



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION STRATEGIC MONITORING PROGRAM FIELD SHEET

April 2018

Data Qualified?
Yes / No

WIN Station Name: Manuel Branch @ Park

Date: 10/01/2018
(mm/dd/yyyy)

WIN/ Field ID: G1SD0070

WBID: 3240V

Latitude: 26.627447

County: Lee

ORG ID:

Longitude: -81.88004

Receiving Body of Water: Caloosahatchee River

RQ-2018- 10-08-59

Sampling Team Members					WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check
Nicole Reistad						X			
Maryann Dugan					X		X		X

Sampling Equipment		
☒ Sample Container	☐ Van Dorn	☐ Pole
☐ Carboy	☒ Syringe	
☐ Dipper	☐ Other	
Depth Measured with <u>Secchi</u>		
Equipment ID <u>3312 A</u>		

Collection Method		
☐ Wading	☐ Canoe/Kayak	
☒ From Shore	☐ Electric Motor	
☐ Other	☐ Gasoline Motor	

Water Level: Dry/ Pooled/ Low <u>Normal</u> / High / Flooded	Meter ID# <u>7</u>	Matrix: <u>Fresh</u> / Marine / DI
Photos: <u>Yes</u> / No	Flow: No Flow / Intestinal / <u>Flowing</u> / NA	Tide: Rising/ Falling/ Slack/ <u>NA</u>
Tide Times: High <u>NA</u> Low <u>NA</u>		

Time Zone	Time	Total Depth (m)	Sample Depth (m)	Secchi Disk (m)	DO (mg/L)	DO (%SAT)	pH	Salinity (PPT)	Sp COND (µmhos/cm)	Temp. (C°)
EST	1100	0.9	0.3	0.9	5.01	62.2	7.53	0.32	647	26.34
CEN				S						

Biological Samples Collected: None HA SCI RPS Algae ID LVS LVI Other:

SBIO ID Numbers: SBIO-ID: 78914 HA-ID: 15406 RPS-ID: 9100 Macrophyte-ID: 11088 LIMS#:

Parameter Suite	Parameter Methods	Preservation	Lot#	Expiration	pH Check
Preserved Nutrients	☒ W-NH3 / W-NO2NO3 / W-TKN / W-TOC / W-S-A-TP	☒ Ice ☒ H2SO4	<u>SAB10020</u>	<u>07/11/19</u>	☒ <2
Metals	☐ W-ICPMS ☐ W-ICP	☐ Ice ☐ HNO3			☐ <2
Filtered Nutrients	☒ W-PO4-F ☒ Field Filtered 0.45 µm Filter	☒ Ice			
Chlorophyll	☒ CHLSUITE-W	☒ Ice			
Physical/Aggregate (Fresh)	☒ Alkalinity / W-F / W-TSS / TURBIDITY / W-CI-IC / W-COLOR / W-SO4-IC / W-TDS	☒ Ice			
Physical/Aggregate (Marine)	☐ Alkalinity / W-F / W-TSS / TURBIDITY	☐ Ice			
Macroinvertebrates	☐ MI-FW-QLDC	☐ Formalin			
Periphyton	☐ ALGAE-ID	☐ Ice			
Microbiology	☐ E Coll ☐ F Coll ☐ Enterococci	☐ Ice			
Molecular	☐ PCR-FILTER ☐ PCR-HF183 ☐ PCR-BacR ☐ PCR-GULL2 ☐ PCR-GFD	☐ Ice			
Tracers	☐ W-E8321-DI ☐ W-E8321-MS	☐ Ice			
Pesticides	☐ W-PSNP-TQ ☐ W-CT-CL-R ☐ W-E8321-DI ☐ W-PCL-SQ-R ☐ WE8321-MS ☐ W-CARB-AA	☐ Ice ☐ Other			

Notes:	Field ID/WIN ID	
	Location	G1SD0070
	Manuel Branch @ Park	

Signature: Maryann Dugan Date: 10/01/2018

Enter Field Parameters, Verify Station ID in LIMS DMT: QC Station ID, Field Parameters in LIMS DMT:

