Vegetative Resistance to Flow in South Florida: Summary of Vegetation Sampling in Taylor Slough, Everglades National Park, September 1997-July 1998

By Nancy B. Rybicki, Justin T. Reel, Henry A. Ruhl,
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ABSTRACT

The U.S. Geological Survey is one of many agencies providing scientific support to the effort to restore the South Florida Everglades. In September and November 1997 and July 1998, vegetation was sampled at selected sites in the Everglades as part of a study to quantify vegetative resistance to flow. The objectives of the vegetation sampling are (1) to provide detailed information on species composition, vegetation characteristics, and biomass for quantification of the effect of vegetation on water flow, and (2) to use these data in the future to infer flow resistance from vegetation information. Forty-two vegetation quadrats were sampled in Taylor Slough to determine the number and width of stems and leaves and the biomass of live and dead standing sawgrass, rush, and other plants, and the biomass of dead litter and periphyton. The samples were grouped into ten vegetation classes based on species composition and total biomass minus periphyton biomass.

INTRODUCTION

The Florida Everglades is a vast and diverse wetland ecosystem characterized by small elevation gradients, slowly moving surface waters, and emergent and submersed aquatic vegetation interspersed with tree islands. Hydrologic conditions in South Florida have been greatly altered during the past 100 years by a complex water-management system that includes levees, canals, pumps, and water-control structures. This system now regulates flooding and provides a source of fresh water to urban areas and agriculture (McPherson and others, 1976; McPherson and Halley, 1996). Drainage projects have diverted much of the water that originally flowed slowly southward from Lake Okeechobee through the Everglades and into Florida Bay. Restoration and management of the Everglades require understanding and manipulating the amount and timing of water flows throughout the ecosystem.

U.S. Geological Survey (USGS) scientists have developed a model of surface-water flow in Taylor Slough, in the southeastern corner of the Florida Everglades (fig. 1), that will assist water managers in planning and conducting restoration efforts (Swain, 1999). Many complex processes within the slough interact with the hydrologic cycle to influence ecosystem dynamics. Precipitation, ground-water discharge, and surface-water inflows are sources of fresh water that maintain the constant flow through Taylor Slough toward Florida Bay. Among the many factors that control the velocity, flow direction, water depth, and hydroperiod in Taylor Slough are frictional resistance from vegetation and mats of periphyton, the wind-sheltering effects of various plant communities, topography,

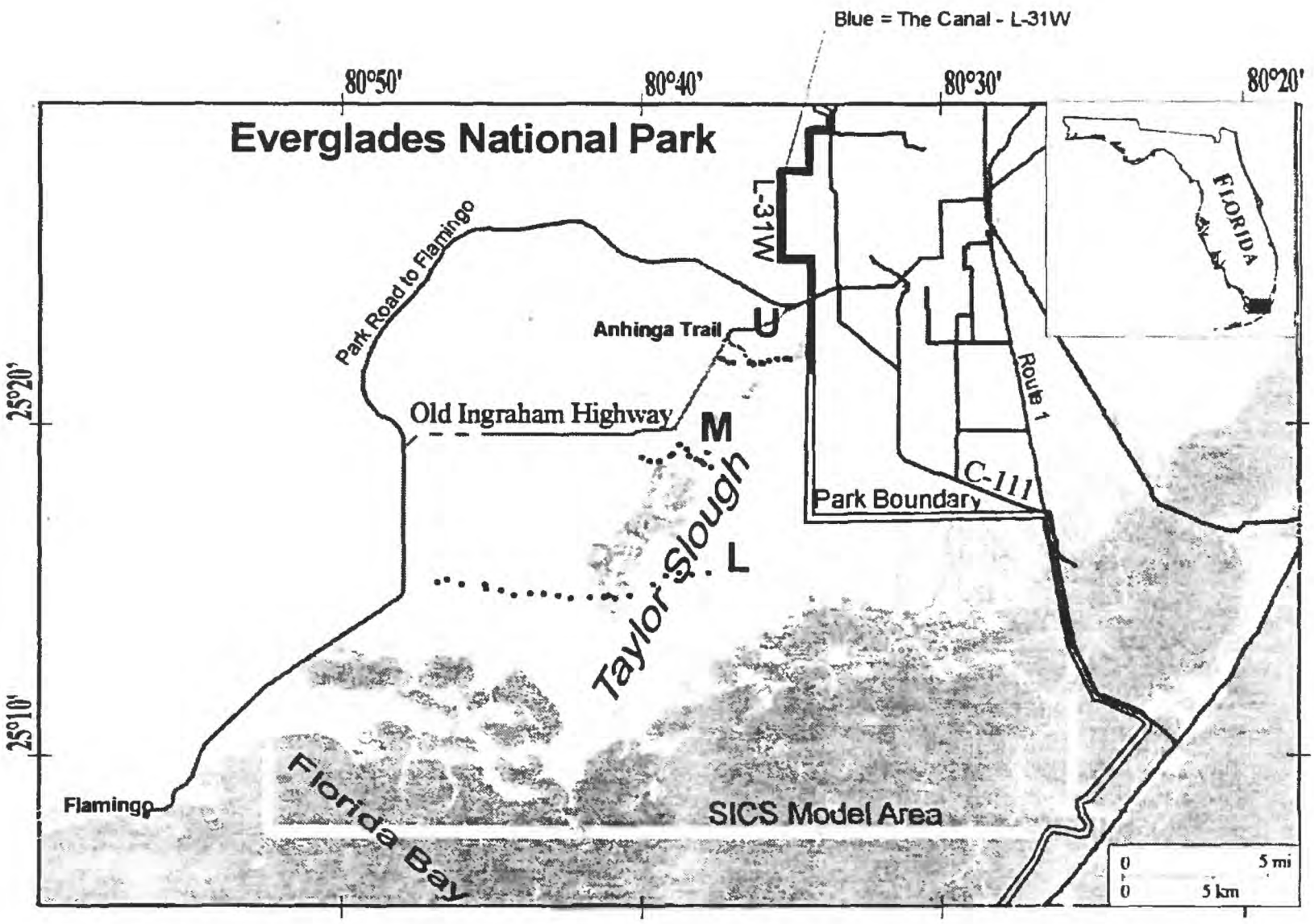

Figure 1. Location of Taylor Slough, south Florida Everglades, and outline of Southern Inland and Coastal Systems (SICS) model area. The land within the model area is shown in off white. [• shows location of vegetation sampling quadrats on the upper (U), middle (M), and lower (L) transects.]

evapotranspiration losses, and tidal stage in Florida Bay. Vegetative resistance is one of the dominant but least understood forces affecting surface-water flow in the Everglades. Vegetation affects both the depth of water and the rate at which it moves; living and dead plant material in the water column creates drag forces on the moving water (Petryk and Bosmajian, 1975; Kadlec, 1990; Rybicki and others, 1997). Modeling the surface-water flow of the entire model area requires extrapolation from point measurements of velocity and surface-water slope made concurrently with characterization of vegetation. The effect of vegetation on flow in the model can be expressed by either Manning's n or the Darcy-Weisbach friction factor, but these coefficients must be related to the actual field characteristics of the vegetation through which water flows to provide the basis for accurate predictions of flow (Lee and Carter, 1997).

USGS has sampled and characterized the vegetation at selected sites in the Everglades as part of a study to quantify vegetative resistance to flow. The objectives of the vegetation sampling are:
(1) to provide detailed information on species composition, vegetation characteristics, and biomass for quantification of the effect of vegetation on flow, and
(2) to use this information to classify the vegetation by plant community and density and to verify and improve existing vegetation maps for use with models of surface-water flow.
This report summarizes the vegetation data collected to meet both objectives. These data were used to classify the vegetation and provide a map for use with the Taylor Slough surface-water model constructed for the southeastern portion of the Everglades National Park (Swain, 1999; Carter and others, 1999; Jones, 2001).

STUDY SITE

Taylor Slough is the second largest drainage basin within Everglades National Park (Olmsted and others, 1980). It extends from the northeastern edge of the Park near the L-31W canal to Florida Bay (fig. 1); its western and eastern limits are not precisely defined. Olmsted and others (1980) divide the slough south of its intersection with the L-31W canal into three segments: (1) upper Taylor Slough, a 5.5-km reach between the slough-canal intersection and the Anhinga Trail (located near the Royal Palm Visitors' Center) where the slough is narrow and well defined; (2) middle Taylor Slough, a 7-km reach extending from the Anhinga Trail to the point where the Old Ingraham Highway bends sharply west; and (3) lower Taylor Slough, the 13-km reach extending south of the bend in Old Ingraham Highway to the mangrove zone just north of the Buttonwood Embankment (Craighead, 1969). The study area (fig. 1) includes part of upper Taylor Slough south of the east-west park road to Flamingo and all of middle and lower Taylor Slough, the mangrove zone, the Buttonwood Embankment, and part of northeastern Florida Bay.

Taylor Slough occupies a broad depression in the Miami oolite bedrock. The center of the depression is deeper than the margins and, in lower Taylor Slough, is filled with peat up to 2 m thick. The vegetation communities in the center include willow (*Salix* sp.)-

sawgrass (*Cladium jamaicense*) marshes, evergreen shrub islands, and open, sparse, rush (*Eleocharis* sp.) marshes, whereas the margins support sawgrass, rush, or a mixture of both. Peat is found also in bedrock depressions in the lower part of the slough. Otherwise, marl is the predominant soil in the slough; the marl flats typically are covered with a thick mat of periphyton, an assemblage of microalgae that lives on shallow submersed substrates (Browder and others, 1994). Periphyton commonly is associated with precipitated calcite; thus, it is generally white to greenish-white, and it may cover the submersed stems of macrophytes as well as form a layer on the sediment or a floating mat on the water surface. This thick, dense, periphyton layer impedes flow, as does the vegetation, but it is distributed variably within both the slough and the water column and may dry up and even blow away during extended drought conditions.

Plant communities of the upper, middle, and most of the lower Taylor Slough were mapped by Rintz and Loope (1978) using color infrared photographs. Details of the mapping and vegetation survey are found in Olmsted and others (1980). Vegetation descriptions and elevation measurements were made by Olmstead and others (1980) on three transects across the slough; however, only the southernmost of these transects was actually within our study area. This historical information may be useful for extrapolation of our field sampling to the entire model area and to assess change during the past 20 years.

STUDY METHODS

The USGS measured water velocity and surface slope on four separate dates at sites along three transects running from west to east across Taylor Slough. Vegetation sampling sites (fig. 1) were selected along these transects on three of the velocity sampling dates to characterize vegetation communities of different species composition and density. Vegetation samples were collected at the same site where field velocity and surface slope measurements were made, usually no more than one day before or after velocity sampling. A global positioning system (GPS) was used to determine the location of each sampling site. Tables 1-3 provide descriptions of sites where samples were collected in September 1997, November 1997, and July 1998. Extensive notes were taken on the vegetation between sites and color photographs were taken of the vegetation at each site.

