

Womack Creek/Tates Hell Wetlands Restoration Annual Monitoring Report (2008)
Nationwide Permits – 200200233 (NW-JWS), 200205045 (NW-JWS) &
200205047 (NW-JWS) issued 2/6/2003, and 200205672 (NW-JWS) issued 5/2/2003

Impact: I 10 bridge @ Little River in Gadsden County, 0.44 acre of river floodplain.
Three bridges in Wakulla County (US 319 @ Little Tide Creek, US 319 @ Curtis Mill
Creek, and Roberts Landing Road @ Silver Lake Creek), 0.56 acre of bottomland
hardwood forest.

Mitigation: Womack Creek/Tates Hell

Monitoring Date: 11/11/08

Mitigation Site

The Womack Creek/Tates Hell wetlands restoration site is located on the Ochlockonee River along the eastern side of State Road (SR) 67 in Tates Hell Swamp, Liberty County, Florida (Figure 1) at approximately 30°1.5'N and 84°35'W in Section 2, Township 6S, Range 4W. Tates Hell Swamp covers some 200,000 acres (>300 mi²) of low-lying, poorly drained land between the Apalachicola and Ochlockonee rivers in the Florida Panhandle. Although this area historically was dominated by a variety of wetland types including wet savanna, wet flatwoods, cypress strands and hardwood swamps, much of the swamp was converted to slash pine (*Pinus elliotii*) plantation during the 1960s and 1970s. Degradation of Tates Hell from silvicultural operations included the construction of over 800 miles of logging roads and drainage ditches, and the establishment of bedded pine stands. These actions disrupted natural flow patterns and caused a lowering of the water table across large sections of the swamp and ponding of some specific locations due to road construction. With the replacement of much of the natural vegetation with stands of bedded pine, the natural functions and biotic diversity (flora and fauna) of the swamp also were severely impacted.

The ecological health of the Apalachicola Bay is strongly influenced by freshwater flows from Tates Hell. In the early 1990s, the Northwest Florida Water Management District (NFWFMD) and the State of Florida began acquiring portions of Tates Hell Swamp for wetland habitat preservation and to forestall further water quality declines. Public acquisitions now total some 205,000 acres and are managed by the Florida Division of Forestry (DOF) as Tates Hell State Forest. Since 1993, the NFWFMD, working with DOF, has conducted restoration of portions of Tates Hell Swamp. A long-term vision is eventual restoration of the natural communities of the entire swamp. This mitigation project complements these ongoing efforts by focusing on an area not previously slated for restoration activities.

Scope

Repairs to the I 10 bridge at Little River in Gadsden County will impact 0.44 acre of wetlands described by FDOT as river floodplain. Replacement of the three bridges in Wakulla County will impact 0.56 acre of wetlands of described by FDOT as of unknown type. Analysis of 1999

DOQs and a site visit by NFWMD staff suggested that the impact wetlands were historically bottomland hardwood forest which was now maintained as part of the highway right-of-way. To plan for sufficient mitigation, it was assumed that the wetlands being impacted at all four were of the highest quality and would be completely destroyed. In actuality, the impact wetlands were lower quality roadside areas diminished by right-of-way maintenance, runoff, and altered hydrology from ditches and berms.

Proposed Mitigation

To mitigate for 1.0 acre of wetland impact related to the four bridge projects, a 70-acre tract in the Womack Creek drainage of Tates Hell Swamp (Figure 2) was selected for restoration activities. The site is directly adjacent to the Ochlockonee River and consists of approximately 50 acres of historically hydric pine with about 20 acres of wetlands (Figure 3). The hydric pine areas were clear cut in the early 1990's and not replanted. These areas were left fallow, allowed to regenerate and were dominated by 6 to 20-foot laurel oaks, live oaks, water oaks, sweet gum, maple and titi. Aerial photography flown in 1953 indicated the site was primarily hydric pine flatwoods with some mixed hardwoods. The approved mitigation plan included a mechanical reduction of the hardwood understory followed by a burn after several months. Approximately 20 acres of the site was planted with wiregrass (*Aristida stricta*) on 3-foot centers.

