



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
STRATEGIC MONITORING PROGRAM FIELD SHEET

June 2016

PAGE ____ OF ____

Data Qualified?

Yes / No

STORET Station Name: Crane Creek @ Country Club Road Date: 11-28-16

STORET Station ID: 27010338 WBID: 3085 Latitude: 28.0725139 (mm/dd/yyyy)

County: Brevard RQ - 2016-11-28-11 ^{07 66} _{LMD} ORG ID: 21FLCEN Longitude: -80.6247972 (Decimal Degrees)

Receiving Body of Water: Indian River Field ID: G5CE0068 (Decimal Degrees)

Sampling Team Members

Terry Riordan
Mike Brennan

Sampling Equipment

☒ Sample Container ☐ Van Dorn ☐ Pole
☐ Carboy ☒ Syringe
☐ Dipper ☐ Other _____

Equipment ID _____

Collection Method

☒ Wading ☐ Via Boat
☐ From Shore ☐ Canoe/Kayak
☐ Other (note below) ☐ Electric Motor
☐ Gasoline Motor

Water Level: Dry / Low / Normal / High / Flooded

Meter ID# 8008/000 Photos: Yes / No

Matrix: Fresh / Marine / DI

Tide Falling: Yes / No / NA

Time Zone	Time	Sample Depth (m)	Total Depth (m)	DO (mg/L)	DO (%SAT)	pH	Salinity (ppt)	Secchi Disk (m)	Sp COND (umhos/cm)	Temp. (C°)
<u>EST</u>	<u>1120</u>	<u>0.3</u>	<u>0.4</u>	<u>7.7</u>	<u>88</u>	<u>7.4</u>	<u>0.7</u>	<u>0.4(s)</u>	<u>1315</u>	<u>21.4</u>
CEN										

Biological Samples Collected: None HA SCI LVS RPS LVI Other _____

Parameter Suite	Parameter Methods	Preservation	Acid Lot#	Expiration	pH Check
Preserved Nutrients	☒ W-NH3 / W-NO2NO3 / W-TKN / W-TOC / W-S-A-TP	☒ Ice ☒ H2SO4			☒ <2
Metals	☐ W-JCPMS ☐ W-ICP	☐ Ice ☐ HNO2			☐ <2
Filtered Nutrients	☒ W-PO4-F ☒ Field Filtered 0.45 µm Filter	☒ Ice			
Chlorophyll	☒ CHLSUITE-W	☒ Ice			
BOD	☐ BOD-UNIN	☒ Ice			
Physical/Aggregate (Fresh)	☒ Alkalinity / W-F / W-TSS / TURBIDITY / W-CH-IC / W-COLOR / W-SO4-IC / W-TDS	☐ Ice			
Physical/Aggregate (Marine)	☐ Alkalinity / W-F / W-TSS / TURBIDITY	☒ Ice			
Macroinvertebrates	☐ MI-FW-QLDC	☐ Ice			
Microbiology	☐ E Coli ☐ F Coli ☐ Enterococcus ☐ QPCR	☐ Formalin			
Periphyton	☐ ALGAE-ID	☐ Ice			
Pesticides	☐ W-PSNP-TQ ☐ W-AHERB-AA ☐ W-PYR-AA-R ☐ W-PC-AA-SF ☐ W-UHERB-AA ☐ W-GLYPH	☐ Ice ☐ Ice ☐ Other			

SA-6242040
EXP: 08/29/17
Warning!
See SDS

Place Sticker(s) Here (able)

Notes: Flow for rivers/streams: _____ m/s

Crane Creek @ County Club Road

Date: 11/28/16
RQ-2016-11-07-66

G5CE0068

Field ID ↑
STORET ↓
27010338

Signature: [Signature]

Date: 11-28-16

Field Parameters Entered into UMS: KMW 12/2/16 T.Sheet Updated: ☐ Field Parameters QC in LIMS: _____ T.Sheet Updated: ☐
Date Migrated to STORET: _____ T.Sheet Updated: ☐ Field Sheets Scanned/Saved: _____ T.Sheet Updated: ☐

FDEP FORM FD 9000-3: PHYSICAL/CHEMICAL CHARACTERIZATION FIELD SHEET

SAMPLE ID 77139 ORG ID 21 FL Cem LATITUDE 28.0725139
 COUNTY Brevard STORET # 27010338 LONGITUDE -80.6247972
 DATE 11-28-16 TIME 1120 SAMPLING AGENCY FDEP CE-ROC
 SITE NAME Crane Creek
 FIELD ID/NAME G5CE0068 RECEIVING BODY OF WATER Indian River

