FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

STRATEGIC MONITORING PLAN Field Sheet

July 2022

Meter Passed End of Day CCV

Yes / No

WIN Station Name:	Bonnet Creek @ SR 64					**Sample Date:**	8/31/2022
WIN / Field ID:	G4SD0107	**ORG ID:**	21FLFTM	**ENR:**	-	**Latitude:**	27.64095
County:	Highlands	**WBID:**	1761I	STREAM	3F	**Longitude:**	-81.40969
Receiving Body of Water:	Arbuckle Creek Above Morgan Hole Creek					**RQ-**	2022-08-22-38

Sampling Team Members	WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check
Nicole Reistad	x		x		
Thomas Baker		x		x	x

Sampling Equipment					
x	Sample Container			Carboy	
	Dipper			Van Dorn	
x	Syringe			Pole	
Syringe Lot#	*1363442*		**Filter Lot#**	*17347262*	
Secchi Equipment ID:	*3312A*				

Collection Method			
x	**Wading**		**Canoe/Kayak**
	From Shore		**Electric Motor**
			Gasoline Motor
Depth Measured With	*Secchi*		

Water Level:	*Normal*
Flow:	*Flowing*
Matrix:	*Fresh*
Tide Stage:	
High Tide:	
Low Tide:	
Photos:	*Yes*
Meter ID:	*President Camacho*

Time Zone	Time	Total Depth (m)	Sample Depth (m)	DO (mg/L)	DO (%SAT)	Temp. (ºC)	pH	Secchi Disk (m)	Sp COND (µmhos/cm)	Salinity (PPTh)
EST	1040	1	0.3	5.58	68.1	25.4	5.97	0.3	129.3	0.06

Biological Samples Collected: HA LVS RPS

SBIO Visit ID: **HA ID:** **RPS ID:** **Macrophyte ID:** **LIMS Sample ID Entered Into The Macrophyte Module:**

Parameter Suite	Parameter Methods (LIMS Test Codes)			Preservation Type		Lot#	Expiration Date	pH Check
Microbiology								
Chlorophyll	**CHLSUITE-W**			**ICE**				
Physical/Aggregate Nutrients	**ALKALINITY, TURBIDITY, W-F, W-TSS**			**ICE**				
	W-CL-IC, W-COLOR, W-SO4-IC, W-TDS			**ICE**				
Filtered Nutrients	**W-PO4-F**	**Field Filtered 0.45 µm Filter**		**ICE**				
Acid Preserved Nutrients	**W-NH3 / W-NO2NO3 / W-TKN / W-TOC / W-S-A-TP**			**ICE**	**H2SO4***	*132275*	*12/07/22*	*H2SO4 pH<2*
Metals	**W-ICPMS**	**W-ICP**	**W-HARD**	**ICE**	**HNO3****	NA1105100	06/07/23	HNO3 pH<2
Organics (LC)								
Macroinvertebrates								
Organics (GC)								
Molecular								
Periphyton								
Phytoplankton								
BOD								
Other(s)								

*2.0 ml of H2SO4 Used Unless Noted Otherwise
**2.0 ml of HNO3 Used Unless Noted Otherwise

Field Comments:			
Comments on COC:			
Relinquish Date:	08/31/2022	**Signature:**	

LIMS EVENT ID: _____ **WIN Import ID:** _____

Enter Field Parameters, Verify Station ID In LIMS DMT: _____ (Initials/Date)

QC Station ID, Field Parameters In LIMS DMT: _____ (Initials/Date)

Save Field Sheets on Network: _____ (Initials/Date)

Migrate Data to WIN: _____ (Initials/Date)

