



Florida National Scenic Trail Assessment
of the
St. Marks National Wildlife Refuge



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Table of Contents

Introduction 1

History..... 1

Assessment 3

 Purpose 3

 Current Trail Status 5

 Proposed Changes..... 8

Executive Summary..... 24

References 26

Map

Introduction

The St. Marks National Wildlife Refuge is located along the Gulf coast of north Florida where the panhandle meets the peninsula. As one of the first National Wildlife Refuges in the nation, it was established in 1931 as a winter habitat area for migrating birds. Today, St. Marks consists of around 68,000 acres and is home to a host of diverse animals and plants as well as a unique variety of natural ecosystems, including: seven major river estuaries, numerous islands, coastal marshes, fresh and brackish water impoundments, sandy beaches, and swamp and upland forests (U.S. Fish & Wildlife Service, 2012). The Refuge is presently managed to “protect and enhance habitat for endangered species, waterfowl, and native wildlife” (St. Marks National Wildlife Refuge, 2008).

The Florida National Scenic Trail (FNST) winds itself approximately 49 miles across the St. Marks National Wildlife Refuge (NWR) and is a unique, valuable, and historic asset to the hiking community, the U.S. Forest Service, and the St. Marks NWR. The purpose of this assessment is to analyze the selected route and location of the FNST within St. Marks NWR in terms of its current and future strengths, limitations, and opportunities. Based on these conditions, recommendations will be provided to help improve the overall enjoyment, environmental health, and longevity of this trail.

History

Initial construction of the Florida Trail began in the 1960s when James A. Kern, a real estate broker from Miami, founded the Florida Trail Association and started blazing a trail across the state. On March 28, 1983, the National Trails System Act was amended by Congress (97 Stat. 42, 16 U.S.C. 1244(a)) to include the Florida Trail, thereby creating the Florida National Scenic Trail – one of the elite eight National Scenic Trails in the country at that time (United States Department of Agriculture, 1986, p. 3). The purpose of National Scenic Trails was to “...Provide scenic, natural, historic, and cultural opportunities superior to other trails throughout the country. A National Scenic Trail should, with optimum development, be capable of promoting interest extending to any section of the United States” (United States Department of Agriculture, 1986, p. iii). The amendment designated overall administrative responsibility of the FNST to the Secretary of Agriculture and, subsequently, the U.S. Forest Service. The Florida Trail Association (FTA) shares many of these responsibilities with the Forest Service and other

land management authorities, primarily including the administration and representation of the treasured trail volunteer program (United States Department of Agriculture, 1986, p. 53).

The St. Marks National Wildlife Refuge, referred hereafter as the Refuge, was a choice location for the Florida Trail in the north-central region of the state. Originally, the Refuge Manager, Joe White, worked closely with FTA volunteer Dale Allen to select areas of the Refuge to locate the trail where the most scenic areas would be featured. Allen commented that initially the trail in St. Marks was designed as a series of “loop hikes,” which would allow day hikers to see the highlights of the Refuge easily from the many access points along the major local roadways (D. Allen, personal communication, February 24, 2012).

The eventual FNST designation was a time-consuming, in-depth process that took several years to complete. Listed below is the sequence of events that created the FNST in St. Marks NWR:

- October 23, 1986, a Cooperative Agreement was signed between the Florida Trail Association (FTA) and the U.S. Fish & Wildlife Service (FWS) regarding the partnered construction and maintenance of the trail within the Refuge.
- September 14, 1987, a Memorandum of Agreement was initiated between the U.S. Forest Service and the Florida Trail Association, pursuant to the orders in the National Trails System Act, to officially recognize, among other things, that the FNST was to be administered by the Secretary of Agriculture and the FTA, “through its members, will participate in the planning, development, operation, and maintenance of the Trail” (Florida Trail Association, U.S. Forest Service, 1987, p. 1).
- September 27, 1988, marked the date that the U.S. Forest Service and the U.S. Department of Interior entered into an Interagency Agreement to establish a platform for cooperation between agencies in the execution of the Comprehensive Plan for the Florida National Scenic Trail (USDA Forest Service, USDI Fish and Wildlife Service, 1988).
- Finally, on May 31, 1989, the Florida National Scenic Trail Certification Plan for the St. Marks NWR was approved and signed into action, officially designating this trail a section of the Florida National Scenic Trail system (USDA Forest Service, USDI Fish and Wildlife Service, 1989). This Certification Agreement with St. Marks NWR was amended on June 5, 2003, and remains in effect today (USDA Forest Service, USDI Fish & Wildlife Service, 2003).