Scan/Save Field Sheets Migrate Data to WIN: Verify Data in WIN:

DEP Form FD 9000-5 Stream/River Habitat Assessment Field Sheet

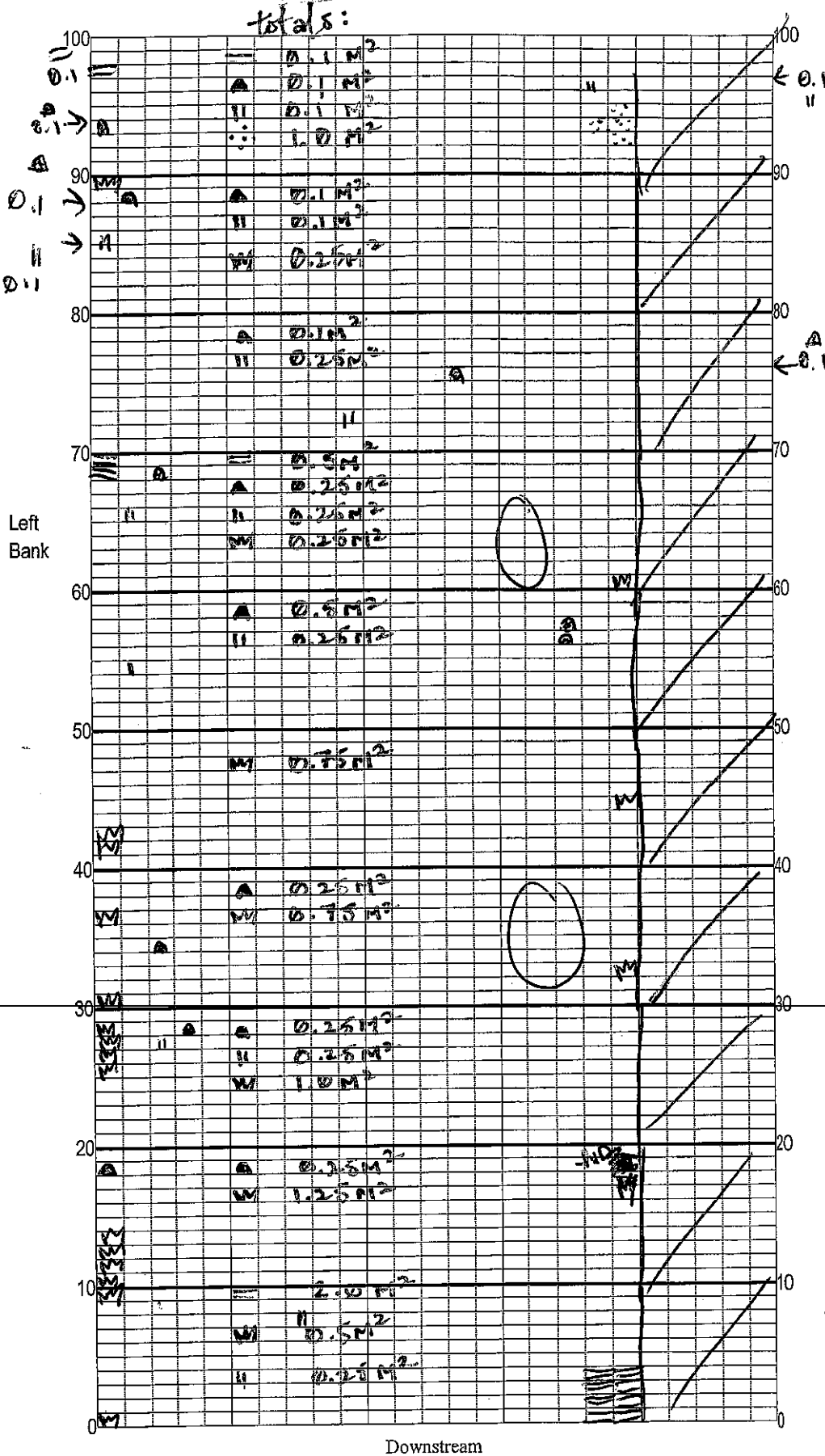
SAMPLING AGENCY: <u>S ROC</u>		STORET STATION NUMBER:	DATE (MM/DD/YY): <u>10/01/2018</u>	RECEIVING BODY OF WATER: <u>Caloosahatchee</u>
REMARKS:	COUNTY: <u>LEE</u>	LOCATION: <u>Manuel Branch</u>	FIELD ID/NAME: <u>G1SD0070</u>	

