

Jonathan Dickinson State Park

(Martin County)

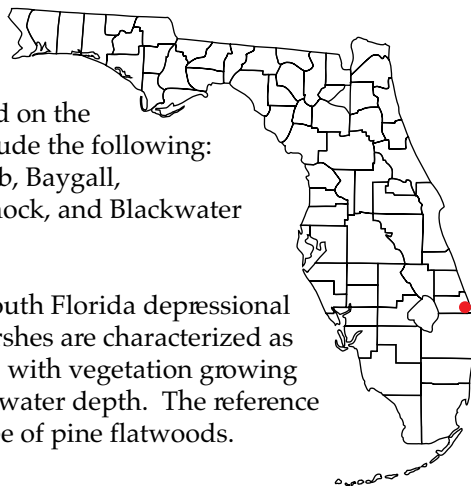
DEPRESSION MARSH



Depression marsh

LOCATION

Jonathan Dickinson State Park consists of 11,383 acres situated in southern Martin County. This is a region of xeric uplands, mesic to dry flatwoods dominated by *Pinus elliottii* var. *densa* (South Florida slash pine) and forested/herbaceous wetlands. The Natural Communities described within the park are based on the Florida Natural Areas Inventory (FNAI) and include the following: Mesic/Dry Flatwoods, Depressional Marsh, Scrub, Baygall, Floodplain Forest, Strand Swamp, Hydric Hammock, and Blackwater Stream.



Two reference sites, both excellent examples of south Florida depressional marshes, are located in the park. Depression marshes are characterized as shallow, rounded depressions in a sand substrate with vegetation growing in concentric bands defined by hydroperiod and water depth. The reference sites selected are located within a larger landscape of pine flatwoods.

These are mesic to dry flatwoods dominated by a canopy of *Pinus elliottii*



Mesic pine flatwoods looking upland from wetland boundary of southern marsh

var. *densa* (South Florida slash pine) and a well developed understory consisting of *Serenoa repens* (saw palmetto), *Ilex glabra* (gallberry), *Lyonia lucida* (fetterbush), *Hypericum* spp. (St. John's-wort), *Ilex cassine* (dahoon holly), *Myrica cerifera* (wax myrtle), and *Asimina reticulata* (pawpaw). The herbaceous layer is dominated by *Aristida stricta* (wiregrass), *Aristida rhizomorpha* (Florida three-awn), *Pteridium aquilinum* (bracken fern), *Rhexia nuttallii* (meadowbeauty), *Xyris* spp. (yellow-eye grass), *Carphephorus paniculatus* (carphephorus), *Hypoxis juncea* (yellow-star grass) and *Pterocaulon virgatum* (blackroot). The occurrence of the depressional marshes in this otherwise flat landscape is a factor of the local topography and soils which prevent rapid runoff or infiltration.

ACCESS

The entrance to Jonathan Dickinson State Park is on the west side of U.S. Highway 1 in southern Martin County, between Hobe Sound and Jupiter. After entering the park, follow the main road towards the picnic and boating area. The first reference site is located along the north side of the depressional marsh immediately west of the road as it turns due south. The second reference site can be reached only by hiking approximately one quarter mile west on the first access road south of the first reference site. The second reference site is located along the north side of the depressional marsh southeast of the road.

GENERAL COMMUNITY CHARACTERIZATION OF BOTH SITES

Both marshes are typical in appearance in being dominated throughout by hydrophytic

plants. The duration of inundation (hydroperiod) influences the dominant plant communities. Maidencane (*Panicum hemitomon*) for example, cannot tolerate continuous flooding and requires a drawdown during a portion of the annual hydroperiod (Kushian *in Ecosystems of Florida*, 1991). Thus, it is significant that both reference sites contain areas dominated by maidencane, usually in the deepest area. A band of St. John's-wort (*Hypericum fasciculatum*) occurs landward of the maidencane zone. The shallow rooted species, such as St. John's-wort (*Hypericum* spp.), are killed by drying and fire but quickly reseed during wet periods, while rhizomatous species such as maidencane survive these extremes underground. As a result, zones of dominance migrate up and down slope in response to changing water conditions (B. H. Winchester, personal communication to Kushian *in Ecosystems of Florida*, 1991).