Restoration Activities

The project was divided into two phases with all site preparation activities (mechanical reduction and burning) included in phase one and vegetation planting in phase two. Mechanical reduction was initiated in May 2005 with a walk down of the woody shrubs on about 50 acres of the site; care was taken to avoid the low lying wetlands located through the central portion of the site. All vegetation less than about 6-8 inches in diameter was pushed over with a D-6 tractor; larger hardwoods and scattered pines were left standing. Walkdown was followed by roller chopping most of the site after 2-3 months. Due to the vagaries of the weather no burning was carried out in the area until fall 2007 when an unsuccessful partial burn was attempted. Additional mechanical reduction was completed with a gyrotrack in December 2007 in preparation for planting. A second burn was carried out at the end of December 2007 just prior to planting (Figure 4). Only partial success was noted with both burns because of the limited amount of fuel on site. A dormant season burn is scheduled for later this year (winter 2009). A total of 96,075 wiregrass tubelings was planted on 3-ft centers on 18 January 2008 over approximately 20 acres of the site (Figure 5).

Annual monitoring of the restoration site was carried out on 11 November 2008 (Figures 6 and 7). A series of transects was walked over the site noting vegetation present. Fifty-five groundcover and shrub species were observed (Table 1). Vegetation coverage of jurisdictional wetland species ranged from 60 to 75% depending on location at the site. Survival of wiregrass was estimated to be 40-45% with less than 5% exotic species. A small patch (approximately 250 square feet) of cogongrass (*Imperata cylindrica*) was noted on the eastern side of the tract. An

herbicide treatment is planned in the fall. Wildlife signs were recorded and are presented in Table 2.

Work Schedule

- Coordination with Florida Division of Forestry (Tates Hell State Forest): initial coordination completed prior to shrub walkdown (4/15/05); communication ongoing
- Mechanical shrub reduction: completed 5/30/05
- Roller chopping of site by FDOF staff: completed 8/30/05
- Initial burn attempted: partial burn completed 9/1/07
- Additional mechanical reduction (gyrotracking) carried out: completed 12/15/07
- Second burn attempted with greater success: completed 12/30/07
- Wiregrass planted on approximately 20 acres of site: completed 1/18/08
- Annual monitoring performed: completed 11/11/08

Success Criteria

- Mechanical reduction and burn: mechanical reduction of shrub and overstory was carried out by walkdown (May 2005), roller chop (August 2005), and gyrotrack (December 2007); a partial burn was carried out (September 2007) followed by a more successful second burn (December 2007).
- Supplemental planting of 20 acres with wiregrass plugs on 3-ft centers: planting was completed in January 2008.
- Vegetative cover shall be at least 85% with jurisdictional wetland vegetation for a period of one year: annual monitoring indicated that wetland vegetation coverage was 60-75% depending on site location.
- Survival of the planted wiregrass shall be 85%: annual monitoring indicated that wiregrass survival was 40-45%; a second planting to insure proper survival will be done in Fall 2009.
- Nuisance exotic species shall be controlled and kept to less than 5% of the total percent cover: annual monitoring indicated less than 5% cover of exotic species. A small patch of cogongrass was noted on the eastern side of the tract and will be treated with herbicide in Fall 2009.