Vegetation was sampled in 0.5-m x 0.5-m quadrats delimited by vertical poles marked in 10-cm increments. Vegetation was cut and bagged in increments beginning from the top of the tallest plants. If the vegetation was greater than 100-cm tall, the first sample included vegetation from the top of the plants to 100 cm above the bottom (sediment/water interface). In the interval from 100 to 60 cm above the bottom, the vegetation was cut in 20-cm increments. In the interval below 60 cm, the interval that was generally within the water column, the vegetation was cut in 10-cm increments above the bottom. Periphyton was collected and bagged separately for each layer below the water surface. The height of the tallest plants was recorded for most quadrats during the September 1997 and November 1997 sampling periods and was estimated from the

biomass data for the remaining quadrats and all quadrats sampled in July 1998. The water depth, including the litter layer, was measured at each quadrat using a 1-cm diameter plastic pole with a 5-cm horizontal piece of pipe located 5 cm from the base of the pole. The small horizontal piece at the foot of the pole penetrated the litter, but not the root network. At the bottom of the profile, a litter layer consisting of flocculant particulate plant material, peat, and marl is commonly present. The depth from the top of the flocculant material to the dense root network below the litter layer was measured, and the difference was defined as the depth of the litter layer.

Plant material in each layer was sorted by species after removal of attached periphyton and all non-erect dead material (dead litter). Sawgrass was separated into leaves and culms (the stem of a grass or sedge); leaves were classified as small, medium, or large, and culms as small or large. Live and dead standing leaves and culms were counted separately, but live and dead were combined for this report. The widths of six leaves in each live group were measured. Rushes (includes several genera such as *Eleocharis* sp. and *Juncus* sp.) and grasses (Poaceae family) were separated into live leaves or stems and dead standing leaves or stems and their width estimated. It was difficult to distinguish grass and rush stems, especially when dead and cut into layers; thus, grass and rush stems were combined. All other plants (such as *Bacopa* sp., *Sagittaria* sp.) were counted as individual stems with attached leaves. Numbers of leaves, culms, or stems were reported as number per square meter.

Several dwarf cypress (*Taxodium* sp.) tree plots and one mangrove (*Rhizophora mangle*) tree plot were sampled. In sites containing dwarf cypress trees, one 0.5-m x 0.5-m quadrat was sampled for herbaceous vegetation in the cypress understory. Then, two 5-m x 5-m quadrats were established, and the number of dwarf cypress trees in each quadrat was counted, but not cut into layers and weighed. Measurements were made of the breast-high diameter of these trees or the basal diameter, if the tree was shorter than breast-height. For the mangrove site, trees in a one-square-meter quadrat were harvested in layers similar to those for the sawgrass and rush/grass quadrats. The mangrove material was sorted into roots, leaf litter, stick litter, leaves, sticks, and seeds/buds, and dried as below.

The sorted and measured plant material, the periphyton, and the dead litter were dried at 105 °C for 8 to 12 hours and then weighed. Biomass was expressed as grams dry weight per square meter (gdw m^{-2}). Quadrats were sorted into vegetative communities based on species composition. Plant communities were subdivided further into density classes based on total biomass minus periphyton biomass: sparse = 0-500 gdw m^{-2}; medium = 500-1,000 gdw m^{-2}; dense = 1,000-2,000 gdw m^{-2}; and very dense = >2,000 gdw m^{-2}. The quadrats were classified also on the basis of periphyton biomass: class 1 = 0-100 gdw m^{-2}; class 2 = 100-500 gdw m^{-2}; class 3 = 500-1,000 gdw m^{-2}; and class 4 = >1,000 gdw m^{-2}.

RESULTS OF SAMPLE ANALYSES

Forty-two vegetation quadrats were sampled in Taylor Slough during the three sampling dates (tables 1 through 3). The range of diameters and counts of small cypress trees associated with herbaceous vegetation plots are included in Tables 1 and 2. Ten vegetation classes were identified based on plant biomass and species composition; Table 4 identifies the quadrats assigned to each class. Table 5 summarizes the biomass data by quadrat so that the reader can compare the individual plant components more easily. Table 6 summarizes total biomass including periphyton, by quadrat. Table 7 is a summary of periphyton data. We found periphyton presence or absence to be generally unrelated to vegetation community, biomass, or location except that very dense and dense sawgrass had minimal amounts of periphyton, and the rush communities on the lower transect had the greatest amount of periphyton (table 7).

Appendixes A through I present detailed biomass data for each quadrat grouped by vegetation class. Appendixes J through R present detailed plant characteristics for each quadrat grouped by vegetation class. These data can be used to compare vegetation class characteristics to roughness coefficients such as Manning's n and the Harvey-Weisbach friction factor calculated from hydrologic data collected concurrently with these vegetation data.

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Table 1. Description of sampling sites in the Taylor Slough, September 1997
(M = middle transect; U = upper transect; cypress tree plots were 5x5 m; water depth includes litter layer; dbh = diameter breast height.)

Site	Description	Plant height (m)	Litter layer (cm)	Water depth (cm)
M1	Sparse sawgrass with rush. Surface cover by periphyton 5 %; below surface cover 80%.	1.0	none	25.5
M2	Very sparse sawgrass mixed with rush and *Utricularia* sp. Surface cover by periphyton 0%; below surface cover 45%.	0.9	none	35
M2—tree plot	Dwarf cypress. Dbh 0.4 to 8.2 cm. Tree cover 0.80 trees per m^2.			
M2—tree plot	Dwarf cypress. Dbh 0.5-4.7 cm. Tree cover 0.44 trees per m^2.			
M3	Sparse mixed: 50% sawgrass and 50% rush. Surface cover by periphyton 40%; below surface cover 60%.	1.6	4	50
M4	Sparse mixed: 50% sawgrass and 50% rush. Surface cover by periphyton 5%; below surface cover 50%.	1.6	2	40
M5	Sparse mixed: sawgrass with rush. Surface cover by periphyton 10%; below surface cover 15%.	1.0	7	39
M6	Sparse rush with *Sagittaria* sp. Small marshy area between dense sawgrass and a mangrove clump. Surface cover by periphyton 50%, below surface cover 85%.	1.2	<10	58
M7	Dense rush with trace of *Utricularia* sp. Surface cover by periphyton 0%; below surface cover trace.	1.0	10	54
M9	Fairly dense rush. Surface cover by periphyton 0%.	0.9	11	52
M10	Dense sawgrass with flowering culms. Periphyton 0%.	2.7	7	50
M11	Sparse rush. Surface cover by periphyton 80%; below surface cover 0%.	0.9	no data	50
M13	Sparse mixed: sawgrass and rush with *Sagittaria* sp. Surface cover by periphyton 30%; below surface cover 40%.	1.2	12	47
M14	Medium short sawgrass with sparse rush. Surface cover by periphyton 10%; below surface 98%.	1.2	15	21
M14—tree plot	Dwarf cypress. Dbh 0.4-4.5 cm. (Trees not measured if below waist level) 0.52 trees per m^2.			
M15	Medium dense short sawgrass and rush/grass. Surface cover by periphyton 0%; below surface cover at 7 cm was 98%.	1.0	0	13
M15—tree plot	2 dead cypress, 1 live cypress, 1 cypress knee. Dbh 1.2-5.2. Cypress knee at base was 30 cm in diameter.			
M15—tree plot	Dwarf cypress. Dbh 1.1-8.9 cm. 0.32 trees per m^2.			
M14—tree plot	Dwarf cypress. Dbh 1.1-3.2 cm. 0.28 trees per m^2.			

Table 1. Description of sampling sites in the Taylor Slough, September 1997, continued
(M = middle transect; U = upper transect; cypress tree plots were 5x5 m; water depth includes litter layer; dbh = diameter breast height.)

Site	Description	Plant height (m)	Litter layer (cm)	Water depth (cm)
U1	Sparse mixed short sawgrass and rush/grass. Surface cover by periphyton 1%; below surface cover 0%.	1.2	0	17
U2	Sparse-medium sawgrass with some rush/grass. Surface cover by periphyton 0%; below surface cover100%. 13 woody aster stems sprouting.	1.2	0	34
U2—tree plot	Edge of cypress head. Dwarf cypress. Dbh 1.5-15.6 cm. knee--16.1 cm. 0.20 trees per m^2.			
U2—tree plot	Dwarf cypress with broadleafed shrubs. Knees, stumps, and logs. Cypress dbh 3.2-23.4 cm. 0.32 trees per m^2.			
U3	Sparse sawgrass with some rush (*Eleocharis* sp. and *Juncus* sp.). No periphyton.	1.0	0	20
U5	Sparse rush with occasional *Juncus* sp. Surface cover by periphyton 15%; below surface 100%.	>0.8	2	37
U6	Medium to dense vigorous, tall sawgrass with *Polygonum* sp. No periphyton.	3.1	7	47
U7	Sparse rush/grass with *Oxypolis* sp., *Bacopa* sp.--no sawgrass. Surface cover by periphyton on *Utricularia* sp.--not dense.	1.2	6	61
U8	Medium mixed sawgrass and rush/grass with *Sagittaria* sp.and *Bacopa* sp. Surface cover by periphyton 38%; below surface cover 100%.	1.1	2	47
U10	Medium to dense sawgrass with some grass. Surface cover by periphyton 50%; below surface cover 40%.	1.7	0	45
U11	Medium short sawgrass with few rushes. Surface cover by periphyton 0%; below surface cover at 25 cm, 65%.	>1.4	0	35
U12	Medium sawgrass with asters and grasses. Surface cover by periphyton 0%; below surface--periphyton forms mat on bottom.	>1.2	2	22
U13	Very dry. Mixed sawgrass and rush/grass with cypress and *Ilex* sp. Surface cover by periphyton 0%; below surface cover--some on dead rushes.	<1.0	0	17
U13—tree plot	2 cypress trees, 1 broad-leafed evergreen, 2 knees (large). Dbh not measured.			
U13—tree plot	1 broad-leafed tree.			

Table 2. Description of sampling sites in the Taylor Slough, November 1997
(U = upper transect; M = middle transect; E = east of transect midpoint; W = west of transect midpoint; cypress tree plots are 5 x 5 m; dbh = breast high diameter; water depth includes litter layer.)