Due to variable soil conditions and hydroperiods the ecotone between marsh and flatwoods is often reticulate in nature. This is the palmetto "edge" often seen around depression marshes. It is here that we find the highest diversity of herbaceous plant species associated with these wetlands. The wetland boundary will most often occur in this ecotone.

The marshes differ in the degree of slope along the wetland/upland boundary which is expressed as differences in the vegetative transition within the fringe zone of *Serenoa repens* (saw palmetto). The fringing palmetto zone along the northern reference site consists of patches of *Serenoa repens* intermixed with areas dominated by grasses or gallberry. The southern marsh site has a steeper gradient at the edge and a more apparent community change from the wetland to the upland. The palmetto edge at the southern reference site is continuous and distinct.

GENERAL DELINEATION PROCEDURE

The marshes chosen as reference sites are identifiable as wetlands by direct use of the wetland definition. Further, each reference site is represented on the Martin County soil survey as a depressional mapping unit (**Waveland sand, depressional**). Areas mapped in County Soil surveys as frequently flooded or depressional are wetlands contingent on in-situ confirmation of the hydric soil characteristics (subsection 62-340.300(2)(c), F.A.C.). Hydric soil indicators within these areas are readily confirmed. Implementing subsection 62-340.300(2)(c), F.A.C., is a technical exercise that most often requires the expertise of a soil scientist because it is necessary to locate the edge of the depressional area as mapped on the soil map. Once the edge of the depressional unit is located, then the other provisions of Chapter 62-340, F.A.C., must be examined to discern whether the wetland being delineated extends landward of the depressional area.

NORTHERN MARSH

- Observations begin in the marsh at the edge of the "Hypericum zone", a site clearly within the depressional soil mapping unit. *Hypericum fasciculatum* is an ecologically obligate wetland plant which often develops as an apparent broad band of vegetation within inundated areas of a marsh. Vegetative dominance in this zone meets the provisions of subsection 62-340.300(2)(a), F.A.C. Further supporting this conclusion, at

this location, is the presence of greater than two inches of mucky texture at the soil surface. Starting at the landward edge of this zone, the dominance of obligate and facultative wet species is followed landward with a coincident examination for the presence of the hydric soil indicators and hydrologic indicators. During this progression, the presence of obligated species became negligible and vegetative dominance shifts to subsection 62-340.300(2)(b), F.A.C.

- Moving outward into the ecotone, the vegetative pattern became dominated in part by



Northern depression marsh looking in from wetland boundary

large clumps of *Serenoa repens* (saw palmetto). At this point, using only vegetative dominance and hydric soil indicators, would produce a sinuous, hydrologically inconsistent boundary line. The soil profile within the waterward portions of the *Serenoa* clumps exhibit at least two inches of mucky texture at the surface indicating the presence of water at or above the surface for extended periods of time. The depth of mucky texture decreases moving landward through the *Serenoa*. By using the provisions of subsection 62-340.300(2)(d), F.A.C., a consistent line is established for the wetland boundary.

- The accurate placement of the wetland boundary based upon hydrologic indicators and not along the landward edge of the *Serenoa* patches was confirmed by measuring the elevation of the points along the lines. The waterward edge of the *Serenoa* clumps do not occur at a consistent elevation. The elevations of the points consistent with the hydrologic indicators are well within the range of each other. Placement of the wetland boundary along the waterward edge of the *Serenoa* patches for a reticulated vegetative community of this type would neglect the presence of evidence of inundation above the

Serenoa patches.

