

TATE'S HELL – WHISKEY GEORGE/SUMATRA MITIGATION SITES
Annual Monitoring Report, 2011, Year 2 of 5
December 15, 2011

PROJECT OVERVIEW

Impacts: SR 65, Liberty County

USACE Permit No.: SAJ-2008-04457 (NW-RLT), issued 3/10/2010

Mitigation: Tate's Hell – Whiskey George and Sumatra Savannas
Hydrologic Restoration Project, Franklin County

Permittee/Consultant: FDOT

Responsible Party for Monitoring: Northwest Florida Water Management District (NFWFMD)
81 Water Management Dr.
Havana, FL 32333

Date of Inspection: November 16 & 17, 2011

Inspectors: Leigh Brooks, Graham Lewis

Purpose of the Approved Project

The Whiskey George and Sumatra Savannas Hydrologic Restoration Project seeks to restore historic surface water drainage patterns and wetland vegetation communities to enhance the quality and timing of surface water runoff flowing into East Bay, part of the Apalachicola Bay system. Under the Northwest Florida Umbrella, Watershed-based, Regional Mitigation Plan, the project was awarded 21.84 credits and implemented prior to impact occurrence. Subsequently, 0.35 mitigation credits were used to compensate for 0.59 acres of impact from resurfacing and widening State Road (SR) 65 in Liberty County, leaving a credit balance of 21.49. The project area is part of the 200,000-acre (>300 miles²) Tate's Hell State Forest (THSF). Tate's Hell Swamp is low-lying, poorly drained land between the Apalachicola and Ochlockonee rivers. 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 silvicultural use during the 1960s and 1970s, diminishing the natural attributes of the swamp. Since 1993, the NFWFMD, working with Florida Forest Service (FFS), has improved hydrology and habitat in localized portions of Tate's Hell State Forest.

Location and Directions

There are two mitigation project areas, both located in THSF east of State Road 65 in northwest Franklin County ([Figure 1](#)). Project Area 1 is Whiskey George Savanna shown in [Figure 2](#), and Project Area 2 is Sumatra Savanna shown in [Figure 3](#).

The Whiskey George Savanna site improvements are centered at approximately 29°55'N and 84°51'W and encompass parts of Sections 21, 29, 30, 31, and 32, Township 6S, Range 6W. The project area is reached by taking Buck Siding Road east from SR 65 to Tower Road, or from Tower Road's south end at SR 65 and heading north. The project area is roughly bounded by Tower Road on the west, Gully Branch Road on the north, Tucker Road on the east, and Road 26 on the south. West Double Bridge Road runs east/west through the site.

Sumatra Savanna site improvements are centered at approximately 29°59'N and 84°55'W in Sections 34 and 35, Township 5S, Range 7W and Sections 1 and 2, Township 6S, Range 7W. The project area is accessed from State Road 65 in the community of Sumatra, heading east on County Road 22 for 2.9 miles, then turning south on West Boundary Road for 1.3 miles to Sumatra Road. This is the northwest corner of the project area. Other bounding roads are Tower Road on the east and 115B on the south.

Project Summary

Hydrologic improvements consisted of the removal and re-contouring of logging roads and adjacent ditches and the installation of low water crossings, ditch plugs, and culverts. Prescribed burns appropriate to maintaining savannas will be conducted by the THSF fire program every two to five years.

Whiskey George Savanna. Target habitats include: hydric pine savannas (FLUCCS 626), hydric pine flatwoods (FLUCCS 625), and slash pine swamp forest (FLUCCS 627) with smaller areas of cypress (FLUCCS 621), Atlantic White Cedar swamps (FLUCCS 623), and mixed forested wetlands (FLUCCS 630).

Sumatra Savanna. Target habitats include: hydric pine savannas (FLUCCS 626), hydric pine flatwoods (FLUCCS 625), cypress sloughs (FLUCCS 621), shrub wetlands (FLUCCS 690), slash pine swamp forest (FLUCCS 627), and mixed forested wetlands (FLUCCS 630).

MITIGATION ACTIVITIES

Work Schedule

- Hydrologic improvements: began January 2009 and were completed April 2009.
- Annual monitoring: conducted in late winter/early spring 2010 and fall 2011.

Description of management activities

A total 31,050 linear feet (5.9 miles) of dirt logging roads and associated ditches were re-graded as closely to the original natural elevation as possible, allowing for 39.82 acres of wetlands to be recolonized. Contrary to the prior year's monitoring report, there have been no plantings, and none are required or scheduled. Activities conducted by area include:

Whiskey George Savanna: Four hardened low water crossings and one earthen ditch plug were installed. 2.7 miles (18.14 acres) of roads/ditches were removed.

