

**Survey of Emergent and Submerged Vegetation
along the Bagdad, Florida waterfront**

Prepared for:

Blackwater River Foundation

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Introduction

One of the main purposes of the Blackwater River Foundation is to develop methods to reclaim, protect, preserve and restore portions of the Blackwater River Ecosystem. This project was funded in an effort to protect and preserve emergent and submerged vegetation on the portion of the Blackwater River that run along the bank of Bagdad, Florida (Figure 1). Data collected will provide the foundation with a comprehensive list of species and habitats found along the bank of the Blackwater River, and will serve as a reference for future development in the Village of Bagdad.



Figure 1 Freshwater marsh, Blackwater River, Bagdad, Florida

Materials and Methods

Data were collected along the southern bank of the Blackwater River from 30°36'25"N 87°02'30"W to 30°35'42"N 87°01'42"W. The area covered was divided into transects. Individual transect length was equivalent to the range of homogenous emergent and submerged vegetation species composition. Transect position end-points were documented using a hand-held GPS unit.

Once transects were established, substrate type and species composition for each transect were observed and recorded. Substrate type was determined using a sediment grab. Emergent vegetation was identified visually from a canoe or trolling boat, while a grappling hook and visual identification were used to determine submerged vegetation composition (Figure 2). Species present from each transect were grouped under dominant emergent vegetation, minor emergent vegetation, and submerged

vegetation. Transect Numbers, GPS coordinate, sediment type, and transect species composition were arranged in an Excel spreadsheet as a convenient reference.



Figure 2. *Sagittaria latifolia* among *Cladium jamaicense*, in freshwater marsh habitat, Blackwater River, Bagdad, FL.

Figure 3. *Juncus roemarianus* in freshwater marsh habitat, Blackwater River, Bagdad, FL.

Results

Dominant emergent vegetation species found in a majority of habitats surveyed along the bank of Bagdad included *Juncus roemarianus* and *Cladium jamaicense*, while the dominant submerged species was *Vallisneria Americana* (Table 1). Throughout all 22 transects taken *Cladium jamaicense* was the most commonly occurring emergent vegetation; present in 17 transects both to the north and south. *Juncus roemarianus* was another commonly occurring species; identified in half of all transects, six northern and five southern (Fig. 3). While *Ruppia maritima* was the dominant species in 1999, *Vallisneria americana* during our study was the most dominant species of submerged vegetation and was present in all transects which contained submerged vegetation. A total of 20 species were identified as having a significant presence as either major/minor emergent (16 species) or submerged vegetation (4 species).

Though there were several species found throughout the majority of the transects, some species were found only in a few transects. Species such as *Zizaniopsis miliacea* and *Sagittaria lancifolia* were only identified in one transect. Overall, the southern coordinates consisted of closely homogenous habitats while the northern habitats were more heterogeneous in structure, resulting in more frequently recorded transect points. The sediment type was uniformly mud, although some areas such as the old logging mill had wooden posts stuck in the sediment and there was cement on top of mud along the cement seawall.

Table 1 List of major emergent and submerged vegetation by transect, Bagdad, Florida

