

# VASCULAR FLORA OF J.N. “DING” DARLING NATIONAL WILDLIFE REFUGE, SANIBEL ISLAND, FLORIDA, U.S.A.

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## ABSTRACT

The objective of this study was to collect and document the vascular plant species at the 2104-hectare J. N. “Ding” Darling National Wildlife Refuge, Sanibel Island, Florida. Vascular plant species were collected at two-month intervals from May 2014 to October 2017 during which we identified 319 species in 251 genera in 93 families. The Poaceae (41 spp.), Fabaceae (30 spp.), and Asteraceae (33 spp.) were the largest families. The most species rich genera were *Euphorbia* (8 spp.), *Cyperus*, *Tillandsia* (7 spp.), and *Ipomoea* (6 spp.). Eighty species, 25 percent of the flora, were non-native. One rare species occurred at the study site.

## RESUMEN

El objetivo de este estudio fue coleccionar y documentar las especies de plantas vasculares en las 2104-hectáreas del J.N. “Ding” Darling National Wildlife Refuge, Sanibel Island, Florida. Las especies de plantas vasculares se coleccionaron en intervalos de dos meses de mayo de 2014 a octubre de 2017 durante los cuales identificamos 319 especies de 251 géneros, de 93 familias. Las Poaceae (41 especies), Fabaceae (30 especies), y Asteraceae (33 especies) fueron las familias más representadas. Los géneros con más riqueza en especies fueron *Euphorbia* (8 spp.), *Cyperus*, *Tillandsia* (7 spp.) e *Ipomoea* (6 spp.). Ochenta especies; 25 por ciento de la flora, no son nativas. Se encontró una especie rara en el sitio de estudio.

## INTRODUCTION

The J.N. “Ding” Darling National Wildlife Refuge is a 2104-hectare tract on Sanibel Island, Lee County, Florida, administered by the U.S. Fish & Wildlife Service (Fig. 1). The preserve was named for cartoonist Jay Norwood “Ding” Darling. The objective of this study was to collect and identify the vascular plant species at the Refuge and analyze the plant diversity. The flora was collected previously by Wunderlin et al. (1980) who identified 254 taxa, although their findings were not published. Cooley (1955) described the history, geography, ecological features, and vegetational features of Sanibel Island and included a checklist of the flora. The National Wildlife Refuge will never be developed; and therefore, the site provides opportunities for future floristic work because of its protected status. The refuge is situated on Sanibel Island in southwest Florida at 26°, 25'45"N, 82°, 5'3"W.

The climate of Sanibel Island is slightly milder than that of the nearest weather station at Fort Myers. January is the coolest month with a mean of 18.0°C while August is the warmest with a mean of 28.4°C. No frosts occur during the average year. Average yearly rainfall is 1392 mm with most falling from June to September, a combined total of 908 mm. November is the driest month with 37 mm the same recorded for April. The driest portion of the year runs from November through April, an average six-month total of 308 mm. The wettest months, June and August, average more than four times as much rainfall as the two driest months (Garwood 1996).

### Plant Communities

Wunderlin et al. (1980) described six major plant communities within the refuge, and divided them into various stages of succession where possible. We follow their major community descriptions.

**Mangrove Community.**—The mangrove community occupies the largest area within the refuge. The dominant taxa here listed in order of flood tolerance are *Rhizophora mangle*, which is nearly continuously flooded at low tide. This taxon has copious rhizophores for support. *Avicennia germinans* and *Laguncularia racemosa* occupy the zone inland of *R. mangle*. *Conocarpus erectus* occupies the elevated zone behind the mangroves and is seldom inundated by the tides.

**Salt Marsh Community.**—Scattered throughout the upper edges of mangrove swamps are salt marsh species that usually grow in close association around the high water mark. Taxa common to this community are *Alternanthera flavescens*, *Batis maritima*, *Borrchia frutescens*, *Iva frutescens*, *Limonium carolinianum*, and *Salicornia ambigua*. Like the mangrove associates, these taxa generally experience daily tidal flooding. *Batis* and *Borrchia* are the most abundant members of this community.

**Tropical Hammock.**—The best developed tropical hammock community occupies the Indian shell mound and is accessible by a board walk. Common taxa, here but also found elsewhere, are *Bursera simaruba*, *Coccoloba uvifera*, *Ficus aurea*, *Quercus virginiana*, *Sabal palmetto*, and *Sideroxylon foetidissimum*. *Quercus virginiana* and *Sabal palmetto* are most conspicuous near the visitor's center. Common tropical hammock shrubs are *Ardisia escallonioides*, *Capparis cynophallophora*, *Chiococca alba*, *Erythrina herbacea*, *Pithocellobium unguis-cati*, and *Randia esculenta*. Where copious light penetrates the canopy, the following taxa are also observed: *Bidens pilosa*, *Cereus pentagonus*, *Ipomoea alba*, *Iresine diffusa*, *Mentzelia floridana*, *Opuntia stricta*, and *Paspalum setaceum*.

**Coastal Dry Hammock.**—*Quercus virginiana* and *Sabal palmetto* are the dominant trees in this community. On higher drier ridges, *Coccoloba uvifera*, *Bursera simaruba*, and *Ficus aurea* are common. Shrubs of this community include *Eugenia axillaris*, *Forestiera segregata*, *Jacquinia keyensis*, *Myrsine cubana*, and *Sideroxylon celastrinum*. Sun-loving *Lantana involucrata*, *Opuntia compressa*, *Yucca aloifolia*, and invasive *Catharanthus roseus* are also common. Epiphytes including *Tillandsia* spp. are common here as well as *Vittaria lineata*.

**Coastal Dune.**—This community named the Beach and Strand Community by Wunderlin et al. (1980) is a small community confined to the Bailey Tract bordering the Gulf (Fig. 1). Salt spray, bright sun, and the coarse porous soil govern the distribution and variety of plants that grow here (Stalter et al. 1999). We list the taxa at sites beginning with the foredune closest to the ocean where *Atriplex arenaria*, *Euphorbia mesembryanthemifolia*, *Cenchrus incertus*, *Dactyloctenium aegyptium*, *Iva imbricata*, *Sesuvium portulacastrum*, and *Sporobolus virginicus* are most common. Behind the foredune, *Uniola paniculata* is the dominant taxon on the somewhat stable primary dune. Associates here are *Flaveria floridana*, *Heliotropium polyphyllum*, and *Oenothera humifusa*. Behind the primary dune and farther from the Gulf are *Dalbergia ecastaphyllum*, *Guilandina bonduc*, *Lantana involucrata*, *Scaevola plumieri*, *Suriana maritima*, and *Yucca aloifolia*.