Sumatra Savanna: Two hardened low water crossings and two 30-inch diameter culverts were installed. 3.2 miles (21.68 acres) of roads/ditches were removed.

MONITORING REQUIREMENTS

- Annual or more frequent site inspection
 - Internal roads (both public and maintenance) for signs of dumping or trespassing, erosion, road integrity, exotic vegetation and nuisance vegetation and fauna;
 - All construction areas for stabilization and re-vegetation, structure operation and integrity.

- Qualitative monitoring, as appropriate.
 - Pedestrian survey - Notes on general health and reproductive status of vegetation, dominant species, recruitment of new species, the presence or spread of nuisance/exotic species, and the hydrologic condition will be recorded on field data sheets. Potential problems and appropriate solutions will be identified.
 - Permanent photographic stations.
 - Best available digital ortho photography for aerial monitoring.
 - Wildlife utilization - direct sightings, scat, tracks, vocalizations.
- Annual reports posted at www.NFWMDwetlands.com for duration of monitoring.

SUMMARY OF MONITORING ACTIVITIES

Monitoring Observations

The current monitoring was carried out on November 16 and 17, 2011, and consisted of a meandering pedestrian survey throughout the site with photographs taken at a variety of points ([Figures 4](#) and [5](#)). Field sheets are attached documenting [site conditions](#) and [observed species](#); to date, 64 species of groundcover and shrubs have been observed in the old road footprint. The sites were relatively dry during this year's survey in contrast to significant inundation noted in the previous monitoring report. Both restoration areas showed mixed success attributable primarily to surface elevations and time lag for recruitment.

In the Whiskey George restoration area, roadside ditches were remaining at several locations. At Photo Point 1 the north side ditch was evident ([Photo 1](#)) although groundcover showed good recolonization. Other area had similar recruitment despite occasional low, wet areas ([Photo 2](#)). At Photo Point 3, ditches remained intact and the ditch plugs not very effective, with water bypassing the plug on one side and flowing in the ditch. The old roadway was relatively bare for several hundred feet eastward, then had encroachment by titi, then was relatively bare again to and beyond Photo Point 4 ([Photo 3](#)).

In the Sumatra restoration area, the western low water crossing was problematic in that the roadbed was at a lower elevation than the drainages on the sides of the road, causing ponding in the road. Some areas where roads and ditches had been removed had a thick, continuous ground cover ([Photos 4](#) and [5](#)), while other areas were patchy or had very little cover. Ditches were still evident in some areas and served as ponds with water lilies ([Photo 6](#)). Extensive ditching remained from Photo Point 9 east to Photo Point 10 and even a good distance further east, and at Photo Point 11 southward. The ditch plugs at the end of the road removal at Photo Point 11 were not intact; functioning ditch plugs were found further south. Several large bare areas ([Photos 7](#) and [8](#)) were still evident. Near Photo Point 9 an old tire was noted in the north ditch. Just south of Photo Point 11, titi was encroaching onto the old roadway ([Photo 7](#)).

Wildlife observed were a few butterfly species including buckeye, sulphur and monarch, ground doves, small frogs at the mouths of wet burrows, snails, small fish in a roadside pond, and a large catlike mammal, probably a bobcat (seen at a distance). Animal tracks and scat were noted from deer, domestic dogs, feral hogs, raccoon, and black bear. Crayfish chimneys were common.

Success Criteria

The following performance standards, taken from the Northwest Florida Umbrella, Watershed-based, Regional Mitigation Plan (NFWFMD July 2006, revised March 2009), were evaluated during the recent site inspection. Restoration criteria apply within the footprint of the road/ditch removal while enhancement criteria apply to the remaining portions of the site. Natural recolonization and recruitment within the road and ditch removal areas have lagged somewhat over the last two years since completion of construction activities; revegetation is occurring but bare areas remain. Appropriate groundcover species have established in many areas but may take additional time to fill in unvegetated parts of the sites; total coverages lag behind that observed in adjacent natural areas. Thus, while not all performance standards were found to be met, the general trend is toward the target natural communities.

Restoration Success Criteria		Condition Met
RC-1	Desired species showing evidence of increasing coverage	Yes
RC-2	No more than 1% coverage of invasive exotic and 5% nuisance native and non-invasive exotic species unless otherwise specified in a management plan. The coverage of titi will be limited to no greater than 5% in restored road and ditch footprints.	Yes
RC-3	Increase in appropriate herbaceous, shrub and / or tree species	Yes
RC-4	Kind and total coverage of shrub species appropriate for management goals and target natural community	No*
RC-5	Kind and total coverage of herbaceous species appropriate for management goals and target natural community	No*
RC-6	Kind and total coverage of tree species appropriate for management goals and target natural community	No*
RC-7	Maintain the ecological conditions so that the mitigation UMAM scores are met for each of the specified community types.	Yes

*see discussion in Monitoring Observations section and above

Enhancement success criteria are based primarily on providing improved hydrology within the sites through the repair of severed flow pathways (e.g., low-water crossings, culvert improvements, ditch blocks) and continued introduction of fire. All construction activities are complete and based on site surveys the interior portions of the sites are being rehydrated. Burning is being coordinated with the FFS staff. All enhancement criteria are being met.