DEP Form FD 9000-6 Stream/River Habitat Assessment Field Sheet

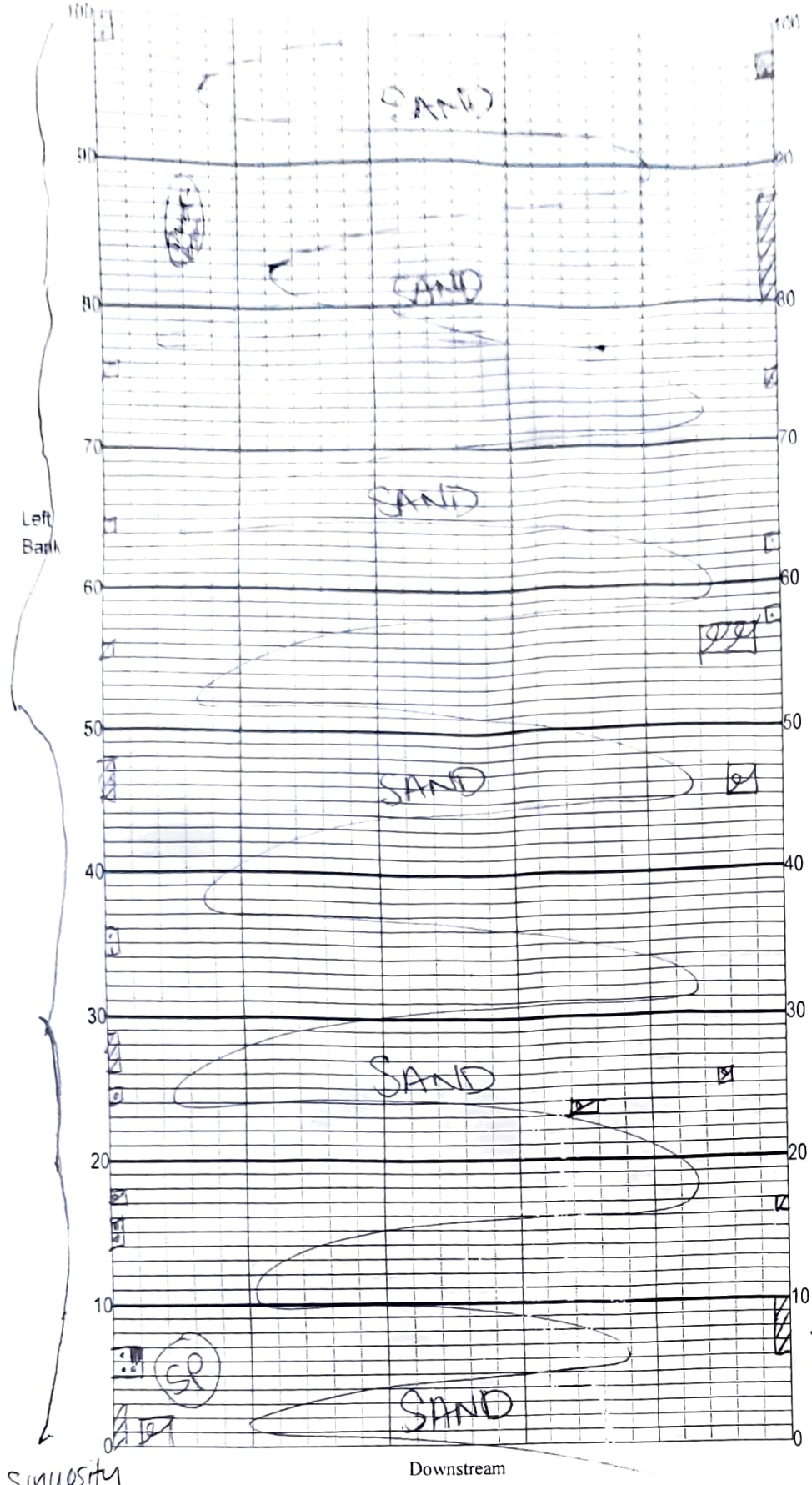
SAMPLING AGENCY	STATION NUMBER	DATE	RECEIVING BODY OF WATER
DEP - DEAR SROC	GASD0107	08/31/22	Abbott Creek tributary
REMARKS	COUNTY: Highlands	LOCATION: Bonnet Creek @ SR64	FIELD ID/NAME: Bonnet Creek