**Freshwater Marsh.**—The best developed freshwater marsh can be found at the Perry tract (Fig. 1). Common taxa here are *Acrostichum danaeifolium*, *Cladium jamaicense*, *Eustoma exaltatum*, *Fuirena pumila*, *Hydrocotyle verticillata*, *H. umbellata*, *Ptilimnium capillaceum*, *Pluchea odorata*, *Rumex verticillatus*, *Sabatia stellaris*, *Spartina bakeri*, *Typha domingensis*, and *Verbesina virginica*. The freshwater marsh is unique because *T. domingensis* and *Sabatia stellaris* were collected here and nowhere else at the refuge.

**Ruderal.**—The ruderal community consists of maintained roadside rights-of-way, disturbed areas along trails, home sites, burned areas at the Perry tract, and areas near the visitor's center. The ruderal community supports the greatest diversity of taxa. Visitors to the Refuge are a potential source of seeds of new vascular plant species. Common taxa of disturbed areas include *Abrus precatorius*, *Allamanda cathartica*, *Ambrosia artemisiifolia*, *Bidens pilosa*, *Catharanthus roseus*, *Cynodon dactylon*, *Desmodium tortuosum*, *Eleusine indica*, *Eupatorium capillifolium*, *Euphorbia* spp., *Ipomoea indica*, *Lepidium virginicum*, and numerous other taxa.

## METHODS

The study was initiated in May 2014 and terminated in October 2017. The refuge was sampled a minimum of eight times during the yearly growing season for a total of 32 field days. Vouchers of each vascular plant species were collected and deposited at the AC Moore Herbarium, University of South Carolina (USCH). Duplicates of many, but not all taxa, are deposited at the University of South Florida (USF). Some spore plants were deposited in James Montgomery's private herbarium. These were donated to Rutgers Chrysler Herbarium (CHRB) in 2018. Some Cyperaceae are housed at Northern Illinois University (NIH). Nomenclature and circumscription of families follows Wunderlin et al. (2018).

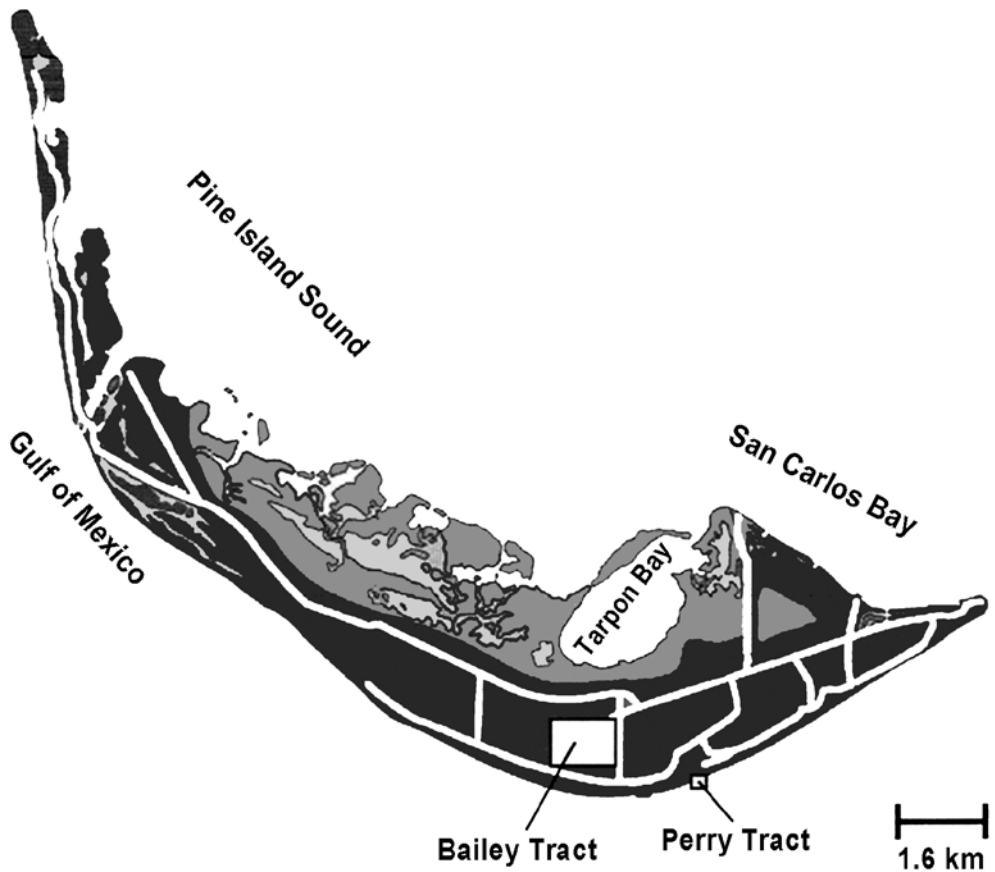


FIG. 1. Map of the J.N. "Ding" Darling National Wildlife Refuge (highlighted in light gray), Sanibel Island, Florida.

#### RESULTS AND DISCUSSION

The vascular flora of the J.N. "Ding" Darling National Wildlife Refuge consists of 319 species in 251 genera in 93 families (Table 1). The Poaceae (41 spp.) and Asteraceae (33 spp.) are the largest families in the flora; *Euphorbia* (8 spp.), *Cyperus* and *Tillandsia*, (7 spp.), and *Ipomoea* (6 spp.) are the largest genera. Eighty non-native taxa were identified (25% of the flora). Families with the largest number of non-native taxa are the Poaceae (16 spp.) and Fabaceae (9 spp.).

One rare species, *Celtis pallida*, was found at the Shell Mound Trail. This specimen has been documented as a National Champion (Jeremy Conrad, Senior Wildlife Biologist, personal communication, January 25, 2018).

The vascular plant species at the refuge have much in common with the Florida Keys (Stalter et al. 1999; Correll & Correll 1982; Robertson 1955; Davis 1942). Stalter et al. (1999) studied the Upper Keys flora of Biscayne National Park, Florida, and reported 372 species in 92 families; 93 species (25% of the total) were not native. Stalter (2016) reported a total of 144 vascular plant species identified on Garden Key, 112 km west of Key West, in seven separate studies from 1907 to 2013; 61 taxa (42% of the flora) were not native. This small one-hectare island, the site of Fort Jefferson, is visited by tens of thousands of visitors each year, a potential source of non-native taxa. None of the investigators on Garden Key reported more than 76 taxa.

