11	13	21	23	17	3	10	5	22	13	29	13	13	23	6	32	8	12	8	32	8	14	2	21	6	20	14	2	5	17	3	14	6	19	10	12	23	17	
Pine/Cab. Hammock	8	66	26	18	14	4	3	11	48	32	39	12							17	45	15										43	9				36	34	33	38	24	2	6			
Cabbage Palm			2	9					2											1							2							29			21		5	16	4	2			
Intermediate Oak																									8	11	14								6		18	32	22	17	18				
Live Oak																									6	1																			
Pine/Ilex																																													
Pine/Grass-Dune	5				9							12														9												4							
Oak/Grass-Dune																										3												2							
Cattail																																													
Freshwater ponds																																8	17												
Tide Marsh																																													
Saltwater Ponds																																													
Beach	29				16							22														9																			
Hardwood Hammock			46	64					18	9	33																																		
Sand Pine/Scrub Oak																				9	3																								
Total																																													

Plot Number	E-8	F-8	F-9	SR-8	ST-7	ST-8	G-8	G-7	H-8	HH	H-7	BB-8	BB-7	AS-9	SY	D-9	F-9	SR-9	ST-9	G-9	H-9	BB-9	BB	BR-1	A-2	70	BR-1	E-9	A-F	AS-NT-10	NE-A	ST-10	ST-X	WR-10	WR-X	G-10	E-X	BR-2	A-10	A-B	AT-10	A-F	BR-3		
Scrub Oak		2	3	29	50	50	6	14								1		4	44	9																									
Pine-Mixed Underst.	32	56	72	68	44	43	84	73								16	34	70	52	39	15																								
Sawgrass	51	7	6	2	6	7	5	10	12	28	10	12	25		3	29	1	2	4	8		2	17	1	2		54	77	24	44	3	11	37	17	25	15	18	18	1	4		13		3	
Pine/Cab. Hammock	4	16		1					60	72	45	32	50	6	39	5	59	17																											
Cabbage Palm	10	6														9	1	7																											
Intermediate Oak																																													
Live Oak	2	18	19												6	58	39	5																											
Pine/Ilex																																													
Pine/Grass-Dune																																													
Oak/Grass-Dune																																													
Cattail																																													
Freshwater Ponds	1																																												
Tide Marsh																																													
Saltwater Ponds																																													
Beach																																													
Hardwood Hammock																																													
Sand Pine/Scrub Oak																																													
TOTAL																																													

Plot Number	A-1SR	HQ	A-1P	A-1T	A-1W	A-1G	A-1H	H-1D	A-1E	I-1D	A-1J	J-1D	A-1K	K-1D	I-1G	J-1G	K-1G	I-1S	J-1S	K-1S	
Scrub Oak																					
Pine-Mixed Underst.																					
Sawgrass		14	8	15	8	21									5	1					
Pine/Cab. Hammock	50	18	34	2																	
Cabbage Palm																					
Intermediate Oak			21	7	23																
Live Oak	23	19	7	4	2	2															
Pine/Ilex			30	72	65	76		7	8	2	5	4	23	8	8	28	37	12	20	21	30
Pine/Grass-Dune		8																			
Oak/Grass-Dune	27	18																			
Cattail																					
Freshwater Ponds																					
Tide Marsh																					
Saltwater Ponds																					
Beach		23																			
Hardwood Hammock																					
Sand Pine/Scrub Oak																					
TO TAL																					

COVER TYPES EXPRESSED AS A PERCENTAGE OF EACH PLOT
(EACH PLOT EQUALS 100%)

Pine-Mixed Underst.	5.1	5.1	3.4		39.1	57.0	68.0	42.3	1.7	5.1	5.1	45.9	15.6	37.4	57.0	40.8	30.6	45.9	17.0	34.0	44.2	18.7	62.7	69.7	68.0	90.1	107.1	76.5	52.5	30.6	17.0	8.5	1.7	3.4	17.0	1.7	1.7	8.5	18.7	6.8	8.5	17.0	11.9	32.3	23.8	35.7		
Sawgrass	25.5	3.4	5.1	1.7	10.2	15.3	15.3	10.2	11.9	8.5	11.9	8.5	18.7	3.4	20.4	6.8	15.3	10.2	6.8	13.6	3.4	11.9	10.2	15.3	18.7	52.8	15.3	23.8	1.7	15.3	3.4	17.0	8.5	1.7	3.4	17.0	1.7	11.9	8.5	18.7	6.8	8.5	17.0	11.9				
Pine/Cab. Hammock	18.7	35.7	18.7	3.4	28.9	3.4	5.1	8.5	22.2	11.9		32.3											20.4	38.1	35.7							37.4	5.1				18.7	28.9	45.9	37.4	17.0	1.7	5.7					
Cabbage Palm			1.7	1.7					1.7															1.7					1.7						23.8			28.9		3.4								
Intermediate Oak																								18.7	20.4	25.5										3.4						3.4	11.9	3.4	1.7			
Live Oak																								13.6	3.4												15.3	44.2	22.1	11.9	13.6							
Pine/Ilex																																																
Pine/Grass-Dune	11.9				17.0							32.3																																				
Oak/Grass-Dune																																																
Cattail																																																
Freshwater Ponds																																																
Tide Marsh																																																
Saltwater Ponds																																																
Beach	68.0				32.3							57.8														22.1																						
Hardwood Hammock			34.0	11.9						10.2	3.4	10.2														37.4																						
Sandpine/Scrub Oak																																																
Total	236.3	54.4	73.1	18.7	200.6	73.1	137.7	76.5	57.8	37.4	30.6	222.0	185.3	74.8	93.5	98.6	54.4	78.2	54.4	59.5	52.7	37.4	125.8	138	234.6	183.6	185.3	175.1	90.1	7.4	64.6	86.7	57.5	83.3	66.3	98.6	52.7	85.0	137.7	98.6	69.7	74.8	74.8	68.0				
Plot Number	E-8	F-8	F-7	SR-8	ST-7	ST-8	G-8	G-7	H-8	H-7	H-6	BB-8	BB-7	A-9	S-9	D-9	F-9	SR-9	G-9	H-9	BB-9	BB-8	A-8	BB-1	A-8	70	BB-1	E-9	A-F	A-S	NT-10	ST-10	ST-X	WR-HUR-X	G-10	G-X	BB-1	A-10	A-B	BB-1	A-F	BB-3						
Scrub Oak	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88				
Pine-Mixed Underst.	61.2	47.6	39.1	81.6	27.2	11.9	115.6	35.7									27.2	35.7	102.0	44.2	61.2																											
Sawgrass	78.6	1.7	3.4	3.4	3.4	1.7	6.8	5.1	5.1	3.4	3.4	3.4	1.7		1.7	49.3	1.7	3.4	3.4	13.6	23.8	1.7	1.7	1.7	3.4	-	200.6	39.1	39.1	187.0	1.7	3.4	18.7	6.8	8.5	6.8	10.2	13.6	1.7	1.7		10.2		3.4				
Pine/Cab. Hammock	8.5	13.6		1.7					25.5	8.5	15.3	8.5	3.4	3.4	17.0	8.5	62.9	23.8				-																										
Cabbage Palm	18.7	5.1															15.3	1.7	10.2																													
Intermediate Oak							1.7	1.7																																								
Live Oak	3.4	15.3	10.2																																													
Pine/Ilex							5.1		11.9																																							
Pine/Grass-Dune																																																
Oak/Grass-Dune																																																
Cattail																								</																								