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components	Four or more major productive habitats present [snags, tree roots, aquatic vegetation, leaf packs (partially decayed), rock]	Three major productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags)	Two major productive habitats present. Less than desirable habitat, frequently disturbed or removed	One or less major productive habitat. Lack of habitat is obvious, substrates unstable or smothered
Substrate Diversity <u>9</u>	20 19 18 17 16	15 14 13 12 11	10 <u>9</u> 8 <u>7</u> 6	5 4 3 2 1
Substrate Availability <u>3</u>	Greater than 30% major productive habitat present at site 20 19 18 17 16	16% to 30% major productive habitat, by aerial extent 15 14 13 12 11	6% to 15% major productive habitat 10 9 8 7 6	Less than 5% major productive habitat 5 4 <u>3</u> 2 1
Water Velocity <u>8</u>	Max. observed at typical transect: > 0.25 m/sec. But < 1 m/sec ≥0.33 0.31 0.29 0.27 >0.25 20 19 18 17 16	Max. observed at typical transect: >0.1 to 0.25 m/sec 0.25 0.21 0.17 0.13 >0.1 15 14 13 12 11	Max. observed at typical transect: 0.05 to 0.1 m/sec 0.1 0.09 <u>0.07</u> 0.06 0.05 10 9 <u>8</u> 7 6	Max. observed at typical transect: <0.05 m/sec; or spate occurring: > 1 m/sec <0.05 0.04 0.03 0.01 <0.01 5 4 3 2 1
Habitat Smothering <u>11</u> ----- Primary Score <u>31</u>	Adequate number of stable pools (1-2 per 12 times width) and <25% of habitats affected by sand, silt, or algae. 20 19 18 17 16	Adequate number of stable pools (1-2 per 12 times width) and >25% of habitats affected by sand, silt, or algae. 15 14 13 12 <u>11</u>	Does not have required number of stable pools (1-2 per 12 x width) and/or has shallow pools (<2 x prevailing depth). 10 9 8 7 6	Stable pools are absent. Most habitats affected by sand, silt, or algae accumulation. 5 4 3 2 1
Secondary Habitat Components	Expected sinuosity given the stream width. No evidence of dredging or artificial straightening. No spoil banks.	Good sinuosity within old channelized area. Evidence of dredging or straightening in the past (>25 yrs) but mostly recovered.	Straightened with trapezoidal cross section, but has a small degree of sinuosity developed within channelized area.	Straightened or engineered by dredging, has trapezoidal or box cut cross section, lacks required pools. May have spoil banks.
Artificial Channelization <u>4</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 7 <u>6</u>	5 4 3 2 1
Bank Stability	Bankfull > 60% of bank height. Slope of bank ≤ 60° from bankfull to top of bank. Bankfull is within or above the woody root zone with few raw, eroded areas.	Only meets 2 of the 3 requirements for optimal bank stability.	Only meets 1 of the 3 requirements for optimal bank stability.	Bankfull < 60% of bank height. Slope of bank > 60°. Bankfull is below the woody root zone with raw, eroded areas.
Right Bank <u>5</u> Left Bank <u>4</u>	10 9	8 7 6	<u>5</u> <u>4</u>	3 2 1
Riparian Buffer Zone Width	Width of vegetation greater than 18 m	Width of vegetation >12 to 18m	Width of vegetation 6 to 12 m. human activities close to system	Less than 6 m of buffer zone due to intensive human activities
Right Bank <u>3</u> Left Bank <u>2</u>	10 9	8 7 6	5 4	<u>3</u> <u>2</u> 1
Riparian Zone Vegetation Quality	Over 80% of riparian surfaces consist of normal, expected plant community for given sunlight & habitat conditions (e.g., native plants; tree, shrub, and forbs represented, if appropriate). Minimal disturbance.	>50% to 80% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Some disruption in community observed.	25% to 50% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Disruption obvious.	Less than 25% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions).
Right Bank <u>2</u> Left Bank <u>2</u> ----- Secondary Score <u>24</u>	10 9	8 7 6	5 4	3 <u>2</u> 1