Enhancement Success Criteria		Condition Met
EC-1	Desired species showing evidence of increasing coverage	Yes
EC-2	No more than 1% coverage of invasive exotic and 5% nuisance native and non-invasive exotic species unless otherwise specified in a management plan	Yes
EC-3	Increase in appropriate species diversity	Yes
EC-4	Kind and total coverage of shrub species appropriate for management goals and target natural community	Yes
EC-5	Kind and total coverage of herbaceous species appropriate for management goals and target natural community	Yes
EC-6	Kind and total coverage of tree species appropriate for management goals and target natural community	Yes
EC-8	Maintain the ecological conditions so that the mitigation UMAM scores are met for each of the specified community types.	Yes

CONCLUSIONS

The road removals have improved localized hydrologic conditions, allowing for natural recovery of habitat and use by wildlife. While certain areas did not achieve the desired ground surface re-contouring, scattered small depressions and ponds are viewed as an asset that provides habitat diversity. It is difficult to recontour the roadbed and ditch elevations to match adjacent natural grade. In many instances, soil has been lost over the years due to erosion and cannot be brought in to replace the material lost. The appropriate plant species will colonize the sites if elevations and hydrologic conditions are suitable. Despite minor elevation differences in parts of the removal areas, the sites are trending toward the targeted natural communities.

Extensive linear patches of bare ground or wet depressions can impede the sweep of fire across the landscape. FFS will need to take that into account when conducting prescribed fire and plan a firing strategy accordingly. It is hoped that re-graded areas will not be used as fire breaks, scraping vegetation to bare ground. These areas need fire to stimulate continued colonization and control undesirable shrubs. A possible benefit could come, however, if fire lines are plowed that improve the natural grade, smoothing out differences between elevated old roadways and incompletely filled ditches.

