

First Annual Monitoring Report for the Ward Creek West Restoration Site (2008)
ACOE Permit No. SAJ-2006-4624-IP-DEB (St. Andrew Bay Watershed)

Site Description:

Ward Creek West is a 724-acre tract located ¼ mile west of SR 79 in Bay Co. within the West Bay subbasin of the St. Andrew Bay watershed (Figure 1). Approximately 675 acres (93%) are wetlands and 49 acres (7%) uplands. The headwaters of Ward Creek, a first-order stream flowing east to West Bay, occur within this tract.

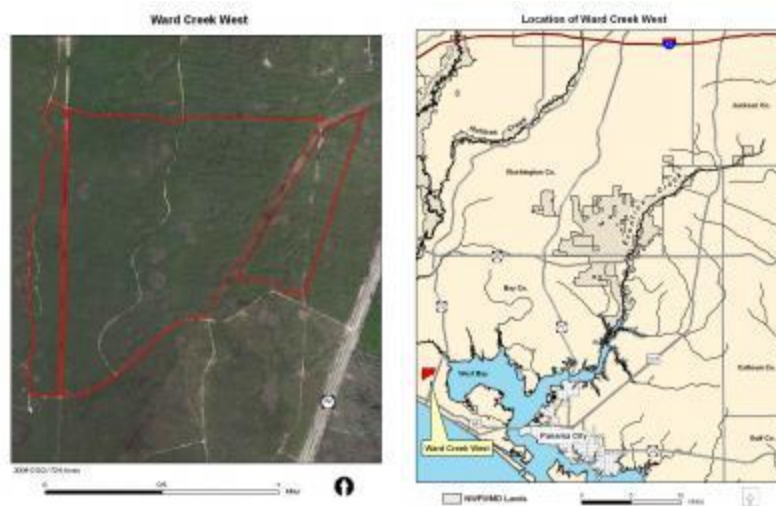


Figure 1. Location Map and Aerial Boundaries

Prior to initiation of restoration activities in May of 2008, this site consisted largely of bedded slash pine plantation (FLUCCS 441), titi (FLUCCS 614), and pockets of gum swamp (FLUCCS 613) with cypress inclusions (FLUCCS 621). Historic aerals suggest this area was once dominated by hydric pine flatwoods (FLUCCS 625) and hydric pine savanna (FLUCCS 626), with conversion to pine plantation occurring sometime after 1964. Impacts to this site include ditching, bedding and other silvicultural activities. Located within the Regional General Permit (RPG) and Ecosystem Management Area (EMA), most of the pine plantation stands in this area have according to St. Joe Co. documents been through one or more rotations. The goal of this project is restoration of hydric pine flatwoods (FLUCCS 625), hydric pine savanna (FLUCCS 626), and pockets of cypress (FLUCCS 621) coupled with enhancement of pockets of gum swamp (FLUCCS 613) and cypress (FLUCCS 621). The restored site will be owned and managed in perpetuity for ecological integrity by the NFWFMD.

Restoration Activities:

Hydric pine flatwoods (FLUCCS 625) and hydric pine savanna (FLUCCS 626) will be restored from existing pine plantation and titi shrub scrub via Gyro-Trac, thinning of bedded slash pine, ditch plugs where applicable, seeding of herbaceous vegetation, prescribed fire and

perpetual ecological management. In wet areas, slash pine will be thinned to no more than 112 trees per acre. Slash pine in areas to be restored to hydric pine savanna will be thinned to less than 112 trees per acre. Areas determined in the field to be upland will have all slash pine removed and will be replanted with longleaf pine at no more than 200 trees per acre (Figure 2). Mechanical reduction of shrubs and herbicide reduction may be employed. Initial dormant-season fuel reduction fires will be followed by implementation of growing-season burns on 2 to 3-years cycles, subject to on-the-ground conditions. Nuisance and exotic species would be managed and eradicated as necessary. Nuisance/exotic management may include the use of approved herbicides.