Site	Description	Plant height (cm)	Litter layer (cm)	Water depth (cm)
U1E	Medium to dense sawgrass with no rush and scattered *Sagittaria* sp. Surface cover by periphyton 30-40%; below surface cover 70%.	>1.0	2	20
U2E	Variable site: areas of sparse to medium sawgrass/rush, areas of very sparse rush/sawgrass. Patches of tall flowering grass in very shallow water areas. Transect beside an old firebreak line. Dwarf cypress scattered in the area. Cover by periphyton ≤10%.	>0.6	4	14
U3E	Mostly medium to dense sawgrass with patches of sparse short sawgrass. Some grass areas in the distance. Transect beside an old firebreak line. Dwarf cypress scattered in the area. Surface cover by periphyton 20%.	>1.0	5	22
U1W	Medium sawgrass. Scattered dwarf cypress to northeast. Periphyton mostly wrapped around stems.	>1.0	4	34
U6Wa	Dense tall sawgrass next to a small short cypress dome. Surrounding area of medium shorter sawgrass. Some periphyton mats and periphyton wrapped around stems.	>1.0	5	43
U7W	Medium rush lying down. Abundant *Oxypolis* sp., trace of *Potamogeton* sp. and *Utricularia* sp. Surface cover by periphyton on *Utricularia* sp. 30%.	>0.8	3	33
M1E	Medium sawgrass (fairly short) with rush, a few *Oxypolis* sp., and many dwarf cypress. Periphyton a very dense mat just below the surface turning into a dry mat as water level decreases -- surface cover 75%.	>0.8	4	17
M2E	Medium to dense sawgrass with some *Oxypolis* sp. and *Sagittaria* sp. *Potamogeton* sp. very evident in emergent form. Scattered dwarf cypress and thicker cypress dome in distance. Surface cover by periphyton 80%.	>1.0	6	26
M6E	Sparse rush and *Sagittaria* sp. Dense sawgrass in surrounding area. Periphyton surface cover and stem wraps 30%.	>1.0	10	27
M1W	Medium to dense sawgrass, with grass, medium *Potamogeton* sp. (flowering), *Bacopa* sp. Scattered cypress. Firebreak on north side of transect. Some periphyton wraps on stems.	>1.0	13	43
M1W Tree plot	Dwarf cypress, most too short for dbh measurements, basal diameters: 16.7 - 1.4 cm. 0.48 trees per m^2.			
M1W Tree plot	Dwarf cypress: dbh 2.0 and 1.2 cm, basal diameters: 10.2 and 13.2 cm. 0.04 trees per m^2.			
M3W	Sparse rush: dense sawgrass to the northeast, dense rush with *Sagittaria* sp. to southwest. Transition zone. Surface cover by periphyton 35%.	>1.0	3	39

Table 3. Description of sampling sites in the Taylor Slough, July 1998
(L = lower transect; J = July; mangrove plots are 1x1 m.)

Site	Description	Plant height (m)	Litter layer (cm)	Water depth (cm)
LJ1	Medium rush in mangrove patches (0.5 to 3 m in diameter) --small diameter rush. Periphyton mat ½ floating and ½ submersed.	0.8	12	26
LJ3	Red mangrove (*Rhizophora mangle*) with rush, and *Utricularia* sp. in the vicinity--5-10 ft diameter stands w/ mosquitos. No periphyton.	>2.7	no fine material leaf litter 20 cm	21 to <21
LJ4	Sparse rush. Periphyton mat on bottom 100%.	>0.6	no 0-10 layer	30
LJ6	Rush, *Utricularia* sp.--patchy and dense mangroves nearby. Periphyton is mixed with *Utricularia* sp. and *Chara* sp.	0.8	no litter layer	31
LJ7	Sparse rush (20% cover), *Chara* sp. Periphyton attached to bottom with a few pieces of mat floating.	0.8	11 ± 4	41
LJ8	Sparse rush with a little *Sagittaria* sp. scattered about and an occasional single mangrove. *Chara* sp. mixed with periphyton which is primarily a bottom mat.	0.8		32
UJ5	Prairie or mixed forbs: *Pontedaria* sp., *Peltandra* sp. *Crinum* sp., *Proserpinaca* sp. *Chara* sp., *Utricularia* sp., sawgrass, *Nymphaea* sp., *Nymphoides* sp., *Sagittaria* sp., *Salix* sp., *Cephalanthus* sp., *Bacopa* sp., *Ludwigia* sp., and grass. Thin layer of periphyton covers 90% of bottom.	0.9	8-10	29

Table 4. Taylor Slough vegetation classes based on total plant biomass minus periphyton for all quadrats, 1997 and 1998
(sparse = 0-500 gdw m^{-2}; medium = 500-1000 gdw m^{-2}; dense = 1,000-2,000 gdw m^{-2}, and very dense = >2,000 gdw m^{-2}; for quadrat designations; U = northernmost transect; M = middle transect; L = southernmost transect; numbers signify location on the transect; E and W designations refer to east and west of transect center on November samples; J refers to July samples.)

Biomass class	Sawgrass	Rush	Mixed sawgrass and rush	Mixed forbs or mangrove
Sparse	5 (M1, M14, U3, U1W, U2)	11 (M6, M7, M9, M11, M3W, M6E, U5, LJ1, LJ4, LJ7, LJ8)	8 (M3, M5, M13, U1, U2E, M1E, M2, U13)	1 (UJ5)
Medium	5 (U11, U12, U1E, M1W, U3E)	3 (U7, U7W, LJ6)	3 (M4, M15, U8)	0
Dense	3 (U6, U10, M2E)	0	0	0
Very dense	2 (M10, U6Wa)	0	0	1 (LJ3)

Table 5. Summary of Taylor Slough biomass data for all quadrats, 1997 and 1998
(Site classifications are based on species composition and on total biomass minus periphyton where <500 gdw m^{-2} is sparse, 500-1,000 gdw m^{-2} is medium, 1,000-2,000 gdw m^{-2} is dense, and > 2,000 gdw m^{-2} is very dense. Sg = sawgrass; peri = periphyton; biomass is in grams dry weight per square meter [gdw m^{-2}]; other refers to a mixture of forbs such as *Bacopa* sp., *Sagittaria* sp., *Potamogeton* sp.)

Site number	Total biomass minus peri	Periphyton biomass	Live sg biomass	Total sg biomass	Total rush/grass biomass	Total other biomass	Class
U6	1815.1	0.0	889.4	1460.5	2.6	17.2	Dense sawgrass
U10	1157.0	277.5	227.6	898.6	6.3	0.0	Dense sawgrass
M2E	1375.2	428.0	403.2	1070.5	19.9	67.7	Dense sawgrass
M15	653.0	1382.1	51.8	236.8	101.4	1.7	Medium mixed Sg/rush
U8	693.9	395.9	117.1	219.1	141.1	85.1	Medium mixed Sg/rush
M4	708.9	642.8	93.6	330.4	71.8	28.0	Medium mixed Sg/rush
LJ6	774.8	1166.9	0.0	0.0	441.2	0.0	Medium rush
U7	608.8	0.0	0.0	0.0	343.4	219.9	Medium rush
U7W	516.8	3.4	1.5	1.5	200.3	180.2	Medium rush
U3E	684.3	119.0	463.3	647.0	0.0	0.0	Medium sawgrass
M1W	648.8	126.2	150	157.6	0.0	331.8	Medium sawgrass
U1E	514.9	545.4	209.8	454.3	20.6	10.1	Medium sawgrass
U12	536.2	354.7	244.7	480.1	0.0	16.8	Medium sawgrass
U11	741.3	455.2	203.0	577.3	0.0	0.0	Medium sawgrass
UJ5	616.7	95.2	0.0	0.0	81.5	311.2	Mixed forbs
M13	310.5	490.6	13.9	56.5	52.8	1.4	Sparse mixed Sg/rush
M2	346.0	28.1	20.1	60.0	124.1	58.9	Sparse mixed Sg/rush
U2E	119.6	94.5	15.8	26.2	45.9	14.2	Sparse mixed Sg/rush
U13	466.2	305.9	11.1	90.4	203.3	0.3	Sparse mixed Sg/rush
M1E	462.1	370.6	56.4	205.8	136.1	5.1	Sparse mixed Sg/rush
M5	374.7	593.9	119.6	209.1	46.9	4.4	Sparse mixed Sg/rush
U1	317.9	132.4	66.1	181.0	90.8	11.7	Sparse mixed Sg/rush
M3	440.5	398.7	142.4	205.4	76.7	8.0	Sparse mixed Sg/rush
M9	258.1	0.0	0.0	0.0	221.2	0.0	Sparse rush
M6E	260.4	217.2	0.0	0.0	61.0	158.2	Sparse rush
M3W	409.9	56.4	0.0	0.0	103.2	221.5	Sparse rush
M6	481.2	0.0	1.3	2.3	36.6	367.6	Sparse rush
M7	296.8	8.2	0.0	0.5	181.7	66.3	Sparse rush
LJ8	205.3	3597.7	0.0	0.0	154.6	0.0	Sparse rush
LJ1	245.1	12.2	4.2	8.7	199.1	0.0	Sparse rush
M11	321.7	5.4	0.8	1.1	91.8	95.4	Sparse rush
U5	163.7	774.6	0.0	0.0	130.9	4.6	Sparse rush
LJ4	114.2	1363.3	1.2	4.3	36.5	0.0	Sparse rush
LJ7	297.5	1518.4	0.0	0.0	147.1	0.0	Sparse rush
M14	457.7	575.4	95.3	297.6	9.8	15.1	Sparse sawgrass
M1	155.5	445.3	35.8	89.9	13.0	0.7	Sparse sawgrass
U1W	406.7	3.5	127.9	394	1.27	0.0	Sparse sawgrass
U3	137.5	145.5	36.7	118.2	1.1	0.0	Sparse sawgrass
U2	390.1	325.9	159.3	322.6	26.5	55.7	Sparse sawgrass
M10	2235.7	0.0	790.7	1768.8	0.0	0.0	Very dense sawgrass
U6Wa	2131.3	21.4	1071	1859.7	0.0	0.0	Very dense sawgrass

Table 6. Summary of total biomass with periphyton, periphyton biomass, and vegetation class for Taylor Slough quadrats, 1997 and 1998
(Table is sorted by increasing biomass. Sg = sawgrass; biomass in gdw m^{-2}.)

