

Meginnis Arm Shoreline Restoration Fifth Annual Monitoring Report Fall (2011)

SAJ – 20051406 IP – SEG Issued: 4/7/06; Impact: I-10 (Ochlockonee-CR 361) in Leon Co, 1.90 acres; FM 2225902; NW24

Monitoring Date: January 19, 2011

SCOPE

Pursuant to the 2005/2006 FDOT Environmental Impact Inventory (submitted 5/2/05) the widening of I-10 in Leon County from approximately ½ mile west of CR 361 (Mission Road) to the westbound rest area near the Ochlockonee River to will impact 1.90 acres of low-quality wetlands (FLUCCS 640 – Vegetated Non-Forested Wetlands).

PROPOSED MITIGATION

To compensate for the loss of wetland function associated with the I-10 widening, NFWMD restored 17 acres of native shoreline through the eradication of exotic vegetation and planting of native species on the western side of Meginnis Arm at Lake Jackson (Figure 1). The mitigation site is approximately 17 acres, and is primarily on state sovereign lands. Restoration consisted of eradication and management of Chinese tallow (*Sapium sebiferum*), wild taro (*Colocasia esculenta*), purple sesban (*Sesbania puncea*), and other exotic and/or invasive species using approved herbicides and application methods followed by the planting of appropriate wetland species (generally marsh species with inclusions of cypress where appropriate).



Figure 1. Meginnis Arm Restoration Location Map.

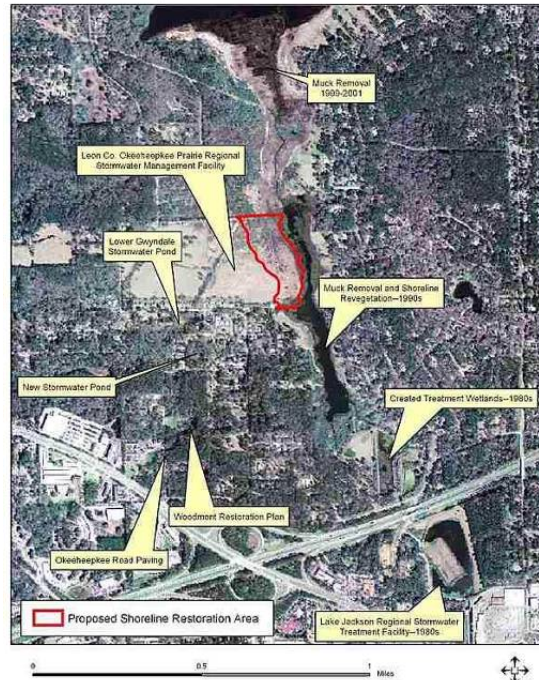


Figure 2. Meginnis Arm Restoration Site Marsh.

MITIGATION ACCOMPLISHMENTS

The herbicide treatment for the eradication of exotic species was initiated in 2006-2007. Treatments targeted popcorn tree, purple sesban, and wild taro. Trunks of the popcorn trees were hand cut and the stems painted with a systemic herbicide. Hand application with backpack sprayers was used to treat the purple sesban and wild taro. During 2008, NFWFMD contracted with Entrix to conduct popcorn tree, wild taro, and purple sesban eradication as a follow up to the initial treatments. The limits of the mitigation area were identified using sub-meter GPS and permanently marked. A total of five monthly treatments were conducted in May-September of 2008 and the site was treated again in 2009. All herbicides were labeled for aquatic systems and administered by licensed pesticide applicators. In January of 2011 the site was inspected for invasive exotic and nuisance species survival. A single reproductive popcorn tree was observed. At the time of the survey wild taro was dormant and no stalks of last season's purple sesban were observed. One mature, reproductive *Sapium sebiferum* was present along the perimeter of the restoration area (Figure 3). Nuisance species such as *Sesbania herbacea*, *Andropogon virginicus*, *Verbena brasiliensis*, and *Eupatorium capillifolium* were common throughout. An additional treatment of invasive exotic and nuisance species is scheduled for March/April of 2011.