The assumed elevations of the five points determining the wetland boundary using subsection 62-340.300(2)(d), F.A.C., are:

#1	9.30'	#4	9.36'
#2	9.42'	#5	9.50'
#3	9.44'		

Vegetation within the Marsh

**Marsh Interior
Canopy and Subcanopy**

<i>Taxodium ascendens</i>	OBL	pond cypress
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Ground cover

<i>Panicum hemitomom</i>	OBL	maidencane
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**Hypericum Fringe
Ground cover**

<i>Eriocaulon compressum</i>	OBL	pipewort
<i>Eriocaulon decangulare</i>	OBL	pipewort
<i>Fuirena scirpoidea</i>	OBL	umbrella sedge
<i>Hypericum fasciculatum</i>	OBL	St. Johns wort
<i>Panicum erectifolium</i>	OBL	erect-leaf witch grass
<i>Xyris</i> spp.	OBL	yellow-eyed grass
<i>Xyris ambigua</i>	OBL	yellow-eyed grass
<i>Xyris elliotii</i>	OBL	yellow-eyed grass
<i>Lycopodium alopecuroides</i>	FACW	clubmoss
<i>Scleria</i> spp.	FACW	bald rush
<i>Utricularia</i> spp.	OBL	bladderwort

Vegetation Immediately Waterward of the Wetland Boundary

Canopy and Subcanopy

<i>Pinus elliotii</i>	UPLAND	slash pine
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Groundcover

<i>Hypericum fasciculatum</i>	OBL	St. Johns wort
<i>Sphagnum</i> spp.	OBL	sphagnum moss

<i>Utricularia</i> spp.	OBL	bladderwort
<i>Xyris ambigua</i>	OBL	yellow-eyed grass
<i>Xyris elliotii</i>	OBL	yellow-eyed grass
<i>Utricularia subulata</i>	OBL	bladderwort
<i>Utricularia cornuta</i>	OBL	bladderwort
<i>Utricularia juncea</i>	OBL	bladderwort
<i>Andropogon glomeratus</i>	FACW	broom sedge
<i>Drosera capillaris</i>	FACW	pink sundew
<i>Panicum dichotomum</i>	FACW	panicum
<i>Rhynchospora ciliaris</i>	FACW	beak rush
<i>Rhynchospora fascicularis</i>	FACW	beak rush
<i>Aristida rhizomophora</i>	FAC	three-awn grass
<i>Aristida spiciformis</i>	FAC	three-awn grass
<i>Aristida stricta</i>	FAC	wire grass
<i>Myrica cerifera</i>	FAC	wax myrtle
<i>Ilex glabra</i>	UPLAND	gallberry

Vegetative Immediately Landward of the Wetland Boundary Line

Canopy and Subcanopy

<i>Pinus elliotii</i>	UPLAND	slash pine
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Ground cover

<i>Scleria</i> spp.	FACW	bald rush
<i>Aristida rhizomophora</i>	FAC	three-awn grass
<i>Aristida spiciformis</i>	FAC	three-awn grass
<i>Aristida stricta</i>	FAC	wire grass

Vegetation In the Upland

Canopy and Subcanopy

<i>Pinus elliotii</i>	UPLAND	slash pine
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Ground cover

<i>Burmannia biflora</i>	OBL	burmannia
<i>Scleria</i> spp.	FACW	bald rush
<i>Aristida rhizomophora</i>	FAC	three awn grass
<i>Aristida stricta</i>	FAC	wire grass
<i>Schizachyrium scoparium</i>	FAC	bluestem
<i>Myrica cerifera</i>	FAC	wax myrtle
<i>Satureja rigida</i>	UPLAND	pennyroyal
<i>Ilex glabra</i>	UPLAND	gallberry

SOUTHERN MARSH

• The initial review of the plant communities reveals a distinct break between the outer area of the depressional marsh, dominated by FACW plant species, and the upland pine flatwoods, dominated by *Serenoa repens*. This apparent edge corresponds to a visual estimate of the landward extent of the depressional mapping unit. Often however, as is the case here, the true wetland boundary is different from the depressional mapping unit boundary as depicted in the soil survey. Use of the palmetto edge as an interpretation of the depressional mapping unit boundary at this site results in a boundary which is not reflective of a consistent water level as determined by on-site elevations. This would not be unusual for a seepage area, but in a flatwoods landscape the elevation of the wetland boundary should, in most cases, be consistent. By using the provisions of subsection 62-340.300(2)(d), F.A.C. A wetland boundary is established based upon the occurrence of two or more inches of mucky texture in conjunction with the hydric soil indicators, that reflects a consistent water level. Portions of this boundary are located slightly landward of the waterward edge of the saw palmetto.