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components **Substrate Diversity** 6	Four or more major productive habitats present (snags, tree roots, aquatic vegetation, leaf packs (partially decayed), rock) 20 19 18 17 16	Three major productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags) 15 14 13, 12 11	Two major productive habitats present. Less than desirable habitat, frequently disturbed or removed 10 9 8 7 (6)	One or less major productive habitat. Lack of habitat is obvious, substrates unstable or smothered 5 4 3 2 1
Substrate Availability 1	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 14	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 3 Primary Score 24	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 **Artificial Channelization** 20	Expected sinuosity given the stream width. No evidence of dredging or artificial straightening. No spoil banks. (20) 19 18 17 16	Good sinuosity within old channelized area. Evidence of dredging or straightening in the past (>25 yrs) but mostly recovered. 15 14 13 12 11	Straightened with trapezoidal cross section, but has a small degree of sinuosity developed within channelized area. 10 9 8 7 6	Straightened or engineered by dredging, has trapezoidal or box cut cross section, lacks required pools. May have spoil banks. 5 4 3 2 1
Bank Stability Right Bank 9 Left Bank 9	Bankfull > 60% of bank height. Slope of bank ≤ 60° from bankful to top of bank. Bankfull is within or above the woody root zone with few raw, eroded areas. 10 (9) L,R	Only meets 2 of the 3 requirements for optimal bank stability. 8 7 6	Only meets 1 of the 3 requirements for optimal bank stability. 5 4	Bankfull < 60% of bank height. Slope of bank > 60°. Bankfull is below the woody root zone with raw, eroded areas. 3 2 1
Riparian Buffer Zone Width Right Bank 9 Left Bank 9	Width of vegetation greater than 18 m 10 (9) L,R	Width of vegetation >12 to 18m 8 7 6	Width of vegetation 6 to 12 m. human activities close to system 5 4	Less than 6 m of buffer zone due to intensive human activities 3 2 1
Riparian Zone Vegetation Quality Right Bank 4 Left Bank 4 Secondary Score 64	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. 10 9	>50% to 80% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Some disruption in community observed. 8 7 6	25% to 50% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Disruption obvious. L,R 5 (4)	Less than 25% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). 3 2 1

88 **TOTAL SCORE**

Date:	Analyst:	Signature:
08/31/22	NICOLE REISTAD, THOMAS BAKER	

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 Barrel Creek @ SR 64

Date 08/31/2022

Sampler NICOLE REISTAD

100 m	Latitude	27.6403188
	Longitude	-81.4088406
0 m	Latitude	27.639731°
	Longitude	-81.408232-13

Substrates: Code key, draw proportionate habitat abundance

		%
S	Snags	0.40
///	Roots/undercut banks	0.52
X	Leaf Packs (or mats)	0
··	Aquatic Macrophytes	0.30
	Rocks	0
P	Pools	total # observed = 0
		# range expected =

Average width ~~2.35~~ m

Average depth 0.5 m

Velocity measured at 0 meter mark.

WQ & chemistry taken at 100 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:

Om v = 5sec
sand/muck substrate
S = 2.0m²
R = 2.6m²
XL = 0
AM = 1.5m²
A = 6

62-160.800, F.A.C

Revision Date: January 2017

Habitat assessment: 17929 RPS 109968 Macro: 12267

Station ID: 85470

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

SAMPLE ID	2353504	ORG ID	21FLFTM	LATITUDE	27.64095
COUNTY	Highlands	STORET #	G4SP0107	LONGITUDE	-81.40969
DATE	08/31/22	TIME		SAMPLING AGENCY	DEP SPOC

SITE NAME: Bonnet Creek @ SR 64

FIELD ID/NAME: G4SP0107 Bonnet Creek RECEIVING BODY OF WATER: Arbuckle Creek Above Morgan Hole Creek

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)
17		48	30	5			

Landscape Development Intensity Index (LDI):

Local Watershed Erosion (select one): ☐ None ☒ Slight ☐ Moderate ☐ Heavy

Local Watershed NPS Pollution: ☒ No evidence ☐ Slight ☐ Moderate ☐ Heavy

Width of Riparian Vegetation (m) on Each Buffer Side
Left Bank: 50 Right Bank: 60

Hydrologic Modification Score (per FT 3101): 2

Typical Width (m) Depth (m)/Velocity (m/sec) Transect: 5 m wide

m/s	0.2 m/s	m/s
m deep	0.5 m deep	m deep

High Water Mark: 0.5 + 0.5 = 1
(m) (above present water level) (present depth) (above bed)

Artificially Impounded: ☐ Yes ☒ No

Artificially Channelized: ☒ No ☐ Some recovery ☐ Mostly recovered, more sinuous ☐ Recent, severe

Canopy Cover %: ☐ Open ☒ Heavily Shaded ☐ Lightly Shaded (11-45%) ☐ Moderate Shaded (46-80%)