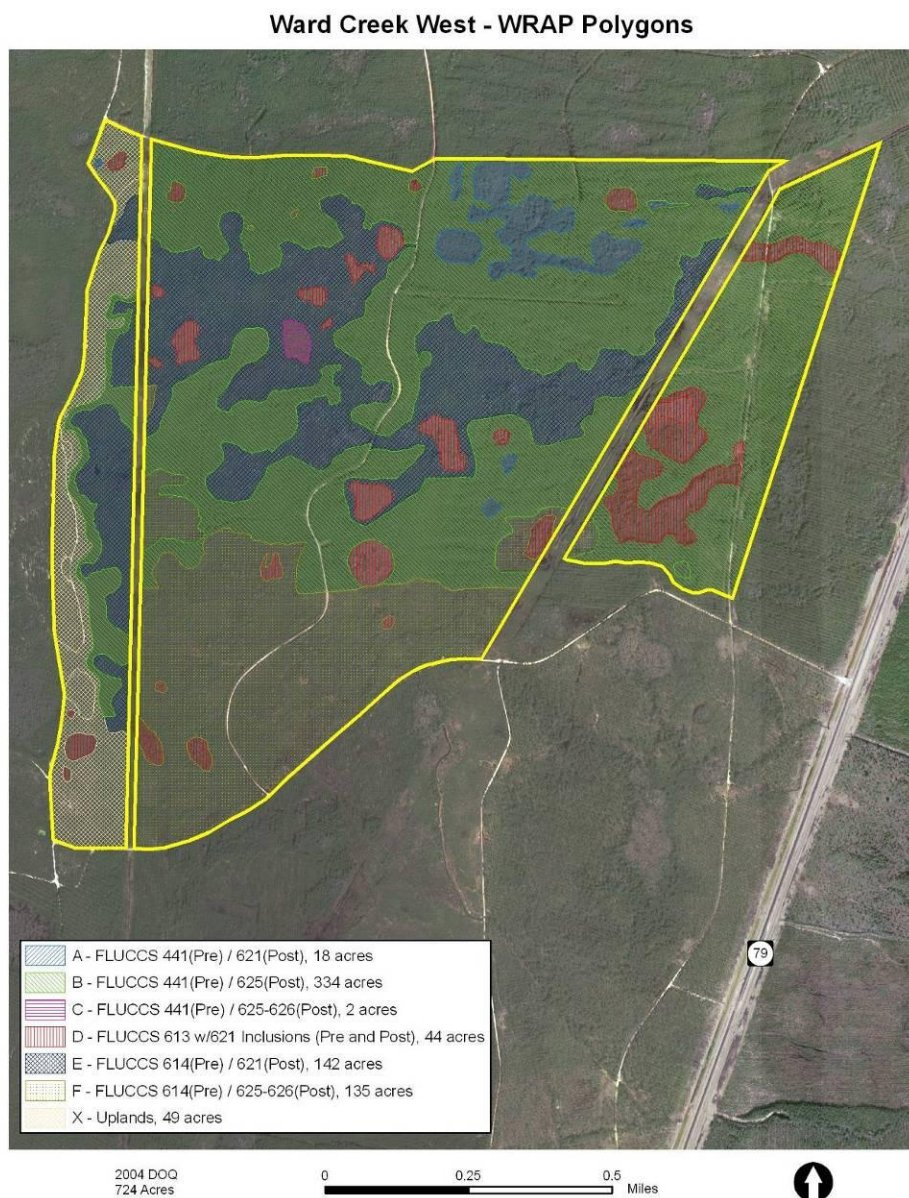


Figure 2. Post Restoration FLUCCS Map

Success Criteria:

Success criteria below are derived from Chapter 11 of the UWRMP. Specific success criteria are established prior to development of a mitigation area and therefore must indicate that mitigation objectives have been met. Each criterion shall be modified based on the characteristics of a specific mitigation site.

1. No observable decline in vegetation community health.
2. Species diversity is either stable or increasing in each wetland type.
3. No more than 1% coverage of invasive exotics and 5% coverage of nuisance native and non-invasive exotic species.
4. No more than 112 slash pine trees per acre in hydric pine flatwood and savanna areas.
5. No more than 200 longleaf pine trees per acre in upland areas.

Monitoring:

Monitoring protocols necessary to ensure effective preservation, enhancement and restoration are described in Chapter 11.0 of the UWRMP. Specific monitoring to be implemented at this site follows.