On April 4-6, 2009 NFWFMD planted the restoration area with button bush (*Cephalanthus occidentalis*), pickerel weed (*Pontederia cordata*), arrowhead (*Saggitaria lancifolia*), and soft rush (*Juncus effusus*). On November 7-9, 2009 ATS Partners, Inc. installed climbing aster (*Symphyotrichum carolinianum*), marsh mallow (*Hibiscus moscheutos*), and cypress (*Taxodium ascendens*) throughout the Meginnis Arm restoration area (see Tables 1 and 2). Site visits during 2009 confirmed survival of the majority of the plant material. The Meginnis Arm marsh supports a mixture of species that result from disturbance as well as desirable wetland species. The planted material that was seen during the 2011 monitoring event includes soft rush, pond cypress, and marsh mallow (Figures 4 and 5). Although these species appeared to exhibit good survival, only the marsh

mallow had been reproductive during the previous growing season. The planted soft rush was more robust as it approached the edge of the lake while closer to the upland it was smaller and less vigorous. Loblolly pine (*Pinus taeda*) has invaded the marsh as a result of a lowered water table, but as the lake level has rebounded, this species is exhibiting high mortality close to the shoreline. This increase in the lake level has also led to mortality in blackberry (*Rubus argutus*) and will have a positive effect on the overall species composition over time. The site is currently dominated by wetland herb, shrub, and tree species (see Table 3; Figures 6 and 7).

Table 1. Planting List for Meginnis Arm Restoration (Trees and Shrubs).

Scientific Name	Common Name	Planting Density	Comments
<i>Cephalanthus occidentalis</i>	Button bush	20' X 20' (108 per acre)	1 gallon pots
<i>Hibiscus moscheutos</i>	Marsh mallow	20' X 20' (108 per acre)	1 gallon pots
<i>Symphotrichum carolinianum</i>	Climbing aster	20' X 20' (108 per acre)	1 gallon pots
<i>Taxodium ascendens</i>	Cypress	12' X 12' (303 per acre)	1 gallon pots or bare root

Table 2. Planting List for Meginnis Arm Restoration (Herbaceous).

Scientific Name	Common Name	Planting Density	Comments
<i>Juncus effusus</i>	Soft rush	4' x 4' (2,772 per acre)	Bare root plants
<i>Pontederia cordata</i>	Pickrel weed	4' x 4' (2,772 per acre)	Bare root plants
<i>Sagittaria latifolia</i>	Arrowhead	4' x 4' (2,772 per acre)	Bare root plants

Table 3. Observed species list for Meginnis Arm Restoration.

Species	Common Name	Habit	Walk paths	Natural Recruitment	Flowering/Fruiting	Last Year Seen
<i>Acer rubrum</i>	red maple	T	N/A	N/A	N	2011
<i>Andropogon glomeratus</i>	bushy bluestem	H	N/A	N/A	N	2011
<i>Andropogon virginicus</i>	broomsedge bluestem	H	N/A	N/A	Y	2011
<i>Baccharis halimifolia</i>	groundseltree	S	N/A	N/A	Y	2011
<i>Boehmeria cylindrica</i>	smallspike false nettle	H	N/A	N/A	N	2011
<i>Centella asiatica</i>	spadeleaf	H	N/A	N/A	N	2011
<i>Cephalanthus occidentalis</i>	common buttonbush	S	N/A	N	Y	2011
<i>Cirsium horridulum</i>	yellow thistle	H	N/A	N/A	N	2011
<i>Cyperus</i> sp.	flatsedge	H	N/A	N/A	N	2011
<i>Eupatorium capillifolium</i>	dogfennel	H	N/A	N/A	Y	2011
<i>Galium</i> sp.	bedstraw	H	N/A	N/A	Y	2011
<i>Geranium carolinianum</i>	Carolina geranium	H	N/A	N/A	Y	2011
<i>Hibiscus moscheutos</i>	crimson-eyed rosemallow	S	N/A	N/A	Y	2011
<i>Hydrocotyle</i> sp.	marshpennywort	H	N/A	N/A	N	2011
<i>Ipomoea</i> sp.	morning-glory	V	N/A	N/A	Y	2011
<i>Jacquemontia tamnifolia</i>	hairy clustervine	V	N/A	N/A	Y	2011
<i>Juncus effusus</i>	common rush	H	N/A	N	N	2011
<i>Juncus</i> sp.	rush	H	N/A	N/A	N	2011
<i>Liquidambar styraciflua</i>	sweetgum	T	N/A	N/A	N	2011
<i>Myrica cerifera</i>	wax myrtle	S	N/A	N/A	Y	2011
<i>Paspalum dilatatum</i>	dallisgrass	H	N/A	N/A	N	2011
<i>Paspalum notatum</i>	bahiagrass	H	N/A	N/A	N	2011
<i>Pinus taeda</i>	loblolly pine	T	N/A	N/A	N	2011
<i>Polygonum hirsutum</i>	hairy smartweed	H	N/A	N/A	N	2011
<i>Pontederia cordata</i>	pickerelweed	H	N/A	N/A	N	2009
<i>Quercus laurifolia</i>	laurel oak	T	N/A	N/A	N	2011
<i>Quercus nigra</i>	water oak	T	N/A	N/A	N	2011