Transects	Dominant Vegetative Species (Emergent, Upland)	Transect Start Coordinates	Transect End Coordinates	SAV Present
North 1 Swamp Forest	<i>Magnolia virginiana</i> , <i>Myrica cerifera</i> , <i>Cyrilla racemiflora</i> , <i>Chamaecyparis thuyoides</i> , <i>Cliftonia monophylla</i> , <i>Cladium jamaicense</i>	30°36'25" N 87°02'30" W	30°36'32" N 87°02'25" W	none
North 2 Swamp Forest	<i>Magnolia virginiana</i> , <i>Cyrilla racemiflora</i> , <i>Nyssa aquatica</i> , <i>Myrica cerifera</i> , <i>Cliftonia monophylla</i> , <i>Osmunda Regalis</i>	30°36'32" N 87°02'25" W	30°36'36" N 87°02'22" W	none
North 3 Swamp Forest	<i>Osmunda regalis</i> , <i>Myrica cerifera</i> , <i>Magnolia virginiana</i> , <i>Cyrilla racemiflora</i> , <i>Cladium jamaicense</i>	30°36'36" N 87°02'22" W	30°36'40" N 87°02'17" W	none
North 4 Marsh/Swamp Forest	<i>Cladium jamaicense</i> , <i>Hypericum nitidum</i> , <i>Sagittaria lancifolia</i> , <i>Nyssa aquatica</i>	30°36'40" N 87°02'17" W	30°36'41" N 87°02'11" W	<i>Valisneria americana</i> , <i>Mayaca fluviatilis</i>
North 5 Marsh/Swamp Forest	<i>Cladium jamaicense</i> , <i>Cyrilla racemiflora</i> , <i>Myrica cerifera</i> , <i>Cliftonia monophylla</i> , <i>Eriocaulon lineare</i>	30°36'41" N 87°02'11" W	30°36'39" N 87°02'07" W	<i>Valisneria americana</i> , <i>Potamogeton pectinatus</i> ,
North 6 Marsh	<i>Hypericum nitidum</i> , <i>Cladium jamaicense</i> , <i>Phragmites australis</i> , <i>Sagittaria lancifolia</i> , <i>Pontederia cordata</i> , <i>Cyrilla racemiflora</i> , <i>Eriocaulon lineare</i>	30°36'39" N 87°02'07" W	30°36'40" N 87°02'07" W	<i>Valisneria americana</i> , <i>Potamogeton pectinatus</i> ,
North 7 Marsh	<i>Cladium jamaicense</i> , <i>Pontederia lanceolata</i> , <i>Typha latifolia</i>	30°36'40" N 87°02'07" W	30°36'40" N 87°02'06" W	<i>Valisneria americana</i> , <i>Potamogeton pectinatus</i>
North 8 Marsh	<i>Myrica cerifera</i> , <i>Pontederia cordata</i> , <i>Typha latifolia</i>	30°36'40" N 87°02'06" W	30°36'39" N 87°02'05" W	<i>Valisneria americana</i> (low density)
North 9 Marsh	<i>Typha latifolia</i> , <i>Pontederia cordata</i>	30°36'39" N 87°02'05" W	30°36'39" N 87°02'04" W	<i>Valisneria americana</i> (low density)
North 9a Island 1 Marsh	<i>Hypericum nitidum</i> , <i>Cladium jamaicense</i> , <i>Pontederia cordata</i> , <i>Cyrilla racemiflora</i> , <i>Myrica cerifera</i> , <i>Eriocaulon lineare</i>	30°36'39" N 87°02'04" W	30°36'39" N 87°02'03" W	<i>Valisneria americana</i>
North 9b Island 2 Marsh	<i>Hypericum nitidum</i> , <i>Cladium jamaicense</i> , <i>Juncus roemarianus</i> , <i>Pontederia cordata</i> , <i>Myrica cerifera</i> , <i>Eriocaulon lineare</i>	30°36'39" N 87°02'03" W	30°36'38" N 87°02'03" W	<i>Valisneria americana</i>
North 10 Marsh	<i>Juncus roemarianus</i> , <i>Cladium jamaicense</i> , <i>Typha latifolia</i>	30°36'39" N 87°02'04" W	30°36'38" N 87°02'03" W	<i>Valisneria americana</i> (low density)
North 11 Marsh	<i>Pontederia lanceolata</i> , <i>Phragmites australis</i> , <i>Typha latifolia</i> , <i>Juncus roemarianus</i> , <i>Sagittaria lancifolia</i>	30°36'38" N 87°02'03" W	30°36'38" N 87°02'02" W	<i>Valisneria americana</i> (low density)
North 12 Marsh	<i>Juncus roemarianus</i> , <i>Cladium jamaicense</i> , <i>Sagittaria lancifolia</i>	30°36'38" N 87°02'02" W	30°36'38" N 87°02'02" W	<i>Valisneria americana</i> (low density)
North 13 Marsh	<i>Phragmites australis</i> , <i>Cladium jamaicense</i>	30°36'38" N 87°02'02" W	30°36'38" N 87°02'00" W	<i>Valisneria americana</i> (low density)