Families with the largest percent of the flora at Darling and Biscayne were the Poaceae, Asteraceae, and

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TABLE 1. Summary of the vascular flora of J. N. "Ding" Darling National Wildlife Refuge, Florida.

|                    | Ferns/Spore<br>Plants | Gymnosperms | Dicots | Monocots | Total |
|--------------------|-----------------------|-------------|--------|----------|-------|
| Family             | 5                     | 0           | 74     | 14       | 93    |
| Genus              | 8                     | 0           | 188    | 55       | 251   |
| Native Species     | 7                     | 0           | 171    | 61       | 239   |
| Non-Native Species | 1                     | 0           | 52     | 27       | 80    |
| Total Species      | 8                     | 0           | 223    | 88       | 319   |

TABLE 2. Comparison of the vascular flora of three South Florida Parks: J.N. "Ding" Darling National Wildlife Refuge, Biscayne National Park (Stalter et al. 1999), and Garden Key (Stalter 2016). Percent non-native taxa in ( ).

|                    | Darling | Biscayne | Garden Key |
|--------------------|---------|----------|------------|
| Family             | 93      | 92       | 46         |
| Genus              | 251     | 277      | 118        |
| Species            | 319     | 372      | 144        |
| Native Species     | 239     | 279      | 83         |
| Non-Native Species | 80(25)  | 93(25)   | 61(42)     |

Fabaceae. These families ranked one, two, and three at both sites comprising 31.7% of the total at Darling (104 spp.) and 33.3% (124 spp.) at Biscayne. Seven species of *Tillandsia* were found at both sites.

At Garden Key the three largest families were the Poaceae, Fabaceae, and Euphorbiaceae with 27, 17, and 10 species, respectively, while the Asteraceae contributed seven species to the flora (Stalter 2016). The Poaceae and Fabaceae comprised 22.3% of the total species at Darling, 22.6% at Biscayne, and 23.6% at Garden Key (Table 2).

Davis (1942) described four major Florida Key plant communities including three in our study, the hammock forest, scrub zone, and dune zone. The Darling Refuge rarely experiences frost and many of the taxa found here are also common on the Florida Keys.

The hammock community of the Florida Keys contains a wealth of plant species including many that we identified at Darling including *Coccoloba uvifera*, *Conocarpus erectus*, *Eugenia axillaris*, *Smilax auriculata*, and *Suriana maritima*. *Quercus virginiana*, common at the Darling Refuge, is rare on the Florida Keys. The ecology and vegetation of the hammock community on the Florida Keys is presented in detail in the papers of Davis (1942), Forsgren and Kephant (1978), Stalter (1993), Myers and Ewell (1990), and Stalter et al. (1999).

There is copious information on mangroves in the Florida Keys (Davis 1942; Stalter et al. 1999) including monographs on *Avicennia germinans* (Lonard et al. 2017) and *Rhizophora mangle* (DeYoe et al. 2020). The monographs include extensive lists of references and information on mangrove morphology, geographical distribution, habitats, reproduction, physiological ecology, interaction with other species, hurricanes, and economic importance (DeYoe et al. 2020). Those seeking more mangrove information are directed to the aforementioned monographs. The mangrove community is the most stable community at the refuge and contains the fewest number of taxa.

The dune community is dominated by halophytes that either tolerate flooding (*Cakile* and *Sporobolus*) or salt spray (*Uniola paniculata*). Additional members of this community at Darling and Biscayne are *Euphorbia* spp., *Ipomoea pes-caprae*, *Sesuvium portulacastrum*, *Sporobolus* spp., and *Suriana maritima*.

In summary, the vascular plant species at the Darling Refuge have much in common with the flora of the upper keys represented in this paper by Biscayne National Park (Table 2) (Stalter et al. 1999). The climate and geology of the two sites are similar. The most common genera, *Chamaesyce* and *Tillandsia* rank one and two in total number of species at both sites. The dominant plant families, Poaceae, Asteraceae, and Fabaceae rank one, two, and three, respectively, and compose a similar percent of the flora, 25 % at Darling and 25% at Biscayne.

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## APPENDIX I

Annotated checklist of the vascular plant taxa of J.N. "Ding" Darling National Wildlife Refuge, Sanibel Island, Florida. The taxa have been arranged according to the following categories: ferns, gymnosperms, dicots, and monocots. Within each category, families and lower taxa are arranged alphabetically. Nomenclature follows Wunderlin et al. (2018).

Each entry includes the following information sequence: scientific name, selected synonyms enclosed in brackets, habitat, frequency of occurrence relative to the study site using the categories: rare (scarce, less than five colonies), infrequent (uncommon, occasional, 5 to 10 colonies), frequent (common, more than 10 colonies). Species collected by Wunderlin et al. (1980) and not by us are listed as "not recently observed." Taxa not native to Florida are followed by an asterisk (\*). Accession numbers are for taxa collected by Stalter. Where taxa were not collected by us the name of the collector is followed by the collection accession number.

## FERNS/SPORE PLANTS

**Blechnaceae**

*Telmatoblechnum serrulatum* (Rich.) Perrie et al. [*Blechnum serrulatum* (L.) Rich.]. Freshwater marshes; freq. 14-130.

**Dennstaedtiaceae**

*Pteridium aquilinum* (L.) Kuhn. Roadsides; infreq. 14-18.

**Polypodiaceae**

*Phlebodium aureum* (L.) J. Sm. On *Sabal palmetto* bordering tropical hammocks and freshwater marshes; freq. 14-71.

*Pleopeltis polypodioides* (L.) E.G. Andrews & Windham var. *michauxiana* (Weath.) E.G. Andrews & Windham [*Polypodium polypodioides* (L.) Watt. var. *michauxianum* Weath.]. Epiphytic on *Quercus virginiana* Mill.; rare. 14-131.

**Psilotaceae**

*Psilotum nudum* (L.) P. Beauv. At base of *Sabal palmetto* bordering mangrove swamp; rare. 16-23.

**Pteridaceae**

*Acrostichum danaeifolium* Langsd. & Fisch. Brackish and freshwater marshes; freq. 14-72.

*Pteris vitatta* L.\* Ruderal sites; freq. 14-132.

*Vittaria lineata* (L.) Sm. On *Sabal palmetto* bordering freshwater and brackish marshes; infreq. 14-98.

## ANGIOSPERMS/DICOTS

**Acanthaceae**

*Avicennia germinans* (L.) L. Mangrove swamps; freq. 14-97.

*Dicliptera sexangularis* (L.) A. Juss. Shell mound; rare. 14-58.

*Justicia brandegeana* Wassh. & L.B. Smith.\* Ruderal; rare. County record. 16-24a.

**Aizoaceae**

*Sesuvium portulacastrum* (L.) L. Moist beach sand; freq. 14-06.

*Trianthema portulacastrum* L.; Roadside; rare. County record. 15-27

**Amaranthaceae**

*Alternanthera flavescens* Kunth [*Alternanthera ramosissima* (Martius) Chodat]. Hammocks and shell mound; freq. 15-28.

*Amaranthus viridis* L.\* Ruderal; infreq. 16-36.

*Amaranthus cannabinus* (L.) J.D. Sauer [*Acnida cannabina* L.]. Brackish marsh, Bailey Tract; rare. County record. 15-29.

*Atriplex pentandra* (Jacq.) Standl. [*Atriplex arenaria* Nutt.]. Beach; infreq. 14-07.