55 TOTAL SCORE

Date: <u>10/01/2018</u>	Analyst: <u>MARYANN DUGAN, NICOLE REISTAN</u>	Signature: <u>Maryann Dugan</u>
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DEP Form FD 9000-4 Stream/River Habitat Assessment Sketch Sheet



Location: Manuel Branch Park

Date: 10/10/2018

Sampler: Maryann Dugan, Nicole Reisch

100 m: Latitude 26.6263059
Longitude -81.8799540

0 m: Latitude 26.6268795
Longitude -81.8799599

Substrates: Code key, draw proportionate habitat abundance.	%	m²
Snags	<u>0.3625</u>	<u>1.45</u>
Roots/undercut banks	<u>0.65</u>	<u>2.6</u>
Leaf Packs (or mats)	<u>0.25</u>	<u>1.0</u>
Aquatic Macrophytes	<u>1.1875</u>	<u>4.75</u>
Rocks	<u>0.45</u>	<u>1.8</u>
Pools	total # observed = <u>2</u> # range expected = <u>2-4</u>	

Average width 4.0 m
Average depth 0.5 m

Velocity measured at 30 meter mark.

WQ & chemistry taken at 60 meter mark.

Habitat Smothering:
Note areas (on map) where sand or silt is smothering substrates, limiting habitability.

Bank Stability:
Note areas (on map) with unstable, eroding banks.

Riparian Buffer Width:
Note areas (on map) where natural vegetation is altered or eliminated.

Plants observed / other notes:

1 Box = $\frac{1}{4} m^2$

velocity: $138/m$
 $= 2077 m/c$

2.9.1.
Habitat

DEP Form FD 9000-3 Physical/Chemical Characterization Field Sheet

SAMPLE ID 00-2018-10-08-69 ORG ID _____ LATITUDE 26.6268795 2 01
 COUNTY LEE STORET # _____ LONGITUDE -81.8797399 5
 DATE 10/01/2018 TIME _____ SAMPLING AGENCY 8 ROX
 SITE NAME Manuel Branciforte Park
 FIELD ID/NAME G18D0070 RECEIVING BODY OF WATER Caloosahatchee

RIPARIAN ZONE / STREAM FEATURES

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category): Forest/Natural ☐ Silviculture ☐ Field/Pasture ☐ Agricultural ☐ Residential ☐ Commercial ☐ Industry ☐ Other (Specify) ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐							Landscape Development Intensity Index (LDI) ☐
Local Watershed Erosion (select one): ☐ None ☒ Slight ☐ Moderate ☐ Heavy Local Watershed NPS Pollution: ☒ No evidence ☐ Slight ☐ Moderate ☐ Heavy				Typical Width (m) Depth (m)/Velocity (m/sec) Transect 4.0 m wide			
Width of Riparian Vegetation (m) on Each Buffer Side Left Bank: <u>4.0</u> Right Bank: <u>6.0</u>				Hydrologic Modification Score (per FT 3101) ☐			
High Water Mark: <u>1.0</u> + <u>0.5</u> = <u>1.5</u> (m) (above present water level) (present depth) (above bed)				Artificially Impounded ☒ Yes ☐ No			
Artificially ☐ No ☐ Mostly recovered, more sinuous Channelized: ☒ Some recovery ☐ Recent, severe				Canopy Cover % ☐ Open ☐ Lightly Shaded (11-45%) ☒ Heavily Shaded ☐ Moderate Shaded (46-80%)			