SEDIMENT / SUBSTRATE

Sediment Oils: ☒ Absent ☐ Slight ☐ Moderate ☐ Profuse

Sediment Odors: ☐ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☒ Anaerobic ☐ Other (Specify):

Smothering of Substrates

	None	Slight	Moderate	Severe
Sand Smothering:	☐	☐	☐	☒
Silt Smothering:	☐	☒	☐	☐
Algae Smothering:	☒	☐	☐	☐

SUBSTRATE TYPE

Assessment Tool: ☐ SCI ☒ RPS ☒ LVS ☐ LCI ☐ BioRecon

	% Coverage	INVERT # Times Sampled	PERI # Times Sampled
Woody Debris (Snags)	0.40	—	—
Undercut Banks / Roots	0.52	—	—
Leaf Packs or Mat	0	—	—
Aquatic Vegetation	0.30	—	—
Rock or Shell Rubble	0	—	—
Sand	87.78	—	—
Mud / Muck / Silt	10	—	—
Other	NC	—	—
Other	—	—	—

WATER QUALITY

	Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	D.O. Sat (%)	Cond. (UMHO/CM)	Salinity (PPT)
Top:	0.3	25.4	5.97	5.58	68.1	129.3	0.06
Mid:							
Bottom							

SECCHI (M): 0.3 ☐ VOB

TOTAL DEPTH: 1

Meter ID: President Camacho

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

Water Surface Oils ☒ Normal ☐ Sheen ☐ Globs ☐ Slick ☐ Other

Water Sample Taken? ☒ Yes ☐ No
Sample Preserved? ☒ Yes ☐ No
Lot Number: TK SA 132275 Exp: 12/07/22

Color ☒ Tannic ☐ Green (Algae) ☐ Clear ☐ Other (Specify)

Algae Sample Taken? ☐ Yes ☒ No
Sample Preserved? ☐ Yes ☒ No
Lot Number: ________ Exp: ________

Clarity ☒ Clear ☐ Slightly Turbid ☐ Turbid ☐ Opaque

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

ABUNDANCE

	Not Obs.	Rare	Common	Abundant
Periphyton:	☒	☐	☐	☐
Fish:	☐	☐	☒	☐
Aquatic Plants:	☐	☒	☐	☐
Iron/Sulfur Bacteria:	☒	☐	☐	☐

AMBIENT FIELD CONDITIONS / NOTES:

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

SAMPLING TEAM: Thomas Baker, Nicole Keisted

SIGNATURE: Thomas Baker

DATE: 08/31/22

DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: GUSP0107 Branch Creek

County: Highlands

Date: 08/22/22

Investigators: [illegible]

STORET Station Number: GUSP0107

Transect (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover
0	1	N	N	
	2	N	N	
	3	N	N	
	4	N	N	
	5	N	N	87
	6	N	N	
	7	N	N	
	8	N	N	
	9	N	N	
10	1	N	N	
	2	N	N	
	3	N	N	
	4	N	N	
	5	N	N	87
	6	N	N	
	7	N	N	
	8	N	N	
	9	N	N	
20	1	N	N	
	2	N	N	
	3	N	N	
	4	N	N	
	5	N	N	94
	6	N	N	
	7	N	N	
	8	N	N	
	9	N	N	
30	1	N	N	
	2	N	N	
	3	N	N	
	4	N	N	
	5	N	N	95
	6	N	N	
	7	N	N	
	8	N	N	
	9	N	N	
40	1	N	N	
	2	N	N	
	3	N	N	
	4	N	N	
	5	N	N	92
	6	N	N	
	7	N	N	
	8	N	N	
	9	N	N	
50	1	N	N	
	2	N	N	
	3	N	N	
	4	N	N	
	5	N	N	62
	6	N	N	
	7	N	N	
	8	N	N	
	9	N	N	