Site number	Total biomass	Periphyton biomass	Class
U2E	214.0	94.5	Sparse mixed Sg/rush
LJ1	257.3	12.2	Sparse rush
M9	258.1	0.0	Sparce rush
U3	283.0	145.5	Sparse sawgrass
M7	305.0	8.2	Sparse rush
M11	327.1	5.3	Sparse rush
M2	374.1	28.1	Sparse mixed Sg/rush
U1W	440.1	33.5	Sparse sawgrass
U1	450.3	132.4	Sparse mixed Sg/rush
M3W	466.3	56.4	Sparse rush
M6E	477.5	217.2	Sparse rush
M6	481.2	0.0	Sparse rush
U7W	520.2	3.4	Medium rush
M1	600.9	445.3	Sparse sawgrass
U7	608.8	0.0	Medium rush
UJ5	711.9	95.2	Mixed forbs
U2	741.8	325.9	Sparse sawgrass
U13	772.1	305.9	Sparse mixed Sg/rush
M1W	775.4	126.6	Medium sawgrass
M13	801.1	490.6	Sparse mixed Sg/rush
U3E	803.3	119.0	Medium sawgrass
M1E	832.7	370.6	Sparse mixed Sg/rush
M3	839.3	398.7	Sparse mixed Sg/rush
U12	890.9	354.7	Medium sawgrass
U5	938.3	774.6	Sparse rush
M5	968.6	593.9	Sparse mixed Sg/rush
M14	1033.0	575.4	Sparse sawgrass
U1E	1060.3	514.9	Medium sawgrass
U8	1089.9	396.0	Medium mixed Sg/rush
U11	1196.5	455.2	Medium sawgrass
M4	1351.7	642.8	Medium mixed Sg/rush
U10	1434.5	277.5	Dense sawgrass
LJ4	1477.5	1363.3	Sparse rush
M2E	1803.2	428.0	Dense sawgrass
U6	1815.1	0.0	Dense sawgrass
LJ7	1815.9	1518.4	Sparse rush
LJ6	1941.7	1166.9	Sparse rush
M15	2035.1	1382.1	Medium mixed Sg/rush
U6Wa	2152.7	21.4	Very dense sawgrass
M10	2190.3	0.0	Very dense sawgrass
LJ8	3803.0	3597.7	Sparse rush

Table 7. Summary of periphyton data for Taylor Slough quadrats, 1997 and 1998
(Periphyton classes: 0-100 gdw m^{-2} = class 1; 100-500 gdw m^{-2} = class 2; 500-1,000 gdw m^{-2} = class 3; > 1,000 gdw m^{-2} = class 4.)

Site	Total periphyton biomass	Number of layers with periphyton	Class	Periphyton class
U6	0.0	0	Dense sawgrass	1
U10	277.5	3	Dense sawgrass	2
M2E	428	3	Dense sawgrass	2
U8	396	4	Medium mixed Sg/rush	2
M4	642.8	4	Medium mixed Sg/rush	3
M15	1382.1	2	Medium mixed Sg/rush	4
U7W	3.4	1	Medium rush	1
U7	0.0	0	Medium rush	1
LJ6	1166.9	1	Medium rush	4
U12	354.7	3	Medium sawgrass	2
U3E	119	4	Medium sawgrass	2
M1W	126.6	3	Medium sawgrass	2
U11	455.2	4	Medium sawgrass	2
U1E	545.4	4	Medium sawgrass	3
UJ5	95.2	1	Mixed Forbs	1
M2	28.1	2	Sparse mixed Sg/rush	1
U2E	94.5	3	Sparse mixed Sg/rush	1
U1	132.4	2	Sparse mixed Sg/rush	2
U13	305.9	2	Sparse mixed Sg/rush	2
M1E	370.6	3	Sparse mixed Sg/rush	2
M13	490.6	5	Sparse mixed Sg/rush	2
M3	398.7	5	Sparse mixed Sg/rush	2
M5	593.9	4	Sparse mixed Sg/rush	3
M6	0.0	0	Sparse rush	1
M3W	56.4	1	Sparse rush	1
M9	0.0	0	Sparse rush	1
M7	8.2	1	Sparse rush	1
M11	5.3	1	Sparse rush	1
LJ1	12.2	2	Sparse rush	1
M6E	217.2	2	Sparse rush	2
U5	774.6	4	Sparse rush	3
LJ8	3597.7	1	Sparse rush	4
LJ7	1518.4	4	Sparse rush	4
LJ4	1363.3	1	Sparse rush	4
U1W	16.7	2	Sparse sawgrass	1
U2	325.9	4	Sparse sawgrass	2
U3	145.5	2	Sparse sawgrass	2
M1	445.3	3	Sparse sawgrass	2
M14	575.4	3	Sparse sawgrass	3
U6Wa	21.4	3	Very dense sawgrass	1
M10	0.0	0	Very dense sawgrass	1

Appendix A: Very Dense Sawgrass Class
Sawgrass Biomass and All Vegetation Biomass in Quadrats Sampled in Taylor Slough,
Everglades National Park
1997-1998

Table A-1. Summary of live and dead standing sawgrass biomass in quadrat U6Wa, Taylor Slough, Everglades National Park, November 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 43 cm; plant height = >1.0 m]

Layer	Live sawgrass leaves	Dead sawgrass leaves	Total sawgrass leaves	Live sawgrass culms	Dead sawgrass culms	Total sawgrass culms
>100	142.62	17.18	159.80			
80-100	66.08	37.79	103.87	7.21		7.21
60-80	89.72	151.33	241.05	14.00		14.00
50-60	25.16	49.59	74.75	20.80		20.80
40-50	43.27	112.89	156.16	19.98		19.98
30-40	28.08	113.59	141.67	71.27		71.27
20-30	14.53	90.78	105.30	91.16	6.72	97.88
10-20	83.00	75.04	158.04	111.33	3.01	114.34
0-10	0.00	59.30	59.30	242.53	71.79	314.32
Total	492.46	707.47	1199.94	578.28	81.52	659.80

Table A-2. Summary of biomass in quadrat U6Wa, Taylor Slough, Everglades National Park, November 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 43 cm; plant height = >1.0 m]

Layer	Standing sawgrass	Dead litter	Total plant biomass	Periphyton	Total biomass
>100	159.80		159.80		159.80
80-100	111.08		111.08		111.08
60-80	255.05		255.05		255.05
50-60	95.54		95.54		95.54
40-50	176.14		176.14		176.14
30-40	212.94	117.96	330.90	8.03	338.94
20-30	203.18	35.34	238.52	7.76	246.28
10-20	272.38	23.46	295.84		295.84
0-10	373.62	94.84	468.46	5.61	474.07
Total	1859.74	271.59	2131.33	21.40	2152.74

Table A-3. Summary of live and dead standing sawgrass biomass in quadrat M10, Taylor Slough, Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 50 cm; plant height = 2.7 m]

Layer	Live sawgrass leaves	Dead sawgrass leaves	Total sawgrass leaves	Live sawgrass culms	Dead sawgrass culms	Total sawgrass culms
240+		1.80	1.80			
220-240	0.54	1.85	2.39			
200-220	8.87	6.50	15.37			
180-200	17:20	17.17	34.37			
160-180	8.77	27.84	36.60			
140-160	27.36	32.38	59.74	1.97		1.97
120-140	27.15	36.36	63.51			
100-120	45.17	40.34	85.51	21.07		21.07
80-100	59.06	101.17	160.23	29.12	13.87	42.99
60-80	50.39	93.21	143.61	40.70	22.52	63.22
50-60	30.92	85.26	116.18	36.61	1.10	37.71
40-50	24.02	60.98	84.99	47.51	27.98	75.50
30-40	14.60	38.78	53.38	23.55	56.88	80.43
20-30		30.03	30.03	62.27	21.06	83.33
10-20		48.08	48.08	19.76	79.20	98.96
0-10		33.50	33.50	194.06	100.30	294.36
Total	314.05	655.25	969.30	476.62	322.91	799.53

Table A-4. Summary of biomass in quadrat M10, Taylor Slough, Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 50 cm; plant height = 2.7 m]

Layer	Standing sawgrass	Dead litter	Total plant biomass	Total biomass
240+	1.80		1.80	1.80
220-240	2.39		2.39	2.39
200-220	15.37		15.37	15.37
180-200	34.37		34.37	34.37
160-180	36.60		36.60	36.60
140-160	61.71		61.71	61.71
120-140	63.51		63.51	63.51
100-120	106.58		106.58	106.58
80-100	203.22	34.50	237.72	237.72
60-80	206.83	59.10	265.93	265.93
50-60	153.88	17.92	171.81	171.81
40-50	160.49	100.28	260.77	260.77
30-40	133.81	42.80	176.60	176.60
20-30	113.36	50.96	164.32	164.32
10-20	147.03	34.29	181.32	181.32
0-10	327.87	177.01	504.88	504.88
Total	1768.83	516.87	2285.69	2285.69

Appendix B: Dense Sawgrass Class
Sawgrass Biomass and All Vegetation Biomass in Quadrats Sampled in Taylor Slough,
Everglades National Park
1997-1998

Table B-1. Summary of live and dead standing sawgrass biomass in quadrat U10, Taylor Slough, Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 45 cm; plant height = 1.7 m]

Layer	Live sawgrass leaves	Dead sawgrass leaves	Total sawgrass leaves	Live sawgrass culms	Dead sawgrass culms	Total sawgrass culms
140-160		2.20	2.20			
120-140	0.20	0.70	0.90		2.14	2.14
100-120	0.63	4.18	4.81		3.85	3.85
80-100	1.83	15.22	17.05		3.30	3.30
60-80	9.64	43.37	53.01		5.67	5.67
50-60	6.90	43.00	49.91	1.28	6.15	7.43
40-50	16.33	50.85	67.18	7.26	6.64	13.90
30-40	31.09	61.62	92.71	13.23	3.70	16.93
20-30	15.09	34.44	49.54	23.47	3.63	27.10
10-20	16.96	102.73	119.70	33.33	11.02	44.35
0-10	4.80	82.48	87.28	45.58	184.04	229.62
Total	103.48	440.80	544.28	124.14	230.15	354.29

Table B-2. Summary of biomass in quadrat U10, Taylor Slough. Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 45 cm; plant height = 1.7 m]

Layer	Standing sawgrass	Rush/grass	Dead litter	Total plant biomass	Periphyton	Total biomass
140-160	2.20			2.20		2.20
120-140	3.04			3.04		3.04
100-120	8.66			8.66		8.66
80-100	20.35			20.35		20.35
60-80	58.68			58.68		58.68
50-60	57.34			57.34		57.34
40-50	81.08			81.08		81.08
30-40	109.64	0.89	55.45	165.99	150.82	316.80
20-30	76.64	1.49	43.26	121.39	82.72	204.12
10-20	164.04	2.72	47.29	214.05	43.95	258.00
0-10	316.91	1.19	106.11	424.21		424.21
Total	898.57	6.29	252.12	1156.98	277.49	1434.47

Table B-3. Summary of live and dead standing sawgrass biomass in quadrat U6, Taylor Slough, Everglades National Park, September 1997

[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 47 cm; plant height = 3.1 m]