Vegetation Within The Marsh

Ground cover

<i>Hypericum fasciculatum</i>	OBL	St. John's-wort, marsh
<i>Panicum erectifolium</i>	OBL	witchgrass, erect-leaf
<i>Panicum hemitomom</i>	OBL	maidencane
<i>Taxodium ascendens</i>	OBL	cypress, pond

Note: the *Hypericum* had adventitious rooting. The *Taxodium* showed signs of fire, even in the deepest portion of this marsh.

Vegetation Immediately Waterward of the Wetland Boundary

Shallow portions of marsh up to the first stunted *Pinus elliottii* var. *densa* and not past the *Serenoa repens*. This wetland/upland line is more abrupt as the palmetto is less reticulate in its growth pattern and the uplands are drier with sandy soils and sandhill vegetation.

Ground cover

<i>Andropogon glomeratus</i> (Campbell)	FACW	bluestem, bushy
<i>Aristida spiciformis</i>	FAC	bottlebrush, three-awn
<i>Balduina atropurpurea</i>	FACW	honeycomb-head, purple
<i>Bigelowia nudata</i>	FACW	golden-rod, rayless
<i>Ctenium</i> spp.	FACW	toothache grass
<i>Cyperus</i> spp.	FACW	flatsedge

<i>Drosera capillaris</i>	FACW	sundew, pink
<i>Eleocharis baldwinii</i>	OBL	spikerush
<i>Eriocaulon decangulare</i>	OBL	pipewort
<i>Fuirena scirpoidea</i>	OBL	umbrella-sedge
<i>Juncus</i> spp.	OBL	rush
<i>Lycopodium alopecuroides</i>	FACW	clubmoss
<i>Oxypolis filiformis</i>	OBL	water drop-wort
<i>Rhexia petiolata</i>	FACW	meadow-beauty, white
<i>Rhynchospora tracyi</i>	FACW	beakrush
<i>Sabatia bartramii</i>	OBL	rose-gentian, Bartram's
<i>Sphagnum</i> spp.	OBL	sphagnum mos
<i>Utricularia subulata</i>	OBL	bladderwort
<i>Xyris ambigua</i>	OBL	yellow-eyed grass
<i>Xyris</i> spp.	OBL	yellow-eyed grass

Vegetation Immediately Landward of the Wetland Boundary

Pine flatwoods. This is a dry pine flatwoods site. It is of note that the palmetto is most dense at the edge of the wetland.

Canopy

<i>Pinus elliotii</i> var. <i>densa</i>	UPLAND	So. Florida slash pine
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Subcanopy

<i>Pinus elliotii</i> var. <i>densa</i>	UPLAND	So. Florida slash pine
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Ground cover

<i>Andropogon glomeratus</i> (Campbell)	FACW	bluestem, bushy
<i>Aristida stricta</i>	FAC	three-awn grass, pineland
<i>Hypoxis juncea</i>	FACW	stargrasses, yellow
<i>Ilex glabra</i>	UPLAND	gallberry
<i>Schizachyrium scoparium</i>	FAC	bluestem
<i>Scleria reticularis</i>	FACW	nutrush
<i>Serenoa repens</i>	UPLAND	saw palmetto

Note: this plant list was compiled during the winter season and some components of the summer flora will be missing. Also, this area has been burned recently.

SOILS DESCRIPTIONS

NOTHERN MARSH

USDA - NRCS Martin County Soil Survey - Sheet 42

The wetland soil is mapped as **Waveland sand, depressional** (mapping unit #5).

The upland soil is mapped as **Waveland sand** (mapping unit #4).

5 - **Waveland sand, depressional** is composed of:

100% - Waveland soil hydric component

4 - **Waveland sand** is composed of:

40% - Waveland soil non-hydric component

40% - Immokalee soil non-hydric inclusion

10% - St. Johns soil hydric inclusion

10% - Waveland soil hydric inclusion

Soil Profile Descriptions

Point 2-1. Five-eight feet waterward of the wetland boundary line (inundation present).

<u>Horizon</u>	<u>Depth (in)</u>	
Oa	0-2	black (10YR 2/1) muck
A	2-3	very dark gray (10YR 3/1) fine sand
E or C	3+	gray (10YR 5/1) fine sand

Hydric soil: Yes

Hydric soil field indicators: presence of two inches of muck in the Oa horizon.