Transect (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover
60	1	N	N	
	2	N	N	
	3	N	N	
	4	N	N	
	5	N	N	76
	6	N	N	
	7	N	N	
	8	N	N	
	9	N	N	
70	1	N	N	
	2	N	N	
	3	N	N	
	4	N	N	
	5	N	N	91
	6	N	N	
	7	N	N	
	8	N	N	
	9	N	N	
80	1	N	N	
	2	N	N	
	3	N	N	
	4	N	N	
	5	N	N	91
	6	N	N	
	7	N	N	
	8	N	N	
	9	N	N	
90	1	N	N	
	2	N	N	
	3	N	N	
	4	N	N	
	5	N	N	91
	6	N	N	
	7	N	N	
	8	N	N	
	9	N	N	
100	1	N	N	
	2	N	N	
	3	N	N	
	4	N	N	
	5	N	N	95
	6	N	N	
	7	N	N	
	8	N	N	
	9	N	N	

Secchi depth	0.7
Estimated?	N

# points ranked 4-6	
total points assessed	
% points ranked 4-6	

Check accompanying data collected at same site/date	
Algal mat sample	
Linear Veg Survey	✓
Habitat Assessment	✓
SCI/Biorecon	
Water sample	✓
RQ 7022-08-22-38	

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%.

DEP FORM FD 9000-32: LINEAR VEGETATION SURVEY FIELD SHEET

Waterbody: G4SN0167 Bonnet Creek | Date: 06/13/12 | County: Highlands | Storet Number: G4SN0167

Analyst: [illegible] | Signature: [illegible]

Comments

Instructions: Note taxa growing in the water with a checkmark if present, "D" if dominant, and "C" if codominant (dominance only if $1m^2$ 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.

HERBACEOUS SPECIES	Meter Mark 0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	Specimen collected (check)
Alternanthera philoxeroides	X	X	X	X	X	X	X	X	X	X	
Bacopa caroliniana											
Bacopa monneri											
Bidens mitis											
Boehmeria cylindrica											
Centella asiatica							X	X	X	X	
Ceratophyllum demersum											
Chara											
Cicuta maculata											
Cladium jamaicense											
Colocasia esculenta											
Commelina diffusa											
Commelina virginica											
Crinum americanum											
Diodia virginiana											
Eichhornia crassipes											
Eleocharis (wispy viviparous)											
Hydrilla verticillata											
Hydrocotle		X	X	X		X	X	X		X	
Hygrophila polysperma											
Hymenocallis											
Lachnanthes caroliniana											
Landoltia punctata											
Lemna											
Limnophila sessiflora											
Ludwigia leptocarpa											
Ludwigia palustris											
Ludwigia peruviana											
Ludwigia repens											
Luziola fluitans											
If no Dominant or Co-Dominant were selected, indicate with "X"											
Indicate % cover macrophytes per section											
0-5% Macrophyte Coverage	X	X	X	X	X	X	X	X	X	X	
>5 and ≤10% Macrophyte Coverage											
>10 and ≤25% Macrophyte Coverage											
>25 and ≤50% Macrophyte Coverage											
> 50% Macrophyte Coverage											

HERBACEOUS SPECIES	Meter Mark [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Specimen collected (check)
Micranthemum glomeratum											
Micranthemum umbrosum											
Myriophyllum aquaticum											
Najas guadelupensis											
Nuphar luteum											
Orontium aquaticum											
Panicum hemitomon											
Panicum repens											
Panicum rigidulum											
Pistia stratioides											
Polygonum glabra											
Polygonum hydropiperoides											
Polygonum punctatum											
Pontedaria cordata											
Potamogeton illinoensis											
Ruellia simplex									X	X	
Sacciolepis striata											
Sagittaria kurziana											
Sagittaria lancifolia											
Sagittaria latifolia											
Salvinia minima											
Samolus parviflora										X	
Saururus cernuus											
Sparganium americanum											
Typha											
Vallisneria americana											
Zizania aquatica											
Thelypteris serrata	X	X		X	X					X	
Thelypteris interrupta	X	X		X		X	X	X		X	
Hymenachne amplexicaulis	X	X								X	
~~Hairy Grass~~ TB ~~Hairy Grass~~										~~X~~	Th
~~Arrow Head like~~ TB										~~X~~	res
Paspalum repens										X	
0-5% Macrophyte Coverage	X	X	X	X	X	X	X	X	X	X	
>5 and ≤10% Macrophyte Coverage											
>10 and ≤25% Macrophyte Coverage											
>25 and ≤50% Macrophyte Coverage											
> 50% Macrophyte Coverage											

~~[illegible]~~

LVS <25am