*Iresine diffusa* Humb. & Bonpl. ex Willd. [*Iresine celosia* L.]. Hammock; infreq. 17-20.

*Blutaparon vermiculare* (L.) Mears [*Philoxerus vermicularis* (L.) Sm.]. Upland border of mangrove swamp; freq. 15-71.

*Celosia nitida* Vahl. Hammock; rare. 14-160.

*Salicornia ambigua* Michx. [*Salicornia virginica* L.]. Upper edge of mangrove swamps; freq. 14-90.

*Suaeda linearis* (Elliott) Moq. Brackish marshes; freq. 14-105.

**Anacardiaceae**

*Mangifera indica* L.\* Ruderal; rare 15-72.

*Schinus terebinthifolia* Raddi.\* Historically known from throughout the refuge; currently rare due to an aggressive eradication project. 15-10.

*Toxicodendron radicans* (L.) Kuntze [*Rhus radicans* L.]. Throughout; freq. No specimen collected.

**Annonaceae**

*Annona glabra* L. Tropical hammock; rare. 15-30

**Apiaceae**

*Ptilimnium capillaceum* (Michx.) Raf. Freshwater and brackish marshes; infreq. 14-131.

**Apocynaceae**

*Allamanda cathartica* L.\* Ruderal; infreq. 15-73

*Asclepias curassavica* L.\* Roadsides; rare. 14-129.

*Catharanthus roseus* (L.) G. Don.\* Ruderal; freq. 14-161.

*Cryptostegia madagascariensis* Bojer.\* Roadside; rare. 17-21.

*Funastrum clausum* (Jacq.) Schltr. [*Sarcostemma clausum* (Jacq.) Roem. & Schult.]. Freshwater marshes; infreq. 14-78.

*Orthosia scoparia* (Nutt.) Liede & Meve [*Cynanchum scoparium* Nutt.]. Hammocks; infreq. 15-11.

*Rhabdadenia biflora* (Jacq.) Müll. Arg. Edge of mangrove swamp; rare. 16-39.

**Araliaceae**

*Hydrocotyle umbellata* L. Freshwater marshes and ponds; infreq. 14-102.

*Hydrocotyle verticillata* Thunb. Freshwater marshes and ponds; infreq. 16-03.

**Asteraceae**

*Ambrosia artemisiifolia* L. Disturbed sites; freq. 14-118.

*Ambrosia hispida*. Pursh. Beaches, dunes; infreq. 14-20.

*Baccharis halimifolia* L. Freshwater marshes and disturbed sites; freq. 14-52.

*Bidens alba* (L.) DC. [*B. leucantha* Willd.]. Disturbed sites; freq. 14-46.

*Borrchia frutescens* (L.) DC. Upper salt marshes; freq. 14-60.

*Calyptocarpus vialis*. Less.\* Disturbed sites; infreq. 14-112.

*Cirsium horridulum* Michx. Sandy fields bordering freshwater marshes; infreq. 15-01.

*Conyza canadensis* (L.) Cronquist [C. c. var. *pusilla* (Nutt.) Cronquist]. Sandy soils; freq. 15-31.

*Coreopsis leavenworthii* Torr. & A. Gray. Wet ditches; infreq. 15-32.

*Cyanthillium cinereum* (L.) H. Rob. [*Vernonia cinerea* (L.) Less.\* Roadsides; rare. 15-03.

*Eclipta prostrata* (L.) L. Moist sandy soils; infreq. 14-40.

*Erechtites hieraciifolius* L. (Raf.). Moist disturbed sites; freq. 15-33.

*Erigeron quercifolius* Poir. Moist sandy soils; freq. 14-45.

*Eupatorium capillifolium* (Lam.) Small. Roadsides and open places; freq. 16-11.

*Eupatorium mikanioides* Chapm. Wet swale in Perry Tract; rare. 15-34.  
*Eupatorium serotinum* Michx. Moist sandy soils; freq. 15-74.  
*Flaveria floridana* J.R. Johnst. Edge of trails bordering freshwater marshes; infreq. 15-26.  
*Gaillardia pulchella* Foug.\* Escaped from cultivation; rare. 14-51.  
*Helianthus debilis* Nutt. subsp. *vestitus* (E. Watson) Heiser. Beaches; rare. 14-50.  
*Heterotheca subaxillaris* (Lam.) Britt. & Rusby. Sandy soils; infreq. 15-35.  
*Iva frutescens* L. Upper border of salt marshes; infreq. 15-75.  
*Iva imbricata* Walter. Coastal dunes; rare. 14-162.  
*Melanthera nivea* (L.) Small. Sandy trailsides; rare. 15-02.  
*Mikania scandens* (L.) Willd. Borders of freshwater marshes and moist roadsides; freq. 15-36.  
*Pectis linearifolia* Urb. Sandy trailsides; infreq. 16-38.  
*Pluchea odorata* (L.) Cass. Freshwater marshes; freq. 14-91.  
*Solidago sempervirens* L. [S. s. subsp. *mexicana* (L.) Semple]. Beaches, sandy roadsides; freq. 14-14.  
*Sonchus oleraceus* L.\* Disturbed sites; freq. 15-37.  
*Sonchus asper* (L.) Hill\* Disturbed sites; infreq. 14-44.  
*Sphagnetica trilobata* (L.) Pruski [*Silphium trilobatum* L.]\* Sandy trailsides, Perry Tract; rare. 15-76.  
*Symphyotrichum subulatum* (Michx.) G.L. Nesom [*Aster subulatus* Michx.]. Reported by Wunderlin et al. (1980) from "dump area at abandoned homesite 0.2 mi. W of Tarpon Bay Road along Sanibel-Captiva Road;" not recently observed.  
*Tridax procumbens* L.\* Sandy trailsides; infreq. 16-39.  
*Verbesina virginica* L. Borders of freshwater marshes and roadsides; freq. 15-38.

**Basellaceae**  
*Anredera vesicaria* (Lam.) Gaertn. [*A. leptostachys* (Moq.) Steenis]\* Trailside; rare. 17-22.

**Bataceae**  
*Batis maritima* L. Salt marshes and mangroves; freq. 14-16.

**Bignoniaceae**  
*Tecoma stans* (L.) Juss.\* Escaped from cultivation; rare. 15-77.

**Boraginaceae**  
*Bourreria succulenta* Jacq. Hammocks; rare. County record. 14-163.  
*Heliotropium angiospermum* Murray. Calusa shell mound; rare. 16-05.  
*Heliotropium polyphyllum* Lehm. Trailsides; infreq. 15-21.

**Brassicaceae**  
*Cakile lanceolata* (Willd.) O. E. Schulz. Beaches; infreq. 15-39.  
*Lepidium virginicum* L. Trailsides and sandy soils; freq. 14-33.