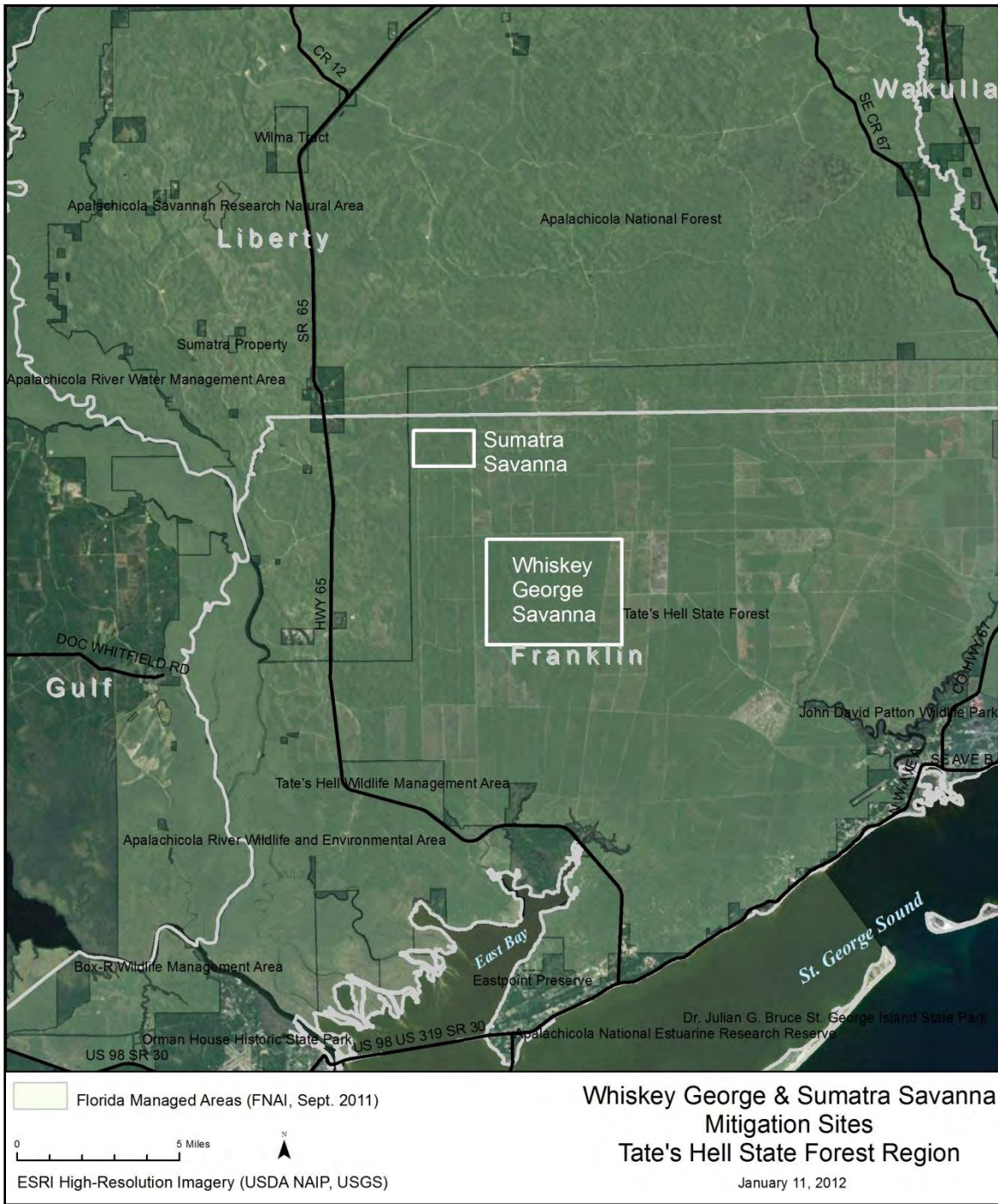


Figure 1. Location map.

[RTN](#)

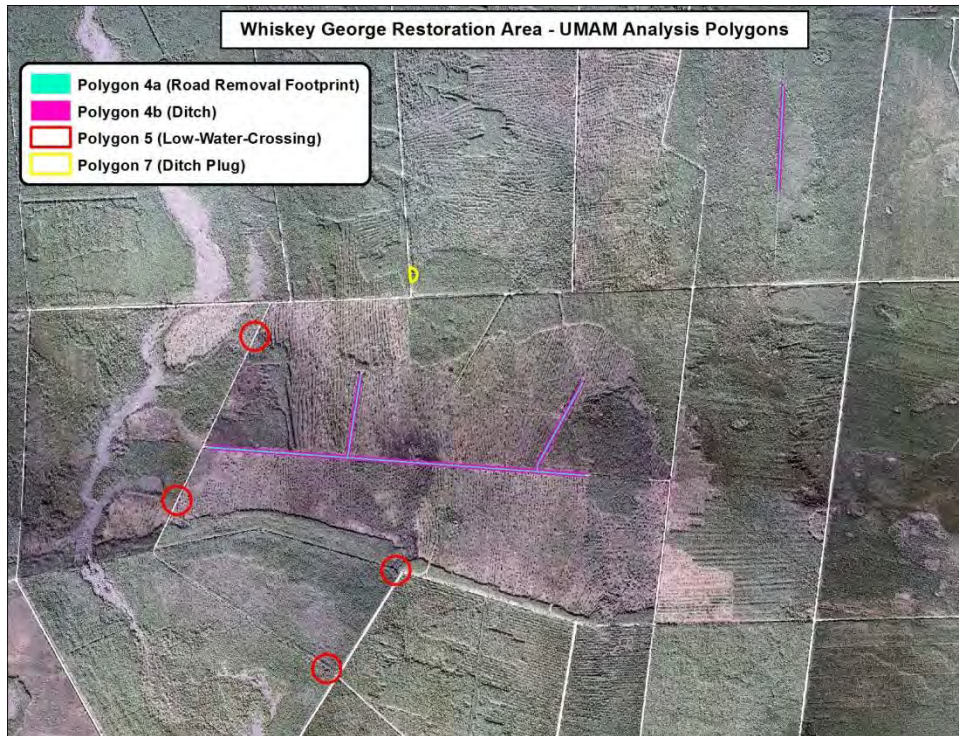


Figure 2. Whiskey George Savanna Restoration Plan.

[RTN](#)