Layer	Live sawgrass leaves	Dead sawgrass leaves	Total sawgrass leaves	Live sawgrass culms	Dead sawgrass culms	Total sawgrass culms
300-320	no data					
280-300	no data					
260-280	no data					
240-260		0.71	0.71			
220-240	0.43	1.48	1.91			
200-220	3.68	5.25	8.93			
180-200	6.94	1.28	8.21			
160-180	10.70	10.17	20.86			
140-160	18.59	16.18	34.77			
120-140	31.03	25.09	56.12	3.64		3.64
100-120	36.31	25.36	61.66	11.28		11.28
80-100	49.57	49.12	98.69	11.08		11.08
60-80	97.10	62.35	159.45	41.13		41.13
50-60	38.50	55.34	93.84	31.93		31.93
40-50	34.34	75.02	109.36	44.36		44.36
30-40	31.99	59.44	91.42	52.30	2.76	55.05
20-30	8.08	67.53	75.62	68.03	21.33	89.36
10-20		68.46	68.46	86.26	21.98	108.24
0-10		2.27	2.27	172.17		172.17
Total	367.26	525.04	892.30	522.17	46.06	568.24

Table B-4. Summary of biomass in quadrat U6, Taylor Slough, Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 47 cm; plant height = 3.1 m]

Layer	Standing sawgrass	Rush/grass	Other	Dead litter	Total plant biomass	Periphyton	Total biomass
300-320	no data						
280-300	no data						
260-280	no data						
240-260	0.71				0.71		0.71
220-240	1.91				1.91		1.91
200-220	8.93				8.93		8.93
180-200	8.21				8.21		8.21
160-180	20.86				20.86		20.86
140-160	34.77				34.77		34.77
120-140	59.76				59.76		59.76
100-120	72.94				72.94		72.94
80-100	109.77				109.77		109.77
60-80	200.58		2.11	27.05	229.75		229.75
50-60	125.77		0.31	28.37	154.45		154.45
40-50	153.72		8.41	165.82	327.96		327.96
30-40	146.48		4.73	25.55	176.76		176.76
20-30	164.98	1.81	1.22	26.51	194.52		194.52
10-20	176.70	0.36		20.44	197.50		197.50
0-10	174.44	0.46	0.36	41.02	216.29		216.29
Total	1460.54	2.64	17.16	334.76	1815.09		1815.09

Table B-5. Summary of live and dead standing sawgrass biomass in quadrat M2E, Taylor Slough, Everglades National Park, November 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); Water depth = 26 cm; plant height = >1.0 m]

Layer	Live sawgrass leaves	Dead sawgrass leaves	Total sawgrass leaves	Live sawgrass culms	Dead sawgrass culms	Total sawgrass culms
100-120	17.78	3.48	21.26			
80-100	35.18	7.94	43.12			
60-80	48.50	37.93	86.42	2.40		2.40
50-60	37.72	39.01	76.73	4.12		4.12
40-50	29.52	66.98	96.49	6.04	0.97	7.01
30-40	48.43	109.62	158.05	14.92	2.71	17.63
20-30	26.16	135.88	162.04	34.44	8.16	42.60
10-20	7.19	109.84	117.03	42.24	6.18	48.42
0-10		94.01	94.01	48.54	44.67	93.21
Total	250.47	604.68	855.14	152.70	62.69	215.39

Table B-6. Summary of biomass in quadrat M2E, Taylor Slough, Everglades National Park, November 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 26 cm; plant height = >1.0 m]

Layer	Standing sawgrass	Rush/grass	*Potamogeton Utricularia*	*Sagittaria*	Dead litter	Total plant biomass	Periphyton	Total biomass
100-120	21.26					21.26		21.26
80-100	43.12			4.10		47.22		47.22
60-80	88.82	1.19		9.65		99.66		99.66
50-60	80.84	3.66		7.02		91.52		91.52
40-50	103.50	3.06		5.58		112.15		112.15
30-40	175.68	4.26		7.94	22.81	210.70		210.70
20-30	204.64	4.94	17.66	6.34	82.83	316.40	324.32	640.72
10-20	165.44	2.25	3.58	5.69	54.17	231.14	44.45	275.59
0-10	187.22	0.57	0.15		57.18	245.12	59.22	304.34
Total	1070.53	19.93	21.39	46.33	217.00	1375.17	428.00	1803.17

Appendix C: Medium Sawgrass Class
Sawgrass Biomass and All Vegetation Biomass in Quadrats Sampled in Taylor Slough, Everglades National Park
1997-1998

Table C-1. Summary of live and dead standing sawgrass biomass in quadrat U12, Taylor Slough, Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 22 cm; plant height = >1.2 m]

Layer	Live sawgrass leaves	Dead sawgrass leaves	Total sawgrass leaves	Live sawgrass culms	Dead sawgrass culms	Total sawgrass culms
120-140	0.35	0.06	0.41			
100-120	1.14	4.80	5.94			
80-100	0.50	9.54	10.04			
60-80	2.77	21.42	24.20			
50-60	8.02	21.10	29.12			
40-50	20.70	30.20	50.90			
30-40	30.08	32.32	62.40			
20-30	32.08	19.94	52.02	32.25	1.10	33.35
10-20	27.56	30.50	58.06	26.92	0.88	27.80
0-10	20.27	37.86	58.13	42.08	25.66	67.74
Total	143.47	207.75	351.23	101.24	27.64	128.88

Table C-2. Summary of biomass in quadrat U12, Taylor Slough, Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 22 cm; plant height = >1.2 m]

Layer	Standing sawgrass	Rush/grass	Other	Dead litter	Total plant biomass	Periphyton	Total biomass
120-140	0.41				0.41		0.41
100-120	5.94				5.94		5.94
80-100	10.04				10.04		10.04
60-80	24.20				24.20		24.20
50-60	29.12				29.12		29.12
40-50	50.90	0.09			50.98		50.98
30-40	62.40	0.44		4.45	67.30		67.30
20-30	85.37	0.60	2.42	16.80	105.19	18.54	123.72
10-20	85.86	3.10	3.92	10.01	102.89	116.88	219.77
0-10	125.87	0.99	5.18	8.10	140.14	219.28	359.42
Total	480.11	5.23	11.53	39.35	536.21	354.70	890.91

Table C-3. Summary of live and dead standing sawgrass biomass in quadrat U11, Taylor Slough, Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 35 cm; plant height = >1.4 m]

Layer	Live sawgrass leaves	Dead sawgrass leaves	Total sawgrass leaves	Live sawgrass culms	Dead sawgrass culms	Total sawgrass culms
140-160		0.59	0.59			
120-140		0.39	0.39			
100-120	1.01	7.82	8.82			
80-100	1.32	17.49	18.82			
60-80	25.59	43.54	69.14			
50-60	9.54	9.69	19.23			
40-50	27.21	46.55	73.76	0.66		0.66
30-40	23.89	25.05	48.94	18.90		18.90
20-30	13.74	33.45	47.18	34.58		34.58
10-20	10.66	23.59	34.25	35.15	17.15	52.30
0-10	3.53	41.66	45.19	57.18	47.35	104.53
Total	116.48	249.82	366.31	146.48	64.50	210.98

Table C-4. Summary of biomass in quadrat U11, Taylor Slough, Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 35 cm; plant height = >1.4 m]

Layer	Standing sawgrass	Rush/grass	Dead litter	Total plant biomass	Periphyton	Total biomass
140-160	0.59			0.59		0.59
120-140	0.39			0.39		0.39
100-120	8.82			8.82		8.82
80-100	18.82			18.82		18.82
60-80	69.14			69.14		69.14
50-60	19.23			19.23		19.23
40-50	74.42		2.33	76.75		76.75
30-40	67.84		27.89	95.73	12.48	108.20
20-30	81.77		56.77	138.54	133.46	272.00
10-20	86.55	0.04	48.48	135.08	192.07	327.14
0-10	149.72		28.54	178.26	117.15	295.41
Total	577.28	0.04	164.02	741.34	455.16	1196.50

Table C-5. Summary of live and dead standing sawgrass biomass in quadrat U1E, Taylor Slough, Everglades National Park, November 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 20 cm; plant height = >1.0 m]

Layer	Live sawgrass leaves	Dead sawgrass leaves	Total sawgrass leaves	Live sawgrass culms	Dead sawgrass culms	Total sawgrass culms
100-120	7.68	0.84	8.52			
80-100	13.86	0.54	14.40			
60-80	21.75	2.99	24.74			
50-60	16.56	3.62	20.18			
40-50	14.08	3.30	17.38	4.08		4.08
30-40	3.80	13.26	17.06	4.23		4.23
20-30	19.10	3.55	22.65	11.34	4.66	16.00
10-20	12.72	6.64	19.36	22.06	18.15	40.21
0-10	15.10	34.92	50.02	43.45	152.06	195.51
Total	124.64	69.68	194.32	85.15	174.87	260.02

Table C-6. Summary of biomass in quadrat U1E, Taylor Slough, Everglades National Park, November 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 20 cm; plant height = >1.0 m]

Layer	Standing sawgrass	Rush/grass	*Potamogeton Utricularia*	*Sagittaria*	Other	Dead litter	Total plant biomass
100-120	8.52						8.52
80-100	14.40						14.40
60-80	24.74	0.38					25.12
50-60	20.18	1.01					21.19
40-50	21.46	0.78					22.24
30-40	21.29	0.66				2.15	24.11
20-30	38.65	5.37				1.62	45.64
10-20	59.57	6.78	3.16		3.16	6.86	76.37
0-10	245.53	5.66	5.68	1.24	6.92	19.20	277.30
Total	454.34	20.64	8.84	1.24	10.08	29.83	514.90

Table C-7. Summary of live and dead standing sawgrass biomass in quadrat U3E, Taylor Slough, Everglades National Park, November 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 22 cm; plant height = >1.0 m]

Layer	Live sawgrass leaves	Dead sawgrass leaves	Total sawgrass leaves	Live sawgrass culms	Dead sawgrass culms	Total sawgrass culms
100-120	12.42	1.94	14.36			
80-100	28.20	4.24	32.44			
60-80	31.72	7.80	39.52			
50-60	35.24	3.33	38.57	0.86		0.86
40-50	49.40	5.56	54.96	3.00		3.00
30-40	41.30	5.23	46.54	9.47		9.47
20-30	53.50	8.11	61.62	22.68		22.68
10-20	30.26	6.04	36.30	51.26	5.04	56.29
0-10	11.51	54.39	65.90	82.47	82.06	164.53
Total	293.56	96.63	390.19	169.74	87.10	256.84

Table C-8. Summary of biomass in quadrat U3E, Taylor Slough, Everglades National Park, November 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 22 cm; plant height = >1.0 m]

Layer	Standing sawgrass	Dead litter	Total plant biomass	Periphyton	Total biomass
100-120	14.36		14.36		14.36
80-100	32.44		32.44		32.44
60-80	39.52		39.52		39.52
50-60	39.43		39.43		39.43
40-50	57.97		57.97		57.97
30-40	56.00	3.36	59.36	14.55	73.91
20-30	84.29	3.08	87.37	50.08	137.45
10-20	92.59	18.92	111.51	22.96	134.47
0-10	230.43	11.92	242.35	31.40	273.74
Total	647.03	37.28	684.30	118.99	803.29