1. 15+ minute pedestrian surveys in each polygon type; number of survey paths to be determined in field.
2. Permanent 360° photographic station; photos taken annually; number of photo-points to be determined in the field.

Mitigation Activities:

Following the acquisition of the property in early 2008, the NFWFMD completed a survey of the property boundaries and installed gaits at the property boundaries. In April 2008 preparation for the timber cruise was initiated and completed in November 2008. The timber cruise will be conducted from December to February 2009. The site is expected to be harvested from April of 2009 until April of 2010. As part of the approved restoration activities, a species list has been generated for each of the habitat types (Table 1-5). A total of 140 acres of thick titi dominated shrub wetlands have been reduced to ground level using a Gyro-Trac as the first stage in returning the shrub wetlands to the historic wet pine flatwood and wet prairie habitat. The removal of the shrub cover has released the seedbank and wet prairie vegetation was observed within these areas following the burn (Table 3). A winter burn has been scheduled and will be conducted for the site in late 2008/early 2009 (Figure 3). The shrub areas will be burned followed by a series of herbicides in 2009, to reduce shrub cover. The herbicide treatment will specifically target shrubs without impacting the native desirable herbs, forbes and grasses. Finally, a baseline WRAP table has been included (Figure 4).

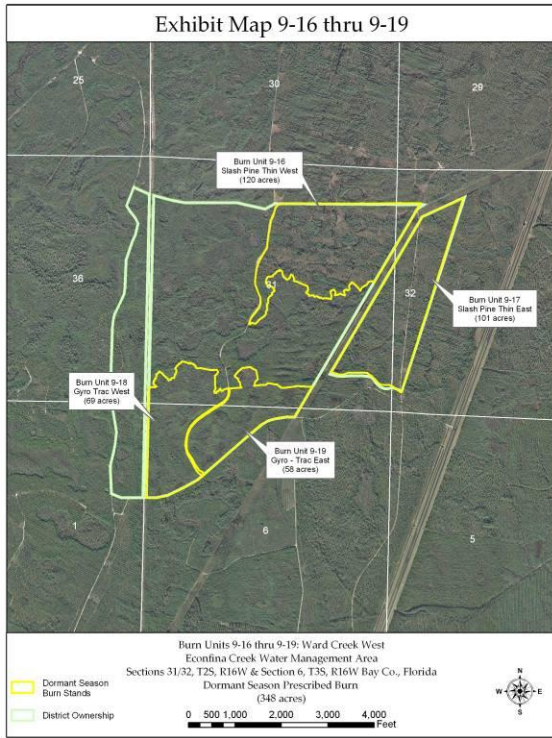


Figure 3. Proposed winter burns

Ward Creek West WRAP Scores (per RGP/DSMB)					
Polygon	Acres	Existing WRAP Score	Future WRAP Score	Delta	WRAP Credits
A	18	0.65	0.96	0.31	5.58
B	334	0.65	0.96	0.31	103.54
C	2	0.65	0.96	0.31	0.62
D	44	0.92	0.99	0.07	3.08
E	142	0.75	0.97	0.22	31.24
F	135	0.75	0.97	0.22	29.70
Total:	675				173.76

Figure 4. Ward Creek West Baseline Wrap Scores

Table 1. Ward Creek West Pine Plantation (3rd Row Cut)