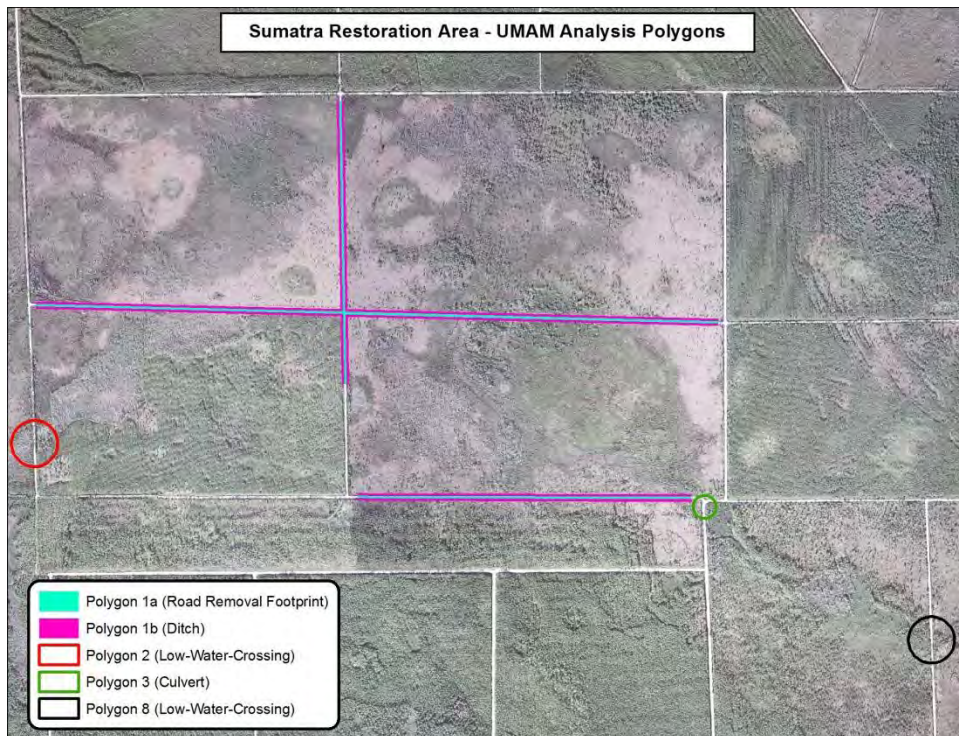


Figure 3. Sumatra Savanna Restoration Plan.

[RTN](#)