**Burseraceae**  
*Bursera simaruba* (L.) Sarg. Coastal hammocks; freq. 14-02.

**Cactaceae**  
*Acanthocereus tetragonus* (L.) Hummelinck [*Cereus pentagonus* (L.) Haw.]. Hammock; rare. 16-40.  
*Opuntia cochenillifera* (L.) Mill.\* Escaped from cultivation; rare. 16-42.  
*Opuntia humifusa* (Raf.) Raf. [*O. compressa* (Salisb.) Macbride]. Dunes and sandy sites; infreq. 16-41.  
*Opuntia stricta* (Haw.) Haw. Beaches; infreq. 15-40.

**Campanulaceae**  
*Lobelia feayana* A. Gray. Moist trailsides; infreq. 15-41.

**Cannabaceae**  
*Celtis pallida* Torr. Shell mound; rare. Photo, not collected.

## Capparaceae

*Capparis cynophallophora* L. Calusa shell mound; rare. 17-23.

## Caprifoliaceae

*Lonicera sempervirens* L. County record; Hammock; rare. 14-01.

## Caricaceae

*Carica papaya* L.\* Escaped from cultivation; rare. 14-164.

## Casuarinaceae

*Casuarina equisetifolia* L.\* Collected by Wunderland et al. (1980); eradicated from the refuge by U.S. Fish & Wildlife Service.

## Celastraceae

*Maytenus phyllanthoides* Benth. Bordering black mangrove swamp; rare. 14-69.

## Chrysobalanaceae

*Chrysobalanus icaco* L. Roadside; rare. 17-24.

## Combretaceae

*Conocarpus erectus* L. Upper mangrove swamps; freq. 14-66.

*Laguncularia racemosa* (L.) C. F. Gaertn. Mangrove swamps; freq. 15-42.

## Convolvulaceae

*Ipomoea alba* L. Roadsides bordering mangrove swamps; freq. 16-21.

*Ipomoea hederacea* Jacq.\* Disturbed sites; infreq. 16-20.

*Ipomoea indica* (Burm.) Merr. Disturbed sites; infreq. 15-43.

*Ipomoea pes-caprae* (L.) R. Br. subsp. *brasiliensis* (L.) Ooststr. Dunes and beaches; freq. 15-44.

*Ipomoea sagittata* Poir. Brackish marshes; freq. 15-45.

*Ipomoea violacea* L. Beaches; rare. 15-46.

## Crassulaceae

*Kalanchoe delagoensis* Eckl. & Zeyh. [*K. tubiflora* (Harv.) Raym.-Hamet]\*. Disturbed sites; rare. 15-79.

*Kalanchoe pinnata* (Lam.) Pers. [*Bryophyllum pinnatum* (Lam.) Oken]\*. Disturbed sites; infreq. 15-78.

## Cucurbitaceae

*Melothria pendula* L. Moist hammocks; rare. 14-165.

*Momordica charantia* L.\* Escaped from cultivation; rare. 16-43.

## Euphorbiaceae

*Euphorbia blodgettii*. Englem. [*Chamaecybe blodgettii* (Engelm.) Small] Dunes and disturbed sites; infreq. 14-09.

*Euphorbia bombensis* Jacq. [*Chamaecybe bombensis* (Jacq.) Dugand] Dunes; rare. 14-166.

*Euphorbia cyathophora* Murray [*Poinsettia cyathophora* (Murray) Bartl.] Disturbed sites, freq. 14-110.

*Euphorbia heterophylla* L. [*Poinsettia heterophylla* (L.) Klotzsch, Garcke & Klotzsch.] Disturbed sites; infreq. 14-42.

*Euphorbia hirta* L. [*Chamaecybe hirta* (L.) Millsp.] Disturbed sites; freq. 15-80

*Euphorbia hypericifolia* L. [*Chamaecybe hypericifolia* (L.) Millsp.] Disturbed sites; infreq. 14-54.

*Euphorbia hyssopifolia* L. [*Chamaecybe hyssopifolia* (L.) Small] Roadsides; freq. 14-100.

*Euphorbia mesembrianthemifolia* Jacq. [*Chamaecybe mesembrianthemifolia* (Jacq.) Dugand] Coastal dunes; infreq. 15-47.

*Ricinus communis* L.\* Disturbed sites; rare. 17-12.

## Fabaceae

*Abrus precatorius* L.\* Disturbed sites; freq. 15-48.

*Albizia lebeck* (L.) Benth.\* Disturbed sites, rare. 16-44

*Amorpha fruticosa* L. Trailsides; rare. 14-19.

*Bauhinia variegata* L.\* Disturbed sites; rare. 17-25.

*Caesalpinia pulcherrima* (L.) Sw.\* Reported by Wunderlin et al. (1980); not recently observed.

*Canavalia rosea* (Sw.) DC. Beaches and dunes; infreq. 14-167.

*Centrosema virginianum* (L.) Benth. Sandy swales; freq. 16-04.

*Chamaecrista fasciculata* (Michx.) Greene [*Cassia fasciculata* Michx.]. Disturbed sites; infreq. 14-05.

*Chamaecrista nictitans* (L.) Moench var. *aspera* (Muhl.) H. S. Irwin & Barneby [*Cassia nictitans* L. var. *aspera* (Elliott) Torr. & A. Gray]. Sandy soils, disturbed sites; infreq. 15-49.

*Crotalaria incana* L.\* Disturbed sites; infreq. 16-45.

*Crotalaria pallida* Aiton var. *obovata* (G. Don) Polhill.\* Disturbed sites; rare. 17-26.

*Crotalaria rotundifolia* J. F. Gmel. Sandy swales; freq. 15-50.

*Dalbergia ecastaphyllum* (L.) Taub. Sandy swales; infreq. 14-168.

*Delonix regia* (Boij.) Raf.\* Collected by Wunderlin, Arcuri, & Hansen (28 Oct 1978; FSU) from "Indian Mounds trail, NW end of Refuge property;" not recently observed.

*Desmodium tortuosum* (Sw.) DC.\* Roadsides; freq. 15-51.

*Erythrina herbacea* L. Dry hammocks; infreq. 15-52.

*Galactia volubilis* (L.) Britt. Sandy soils; freq. 14-133.

*Guilandina bonduc* L. [*Caesalpinia bonduc* (L.) Roxb.]. Beaches and dunes; freq. 14-169.

*Indigofera spicata*. Forssk. Disturbed sites; rare. 14-94.

*Leucaena leucocephala* (Lam.) de Wit.\* Escaped from cultivation; rare. 17-27.

*Lysiloma latisiliquum* (L.) Benth. Dry hammocks; rare. County record. 15-81.

*Medicago lupulina* L. Roadsides; infreq. 14-92.

*Mimosa strigillosa* Torr. & A. Gray. Sandy soils; rare. 14-23.