Table C-9. Summary of live and dead standing sawgrass biomass in quadrat M1W, Taylor Slough, Everglades National Park, November 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 43 cm; plant height = >1.0 m]

Layer	Live sawgrass leaves	Dead sawgrass leaves	Total sawgrass leaves	Live sawgrass culms	Dead sawgrass culms	Total sawgrass culms
100-120	0.83	1.73	2.56			
80-100	3.38	3.29	6.67	2.10		2.10
60-80	4.12	6.74	10.86			
50-60	4.17	10.57	14.74			
40-50	3.49	9.55	13.04	1.58		1.58
30-40	1.95	5.32	7.27	3.66		3.66
20-30	1.31	21.74	23.05	3.04	4.86	7.90
10-20	0.67	36.96	37.63	0.95	13.15	14.10
0-10	14.88	26.88	41.76	103.92	21.44	125.35
Total	34.81	122.76	157.58	115.24	39.44	154.69

Table C-10. Summary of biomass in quadrat M1W, Taylor Slough, Everglades National Park, November 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 43 cm; plant height = >1.0 m]

Layer	Standing sawgrass	*Potamogeton Utricularia*	*Sagittaria*	Dead litter	Total plant biomass	Periphyton	Total biomass
100-120	2.56				2.56		2.56
80-100	8.77				6.67		6.67
60-80	10.86		1.67		12.53		12.53
50-60	14.74		8.02		22.76		22.76
40-50	14.62	52.77			65.81	55.64	121.45
30-40	10.93	100.30		16.43	124.00	52.70	176.70
20-30	30.95	65.72		5.37	94.14		94.14
10-20	51.72	75.14		12.55	125.32	18.23	143.55
0-10	167.12	28.15		125.13	195.05		195.05
Total	312.26	322.09	9.69	159.48	648.83	126.57	775.40

Appendix D: Sparse Sawgrass Class
Sawgrass Biomass and All Vegetation Biomass in Quadrats Sampled in Taylor Slough, Everglades National Park
1997-1998

Table D-1. Summary of live and dead standing sawgrass biomass in quadrat U3, Taylor Slough, Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 20 cm; plant height = 1.0 m]

Layer	Live sawgrass leaves	Dead sawgrass leaves	Total sawgrass leaves	Live sawgrass culms	Dead sawgrass culms	Total sawgrass culms
80-100		1.80	1.80			
60-80	1.83	1.27	3.11			
50-60	3.12	0.75	3.88			
40-50	1.29	4.71	6.00			
30-40	5.36	1.81	7.17			
20-30	7.88	4.71	12.60			
10-20	4.42	2.34	6.76		1.37	1.37
0-10		0.55	0.55	12.74	61.26	73.99
Total	23.91	17.95	41.87	12.74	62.62	75.36

Table D-2. Summary of biomass in quadrat U3, Taylor Slough, Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 20 cm; plant height = 1.0 m]

Layer	Standing sawgrass	Rush/grass	Dead litter	Total plant biomass	Periphyton	Total biomass
80-100	1.80			1.80		1.80
60-80	3.11			3.11		3.11
50-60	3.88			3.88		3.88
40-50	6.84	0.84		7.68		7.68
30-40	7.17			7.17		7.17
20-30	12.60			12.60		12.60
10-20	8.25	0.17	2.18	10.61	41.15	51.76
0-10	74.54	0.04	16.04	90.62	104.38	195.01
Total	118.18	1.05	18.22	137.46	145.54	282.99

Table D-3. Summary of live and dead standing sawgrass biomass in quadrat U2, Taylor Slough, Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 34 cm; plant height = 1.2 m]

Layer	Live sawgrass leaves	Dead sawgrass leaves	Total sawgrass leaves	Live sawgrass culms	Dead sawgrass culms	Total sawgrass culms
100-120		1.38	1.38			
80-100		15.56	15.56			
60-80	0.32	13.94	14.26			
50-60	2.68	18.38	21.05			
40-50	12.98	11.37	24.35	1.69		1.69
30-40	17.60	5.81	23.41	14.34		14.34
20-30	8.82	1.89	10.71	29.00	2.76	31.76
10-20	10.50	2.22	12.72	33.86	14.82	48.68
0-10		11.40	11.40	27.50	63.75	91.24
Total	52.89	81.94	134.83	106.39	81.33	187.72

Table D-4. Summary of biomass in quadrat U2, Taylor Slough, Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 34 cm; plant height = 1.2 m]

Layer	Standing sawgrass	Rush/grass	*Bacopa*	*Potamogeton Utricularia*	Other	Dead litter	Total plant biomass	Periphyton	Total biomass
100-120	1.38						1.38		1.38
80-100	15.56						15.56		15.56
60-80	14.26						14.26		14.26
50-60	21.05						21.05		21.05
40-50	26.04	2.38					28.42		28.42
30-40	37.75	8.96			3.54	3.01	53.26	10.00	66.28
20-30	42.47	5.90	0.04		1.80	2.09	52.30	81.94	136.36
10-20	61.40	5.52	2.23	5.76	2.55	2.69	80.14	184.54	275.36
0-10	102.64	3.71	0.64	5.43	7.28	3.98	123.68	49.45	183.17
Total	322.55	26.47	2.91	11.19	15.17	11.76	390.05	325.93	741.84

Table D-5. Summary of live and dead standing sawgrass biomass in quadrat U1W, Taylor Slough, Everglades National Park, November 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 34 cm; plant height = >1.0 m]

Layer	Live sawgrass leaves	Dead sawgrass leaves	Total sawgrass leaves	Live sawgrass culms	Dead sawgrass culms	Total sawgrass culms
100-120	no data					
80-100	no data					
60-80	no data					
50-60	no data					
40-50	no data					
30-40	34.00	58.74	92.74	0.88		0.88
20-30	11.62	87.78	99.41	23.75		23.75
10-20	3.26	61.05	64.32	36.04		36.04
0-10		31.93	31.93	18.34	26.58	44.92
Total	48.89	239.51	288.40	79.01	26.58	105.59

Table D-6. Summary of biomass in quadrat U1W, Taylor Slough, Everglades National Park, November 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 34 cm; plant height = >1.0 m]

Layer	Standing sawgrass	Rush/grass	Dead litter	Total plant biomass	Periphyton	Total biomass
100-120	no data					
80-100	no data					
60-80	no data					
50-60	no data					
40-50	no data					
30-40	no data	0.00		93.63		93.63
20-30	no data	0.00		123.16	7.49	130.65
10-20	no data	1.27	2.99	104.61	9.23	113.84
0-10	no data	0.00	8.44	85.29		85.29
Total	393.99	1.27	11.43	406.68	33.45	440.13

Table D-7. Summary of live and dead standing sawgrass biomass in quadrat M14, Taylor Slough, Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 21 cm; plant height = 1.2 m]

Layer	Live sawgrass leaves	Dead sawgrass leaves	Total sawgrass leaves	Live sawgrass culms	Dead sawgrass culms	Total sawgrass culms
100-120	no data					
80-100	0.75	1.57	2.32			
60-80	6.66	5.20	11.86			
50-60	0.67	12.64	13.31			
40-50	11.78	25.98	37.76			
30-40	3.16	26.86	30.02	2.73	1.11	3.84
20-30	18.02	25.64	43.66	7.65	7.79	15.44
10-20	11.40	25.75	37.15	16.37	14.47	30.84
0-10	1.67	16.04	17.71	14.47	39.26	53.72
Total	54.12	139.66	193.78	41.22	62.63	103.85

Table D-8. Summary of biomass in quadrat M14, Taylor Slough, Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 21 cm; plant height = 1.2 m]

Layer	Standing sawgrass	Rush/grass	*Sagittaria*	Other	Dead litter	Total plant biomass	Periphyton	Total biomass
100-120	no data							
80-100	2.32					2.32		2.32
60-80	11.86					11.86		11.86
50-60	13.31					13.31		13.31
40-50	37.76					37.76		37.76
30-40	33.86	2.71				36.57		36.57
20-30	59.10	2.38		6.29	55.05	122.81	55.65	178.47
10-20	67.99	4.68	2.35		57.83	132.85	448.76	581.60
0-10	71.43			6.48	22.27	100.19	70.94	171.13
Total	297.63	9.77	2.35	12.77	135.15	457.67	575.35	1033.02

Table D-9. Summary of live and dead standing sawgrass biomass in quadrat M1, Taylor Slough, Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 25.5 cm; plant height = 1.0 m]

Layer	Live sawgrass leaves	Dead sawgrass leaves	Total sawgrass leaves	Live sawgrass culms	Dead sawgrass culms	Total sawgrass culms
80-100	no data					
60-80	0.68	4.22	4.90			
50-60	2.33	5.60	7.93			
40-50	3.99	5.12	9.10			
30-40	1.54	20.18	21.72			
20-30	4.64	0.74	5.38	4.61		4.61
10-20	3.28	3.65	6.92	4.69		4.69
0-10	0.67	3.70	4.36	9.39	10.89	20.28
Total	17.12	43.20	60.33	18.70	10.89	29.59

Table D-10. Summary of biomass in quadrat M1, Taylor Slough, Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 25.5 cm; plant height = 1.0 m]

Layer	Standing sawgrass	Rush/grass	*Bacopa*	*Sagittaria*	Dead litter	Total plant biomass	Periphyton	Total biomass
80-100	no data							
60-80	4.90				0.72	5.62		5.62
50-60	7.93	0.04			0.01	7.98		7.98
40-50	9.10	2.32			2.48	13.90		13.90
30-40	21.72	2.66			4.62	29.00		29.00
20-30	10.00	1.70			8.84	20.53	98.64	119.17
10-20	11.62	3.56	0.40	0.34	18.34	34.26	238.47	272.73
0-10	24.65	2.72			16.87	44.24	108.22	152.46
Total	89.91	12.99	0.40	0.34	51.89	155.53	445.33	600.86

Appendix E: Medium Mixed Sawgrass and Rush Class
All Vegetation Biomass in Quadrats Sampled in Taylor Slough,
Everglades National Park
1997-1998

Table E-1. Summary of live and dead standing sawgrass biomass in quadrat U8, Taylor Slough, Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 47 cm; plant height = 1.1 m]