Species	Common Name	Habit	Walk paths	Natural Recruitment	Flowering/Fruiting	Last Year Seen
<i>Rhexia nashii</i>	maid Marian	H	N/A	N/A	Y	2011
<i>Rhynchospora corniculata</i>	shortbristle horned beaksedge	H	N/A	N/A	N	2011
<i>Rubus argutus</i>	sawtooth blackberry	H	N/A	N/A	Y	2011
<i>Rumex</i> sp.	dock	H	N/A	N/A	N	2011
<i>Sagittaria latifolia</i>	broadleaf arrowhead	H	N/A	N/A	N	2009
<i>Salix nigra</i>	black willow	T	N/A	N/A	Y	2011
<i>Sambucus nigra</i>	black elderberry	S	N/A	N/A	Y	2011
<i>Sapium sebiferum</i> *	Chinese tallow	T	N/A	N	Y	2011
<i>Sesbania herbacea</i>	bigpod sesbania	H	N/A	N/A	Y	2011
<i>Setaria</i> sp.	bristlegrass	H	N/A	N/A	N	2011
<i>Symphyotrichum carolinianum</i>	climbing Carolina aster	H	N/A	N/A	N	2009
<i>Taxodium ascendens</i>	pond cypress	T	N/A	N	N	2011
<i>Verbena brasiliensis</i>	Brazilian vervain	H	N/A	N/A	Y	2011
<i>Vicia</i> sp.	vetch	H	N/A	N/A	Y	2011

*FLEPPC Category I or II invasive plant species

H=Herb

S=Shrub

T=Tree

Note: Due to the time of the survey plant species with reproductive structures from the previous spring/summer were recorded as flowering/fruiting.

SUCCESS CRITERIA

- 80% survival of planted wetland vegetation: **Vegetation planting of arrowhead, button bush, pickerel weed, and soft rush occurred on April 4-6 of 2009. The survival of planted material estimated at 90% as of July 1, 2009. The 2011 monitoring event occurred in January, and therefore, winter dormant species were not able to be assessed. Survivorship in *Taxodium ascendens*, *Juncus effusus*, and *Hibiscus moscheutos* was high at the time of the 2011 survey.**
- Exotic species $\leq$ 1% of vegetation cover: **Exotic species cover remains below 1% cover.**
- Invasive species $\leq$ 5% of vegetation cover. **Invasive species cover was below 1%, one *Sapium sebiferum* was observed on the site.**

WORK SCHEDULE

- Within two years of permit issuance, eradication of exotic/invasive species and planting of native wetland shoreline species: **Completed in 2008 and 2009, an additional treatment is scheduled for March/April 2011.**
- Annual monitoring (photo-documentation and inspection of mitigation site by a qualified biologist or wetland scientist to estimate survival of planted vegetation and percent cover of any exotic / invasive plant species), if required, for five years after shoreline restoration or duration of permit. **Fifth monitoring report complete.**
- Annual reports after exotic / invasive species eradication and shoreline restoration, if required, for five years or duration of permit. **First through Fifth monitoring complete.**

- Additional exotic / invasive species eradication and planting of shoreline vegetation if success criteria are not met. **Shoreline vegetation survival appears to meet the criteria as of January 2011, invasive species eradication also appears to meet the criteria and further treatment of exotic invasive species is scheduled for March/April of 2011.**



Figure 3. Reproductive popcorn tree (*Sapium sebiferum*) on edge of restoration area.