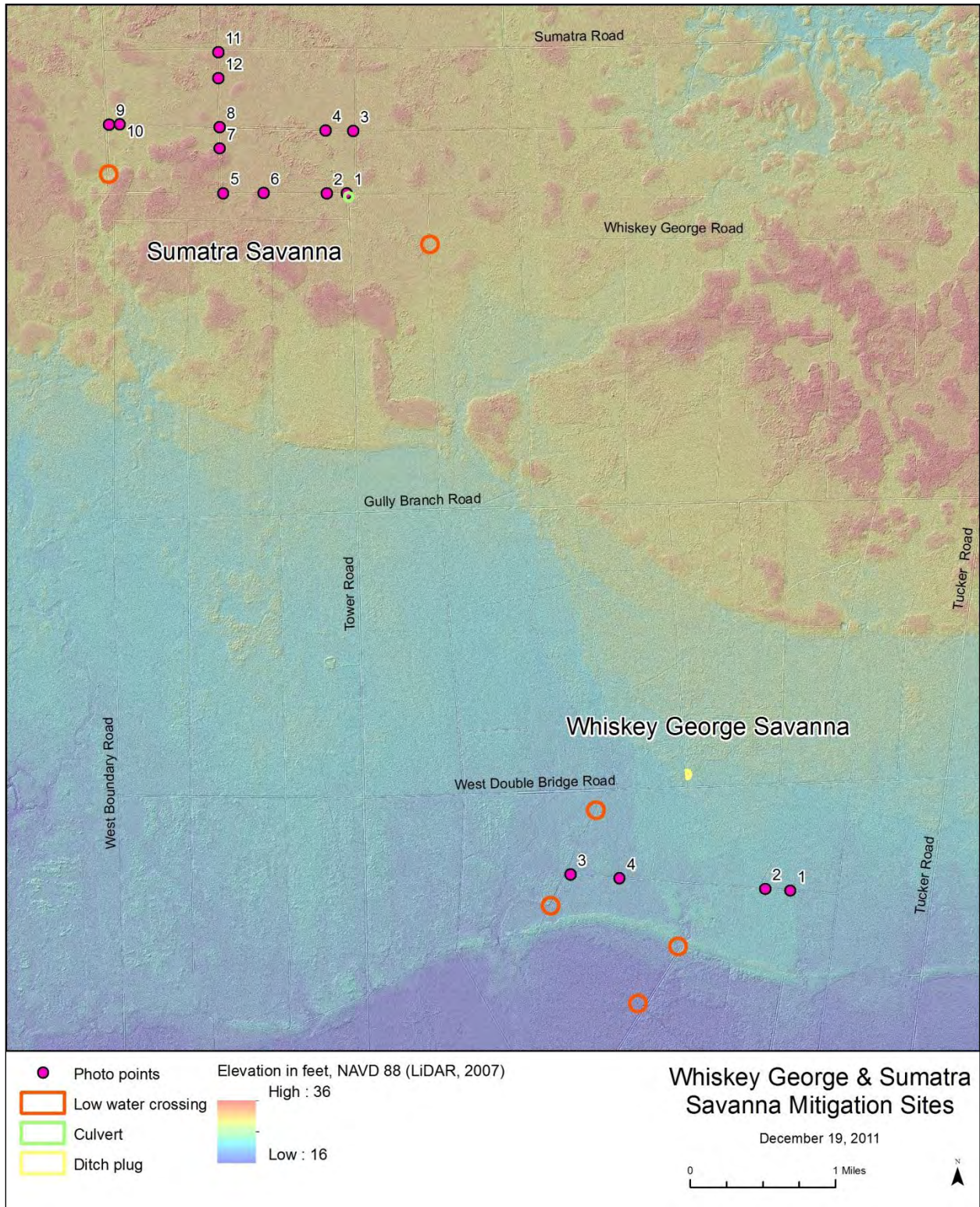


Figure 4. Topography of the mitigation site prior to re-grading roads and ditches. Photo points are indicated as Whiskey George 1-4 and Sumatra Savannas 1-12. [RTN](#)

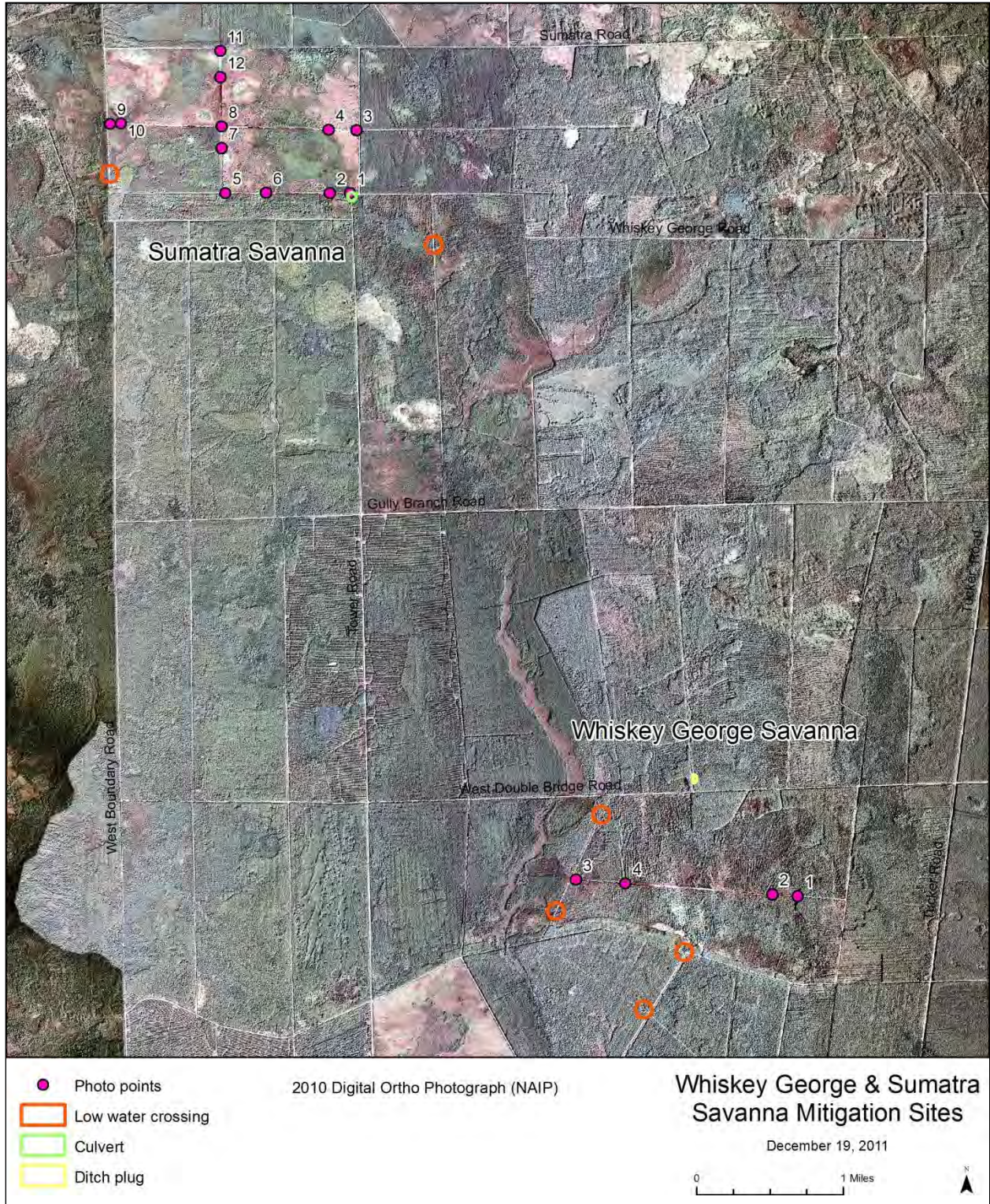


Figure 5. Aerial photograph of the mitigation site after construction of hydrologic improvements. Areas of mostly bare ground appear white; areas of standing water appear dark. Photo points are indicated as Whiskey George 1-4 and Sumatra Savannas 1-12. [RTN](#)



Photo 1. Whiskey George road removal, Photo Point 1, looking west. 11/17/2011.