RIPARIAN ZONE / STREAM FEATURES

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category): <u>Park/Church</u>								Landscape Development Intensity Index (LDI)
Forest/Natural	Silviculture	Field/Pasture	Agricultural	Residential	Commercial	Industry	Other (Specify)	
		<u>66</u>					<u>33</u>	
Local Watershed Erosion (select one): ☐ None ☐ Slight ☒ Moderate ☐ Heavy								Typical Width (m) Depth (m)/Velocity (m/sec) Transect <u>4</u> m wide
Local Watershed NPS Pollution: ☐ No evidence ☐ Slight ☒ Moderate ☐ Heavy								
Width of Riparian Vegetation (m) on Each Buffer Side Left Bank: <u>21</u> Right Bank: <u>21</u>				Hydrologic Modification Score (per FT 3101)				☒ m/s <u>.14</u> m/s ☐ m/s
High Water Mark: <u>0.9</u> + <u>0.4</u> = <u>0.8</u> (m) (above present water level) (present depth) (above bed)				Artificially Impounded ☒ Yes ☐ No				☒ m deep <u>0.45</u> m deep ☐ m deep
Artificially ☐ No ☐ Mostly recovered, more sinuous				Canopy Cover % ☐ Open ☒ Lightly Shaded (11-45%)				
Channelized: ☐ Some recovery ☒ Recent, severe				☐ 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 ☐
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SUBSTRATE TYPE

Assessment Tool: ☐ SCI ☒ RPS ☒ LVS

☐ LCI ☐ BioRecon

% Coverage
 INVERT # Times Sampled
 PERI # Times Sampled

Woody Debris (Snags)			
Undercut Banks / Roots			
Leaf Packs or Mat			
Aquatic Vegetation			
Rock or Shell Rubble			
Sand			
Mud / Muck / Silt			
Other			
Other			

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>21.4</u>	<u>7.4</u>	<u>7.7</u>	<u>88</u>	<u>1315</u>	<u>0.7</u>	<u>0.4(s)</u>
Mid:							☒ VOB
Bottom:							

Meter ID: Boop / Non

Water Odors: Normal ☒ Petroleum ☐
 Sewage ☐ Chemical ☐ Other ☐

Water Sample Taken? ☒ Yes ☐ No
 Sample Preserved? ☒ Yes ☐ No

Lot Number: SA-6242084 Exp: 8-29-17

Algae Sample Taken? ☐ Yes ☒ No
 Sample Preserved? ☐ Yes ☐ No

Lot Number: _____ Exp: _____

Water Surface Oils: Normal ☒ Sheen ☐
 Globbs ☐ Slick ☐ Other ☐

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:	☒	☐	☐	☐

System Type: Stream ☐ Lake ☐ Wetland ☐ Estuary ☐ Other (Specify) ☒ Canal

AMBIENT FIELD CONDITIONS / NOTES:

☒ The antecedent hydrologic conditions have been met to my best knowledge.