North 14 Marsh	<i>Cladium jamaicense</i> , <i>Juncus roemarianus</i> , <i>Hypericum nitidum</i>	30°36'38" N 87°02'00" W	30°36'37" N 87°02'98" W	<i>Vallisneria americana</i> (low density)
North 15 Marsh	<i>Sagittaria lancifolia</i> , <i>Arundo phragmites</i> , <i>Typha latifolia</i> , <i>Juncus roemarianus</i> , <i>Myrica cerifera</i> , <i>Pontederia lanceolata</i>	30°36'37" N 87°02'98" W	30°36'34" N 87°01'96" W	<i>Vallisneria americana</i> (low density)
South 1 Marsh	<i>Cladium jamaicense</i> , <i>Juncus roemarianus</i> , <i>Sagittaria lancifolia</i> , <i>Arundo phragmites</i> , <i>Typha latifolia</i>	30°36'33" N 87°01'95" W	30°36'03" N 87°01'26" W	<i>Vallisneria americana</i> (low density)
South 2 Marsh	<i>Cladium jamaicense</i> , <i>Juncus roemarianus</i> , <i>Sagittaria lancifolia</i> , <i>Hypericum nitidum</i>	30°36'03" N 87°01'24" W	30°36'02" N 87°01'24" W	<i>Vallisneria americana</i> (low density)
South 3 Marsh	<i>Cladium jamaicense</i> , <i>Juncus roemarianus</i> , <i>Sagittaria lancifolia</i>	30°36'02" N 87°01'24" W	30°36'00" N 87°01'22" W	<i>Vallisneria americana</i> (low density)
South 4 Marsh	<i>Cladium jamaicense</i> , <i>Juncus roemarianus</i> , <i>Sagittaria lancifolia</i> , <i>Typha latifolia</i> , <i>Zizaniopsis miliacea</i>	30°36'00" N 87°01'22" W	30°35'56" N 87°01'28" W	<i>Vallisneria americana</i> , <i>Potamogeton pectinatus</i>
South 5 Marsh	<i>Cladium jamaicense</i> , <i>Juncus roemarianus</i> , <i>Sagittaria lancifolia</i> , <i>Arundo phragmites</i> , <i>Typha latifolia</i> , <i>Sagittaria lancifolia</i>	30°35'56" N 87°01'28" W	30°35'42" N 87°01'42" W	<i>Vallisneria americana</i> , <i>Potamogeton pectinatus</i>

Table 2. Significant shoreline structures.

Structure Description	GPS Start	GPS Stop	Corresponding Transect(s)
Partially Submerged House	30°36'25" N 87°02'30" W	N/A	Transect 1/2 North
Large Emerging Fallen Tree	30°36'35" N 87°02'23" W	N/A	Transect 2 North
Bridge	30°36'41" N 87°02'07" W	N/A	Transect 5/6 North
Concrete Wall	30°36'39" N 87°02'02" W	30°36'35" N 87°01'98" W	Transect 12-15 North
Dock	30°36'33" N 87°01'95" W	N/A	Transect 15 North/1 South
Old Timber emerging from mud substrate	30°36'31" N 87°01'24" W	30°36'28" N 87°01'24" W	Transect 1 South

Literature Cited

D'Asaro, C. 2007. Personal communication. University of West Florida, Pensacola, FL 32514.

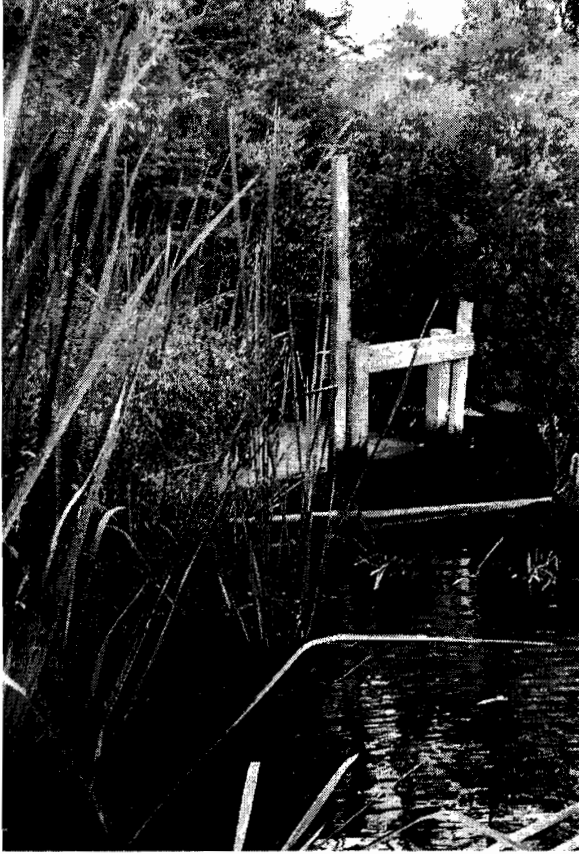


Figure 4. Shoreline looking north from Bagdad, FL boat ramp near transect N15.



Figure 5. *Vallisneria Americana* at north transect 15.