SEDIMENT / SUBSTRATE

Sediment Oils ☒ Absent ☐ Slight ☐ Moderate ☐ Profuse			Sediment Odors ☒ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ Other (Specify): _____			Smothering of Substrates Sand Smothering: None ☐ Slight ☐ Moderate ☒ Severe ☐ Silt Smothering: None ☐ Slight ☐ Moderate ☒ Severe ☐ Algae Smothering: None ☒ Slight ☐ Moderate ☐ Severe ☐		
SUBSTRATE TYPE Assessment Tool: ☐ SCI ☒ RPS ☒ LVS ☐ LCI ☐ BioRecon			WATER QUALITY Depth (M) Temp. (°C) pH (SU) D.O. (MG/L) D.O. Sat (%) Cond. (UMHO/CM) Salinity (PPT) SECCHI (M) Top: <u>0.3</u> <u>26.34</u> <u>7.52</u> <u>5.01</u> <u>62.2</u> <u>667</u> <u>0.32</u> <u>0.9</u> Mid: ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒ VOB Bottom: ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ TOTAL DEPTH <u>0.9</u> Meter ID: <u>7</u>					
Woody Debris (Snags) ☐ ☐ ☐ Undercut Banks / Roots ☐ ☐ ☐ Leaf Packs or Mat ☐ ☐ ☐ Aquatic Vegetation ☐ ☐ ☐ Rock or Shell Rubble ☐ ☐ ☐ Sand ☐ ☐ ☐ Mud / Muck / Silt ☐ ☐ ☐ Other ☐ ☐ ☐ Other ☐ ☐ ☐			Water Odors Normal ☒ Petroleum ☐ Sewage ☐ Chemical ☐ Other ☐			Water Surface Oils Normal ☒ Sheen ☐ Globbs ☐ Slick ☐ Other ☐		
Water Sample Taken? ☒ Yes ☐ No Sample Preserved? ☒ Yes ☐ No Lot Number <u>SA 810122</u> Exp: <u>04/11/19</u>			Color Tannic ☐ Green (Algae) ☐ Clear ☒ Other (Specify) ☐			Clarity Clear ☐ Slightly Turbid ☒ turbid ☒ Opaque ☐		
ABUNDANCE Not Obs. Rare Common Abundant Periphyton: ☒ ☐ ☐ ☐ Fish: ☐ ☐ ☒ ☐ Aquatic Plants: ☐ ☐ ☒ ☐ Iron/Sulfur Bacteria: ☒ ☐ ☐ ☐			Algae Sample Taken? ☐ Yes ☒ No Sample Preserved? ☐ Yes ☐ No Lot Number: _____ Exp: _____			System Type: Stream ☒ Lake ☐ Wetland ☐ Estuary ☐ Other (Specify) ☐		
AMBIENT FIELD CONDITIONS / NOTES: ☒ The antecedent hydrologic conditions have been met to my best knowledge.								

SAMPLING TEAM

MARYANN DUGAN, NICOLE REISTAD

SIGNATURE:

Maryann Dugan

DATE:

10/01/2018

DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: Manuel Branch County: Lee Date: 10/01/2018 Investigators: Nicole Reistad, Maryann Dugan