Figure 1: General Location Map for Womack Creek Restoration Site

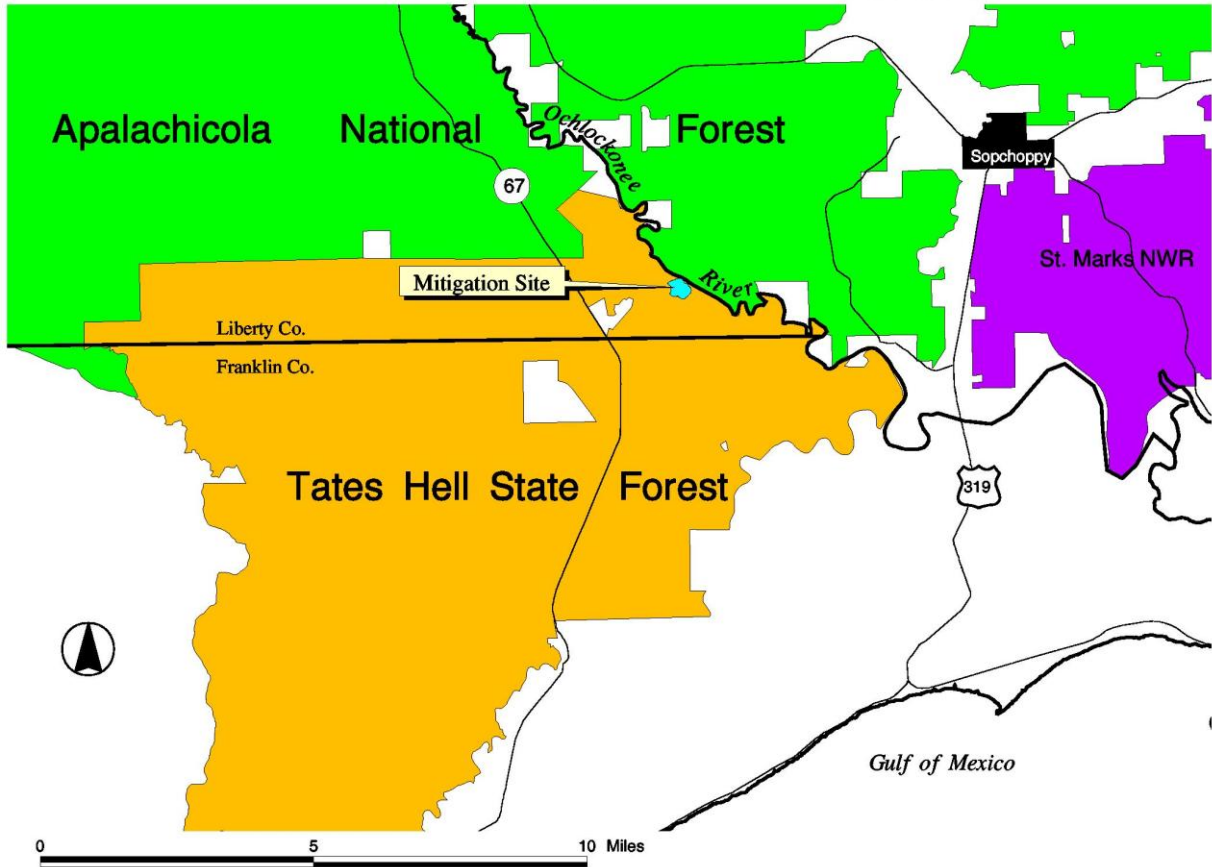


Figure 1. General location of the Womack Creek mitigation site along the Ochlockonee River in the northeastern portion of Tates Hell State Forest.

Figure 2: Womack Creek Restoration Site (~70 Acres)