[RTN](#)



Photo 2. Whiskey George road removal, Photo Point 2, looking east. Low, wet area. 11/17/2011.

[RTN](#)



Photo 3. Whiskey George road removal with extensive patch of bare ground. Photo Point 4, looking east. 11/17/2011. [RTN](#)



Photo 4. Sumatra Savannas road removal with good tie in with surrounding landscape. Photo Point 3, looking west. 11/16/2011. [RTN](#)



Photo 5. Sumatra Savannas road removal; ditch remains on right. Photo Point 6, looking east. 11/17/2011. [RTN](#)



Photo 6. Sumatra Savannas road removal; remnant ditch with water lilies and small fish. Photo Point 8, northeast corner. 11/17/2011. [RTN](#)



Photo 7. Sumatra Savannas road removal with titi encroaching. Between Photo Points 11 & 12, looking north. 11/17/2011. [RTN](#)



Photo 8. Sumatra Savannas road removal with extensive patch of bare ground. Photo Point 12, looking south. 11/17/2011. [RTN](#)

Site Inspection Field Form		
Project: Tate’s Hell – Whiskey George and Sumatra Savannas Hydrologic Restoration Project		
Date: November 16 & 17, 2011		
Name(s) of Data Collectors: Leigh Brooks, Graham Lewis		
Environmental Description: Savanna, wet flatwoods, shrub wetlands		
Polygon: Whiskey George	GPS Location: 29°55’N, 84°51’W	Time: 11:00 a.m.
Sumatra Savanna	29°59’N, 84°55’W	2:00 p.m.
On at least a yearly basis, the site will be inspected as follows:		
<p>A: Perimeter for signs of trespassing, fencing and signage integrity and infestation by exotic or nuisance vegetation;</p> <p>N/A. Project areas are interior to the managed area boundary.</p>		
<p>B: Internal Roads (Both public and maintenance) for signs of dumping or trespassing, erosion, bridges and road integrity, and exotic or nuisance species infestations;</p> <p>No dumping was found. A tire was seen in Sumatra a good distance in on a road removal area. One area of torpedo grass (<i>Panicum repens</i>) was seen.</p>		
<p>C: All construction areas for stabilization and re-vegetation, structure, operation, and integrity;</p> <p>Not all low water crossings, culvert replacements and ditch blocks were visited. The western low water crossing at Savanna was noted as being lower in the road footprint than alongside, causing the road to hold water in the dip. Certain ditch blocks at both sites were not installed and functioning properly.</p> <p>Road removal areas have stabilized and generally exhibit comparable vegetative cover to the adjacent natural areas. Some bare ground patches are present and some ditching remains.</p>		
<p>D: Representative polygons for each UMAM community for fuel load, exotic or nuisance species, planted material survival, groundcover, and shrub condition.</p> <ul style="list-style-type: none"> • fuel load low on road removal sites, low to moderate on adjacent land. • invasive exotic species found on one road removal site in a limited area. • there have been no plantings in either project area. • groundcover is recruiting well where there is good tie in of re-graded surface topography with adjoining areas. • titi is moving into some road removal areas. 		

Vegetation Assessment Field Form	Qualitative Assessment
Project: Tate's Hell – Whiskey George and Sumatra Savannas Hydrologic Restoration Project	
Date: November 16 & 17, 2011	
Name(s) of Data Collectors: Leigh Brooks, Graham Lewis	
Environmental Description: Savanna, wet flatwoods, shrub wetlands	
Polygon: Whiskey George	GPS Location: 29°55'N, 84°51'W
Sumatra Savanna	29°59'N, 84°55'W
	Time: 11:00 a.m. 2 :00p.m.
Nuisance Species: <i>Panicum repens</i>	Fuel Load: Low
<p>Wildlife Observations:</p> <p>Butterfly species (buckeye, sulphur, monarch, etc.), ground doves, small frogs, snails, small fish, and a large catlike mammal probably a bobcat. Tracks and scat from deer, domestic dogs, feral hogs, raccoon, and black bear. Crayfish chimneys.</p> <p>Water depth: Varied from shallow puddles and depressions to ditches several feet deep.</p> <p>Is the community observed along the walk path representative of the community being measured? Yes</p> <p>To what degree is the restoration in this area trending towards success? Conditions are drastically improved and generally trending well except for areas where ditches or ponds remain and where ditch blocks are not functioning properly.</p> <p>Potential Problems and solutions:</p> <ul style="list-style-type: none"> • Treat <i>Panicum repens</i>. • Repair failed ditch blocks. • Re-contour areas where ditching or road crowns remain. • Repair low water crossing. 	