Assessment

Purpose

As described above, the purpose of this assessment is to analyze the selected location of the FNST within St. Marks NWR as well as to highlight specific opportunities to more closely align the trail to its original intent. Nearly 30 years after its initial construction, many of the trail's strengths, limitations, and opportunities are more evident today than ever. Also, the future of the trail is uncertain, and in order to insure an enduring, healthy, and enjoyable trail going forward, several issues must be addressed.

The criteria utilized in this location assessment reflect the precise route selection standards in the Comprehensive Plan. These three standards, as outlined in the Florida National Scenic Trail Comprehensive Plan (1986, p. 17), are as follows:

- A. Location Criteria Development
- B. Alternatives Development
- C. Evaluation of Alternatives

The location criteria will have the greatest focus in this assessment, as they were developed under the auspices of the National Trails Act and as a collaborative effort by The Florida National Scenic Trail Advisory Council, The Florida National Scenic Trail Planning Team, agencies, organizations, responsible officials, and, perhaps most importantly, the general public. These location criteria are divided into two categories, "musts" and "wants" (United States Department of Agriculture, 1986, pp. 17-19). The FNST location **must** by law:

1. Be consistent with the applicable laws, regulations, and higher order plans. This includes state and federal laws regarding:
 - a. Sanitation
 - b. Safety
 - c. Handicapped Accessibility
 - d. Cultural Resources
 - e. Endangered Species Act
 - f. Water Quality
 - g. Planning
2. Meet objectives described in Public Law 90-543 of the National Scenic Trails Systems Act.

On the other hand, the **wants** are slightly more flexible criteria and are not always 100% required, but they are equally important. As per the Comprehensive Plan, these are measured in degree (indicated below in the highlighted ranges from 1-10, with 10 being the highest

priority), and a trail location is not necessarily disqualified if it does not fully meet each of these criteria (United States Department of Agriculture, 1986, pp. 18-20):

1. Maximize opportunities to view and experience the unique physical and cultural environments of Florida (10/10).
2. Provide a broad range of recreation interests and opportunities (8/10), including:
 - a. Meeting the needs of users
 - b. Flexibility
 - c. Diversity
 - d. Challenge
 - e. Variety
 - f. Overnight Use
3. Minimize resource impacts (7/10) and private land ownership impacts (8/10). This is aimed at reducing private land ownership conflicts and attempting to locate the trail in places that do not disturb “sensitive, non-compatible areas,” such as critical wildlife habitat and cultural resources.
4. Maximize functional relationships (7/10). This includes:
 - a. Large scale regional and state issues such as:
 - i. Trail access areas appropriate to *existing* land use patterns
 - ii. Trail location planned with future private and residential growth in mind
 - iii. Trail placement in agreement with *future* land use goals
 - b. Small scale, site specific considerations such as:
 - i. Carrying capacity
 - ii. Trail head requirements
 - iii. Trail tread impacts
 - iv. Facility safety
 - v. Vegetative screening opportunities
 - vi. Specific trail quality
5. Minimize cost (5/10) via:
 - a. Phased Construction
 - b. Volunteer Programs
 - c. Use of Existing Trails
 - d. Use of Human Resource Programs
 - e. Land Acquisition Programs
 - f. Potential Easement Properties

Current Trail Status

General Trail Use

Tracking FNST use on any portion of the trail is not an easy task, and the St. Marks section is no exception. As one of the most visited refuges in the country, St. Marks NWR draws nearly 250,000 tourists annually through its gates (U.S. Department of Interior, 2011). Because the Refuge has its own extensive system of trails, roads, and levees, many of which are connected to the FNST at some point, a significant number of these people are actually hiking on the FNST, whether they know it or not. Additionally, the levees and roadways in the Refuge, along which a sizeable portion of the FNST follows, authorize bicycle and equestrian.