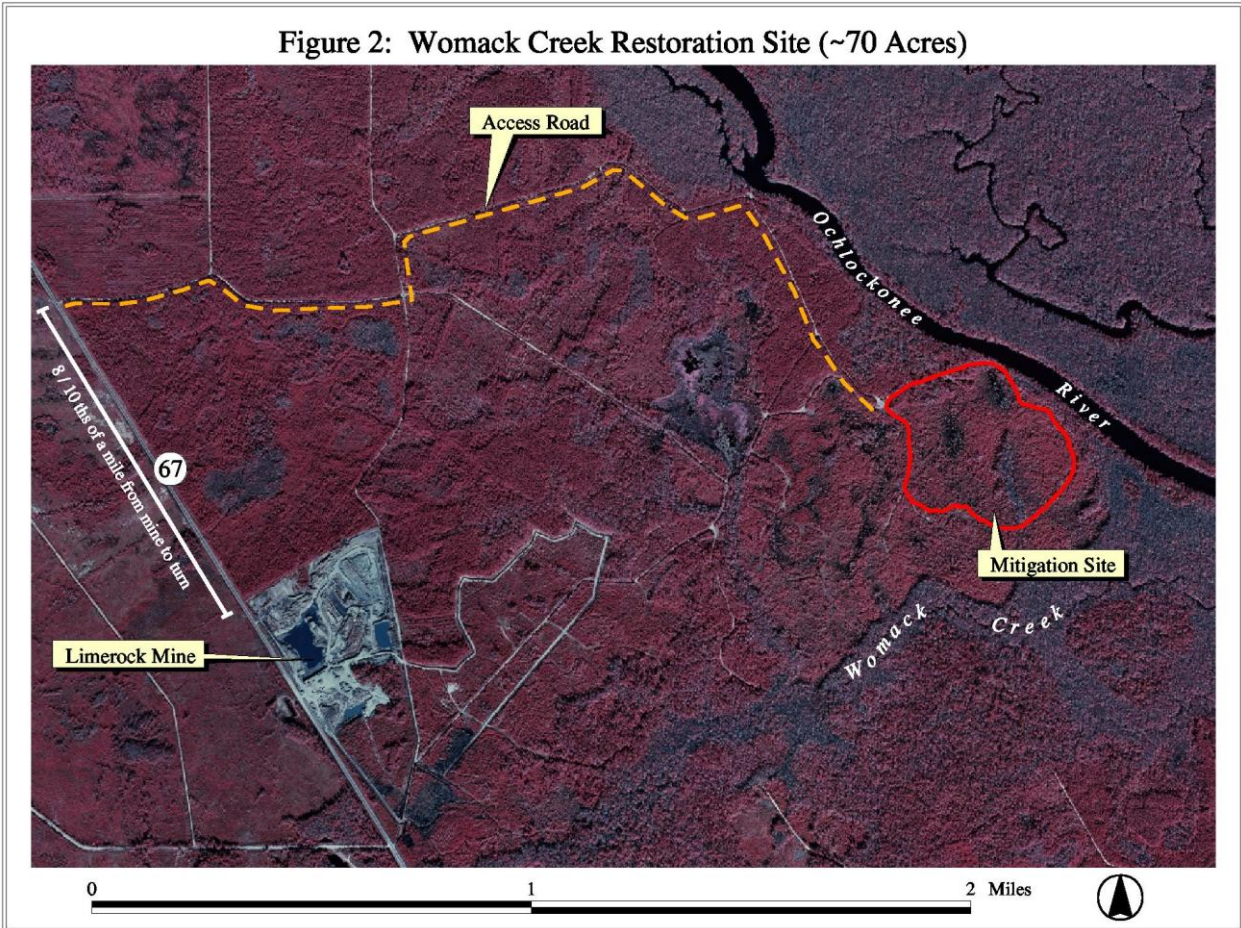


Figure 2. Site location indicating proximity to the Ochlockonee River and Womack Creek.

Womack Creek Mitigation Area



Figure 3. Aerial photograph of the site indicating locations of wetlands (darker, elongated patches in central and northern portions of site).



Figure 4. Typical appearance of site after gyrotrack clearing of vegetation and second burn (December 2007). Photo was taken on western side of tract prior to planting.



Figure 5. Wiregrass planting on western side of tract (January 2008). A total of 96,075 wiregrass tubelings was planted over approximately 20 acres of the site.