Vegetation Species list*

Scientific Name	Common Name
<i>Andropogon sp.</i>	Bluestem
<i>Andropogon glomeratus</i>	Bushy bluestem
<i>Andropogon virginicus</i>	Broom sedge bluestem
<i>Carex sp.</i>	Sedge
<i>Clethra alnifolia</i>	Sweet pepperbush
<i>Cliftonia monophylla</i>	Black titi, buckwheat tree
<i>Cyrilla racemiflora</i>	Titi, red titi
<i>Dicanthelium sp.</i>	Witchgrass
<i>Dichanthelium aciculare</i>	Needleleaf witchgrass
<i>Dichanthelium dichotomum</i>	Cypress witchgrass, forked panicum, shining panic grass
<i>Dichanthelium scoparium</i>	Velvet witchgrass, velvet panicum
<i>Drosera brevifolia</i>	Dwarf sundew
<i>Eleocharis sp.</i>	Spikerush
<i>Eragrostos sp.</i>	Lovegrass
<i>Eragrostis refracta</i>	Coastal lovegrass

Scientific Name	Common Name
<i>Eragrostis pectinacea</i>	Tufted lovegrass, Carolina lovegrass
<i>Eriocaulon sp.</i>	Hatpins, pipeworts
<i>Eriocaulon decangulare</i>	Ten-angled pipewort
<i>Eupatorium capillifolium</i>	Dog fennel
<i>Euthamia caroliniana</i>	Slender flattop goldenrod
<i>Fuirena pumila</i>	Dwarf umbrella grass
<i>Hypericum sp.</i>	St. John's wort
<i>Hypericum brachyphyllum</i>	Coastalplain St. John's wort
<i>Hypericum fasciculatum</i>	Peelbark St. John's wort
<i>Hypericum gentianoides</i>	Pineweed
<i>Hypericum nitidum</i>	Carolina St. John's wort
<i>Ilex glabra</i>	Gallberry
<i>Ilex myrtifolia</i>	Myrtle-leaved holly
<i>Juncus sp.</i>	Rushes
<i>Juncus bufonius</i>	Toad rush
<i>Juncus repens</i>	Lesser creeping rush,
<i>Lachnanthes caroliniana</i>	Red root
<i>Lachnocaulon sp.</i>	Bog buttons, pipewort
<i>Ludwigia sp.</i>	Primrose willow
<i>Ludwigia linearis</i>	Narrowleaf primrose willow
<i>Lycopodium sp.</i>	Club moss
<i>Lyonia sp.</i>	Fetterbush, staggerbush
<i>Lyonia mariana</i>	Staggerbush, Piedmont staggerbush
<i>Magnolia virginiana</i>	Sweet bay
<i>Nymphaea odorata</i>	Fragrant water lily, white water lily
<i>Panicum sp.</i>	
<i>Panicum dichotomiflorum</i>	Fall panicgrass, fall panicum
<i>Panicum hemitomon</i>	Maidencane
<i>Panicum longifolium</i>	Tall thin panicum
<i>Panicum repens</i>	Torpedo grass
<i>Panicum verrucosum</i>	Warty panicum, warty panicgrass
<i>Persea sp.</i>	Red bay
<i>Pinus sp.</i>	Pine
<i>Pinus eliottii</i>	Slash pine
<i>Polygala sp.</i>	Milkwort
<i>Rhexia sp.</i>	Meadow beauty
<i>Rhynchospora sp.</i>	Beakrush
<i>Rhynchospora cephalantha</i>	Bunched beaksedge, clustered beakrush
<i>Rhynchospora inundata</i>	Narrowfruit horned beakrush
<i>Rhynchospora filifolia</i>	Filiform beakrush
<i>Rubus sp.</i>	Blackberry
<i>Scirpus cyperinus</i>	Woolgrass
<i>Smilax laurifolia</i>	Laurel greenbriar
<i>Taxodium ascendens</i>	Pond cypress
<i>Utricularia subulata</i>	Zigzag yellow bladderwort
<i>Woodwardia virginica</i>	Virginia chain fern
<i>Xyris sp.</i>	Yelloweyed grass
<i>Xyris brevifolia</i>	Shortleaf yelloweyed gras
<i>Xyris flabelliformis</i>	Savannah yelloweyed grass

*Known plants observed on site or collected and later identified off site.