SAMPLING TEAM

Terry Riordan
Mike Brennan

SIGNATURE: _____

DATE: 11-28-16

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

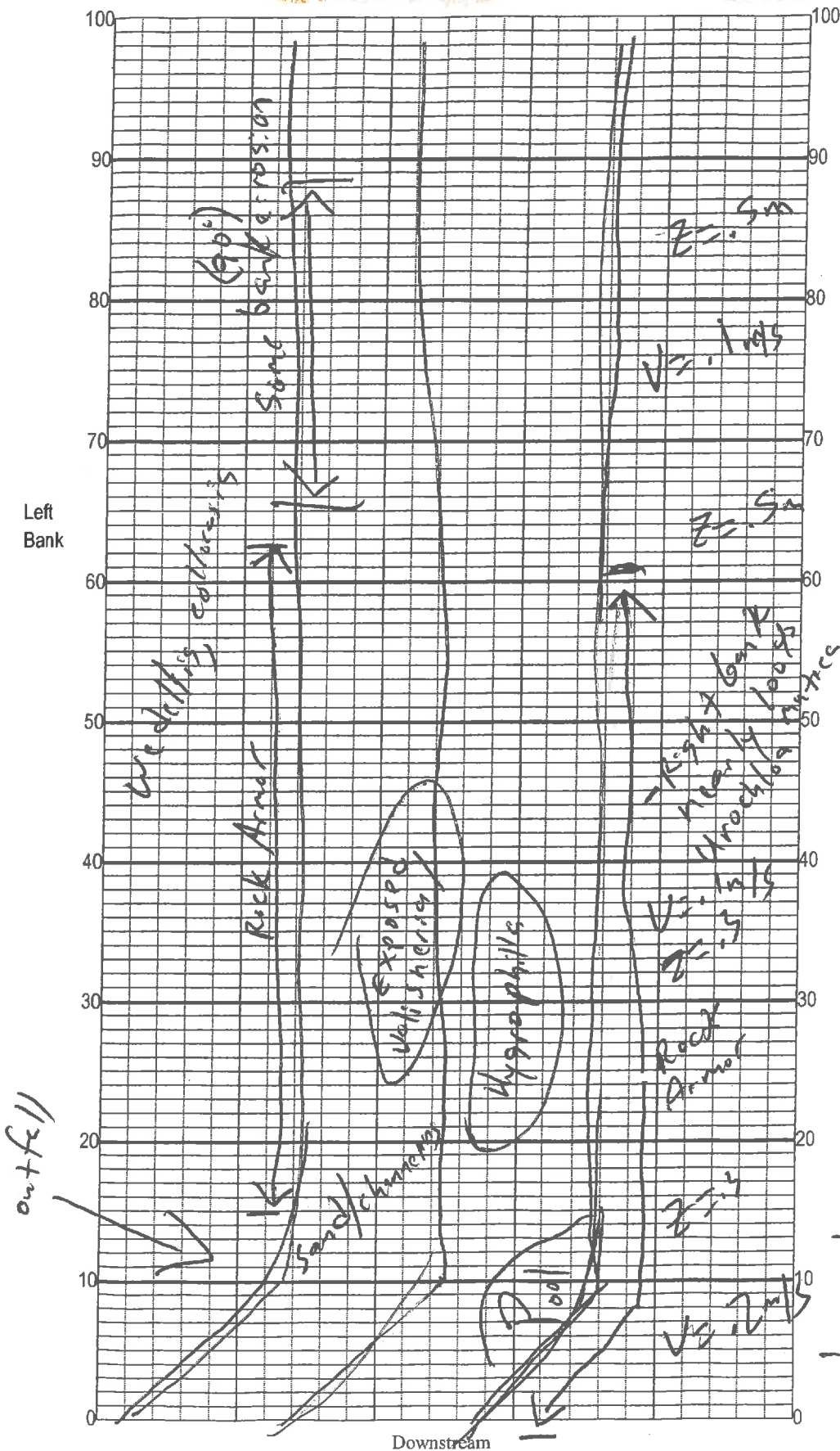
SAMPLING AGENCY: <u>FDEP CE-ROC</u>		STORET STATION NUMBER: <u>27010338</u>	DATE (MM/DD/YY): <u>11-28-16</u>	RECEIVING BODY OF WATER: <u>Indian River</u>
REMARKS:	COUNTY: <u>Brevard</u>	LOCATION: <u>Crane Creek @ Country Club Road</u>		FIELD ID/NAME: <u>65CE0068</u>

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>6</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Substrate Availability <u>9</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 3 2 1
Water Velocity <u>12</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 0.07 0.06 0.05 10 9 8 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>9</u> ----- Primary Score <u>36</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 11	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 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>3</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	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 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 root zone with raw, eroded areas.
Right Bank <u>7</u> Left Bank <u>7</u> <u>14</u>	10 9	8 7 6	5 4	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>2</u> Left Bank <u>2</u> <u>4</u>	10 9	8 7 6	5 4	3 2 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> <u>4</u> ----- Secondary Score <u>25</u>	10 9	8 7 6	5 4	3 2 1

61 TOTAL SCORE

Date: <u>11-28-16</u>	Analyst: <u>Terry Riordan</u> <u>Mike Brennan</u>	Signature: <u>[Signature]</u> <u>4-16-16</u> <u>[Signature]</u>
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DEP Form FD 9000-4 Stream/River Habitat Assessment Sketch Sheet



Length of grid represents 100 m of stream (not linear meters).
(Horizontal scale is double vertical scale, draw proportionately).

Location: Crane Creek

Date: 11-28-16

Sampler: T. Riordan/M. Drennan

100 m: Latitude 28.072220
Longitude -80.624477

0 m: Latitude 28.071534
Longitude -80.623793

Substrates: Code key, draw proportionate habitat abundance. %

☐	Snags	_____
☐	Roots/undercut banks	_____
☐	Leaf Packs (or mats)	_____
☐	Aquatic Macrophytes	_____
☐		_____
☐		_____
☐	Pools	total # observed = <u>1</u> # range expected = <u>2-4</u>

Average width 4 m

Average depth .4 m

Velocity measured at 10, 40, 80 meter marks.