*Pisidia piscipula* (L.) Saag. Hammocks; rare. 16-01.

*Rhynchosia minima* (L.) DC. Dry hammocks; infreq. 15-53.

*Senna obtusifolia* (L.) H. S. Irwin & Barneby. Disturbed sites; rare. 16-46.

*Sophora tomentosa* L. var. *truncata* Torr. & A. Gray. Trailsides; freq. 14-29.

*Vachellia farnesiana* (L.) Wight & Arn. var. *pinetorum* (F. J. Herm.) Seigler & Ebinger [*Acacia pinetorum* (Small) F. J. Herm.]. Shell mound; rare. 15-82.

*Vicia acutifolia* L. Pond margins; infreq. 14-114.

*Vigna luteola* (Jacq.) Benth. Beaches, dunes, disturbed sites; freq. 14-17.

## Fagaceae

*Quercus virginiana* Mill. Dry hammocks; freq. 14-31.

## Gentianaceae

*Eustoma exaltatum* (L.) Salisb. Upper borders of freshwater marshes; infreq. 15-54.

*Sabatia stellaris* Pursh. Freshwater marshes; infreq. 15-06.

## Goodeniaceae

*Scaevola plumieri* (L.) Vahl. Beaches; infreq. 14-170.

*Scaevola taccada* (Gaertn.) Roxb. [*S. sericea* Vahl var. *taccada* (Gaertn.) Thieret & Lipscomb].\* Beaches; infreq. 15-83.

## Lamiaceae

*Trichostema dichotomum* L. Dry sands; infreq. 14-15.

## Lauraceae

*Cassytha filiformis* L. Dry hammocks; infreq. 15-55.

## Loasaceae

*Mentzelia floridana* Nutt. Shell mound; rare. 17-28.

## Lythraceae

*Ammannia latifolia* L. Brackish marshes; rare. 15-84.

*Lythrum alatum* Pursh var. *lanceolatum* (Elliott) Torr. & A. Gray. Freshwater marshes; infreq. 15-25.

## Malvaceae

*Gossypium hirsutum* L. Mesic hammock; rare. 14-21.

*Hibiscus rosa-sinensis* L. var. *schizopetalus* Dyer.\* Reported by Wunderlin et al. (1980) from "abandoned homesite 0.9 mi. W of tarpon Bay Road along Sanibel-Captiva Road;" not recently observed. *Malvastrum corchorifolium* (Desr.) Britt. Moist hammock borders; rare. 14-22.

*Sida ulmifolia* Mill. Trailsides; freq. 14-130.

*Thespesia populnea* (L.) Sol.\* Disturbed hammock; rare. 17-29.

*Urena lobata* L.\* Disturbed sites; rare. 16-47.

*Waltheria indica* L. Hammocks; rare. 15-85.

## Moraceae

*Ficus aurea* Nutt. Hammocks; freq. 14-03.

*Morus alba* L.\* Disturbed sites; infreq. 15-56.

## Meliaceae

*Melia azedarach* L.\* Disturbed sites; rare. 14-171.

## Myricaceae

*Morella cerifera* (L.) Small [*Myrica cerifera* L.]. Marsh borders, trailsides; freq. 14-12.

## Myrtaceae

*Eugenia axillaris* (Sw.) Willd. Hammocks; freq. 14-59.

*Eugenia uniflora* L.\* Thickets; rare. 16-48.

*Melaleuca quinquenervia* (Cav.) S. T. Blake.\* Historically known from the refuge; currently rare due to eradication project.

*Psidium guajava* L.\* Disturbed sites; infreq. 14-134.

## Myrsinaceae

*Myrsine cubana* A. DC. [*Rapanea punctata* (Lam.) Lundell]. Shell mound; infreq. 14-11.

## Nyctaginaceae

*Boerhavia diffusa* L. Dry open sites; freq. 14-134.

## Oleaceae

*Forestiera segregata* (Jacq.) Krug & Urb. Hammocks, shell mound; freq. 14-38.

## Onagraceae

*Oenothera humifusa* Nutt. Beaches, dunes; freq. 14-135.

*Oenothera simulans* (Small) W. L. Wagner & Hoch [*Gaura angustifolia* Michx.]. Sandy soils; freq. 14-37.

## Orobanchaceae

*Buchnera americana* L. [*B. floridana* Gandoger]. Moist sands; freq. 14-136.

## Oxalidaceae

*Oxalis corniculata* L. Sandy soils, infreq. 14-137.

## Papaveraceae

*Argemone mexicana* L. Open disturbed sites; rare. 15-86.

## Passifloraceae

*Passiflora suberosa* L. Shell mound, hammocks; infreq. 14-89.

## Pedaliaceae

*Sesamum indicum* L. [*S. orientale* L.].\* Disturbed sites; rare. 17-30.

## Petiveriaceae

*Petiveria allicaea* L. Shell mound; rare. 15-87.

*Rivina humilis* L. Shell mound, hammocks; freq. 14-106.

## Phyllanthaceae

*Bischofia javanica* Blume.\* Disturbed sites; rare. 17-31.

*Breynia disticha* J.R. Forst. & G. Forst.\* Disturbed sites; rare. 16-49.

*Phyllanthus abnormis* Baill. Upper beach; rare. 14-172.

*Phyllanthus amarus* Schumach. & Thonn.\* Disturbed sites; rare. 15-88.

**Phytolaccaceae**

*Phytolacca americana* L. Disturbed sites; infreq. 16-18.

**Plantaginaceae**

*Bacopa monnieri* (L.) Pennell. Moist sands; freq. 14-28.

*Linaria canadensis* (L.) Chaz. Trailsides, sandy soils; freq. 14-138.

*Plantago virginica* L. Disturbed soils; infreq. 14-104.

**Plumbaginaceae**

*Limonium carolinianum* (Walter) Britton. Salt marshes; infreq. 14-139.

*Plumbago zeylanica* L. [*P. scandens* L.]. Shell mound and hammocks; rare. 17-32.

**Polygalaceae**

*Asemeia violacea* (Aubl.) J.F.B. Pastore & J.R. Abbott [*Polygala grandiflora* Walter]. Sandy soils; freq. 14-74.

**Polygonaceae**

*Coccoloba uvifera* (L.) L. Coastal hammocks and upper beaches; freq. 14-74.

*Rumex verticillatus* L. Freshwater marshes; freq. 14-141.

**Portulacaceae**

*Portulaca oleracea* L. Disturbed sites; infreq. 14-62.

*Portulaca pilosa* L. Dry sandy soils; freq. 15-58.

**Primulaceae**

*Ardisia escallonioides* Schtdl. & Cham. Shell mound and hammocks; freq. 16-25.

*Samolus ebracteatus* Kunth. Brackish marshes; freq. 14-49.

**Rhizophoraceae**

*Rhizophora mangle* L. Mangrove swamps; freq. 14-142.