Figure 4. Meginnis Arm restoration site, *Taxodium ascendens* in photo with orange flag, January 2011, in center of site facing southeast.



Figure 5. Survival of soft rush (*Juncus effusus*) in marsh restoration area.



Figure 6. Meginnis Arm restoration site, January 2011 in northern portion facing east.



Figure 7. Meginnis Arm restoration site, January 2011, in southern portion of property facing northeast.

Site Inspection Field Form	
Project: Meginnis Arm Shoreline Restoration	Date: Jan 19 2011
Name(s) of Data Collectors: Caitlin Elam	Weather: 55 degrees F, partly cloudy
Environmental Description: Marsh restoration site on the southern shoreline of Lake Jackson	
GPS Location: 30°29'46.11"N 84°18'25.87"W	Time: 1:30 pm
On at least a yearly basis, the site will be inspected as follows:	
A: Perimeter for signs of trespassing, fencing and signage integrity and infestation by exotic or nuisance vegetation;	
No signs of trespassing (the site is open to the public), some <i>Lygodium japonicum</i> and <i>Lonicera japonica</i> adjacent to the property.	
B: Internal Roads (Both public and maintenance) for signs of dumping or trespassing, erosion, bridges and road integrity, and exotic or nuisance species infestations;	
N/A	
C: All construction areas for stabilization and re-vegetation, structure, operation, and integrity;	
N/A	
D: Representative polygons for each UMAM community for fuel load, exotic or nuisance species, planted material survival, groundcover, and shrub condition.	
The freshwater marsh restoration area shows appropriate herbaceous cover, but weedy, old field species are common along the upland edge. Many naturalized and planted species were dormant at the time of the survey. Pond cypress (<i>Taxodium ascendens</i>), buttonbush (<i>Cephalanthus occidentalis</i>), and soft rush (<i>Juncus effusus</i>) were in good health although no evidence of reproduction was observed. The planted soft rush approaching the upland was not growing as quickly as those nearer to the waterbody. Last season's reproductive marsh mallow (<i>Hibiscus moscheutos</i>) were also observed. One 10-15-foot tall, reproductive Chinese tallow (<i>Sapium sebiferum</i>) was seen on the upland edge of the restoration area.	

Vegetation Assessment Field Form Qualitative Assessment	
Project: Meginnis Arm Shoreline Restoration	Date: Jan 19 2011
Name(s) of Data Collectors: Caitlin Elam	Weather: 55 degrees F, partly cloudy
Environmental Description: Marsh restoration site on the southern shoreline of Lake Jackson. Photo #'s	
GPS Location: 30°29'46.11"N 84°18'25.87"W	Time: 1:30 pm
Nuisance Species: Some <i>Sapium sebiferum</i> was observed in the restoration area. <i>Lygodium japonicum</i> and <i>Lonicera japonica</i> were observed adjacent to the site. Other nuisance species such as <i>Sesbania herbacea</i>, <i>Andropogon glomeratus</i>, <i>Verbena brasiliensis</i>, and <i>Eupatorium capillifolium</i> were also observed. <i>Paspalum notatum</i> is encroaching from the adjacent upland.	
Fuel Load: Fine fuel load is high. Medium and heavy fuel load is low.	
Wildlife Observations: Cardinal, Coot	
Water depth: Saturated to inundated 1-3 inches.	
Is the community observed along the walk path representative of the community being measured? Yes, although it is dominated by many early successional species.	
To what degree is the restoration in this area trending towards success? If planted species persist and reproduce over time the restoration area is trending toward success.	
Potential Problems and solutions: Invasive species should be treated regularly.	

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