Wildlife Observed: Southern cricket frog, deer tracks, raccoon tracks					
Scientific Name	Common Name	Tree	Shrub	Vine	Herb
<i>Andropogon virginicus</i> L. <i>var. glaucus</i>	Chalky bluestem				X
<i>Clethra alnifolia</i>	Sweet pepper bush		X		
<i>Cliftonia monophylla</i>	Black titi		X		
<i>Cyrilla racemiflora</i>	Red titi		X		
<i>Dicanthelium</i> sp.	Panic grass				X
<i>Hypericum</i> sp.	St. Johns wort				X
<i>Ilex coriacea</i>	Large gallberry		X		
<i>Ilex glabra</i>	Gallberry		X		
<i>Ilex myrtifolia</i>	Myrtle leaf holly	X			
<i>Lachnanthes caroliana</i>	Redroot				X
<i>Lyonia fruticosa</i>	Coastalplain staggerbush		X		
<i>Lyonia lucida</i>	Fetterbush		X		
<i>Magnolia virginiana</i>	Silver bay	X			
<i>Myrica inodorata</i>	Odorless wax myrtle		X		
<i>Nyssa sylvatica</i>	Black gum	X			
<i>Persea paulistris</i>	Silk bay	X			
<i>Pinus elliotii</i>	Slash pine	X			
<i>Rhexia</i> sp.	Meadow beauty				X
<i>Rhynchospora</i> sp.	Beakrush				X
<i>Rubus cuneifolius</i>	Sand blackberry		X		
<i>Serenoa repens</i>	Saw palmetto		X		
<i>Smilax laurifolia</i>	Greenbriar			X	
<i>Taxodium ascendens</i>	Pond cypress	X			
<i>Vaccinium corymbosum</i>	Swamp blueberry		X		
<i>Vitis rotundifolia</i>	Muscadine grape			X	
<i>Xyris caroliniana</i>	Yellow-eyed grass				X
<i>Xyris</i> sp.	Yellow-eyed grass				X

Table 2. Ward Creek West Unharvested Pine Plantation

Wildlife Observed: None					
Scientific Name	Common Name	Tree	Shrub	Vine	Herb
<i>Clethra alnifolia</i>	Sweet pepper bush		X		
<i>Cliftonia monophylla</i>	Black titi		X		
<i>Cyrilla racemiflora</i>	Red titi		X		
<i>Ilex coriacea</i>	Large gallberry		X		
<i>Ilex glabra</i>	Gallberry		X		
<i>Leucothoe racemosa</i>	Swamp hobble		X		
<i>Lyonia fruticosa</i>	Coastalplain staggerbush		X		
<i>Lyonia lucida</i>	Fetterbush		X		
<i>Magnolia virginiana</i>	Silver bay	X			
<i>Pinus elliotii</i>	Slash pine	X			
<i>Serenoa repens</i>	Saw palmetto		X		
<i>Smilax laurifolia</i>	Greenbriar			X	
<i>Taxodium ascendens</i>	Pond cypress	X			
<i>Vitis rotundifolia</i>	Muscadine grape			X	

Table 3. Ward Creek West Gyro-Trac Shrub Wetlands

Wildlife Observed: Towhee, catbird, crawfish chimney, raccoon tracks					
Scientific Name	Common Name	Tree	Shrub	Vine	Herb
<i>Andropogon virginicus</i>	Broom sedge				X
<i>Andropogon virginicus</i> L. var. <i>glaucus</i>	Chalky bluestem				X
<i>Aristida beyrichiana</i>	Wiregrass				X
<i>Aristida spiciformis</i>	Bottlebrush threeawn				X
<i>Carphephorus odoratissimus</i>	False vanilla leaf				X
<i>Centella asiatica</i>	Centella				X
<i>Clethra alnifolia</i>	Sweet pepperbush		X		
<i>Cliftonia monophylla</i>	Black titi		X		
<i>Ctenium aromaticum</i>	Toothache grass				X
<i>Cuscuta sp.</i>	Scaldweed			X	
<i>Cyrilla racemiflora</i>	Red titi		X		
<i>Dicanthelium sp.</i>	Panic grass				X
<i>Drosera capillaris</i>	Pink sundew				X
<i>Eleocharis inundata</i>	Spikerush				X
<i>Eleocharis vivipara</i>	Viviparous spikerush				X
<i>Eriocaulon compressum</i>	Pipewort				X
<i>Eupatorium album</i>	White thoroughwort				X
<i>Gaylussacia dumosa</i>	Dwarf huckleberry		X		
<i>Gelsemium sempervirens</i>	Yellow jessamine			X	
<i>Hypericum sp.</i>	St. Johns wort				X
<i>Ilex coriacea</i>	Large gallberry		X		
<i>Ilex glabra</i>	Gallberry		X		
<i>Ilex myrtifolia</i>	Myrtle leaf holly	X			
<i>Juncus marginatus</i>	Rush				X
<i>Lachnanthes caroliniana</i>	Redroot				X
<i>Leucothoe racemosa</i>	Swamp doghobble		X		