**Rubiaceae**

*Chiococca alba* (L.) Hitchc. Shell mound and hammocks; freq. 14-67.

*Ernodea littoralis* Sw. Hammocks; infreq. 17-16.

*Galium hispidulum* Michx. Hammocks, sandy soils; freq. 14-143.

*Genipa clusiifolia* (Jacq.) Griseb. [*Casasia clusiifolia* (Jacq.) Urban]. Hammocks; rare. 16-50.

*Hamelia patens* Jacq. Hammocks; infreq. 14-55.

*Houstonia nigricans* (Lam.) Fernald [*Hedyotis nigricans* (Lam.) Fosberg]. Sandy soils; freq. 14-190.

*Psychotria nervosa* Sw. Hammocks; freq. 14-125.

*Randia aculeata* L. Hammocks; freq. 14-75.

*Richardia grandiflora*. (Champi & Schlital.) Schults & Schults.\* Roadsides. 14-113.

*Spermocoe remota* Lam. [*S. assurgens* Ruiz & Pavon]. Trailside; rare. 14-101.

*Spermocoe verticillata* L.\* Disturbed sites; infreq. 14-107.

**Rutaceae**

*Citrus xaurantiifolia* (Christm.) Swingle.\* Shell mound trail; rare. 16-50.

*Zanthoxylum fagara* (L.) Sarg. Hammocks; infreq. 14-10.

**Agavaceae**

*Agave americana* L.\* Disturbed sites; rare. 14-175.

*Agave decipiens* Baker. Shell mound; rare. 16-55.

*Agave sisalana* Perrine.\* Disturbed sites; rare. 14-176.

*Sansevieria hyacinthoides* (L.) Druse [*S. thyrsiflora* Thunb.].\* Shell mound; rare. 17-35.

*Yucca aloifolia* L. Sandy soils; infreq. 14-147.

**vAraceae**

*Syngonium podophyllum* Schott. Collected by B. Hansen from "Indian Mound Trail" (17 Jun 1979, USF); not recently observed.

**Salicaceae**

*Salix caroliniana* Michx. Freshwater marshes; rare. 14-32.

**Sapindaceae**

*Dodonaea viscosa* (L.) Jacq. Hammocks; rare. 17-33.

**Sapotaceae**

*Sideroxylon celastrinum* (Kunth) T.D. Penn. [*Bumelia cleastrina* Kunth]. Hammocks; infreq. 15-59.

*Sideroxylon foetidissimum* Jacq. Shell mound and hammocks; rare. 16-51.

**Scrophulariaceae**

*Capraria biflora* L. Hammocks; freq. 14-144.

**Solanaceae**

*Capsicum annuum* L. var. *glabriusculum* (Dunal) Heiser & Pickersgill. Shell mound; rare. 15-89.

*Lycium carolinianum* Walt. Upper margins of mangrove swamps; infreq. 14-173.

*Physalis angustifolia* Nutt. Dry sands; freq. 17-12.

*Solanum americanum* Miller. [*S. nigrum* L., *S. nodiflorum* Jacq.]. Disturbed sites; infreq. 15-60.

*Solanum chenopodioides* Lam. Disturbed soils; infreq. 14-108.

*Solanum lycopersicum* L. [*Lycopersicon esculentum* Miller].\* Disturbed sites; rare. 16-52.

**Surianaceae**

*Suriana maritima* L. Beaches, dunes; infreq. 16-26.

**Theophrastaceae**

*Jacquinia keyensis* Mez. Hammocks; infreq. 14-145.

**Turneraceae**

*Piriqueta cistoides* (L.) Griseb. subsp. *caroliniana* (Walter) Arbo [*P. caroliniana* (Walter) Urb.]. Trailsides; rare. 17-34.

**Urticaceae**

*Parietaria praetermissa* Hinton. Moist disturbed sites; rare. 16-53.

**Verbenaceae**

*Lantana involucrata* L. Hammocks, dunes, disturbed sites; freq. 14-146.

*Phyla nodiflora* (L.) Greene [*Lippia nodiflora* (L.) Michx.]. Moist sands; freq. 14-13.

*Stachytarpheta jamaicensis* (L.) Vahl. Dunes, disturbed sites; infreq. 14-75.

*Verbena scabra* Vahl. Moist soils; infreq. 15-61.

*Vitex trifolia* L.\* Disturbed sites; rare. 16-54.

**Vitaceae**

*Cissus trifoliata* (L.) L. Shell mound; rare. 14-174.

*Parthenocissus quinquefolia* (L.) Planch. Hammocks; freq. 14-61.

**MONOCOTS****Arecaceae**

*Sabal palmetto* (Walter) Lodd. ex Schult. & Schult. f. Hammocks, trailsides; freq. 14-36.

*Serenoa repens* (Bartr.) Small. Hammocks; rare. 14-148.

**Bromeliaceae**

*Tillandsia balbisiana* Schult. & Schult. f. Hammocks; rare. 17-36.

*Tillandsia fasciculata* Sw. Shell mound; rare. 15-90.

*Tillandsia flexuosa* Sw. Reported by Wunderlin et al. (1980) from hammock; not recently observed.

*Tillandsia paucifolia* Baker [*T. circinnata* Schltdl.]. Shell mound; rare. 15-91.

*Tillandsia recurvata* (L.) L. Hammocks, shell mound; infreq. 14-30.

*Tillandsia usneoides* (L.) L. Hammocks, shell mound; freq. 14-48.

*Tillandsia utriculata* L. Hammocks, shell mound; infreq. 14-149.

### Commelinaceae

*Commelina diffusa* Burm. f. var. *diffusa*. Moist hammocks, disturbed soils; infreq. 14-93.

*Commelina erecta* L. [*C. elegans* H.B.K.]. Trailsides; infreq. 15-62.

*Tradescantia spathacea* Sw.\* Disturbed sites; rare. 17-37.

### Cymodoceaceae

*Halodule wrightii* Asch. Pine Island Sound; freq. 14-150.

*Syringodium filiforme* Kütz. Pine Island Sound; freq. 14-151.

### Cyperaceae

*Cladium jamaicense* Crantz. Brackish marshes; freq. 15-63.

*Cyperus brevifolius* (Rottböll) Endl. ex Hassk. [*Kyllinga brevifolia* Rottböll].\* Ditches; infreq. 17-65. *Cyperus esculentus* L.\* Trailsides; infreq. 16-15.

*Cyperus ligularis* L. Trailsides, hammocks; freq. 16-27.

*Cyperus odoratus* L. Shell mound; rare. 17-17.

*Cyperus planifolius* Rich. Upper edge of mangrove swamp; rare. 16-56.

*Cyperus polystachyos* Rottb. Trailsides, hammocks; freq. 14-24.

*Cyperus surinamensis*. Rottb. Disturbed, moist soils; freq. 14-08.