Figure 6. Typical vegetation cover on eastern side of tract observed during annual monitoring (11/11/08). Wiregrass cover is 40-45%.



Figure 7. Typical vegetation cover on western side of tract observed during annual monitoring (11/11/08). Wiregrass cover is 40-45%.

Table 1. Vegetation species list observed during the annual monitoring of the Womack Creek mitigation site on 11 November 2008.

Scientific Name	Common Name	Tree	Shrub	Vine	Herb
<i>Andropogon virginicus</i>	Broom sedge				X
<i>Aristida stricta</i>	Wire grass				X
<i>Callicarpa americana</i>	Beauty berry		X		
<i>Carex sp.</i>	Caric sedge				X
<i>Centella asiatica</i>	Centella				X
<i>Cliftonia monophylla</i>	Black ti ti		X		
<i>Cyperus sp.</i>	Sedge				X
<i>Dichanthelium aciculare</i>	Needleleaf witchgrass				X
<i>Dicanthelium spp.</i>	Witch grass				X
<i>Diospyros virginiana</i>	Persimmon	X			
<i>Eragrostis elliotii</i>	Elliott lovegrass				X
<i>Eupatorium capillifolium</i>	Dog fennel				X
<i>Euthamia caroliniana</i>	Flat-topped goldenrod				X
<i>Fuirena squarrosa</i>	Lake-rush				X
<i>Juncus effusus</i>	Soft rush				X
<i>Juncus megacephalus</i>	Large headed rush				X
<i>Hypericum gentianoides</i>	Orange grass				X
<i>Hyptis alata</i>	Musk mint				X
<i>Ilex coriacea</i>	Tall gall berry		X		
<i>Ilex glabra</i>	Gall berry		X		
<i>Ilex opaca</i>	American holly	X			
<i>Ilex vomitoria</i>	Yaupon		X		
<i>Liquidambar styraciflua</i>	Sweet gum	X			
<i>Ludwigia sp.</i>	Seedbox				X
<i>Lycopodium aloperuroides</i>	Fox clubmoss				X
<i>Magnolia grandiflora</i>	Southern magnolia	X			
<i>Magnolia virginiana</i>	Silver bay	X			
<i>Myrica cerifera</i>	Wax myrtle		X		
<i>Osmunda cinnamomea</i>	Cinnamon fern				X
<i>Pinus glabra</i>	Spruce pine	X			
<i>Polypremum procumbens</i>	Rustweed				X
<i>Pluchea foetida</i>	Camphor weed				X
<i>Pteridium aquilinum</i>	Bracken fern				X
<i>Quercus hemisphaerica</i>	Diamond oak	X			
<i>Rhapidophyllum hystrix</i>	Needle palm		X		
<i>Rhexia mariana</i>	Pale meadow beauty				X
<i>Rubus argutus</i>	Black berry		X		
<i>Rubus trivialis</i>	Dew berry		X		
<i>Sabal minor</i>	Bluestem palm		X		
<i>Sabal palmetto</i>	Sabal palm	X			
<i>Saururus cernuus</i>	Lizard's tail				X
<i>Scirpus cyperinus</i>	Wool-grass				X
<i>Scleria sp</i>	Nut sedge				X
<i>Smilax laurifolia</i>	Greenbriar			X	
<i>Solidago fistulosa</i>	Pine barrens goldenrod				X
<i>Vaccinium corymbosum</i>	Highbush blueberry		X		

<i>Viburnum dentatum</i>	Arrowwood		X		
<i>Viola lanceolata</i>	Bog white violet				X
<i>Vitis rotundifolia</i>	Muscadine grape			X	
<i>Woodwardia areolata</i>	Netted chain fern				X
<i>Xyris sp.</i>	Yellow-eyed grass				X

Table 2. Wildlife observations noted during the annual monitoring of the Womack Creek site on 11 November 2008.

Deer (tracks)
Raccoon (tracks and scat)
Oak toad
Crayfish chimney