Layer	Live sawgrass leaves	Dead sawgrass leaves	Total sawgrass leaves	Live sawgrass culms	Dead sawgrass culms	Total sawgrass culms
100-120	0.40	0.46	0.87			
80-100	4.86	1.61	6.47			
60-80	13.07	12.82	25.90			
50-60	3.96	13.82	17.78			
40-50	13.44	13.86	27.30	4.92		4.92
30-40	14.84	21.51	36.35	10.01		10.01
20-30	9.94	17.93	27.87	9.34	3.68	13.02
10-20	7.36	5.13	12.49	13.44		13.44
0-10	3.67	11.17	14.84	7.84		7.84
Total	71.55	98.31	169.85	45.55	3.68	49.24

Table E-2. Summary of biomass in quadrat U8, Taylor Slough, Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 47 cm; plant height = 1.1 m]

Layer	Standing sawgrass	Rush/grass	*Bacopa*	*Potamogeton Utricularia*	*Sagittaria*	Dead litter	Total plant biomass	Periphyton	Total biomass
100-120	0.87								
80-100	6.47	2.43				0.45	9.35		9.35
60-80	25.90	17.79			3.62	0.22	47.53		47.53
50-60	17.78	16.20			12.00	2.17	48.15		48.15
40-50	32.22	21.61	0.52		4.80	26.68	85.82	147.29	233.11
30-40	46.36	17.91	6.54		3.88	21.06	95.75	133.52	229.26
20-30	40.90	18.45	10.49		4.40	18.24	92.48	85.84	178.32
10-20	25.92	18.39	14.86	5.18	2.60	112.97	179.93	29.33	209.26
0-10	22.68	28.30	11.02		5.13	67.84	134.96		134.96
Total	219.09	141.08	43.42	5.18	36.44	249.63	693.97	395.98	1089.94

Table E-3. Summary of live and dead standing sawgrass biomass in quadrat M15, Taylor Slough, Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 13 cm; plant height = 1.0 m]

Layer	Live sawgrass leaves	Dead sawgrass leaves	Total sawgrass leaves	Live sawgrass culms	Dead sawgrass culms	Total sawgrass culms
80-100					0.88	0.88
60-80	2.12	5.19	7.30			
50-60	1.24	4.50	5.74			
40-50	1.01	15.23	16.24			
30-40	1.77	30.01	31.78	1.08	1.36	2.43
20-30	4.56	34.72	39.29	2.82	7.98	10.79
10-20	11.58	15.88	27.46	11.10		11.10
0-10	1.97	25.56	27.53	12.56	26.45	39.01
Total	24.25	131.10	155.34	27.55	36.66	64.21

Table E-4. Summary of biomass in quadrat M15, Taylor Slough, Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 13 cm; plant height = 1.0 m]

Layer	Standing sawgrass	Rush/grass	Other	Dead litter	Total plant biomass	Periphyton	Total biomass
80-100	0.88				0.88		0.88
60-80	7.30	2.60			9.90		9.90
50-60	5.74	3.42			9.16		9.16
40-50	16.24	7.54			23.78		23.78
30-40	34.21	17.58	1.74		53.54		53.54
20-30	50.08	38.88			88.96		88.96
10-20	38.56	12.66		174.89	243.33	74.60	317.93
0-10	66.54	18.76		138.15	223.45	1307.48	1530.93
Total	219.56	101.44	1.74	313.04	653.00	1382.08	2035.07

Table E-5. Summary of live and dead standing sawgrass biomass in quadrat M4, Taylor Slough, Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 40 cm; plant height = 1.6 m]

Layer	Live sawgrass leaves	Dead sawgrass leaves	Total sawgrass leaves	Live sawgrass culms	Dead sawgrass culms	Total sawgrass culms
140-160	no data					
120-140	1.68	4.07	5.75			
100-120	4.41	1.35	5.76			
80-100	4.37	0.44	4.81			
60-80	4.94	12.89	17.82			
50-60	2.92	12.71	15.63			
40-50	9.03	5.86	14.88	0.76		0.76
30-40	13.86	4.31	18.17	2.86		2.86
20-30	9.09	21.86	30.96	8.31	0.48	8.78
10-20	10.00	30.02	40.02	8.45	8.94	17.39
0-10	6.84	52.88	59.72	6.10	80.97	87.07
Total	67.12	146.40	213.52	26.47	90.39	116.86

Table E-6. Summary of biomass in quadrat M4, Taylor Slough, Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 40 cm; plant height = 1.6 m]

Layer	Standing sawgrass	Rush/grass	*Bacopa*	Dead litter	Total plant biomass	Periphyton	Total biomass
140-160	no data						
120-140	5.75				5.75		5.75
100-120	5.76				5.76		5.76
80-100	4.81	0.29			5.10		5.10
60-80	17.82	7.75			25.58		25.58
50-60	15.63	11.70		2.20	29.52		29.52
40-50	15.64	9.52	0.18	3.78	29.11		29.11
30-40	21.03	6.32	8.42	28.60	64.38	145.90	210.28
20-30	39.74	11.68	10.26	44.36	106.04	151.38	257.43
10-20	57.41	11.32	7.00	100.05	175.78	297.12	472.90
0-10	146.79	13.25	2.11	99.71	261.86	48.39	310.25
Total	330.38	71.83	27.96	278.70	708.88	642.80	1351.68

Appendix F: Sparse Mixed Sawgrass and Rush Class
All Vegetation Biomass in Quadrats Sampled in Taylor Slough,
Everglades National Park
1997-1998

Table F-1. Summary of live and dead standing sawgrass biomass in quadrat U13, Taylor Slough, Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 17 cm; plant height = <1.0 m]

Layer	Live sawgrass leaves	Dead sawgrass leaves	Total sawgrass leaves	Live sawgrass culms	Dead sawgrass culms	Total sawgrass culms
80-100		0.47	0.47			
60-80	1.02	0.44	1.46			
50-60	1.24	0.38	1.63			
40-50	0.20	1.37	1.56			
30-40	0.72		0.72			
20-30	3.74	14.90	18.64			
10-20	1.42	3.94	5.36	2.76	1.99	4.75
0-10		10.68	10.68		36.97	36.97
Total	8.34	32.18	40.52	2.76	38.96	41.72

Table F-2. Summary of biomass in quadrat U13, Taylor Slough, Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 17 cm; plant height = <1.0 m]

Layer	Standing sawgrass	Rush/grass	Other	Dead litter	Total plant biomass	Periphyton	Total biomass
80-100	0.47	0.38			0.85		0.85
60-80	1.46	6.40			7.86		7.86
50-60	1.63	6.08			7.70		7.70
40-50	1.56	13.42			14.98		14.98
30-40	.72	10.20			10.92		19.06
20-30	18.64	27.52			46.16		46.16
10-20	10.11	47.48		91.16	148.76	138.73	287.49
0-10	47.65	91.82	0.32	81.34	220.82	167.19	388.00
Total	82.24	203.29	0.32	172.50	458.36	305.92	764.28

Table F-3. Summary of live and dead standing sawgrass biomass in quadrat U1, Taylor Slough, Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 17 cm; plant height = 1.2 m]

Layer	Live sawgrass leaves	Dead sawgrass leaves	Total sawgrass leaves	Live sawgrass culms	Dead sawgrass culms	Total sawgrass culms
100-120		0.10	0.10			
80-100		1.31	1.31			
60-80		6.82	6.82			
50-60		6.07	6.07			
40-50	2.59	8.83	11.42			
30-40	8.40	10.92	19.32			
20-30	8.92	8.08	17.00	4.34		4.34
10-20	10.74	2.27	13.00	12.72		12.72
0-10	1.73	13.31	15.04	16.69	57.20	73.90
Total	32.37	57.70	90.07	33.76	57.20	90.96

Table F-4. Summary of biomass in quadrat U1, Taylor Slough, Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 17 cm; plant height = 1.2 m]

Layer	Standing sawgrass	Rush/grass	*Potamogeton Utricularia*	Dead litter	Total plant biomass	Periphyton	Total biomass
100-120	0.10				0.10		0.10
80-100	1.31				1.31		1.31
60-80	6.82		11.71		18.53		18.53
50-60	6.07	2.01			8.08		8.08
40-50	11.42	6.29			17.71		17.71
30-40	19.32	7.94			27.26		27.26
20-30	21.34	22.25			43.59		43.59
10-20	25.72	27.49		3.67	56.88	18.85	75.73
0-10	88.94	24.77		30.80	144.50	113.52	258.03
Total	181.03	90.75	11.71	34.46	317.95	132.38	450.33

Table F-5. Summary of live and dead standing sawgrass biomass in quadrat U2E, Taylor Slough, Everglades National Park, November 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 14 cm; plant height = > 0.6 m]

Layer	Live sawgrass leaves	Dead sawgrass leaves	Total sawgrass leaves	Live sawgrass culms	Dead sawgrass culms	Total sawgrass culms
60-80	0.80	0.16	0.95			
50-60	1.96	0.51	2.47			
40-50	2.04	0.52	2.56			
30-40	2.88	0.46	3.34			
20-30	2.45	0.65	3.10			
10-20	2.89	2.09	4.99	2.26		2.26
0-10	0.50	3.54	4.04		2.51	2.51
Total	13.52	7.93	21.45	2.26	2.51	4.76

Table F-6. Summary of biomass in quadrat U2E, Taylor Slough, Everglades National Park, November 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 14 cm; plant height = > 0.6 m]

Layer	Standing sawgrass	Rush/grass	*Bacopa*	Dead litter	Total plant biomass	Periphyton	Total biomass
60-80	0.95	0.25			1.20		1.20
50-60	2.47	0.76			3.22		3.22
40-50	2.56	0.78			3.34		3.34
30-40	3.34	3.19			6.53	2.49	9.02
20-30	3.10	4.83			7.93	2.67	10.60
10-20	7.24	15.49	0.24	6.47	29.44		29.44
0-10	6.55	20.64	13.93	26.78	67.90	89.29	157.19
Total	26.21	45.94	14.17	33.25	119.57	94.45	214.01

Table F-7. Summary of live and dead standing sawgrass biomass in quadrat M13, Taylor Slough, Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 47 cm; plant height = 1.2 m]

Layer	Live sawgrass leaves	Dead sawgrass leaves	Total sawgrass leaves	Live sawgrass culms	Dead sawgrass culms	Total sawgrass culms
120-140	no data					
100-120	0.35	0.60	0.95			
80-100	0.39	2.76	3.15			
60-80	0.70	0.87	1.57			
50-60	1.07	0.85	1.92			
40-50	3.24	3.27	6.51			
30-40	0.64	1.31	1.95	1.32		1.32
20-30	0.84	0.75	1.59	0.75		0.75
10-20	0.82	11.13	11.95	1.24	0.63	1.88
0-10	0.80	5.54	6.34	1.74	14.90	16.64
Total	8.86	27.08	35.93	5.06	15.53	20.59

Table F-8. Summary of biomass in quadrat M13, Taylor Slough, Everglades National Park. September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 47 cm; plant height = 1.2m]