*Eleocharis geniculata* (L.) Roem. & Schult. Fresh and brackish marshes; rare. 14-39.

*Eleocharis interstincta* (Vahl) Roem. & Schult. Wet ditch; rare 16-13.

*Fimbristylis cymosa* R. Br. [*F. spathacea* Roth]. Trailsides, hammocks; freq. 15-64.

*Fimbristylis spathacea* (L.) Vahl [*F. castanea* (Michx.) Vahl]. Brackish marshes; freq. 15-65.

*Fuirena pumila* (Torr.) Spreng. Freshwater marshes; rare. 14-59.

*Rhynchospora colorata* (L.) H. Pfeiff. [*Dichromena colorata* (L.) Hitchc.]. Moist sands; freq. 14-25.

*Schoenoplectus tabernaemontani* (C.C. Gmel.) Palla [*Scirpus tabernaemontani* C.C. Gmel., *Scirpus validus* Vahl]. Brackish marshes; infreq. 14-09.

### Dioscoreaceae

*Dioscorea alata* L.\* Hammocks; rare. 16-29.

*Dioscorea bulbifera* L.\* Disturbed thickets; rare. 17-18.

### Hydrocharitaceae

*Thalassia testudinum* K.D. König.\* Pine Island Sound; infreq. 14-152.

### Iridaceae

*Sisyrinchium angustifolium* Mill. [*S. atlanticum* Bickn.]. Trailsides; freq. 15-15.

### Orchidaceae

*Encyclia tampensis* (Lindl.) Small. Shell mound trail; rare. 15-66.

*Eulophia graminea*. Lindl.\* Roadside; rare. 14-65.

*Hexalectris spicata* (Walt.) Barnh. Collected by B. Hansen from "Sabal palmetto-*Quercus virginiana* hammock" (16 Jun 1979, USF); not recently observed.

*Oeceoclades maculata* (Lindl.) Lindl.\* Shell mound trail; rare. 15-67.

*Zeuxine strateumatica* (L.) Schltr.\* Grassy parking lot on south side of Sanibel-Captiva Road; rare. 15-68.

### Poaceae

*Andropogon glomeratus* (Walt.) B.S.P. var. *pumilus* (Vasey) Vasey ex L.H. Dewey. Trailsides; infreq. 14-153.

*Aristida patula* Chapm. ex Nash. Trailsides; infreq. 16-12.

*Bambusa vulgaris* Schrad. ex J.C. Wendl.\* Vicinity of shell mound; rare. 14-177.

*Bothriochloa pertusa* (L.) A. Camus.\* Disturbed sands; rare. 15-74.

*Cenchrus echinatus* L. Sandy trailside; rare. 14-178.

*Cenchrus spinifex* Cav. [*C. incertus* M.A. Curtis]. Roadsides; freq. 14-82.

*Coleataenia rigidula* (Bosc ex Nees) LeBlond [*Panicum rigidulum* Nees]. Moist trailsides; infreq. 16-30.

*Cynodon dactylon* (L.) Pers.\* Lawns and disturbed sands; freq. 14-122.

*Dactyloctenium aegyptium* (L.) Beauv.\* Trailsides, disturbed sites; freq. 14-123.

*Digitaria ciliaris* (Retz.) Koeler. Roadsides; infreq. 14-87.

*Digitaria longiflora* (Retz.) Pers.\* Disturbed sites; infreq. 14-121.

*Echinochloa colona* (L.) Link.\* Moist roadside depression; rare. 17-38.

*Echinochloa walteri* (Pursh) A. Heller. Marshes and moist soils; infreq. 16-31.

*Eleusine indica* (L.) Gaertn.\* Disturbed sites; freq. 16-32.

*Eragrostis ciliaris* (L.) R. Br.\* Disturbed sites; infreq. 16-33.

*Eustachys glauca* Chapm. [*Chloris glauca* (Chapm.) A.W. Wood]. Trailsides; freq. 15-69.

*Eustachys petraea* (Sw.) Desv. [*Chloris petraea* Sw.]. Trailsides, dunes; freq. 14-84.

*Imperata cylindrica* (L.) P. Beauv.\* Escaped from cultivation; rare. 16-57.

*Melinis repens* (Willd.) Zizka.\* Roadsides; infreq. 17-19.

*Muhlenbergia capillaris* (Lam.) Trin. Edge of marshes; infreq. 14-154.

*Panicum amarum* Elliott. Dunes, swales; infreq. 14-179.

*Panicum dichotomiflorum* Michx. Marshes, wet disturbed sites; infreq. 15-75.

*Panicum repens* L.\* Moist roadside; rare. 14-83.

*Paspalum caespitosum* Flügge. Hammocks; rare. 15-77.

*Paspalum floridanum* Michx. Edge of marshes, trailsides; infreq. 14-180.

*Paspalum setaceum* Michx. Trailsides, sandy soils; freq. 14-85.

*Paspalum vaginatum* Sw. Wet, sandy swales; infreq. 15-76.

*Schizachyrium sanguineum* (Retz.) Alston; Roadsides; infreq. County record. 17-03.

*Setaria magna* Griseb. Marshes; infreq. 14-155.

*Setaria parviflora* (Poir.) Kerguelen [*S. geniculata* (Lam.) Beauv.]. Trailsides, disturbed sites; freq. 14-120.

*Sorghum bicolor* Moench [*S. vulgare* Pers.].\* Roadside; rare. 15-78.

*Spartina bakeri* Merr. Marshes, wet trailsides; freq. 17-04.

*Sporobolus domingensis* (Trin.) Kunth. Upper beach, roadsides; infreq. 16-34.

*Sporobolus indicus* (L.) R. Br.\* Disturbed sites; rare. 14-88.

*Sporobolus virginicus* (L.) Kunth. Dunes, swales; infreq. 16-35.

*Stenotaphrum secundatum* (Walt.) Kuntze. Lawns, roadsides; freq. 14-156.

*Uniola paniculata* L. Dunes; infreq. 14-157.

*Urochloa adspersa* (Trin.) R.D. Webster [*Panicum adspersum* Trin.]. Moist trailsides; rare. 17-39.

*Urochloa maxima* (Jacq.) R.D. Webster [*Panicum maximum* Jacq.].\* Disturbed sites; infreq. 15-79.

*Urochloa mutica* (Forssk.) T.Q. Nguyen [*Panicum muticum* Forssk.].\* Wet disturbed sites; infreq. 16-58.

*Urochloa ramosa* (L.) T.Q. Nguyen [*Brachiaria ramosa* (L.) Stapf.].\* Disturbed sites; infreq. 15-80.

### Smilacaceae

*Smilax auriculata* Walt. Hammocks, thickets, trailsides; freq. 14-158.

### Typhaceae

*Typha domingensis* Pers. Fresh and brackish marshes; freq. 15-70.

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