Point 2-2

Point 2-2. Six feet waterward of the wetland boundary line (water table - 7 inches).

<u>Horizon</u>	<u>Depth (in)</u>	
A1	0-4	black (10YR 2/1) mucky sand; many medium roots
A2	4-9	very dark gray (10YR 3/1) sand; few medium and fine roots
E or C	9-15+	gray (10YR 5/1) fine sand; few medium and large roots

Hydric soil: Yes

Hydric soil field indicators: presence of more than two inches of mucky texture (sand) in the A1 horizon.



Point 2-4a

Point 2-4a. Just waterward of the wetland boundary line (water table - 10 inches).

Horizon	Depth (in)	
A1	0-2	black (10YR 2/1) mucky sand
A2	2-10	very dark gray (10YR 3/1) sand
E or C	10+	light brownish gray (10YR 6/2) sand

Hydric soil: Yes

Hydric soil field indicators: presence of two inches of mucky texture (sand) in the A1 horizon.



Point 2-4b

Point 2-4b. Just landward of the wetland delineation line (water table - 11 inches).

Horizon	Depth (in)	
A1	0-4	black (10YR 2/1) sand;
A2	4-8	very dark gray (10YR 3/1) and gray (10YR 5/1) sand; stripped matrix
A3	8-12	dark gray (10YR 4/1) sand
E or C	12+	gray (10YR 6/1) sand

Hydric soil: Yes

Hydric soil field indicators: presence of four inches of greater than 70% coated sand grains in the A1 horizon.



Point 2-5

Point 2-5. Landward of the wetland boundary line.

<u>Horizon</u>	<u>Depth (in)</u>	
A1	0-1/2	black (10YR 2/1) mucky sand; few fine roots
A2	1/2-4	very dark gray (10YR 3/1) and gray (10YR 5/1) sand
E or C	4+	dark gray (10YR 4/1) and gray (10YR 6/1) sand

Hydric soil: No

Hydric soil field indicators: no hydric soil field indicators present.

SOUTHERN MARSH

USDA - NRCS Martin County Soil Survey - Sheet 42

The wetland soil is mapped as Waveland sand, depressional (mapping unit #5).

The upland soil is mapped as Waveland sand (mapping unit #4).

5 - Waveland sand, depressional is composed of:

100% - Waveland soil hydric component

4 - Waveland sand is composed of:

40% - Waveland soil non-hydric component

40% - Immokalee soil non-hydric inclusion

10% - St. Johns soil hydric inclusion

10% - Waveland soil hydric inclusion



Point 2-2

Soil Profile Descriptions

Point 2-2. Waterward of the wetland boundary line (water table - 7 inches).

<u>Horizon</u>	<u>Depth (in)</u>	
A1	0-4	black (10YR 2/1) sand
A2	4-11	dark gray (10YR 4/1) sand
E or C	11+	gray (10YR 5/1) sand

Hydric soil: Yes

Hydric soil field indicators: presence of four inches of greater than 70% coated sand grains in the A1 horizon.

Point 2-3a. Waterward of the wetland boundary line (water table - 9 inches).

<u>Horizon</u>	<u>Depth (in)</u>	
A1	0-6	black (10YR 2/1) sand
E or C	6+	gray (10YR 5/1) sand

Hydric soil: Yes

Hydric soil field indicators: presence of four inches of greater than 70% coated sand grains in the A1 horizon.

Point 2-3b. Landward of the wetland boundary line.

<u>Horizon</u>	<u>Depth (in)</u>	
A	0-5	very dark gray (10YR 3/1) and light gray (10YR 7/1) sand
E or C	5+	gray (10YR 5/1) and light gray (10YR 7/1) sand

Hydric soil: No

Hydric soil field indicators: no hydric soil field indicators present.



Point 2-3b

Point 2-4. Landward of the wetland boundary line.

Horizon	Depth (in)	
A	0-2	gray (10YR 5/1) sand
E or C	2+	gray (10YR 7/1) sand

Hydric soil: No

Hydric soil field indicators: no hydric soil field indicators present.



Point 2-4