WQ & chemistry taken at 90 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:

- 1st 20m is high turbulence area
- last 70% is straight, trapezoidal c/s
- bottom sand/silt/shells/small CaCO₃ rocks

$$\bar{Z} = .4$$

$$\bar{V} = .14 \text{ m/s}$$

DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: Crane Creek @
Country Club Rd

County: Brevard

Date: 11-28-16

Investigators: Terry Riordan

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	Y		60	1	N	Y		
	2					2				
	3					3				
	4					4				
	5			0		5			16	
	6					6				
	7					7				
	8					8				
	9	N	Y			9	N	Y		
10	1	N	Y		70	1	N	Y		
	2					2				
	3					3				
	4					4				
	5			6		5			8	
	6					6				
	7					7				
	8					8				
	9	N	Y			9	N	Y		
20	1	N	Y		80	1	N	Y		
	2					2				
	3					3				
	4					4				
	5			64		5			20	
	6					6				
	7					7				
	8					8				
	9	N	Y			9	N	Y		
30	1	N	Y		90	1	N	Y		
	2					2				
	3					3				
	4					4				
	5			48		5			86	
	6					6				
	7					7				
	8					8				
	9	N	Y			9	N	Y		
40	1	N	Y		100	1	N	Y		
	2					2				
	3					3				
	4					4				
	5			48		5			86	
	6					6				
	7					7				
	8					8				
	9	N	Y			9	N	Y		
50	1	N	Y							
	2									
	3									
	4									
	5			52						
	6									
	7									
	8									
	9	N	Y							

STORET Station Number:
27010338

Secchi depth 0.4
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- 2016-11-07-66

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

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%.

Analyst: Terry Riordan 'Rd' Signature: [Signature]

Comments:

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.

Species for additional data entries:												Species for additional data entries:													
		Meter Mark										Specimen collected (check)			Meter Mark										Specimen collected (check)
HERBACEOUS SPECIES		0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100		HERBACEOUS SPECIES		0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	
<i>Alternanthera philoxeroides</i>		✓					✓	✓	✓		✓		<i>Micranthemum glomeratum</i>												
<i>Bacopa caroliniana</i>													<i>Micranthemum umbrosum</i>												
<i>Bacopa monnieri</i>													<i>Myriophyllum aquaticum</i>												
<i>Bidens mitis</i>													<i>Najas guadelupensis</i>												
<i>Boehmeria cylindrica</i>													<i>Nuphar luteum</i>												
<i>Centella asiatica</i>													<i>Orontium aquaticum</i>												
<i>Cephalanthus occidentalis</i>													<i>Panicum hemitomon</i>												
<i>Ceratophyllum demersum</i>													<i>Panicum repens</i>									✓			
<i>Chara</i>						•							<i>Panicum rigidulum</i>												
<i>Cicuta maculata</i>						•							<i>Pistia stratioides</i>					✓	✓						
<i>Cladium jamaicense</i>													<i>Polygonum glabra</i>												
<i>Colocasia esculenta</i>				✓		✓	✓	✓	✓	✓	✓		<i>Polygonum hydropiperoides</i>												
<i>Crinum americanum</i>													<i>Polygonum punctatum</i>												
<i>Diodia virginiana</i>													<i>Pontederia cordata</i>												
<i>Eichhornia crassipes</i>													<i>Potamogeton illinoensis</i>												
<i>Eleocharis (wispy viviparous)</i>													<i>Ruellia simplex</i>												
<i>Hydrilla verticillata</i>		✓	✓	✓	✓	✓	✓						<i>Sacciolepis striata</i>												
<i>Hydrocotyle</i>													<i>Sagittaria kurziana</i>												
<i>Hygrophila polysperma</i>		✓	✓	✓	✓	✓	✓				✓		<i>Sagittaria lancifolia</i>												
<i>Hymenocallis</i>													<i>Sagittaria latifolia</i>												
<i>Itea virginica</i>													<i>Salix caroliniana</i>												
<i>Lachnanthes caroliniana</i>													<i>Salvinia minima</i>												
<i>Landoltia punctata</i>													<i>Samolus parviflora</i>												
<i>Lemna</i>													<i>Saururus cernuus</i>												
<i>Limnophila sessiflora</i>																									