Layer	Standing sawgrass	Rush/grass	*Potamogeton Utricularia*	*Sagittaria*	Dead litter	Total plant biomass	Periphyton	Total biomass
120-140	no data							
100-120	0.95			1.07		2.02		2.02
80-100	3.15	0.56		4.17		7.88		7.88
60-80	1.57	4.76		5.90		12.23		12.23
50-60	1.92	5.29		4.72		11.93		11.93
40-50	6.51	11.51	3.97	11.12	15.98	49.09	76.51	125.60
30-40	3.28	10.28	34.58	7.48	4.54	60.15	174.26	234.41
20-30	2.34	7.36	19.48	6.14	9.11	44.42	95.48	139.90
10-20	13.83	5.70	8.15	7.08	15.13	49.89	96.08	145.97
0-10	22.98	7.35	0.10	24.04	18.42	72.90	48.28	121.18
Total	56.52	52.80	66.28	71.72	63.18	310.50	490.61	801.11

Table F-9. Summary of live and dead standing sawgrass biomass in quadrat M5, Taylor Slough, Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 39 cm; plant height = 1.0 m]

Layer	Live sawgrass leaves	Dead sawgrass leaves	Total sawgrass leaves	Live sawgrass culms	Dead sawgrass culms	Total sawgrass culms
80-100	3.11	4.47	7.58			
60-80	8.12	8.24	16.36			
50-60	6.89	7.71	14.60			
40-50	5.65	11.10	16.74			
30-40	8.20	3.44	11.64	6.65		6.65
20-30	6.99	6.88	13.88	2.52		2.52
10-20	7.00	1.94	8.95	9.68		9.68
0-10	2.12	2.40	4.52	52.70	43.25	95.95
Total	48.09	46.18	94.27	71.54	43.25	114.79

Table F-10. Summary of biomass in quadrat M5, Taylor Slough, Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 39 cm; plant height = 1.0 m]

Layer	Standing sawgrass	Rush/grass	*Bacopa*	Dead litter	Total plant biomass	Periphyton	Total biomass
80-100	7.58				7.58		7.58
60-80	16.36	2.87		7.51	26.74		26.74
50-60	14.60	10.74		4.38	29.72		29.72
40-50	16.74	13.11		1.26	31.11		31.11
30-40	18.29	4.85	0.35	34.94	58.44	142.83	201.27
20-30	16.39	5.15	1.96	2.13	25.63	69.87	95.50
10-20	18.63	3.95	0.62	9.02	32.22	100.86	133.08
0-10	100.46	6.21	1.47	55.08	163.22	280.36	443.58
Total	209.06	46.87	4.40	114.32	374.66	593.92	968.58

Table F-11. Summary of live and dead standing sawgrass biomass in quadrat M3, Taylor Slough, Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 50 cm; plant height = 1.6 m]

Layer	Live sawgrass leaves	Dead sawgrass leaves	Total sawgrass leaves	Live sawgrass culms	Dead sawgrass culms	Total sawgrass culms
140-160	0.06	0.15	0.21			
120-140	0.76	0.11	0.88			
100-120	2.71		2.71			
80-100	18.20	1.56	19.76	1.44		1.44
60-80	21.33	4.50	25.84			
50-60	17.24	4.90	22.13			
40-50	7.74	5.92	13.66	7.76		7.76
30-40	8.44	7.09	15.53	7.04		7.04
20-30	9.14	4.05	13.19	5.68		5.68
10-20	7.73	2.04	9.76	9.97	3.63	13.60
0-10	1.45	11.34	12.79	15.70	16.93	32.62
Total	94.80	41.66	136.45	47.59	20.56	68.15

Table F-12. Summary of biomass in quadrat M3, Taylor Slough, Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 50 cm; plant height = 1.6 m]

Layer	Standing sawgrass	Rush/grass	*Potamogeton Utricularia*	Dead litter	Total plant biomass	Periphyton	Total biomass
140-160	0.21				0.21		0.21
120-140	0.88				0.88		0.88
100-120	2.71				2.71		2.71
80-100	21.20	0.11			21.31		21.31
60-80	25.84	5.67			31.50		31.50
50-60	22.13	11.44			33.58		33.58
40-50	21.41	8.23	7.96	34.70	72.30	53.04	125.34
30-40	22.57	13.81		0.26	36.64	125.39	162.04
20-30	18.88	12.04		9.65	40.57	71.92	112.48
10-20	23.36	12.72		20.75	56.84	59.11	115.95
0-10	45.42	12.68		85.06	143.16	89.28	232.44
Total	204.60	76.71	7.96	150.43	439.70	398.74	838.44

Table F-13. Summary of live and dead standing sawgrass biomass in quadrat M2, Taylor Slough, Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 35 cm; plant height = 0.9 m]

Layer	Live sawgrass leaves	Dead sawgrass leaves	Total sawgrass leaves	Live sawgrass culms	Dead sawgrass culms	Total sawgrass culms
80-100	0.44	1.01	1.45			
60-80		6.42	6.42			
50-60	0.43	3.26	3.69			
40-50		4.19	4.19		1.63	1.63
30-40	1.02		1.02	0.92		0.92
20-30	6.78	1.25	8.03			
10-20	1.93		1.93	4.65	15.60	20.25
0-10		2.13	2.13			
Total	10.60	18.25	28.85	5.57	17.23	22.80

Table F-14. Summary of biomass in quadrat M2, Taylor Slough, Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 35 cm; plant height = 0.9 m]

Layer	Standing sawgrass	Rush/grass	*Bacopa*	*Potamogeton Utricularia*	Dead litter	Total plant biomass	Periphyton	Total biomass
80-100	1.45					1.45		1.45
60-80	6.42	4.17				10.59		10.59
50-60	3.69	13.44			5.22	22.36		22.36
40-50	5.82	15.06			0.62	21.50		21.50
30-40	1.94	32.96			4.30	39.20		39.20
20-30	10.81	21.14	2.20	23.91	24.12	82.19	26.34	108.53
10-20	22.18	17.30	2.44	22.18	18.24	82.34	1.74	84.07
0-10	2.13	20.07	4.42	3.76	50.44	80.82		80.82
Total	51.64	124.14	9.06	49.84	102.96	337.65	28.08	365.73

Table F-15. Summary of live and dead standing sawgrass biomass in quadrat M1E, Taylor Slough, Everglades National Park, November 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 17 cm; plant height = >0.8 m]

Layer	Live sawgrass leaves	Dead sawgrass leaves	Total sawgrass leaves	Live sawgrass culms	Dead sawgrass culms	Total sawgrass culms
80-100	1.51	1.57	3.08			
60-80	5.94	4.94	10.88			
50-60	5.22	2.90	8.13			
40-50	5.58	14.78	20.36			
30-40	7.61	14.07	21.68	0.56		0.56
20-30	5.28	15.75	21.03	4.02		4.02
10-20	2.64	10.56	13.20	8.77	7.83	16.60
0-10	0.00	27.42	27.42	9.30	49.58	58.89
Total	33.78	92.00	125.78	22.65	57.42	80.07

Table F-16. Summary of biomass in quadrat M1E, Taylor Slough. Everglades National Park, November 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 17 cm; plant height = >0.8 m]

Layer	Standing sawgrass	Rush/grass	*Bacopa*	*Potamogeton Utricularia*	Dead litter	Total plant biomass	Periphyton	Total biomass
80-100	3.08					3.08		3.08
60-80	10.88	2.16				13.04		13.04
50-60	8.13	8.01				16.14		16.14
40-50	20.36	18.48				38.84		38.84
30-40	22.24	23.37			11.01	56.62		56.62
20-30	25.05	27.74			15.81	68.60	15.19	83.79
10-20	29.80	42.11		3.60	63.60	139.11	283.32	422.43
0-10	86.31	14.20	1.45		24.68	126.64	72.08	198.72
Total	205.85	136.06	1.45	3.60	115.11	462.07	370.59	832.66

Appendix G: Medium Rush Class
All Vegetation Biomass in Quadrats Sampled in Taylor Slough,
Everglades National Park
1997-1998

Table G-1. Summary of biomass in quadrat U7W, Taylor Slough, Everglades National Park, November 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 33 cm; plant height = >0.8 m]

Layer	Standing sawgrass	Rush/grass	*Bacopa*	*Potamogeton Utricularia*	*Sagittaria*	Dead litter	Total plant biomass	Periphyton	Total biomass
80-100		0.35			0.76		1.11		1.11
60-80		5.76			7.15		12.92		12.92
50-60		17.20			8.81		26.02		26.02
40-50		25.65			10.88	15.02	51.55		51.55
30-40		50.70	23.62	23.64	0.00	71.36	169.31		169.31
20-30	1.54	19.06	39.34	26.42	1.56	41.89	129.80		129.80
10-20		17.24	17.88	12.76	1.04	6.51	55.43		55.43
0-10		64.36		5.58	0.72		70.66	3.41	74.07
Total	1.54	200.32	80.83	68.40	30.92	134.77	516.79	3.41	520.20

Table G-2. Summary of biomass in quadrat U7, Taylor Slough, Everglades National Park, September 1997
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 61 cm; plant height = 1.2 m]

Layer	Rush/grass	*Bacopa*	*Potamogeton Utricularia*	*Sagittaria*	Other	Dead litter	Total plant biomass	Total biomass
100-120	2.03				0.71		2.74	2.74
80-100	17.59				3.22		20.81	20.81
60-80	81.77	0.72			7.76	7.29	97.54	97.54
50-60	47.64	2.14	7.89	1.50	11.06	5.20	75.42	75.42
40-50	29.12	1.32		1.87	8.43	1.39	42.12	42.12
30-40	33.47	10.69		5.93	12.16	0.84	63.10	63.10
20-30	40.90	36.38		14.15		2.63	94.06	94.06
10-20	42.85	37.10		12.18		9.94	102.06	102.06
0-10	48.03	25.55		0.28	18.84	18.24	110.95	110.95
Total	343.39	113.89	7.89	35.91	62.18	45.54	608.80	608.80

Table G-3. Summary of biomass in quadrat LJ6, Taylor Slough, Everglades National Park, July 1998
[Biomass in grams dry weight per square meter (gdw m^{-2}); water depth = 31 cm; plant height = 0.8 m]

Layer	Rush/grass	*Potamogeton Utricularia*	Dead litter	Total plant biomass	Periphyton	Total biomass
60-80	11.52			11.52		11.52
50-60	28.77			28.77		28.77
40-50	43.92			43.92		43.92
30-40	94.28			94.28		94.28
20-30	57.59	10.19	150.70	218.48	1166.93	1385.40
10-20	111.19	4.18	59.28	174.65		174.65
0-10	97.55		105.59	203.14		203.14
Total	444.83	14.37	315.58	774.77	1166.93	1941.70