<i>Lycopodiella alopecuroides</i>	Foxtail club moss				X
<i>Lyonia fruticosa</i>	Coastalplain staggerbush		X		
<i>Lyonia lucida</i>	Fetterbush		X		
<i>Magnolia virginiana</i>	Silver bay	X			
<i>Myrica caroliniensis</i>	Northern bayberry		X		
<i>Myrica cerifera</i>	Wax myrtle		X		
<i>Photinia pyrifolia</i>	Red chokeberry		X		
<i>Pinus elliotii</i>	Slash pine	X			
<i>Polygala cruciata</i>	Drumheads				X
<i>Polygala lutea</i>	Orange milkwort				X
<i>Pteridium aquilinum</i>	Brachen fern				X
<i>Quercus pumila</i>	Runner oak		X		
<i>Rhexia alifanus</i>	Savannah meadowbeauty				X
<i>Rhexia mariana</i>	Meadow beauty				X
<i>Rhynchospora sp.</i>	Beakrush				X
<i>Saccharum giganteum</i>	Giant plume grass				X
<i>Sarracenia flava</i>	Yellow pitcher plant				X
<i>Serenoa repens</i>	Saw palmetto		X		
<i>Smilax laurifolia</i>	Greenbriar			X	
<i>Solidago odora var. chapmanii</i>	Chapman's goldenrod				X
<i>Taxodium ascendens</i>	Pond cypress	X			
<i>Vaccinium corymbosum</i>	Swamp blueberry		X		
<i>Vitis rotundifolia</i>	Muscadine			X	
<i>Xyris sp.</i>	Yellow-eyed grass				X

Table 4. Ward Creek West Cypress Wetland

Wildlife Observed: None					
Scientific Name	Common Name	Tree	Shrub	Vine	Herb
<i>Clethra alifolia</i>	Sweet pepper bush		X		
<i>Cliftonia monophylla</i>	Black titi		X		
<i>Ilex myrtifolia</i>	Myrtle-leaved holly		X		
<i>Leucothoe racemosa</i>	Swamp hobble		X		
<i>Lyonia lucida</i>	Fetterbush		X		
<i>Nyssa biflora</i>	Swamp blackgum	X			
<i>Pinus palustris</i>	Longleaf pine	X			
<i>Rhododendron canescens</i>	Sweet pinxter azalea		X		
<i>Serenoa repens</i>	Saw palmetto		X		
<i>Smilax laurifolia</i>	Greenbriar			X	
<i>Taxodium ascendens</i>	Pond cypress	X			

Table 5. Ward Creek West Sand Pine Plantation

Wildlife observed: deer tracks, raccoon tracks, armadillo tracks					
Scientific Name	Common Name	Tree	Shrub	Vine	Herb
<i>Aristida stricta</i> var. <i>beyrichiana</i>	Wiregrass				X
<i>Balduina angustifolia</i>	Coastal plain honeycomb head				X
<i>Conradina canescens</i>	False rosemary		X		
<i>Eupatorium compositifolium</i>	Dog fennel		X		X
<i>Ilex glabra</i>	Gallberry			X	
<i>Ilex vomitoria</i>	Yaupon		X		
<i>Lupinus westianus</i>	Gulf coast lupine				X
<i>Persea borbonia</i>	Red Bay	X			
<i>Pinus clausa</i>	Sand pine	X			
<i>Pityopsis aspera</i>	Pineland silkgrass				X
<i>Pteridium aquilinum</i>	Bracken fern				X
<i>Opuntia humifusa</i>	Prickly-pear cactus				X
<i>Quercus elliotii</i>	Runner oak		X		
<i>Quercus laevis</i>	Turkey oak	X			
<i>Quercus margaretta</i>	Sand post oak	X			
<i>Quercus myrtifolia</i>	Myrtle oak		X		
<i>Quercus virginiana</i>	Live oak	X			
<i>Serenoa repens</i>	Saw palmetto		X		
<i>Smilax pumila</i>	Greenbriar				X
<i>Yucca filamentosa</i>	Adam's needle				X
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