Transect (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover	Transect (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover	
0	1	N			60	1	N			
	2					2				
	3					3				
	4					4				
	5			96		5			84	
	6					6				
	7					7				
	8					8				
	9					9				
10	1	N			70	1	N			
	2					2				
	3					3				
	4					4				
	5			93		5			92	
	6					6				
	7					7				
	8					8				
	9					9				
20	1	N			80	1	N			
	2					2				
	3					3				
	4					4				
	5			64		5			92	
	6					6				
	7					7				
	8					8				
	9					9				
30	1	N			90	1	N			
	2					2				
	3					3				
	4					4				
	5			56		5			95	
	6					6				
40	7				100	7				
	8					8				
	9					9				
	1	N				1	N			
	2					2				
	3					3				
	4					4				
	5			85		5			93	
	6					6				
7				7						
8				8						
9				9						
50	1	N			Record "N" and check "Estimated" for points deeper than the Secchi depth; algae are presumed absent. Check "Estimated" if thickness estimated for deep points which can be seen but not reached. Record "X" for points shallower than Secchi depth for which substrate cannot be seen or reached with the hand. No estimated rank. Record canopy cover as the number of small densiometer quadrants (out of 96) that HAVE canopy cover. Measure facing upstream at point 4, 5, or 6. Collect algal mat sample following DEP SOP FS 7240 if the percentage of total sampled points with a thickness rank of 4, 5, or 6 is >20%.					
	2									
	3									
	4									
	5			78						
	6									
	7									
	8									
	9									

STORET Station Number:
G3SD0078

Secchi depth 0.9
 Estimated? N

points ranked 4-6 0
 total points assessed 99
 % points ranked 4-6 0

Check accompanying data collected at same site/date:

Algal mat sample ☐
 Linear Veg Survey ☒
 Habitat Assessment ☒
 SCI/Biorecon ☐
 Water sample ☒

RQ-2018-10-08-59

Algal Thickness Rank	
N	rough, no algae, slimy, algae up to 1mm
3	>1mm - 6mm
4	>6mm - 20mm
5	>20mm - 10 cm
6	>10 cm

Date: 10-16-92

County: LEE

Waterbody: **Manuel Branch**

Analyst: MARYANN DUGAN, NICOLE REISTAD

Signature: Henry J. Brown

Instructions: Note taxa growing in the water with a checkmark if present, "D" if dominant, and "C" if codominant (dominance only if 1 m² of taxa present). Note in the boxes below if no dominant are selected, and note total macrophyte abundance rank for each section. Only the most common taxa are listed, so use blank spaces for additional taxa names. **bold is exotic invasive**

Meter Mark												Specime n collected (check)	Meter Mark												Specime n collected (check)			
HERBACEOUS SPECIES														HERBACEOUS SPECIES														
Alternanthera philoxeroides	X	X	X	X	X	X	X	X	X	X	X	X		Micranthemum glomeratum														
Bacopa caroliniana														Micranthemum umbrosum														
Bacopa monnieri														Myriophyllum aquaticum														
Bidens mitis														Najas guadelupensis														
Boehmeria cylindrica														Nuphar luteum														
Centella asiatica														Orontium aquaticum														
Ceratophyllum demersum														Panicum hemitomon														
Chara sp.														Panicum repens														
Cicuta maculata														Panicum rigidulum														
Cladium jamaicense														Pistia stratioides														
Colocasia esculenta														Polygonum glabra														
Commelina diffusa														Polygonum hydropiperoides														
Commelina virginica														Polygonum punctatum														
Crinum americanum														Pontedaria cordata														
Cyperus														Potamogeton illinoensis														
Diodia virginiana														Ruellia simplex														
Eichhornia crassipes														Sacciolepis striata														
Eleocharis (wispy viviparous)														Sagittaria kurziana														
Hydrilla verticillata														Sagittaria lancifolia		X												
Hydrocotyle sp.	X			X		X	X	X						Sagittaria latifolia														
Hygrophila polysperma														Salvinia minima														
Hymenachne amplexicaulis														Samolus parviflora														
Hymenocallis														Saururus cernuus														
Lachnanthes caroliniana														Sparganium americanum														
Landoltia punctata														Sphagneticola trilobata (Wedelia)		X	X	X	X	X	X	X	X	X	X	X	X	
Lemna sp.														Typha sp.														
Limnophila sessiflora														Urochloa mutica (Brachiaria)														
Ludwigia leptocarpa																												