No specific counting system remains in place to regularly enumerate each of the different trail users. However, the Refuge does have a mandatory registration system for “through hikers” of the FNST that requires the purchase of a \$1.00/person/night permit. This provides the Refuge with advance notice of hikers that will be camping overnight on the property, the dates they anticipate staying, and the ability to inform hikers of prescribed burns, hunting season warnings, etc. The permit is purchased from the St. Marks NWR visitor’s center and requires the hiker register for a minimum of two nights in order to discourage the general public from camping in the Refuge. Besides FNST users, the campsites can also be utilized by individuals kayaking and canoeing the Big Bend Saltwater Paddling Trail. During 2011 and the first quarter of 2012, a total of 6 paddlers and 27 FNST hikers officially registered for permits to camp in the Refuge’s six designated campsites.

In an attempt to capture how many people are utilizing the Florida National Scenic Trail, the Forest Service has traditionally hired a private contractor. Since 2003, trail use along the FNST has been recorded (and/or estimated) by Dr. Taylor Stein, Associate Professor of Ecotourism in the School of Forest Resources and Conservation at the University of Florida, and a body of students. The final numbers from Dr. Stein’s most recent assessments of the FNST in St. Marks are listed below (these numbers include users of the Tallahassee-St. Marks Rail Trail):

Year	Foot Traffic	Other Traffic	Total Use	Foot Traffic	Other Traffic	Total Use	Foot Traffic	Other Traffic	Total Use
-	Summer Trail Visitation			Fall/Spring Trail Visitation			Total Year Trail Visitation		
2006-07*	290	1,229	1,519	2,515	10,562	13,077	2,805	11,791	14,596
2007-08*	290	1,229	1,519	2,515	10,562	13,077	2,805	11,791	14,596
2008-09	229	1,229	1,458	1,155	10,562	11,717	1,384	11,791	13,175
2009-10	241	1,229	1,470	2,775	10,562	13,337	3,016	11,791	14,807
2010-11*	246	1,229	1,475	2,831	10,562	13,393	3,077	11,791	14,868

*indicates years in which counts are entirely estimated.

As portrayed in the table above, total trail users on the FNST is steadily growing, with the exception of the 2008-09 season during the national economic downturn. With the “other traffic” held constant over the five years, the impact of the St. Marks Rail Trail is not affecting this upsurge, but **it inflates the numbers of users within the St. Marks Refuge**. The estimated total users in 2006-07 were 14,596, and in 2010-2011 that number increased to 14,868 per year, rebounding nicely from the recession. These numbers do not account for any (likely) increase in other users (bikers, equestrians, etc.) within the Refuge and seems a conservative estimate.

Although these numbers indicate trail use, a lack of local trail knowledge exists. To help raise community awareness of the FNST in the fall of 2011, the Apalachee chapter of the Florida Trail Association held eight “Apalachee Ambles” hikes through different sections of the St. Marks NWR. Community participation in these hikes was noteworthy, with an average of 25 people per hike (L. Patton, personal communication, May 9, 2012). Throughout the year, the Refuge also hosts a number of nature, birding, and wildlife hikes along its system of trails.

Maintenance

The St. Marks National Wildlife Refuge personnel are the primary caretakers of the FNST within their borders. Chris Weber, a Refuge employee, is responsible for yearly maintenance of the trail as one of his collateral duties. As it stands, Weber is assisted by a select group of 4-6 regular Refuge volunteers, including former Refuge Manager Joe White.

Traditionally, toward the end of October, Chris Weber and the small group of volunteers commence their annual trail upkeep where the FNST enters the Refuge along its eastern border near Highway 98. Due to seasonal rainfall and drainage conditions, they work east to west. Over a three month period, they spend one day per week (typically Monday) maintaining the trail to standards one piece at a time. Based on mower/vehicle accessibility and specific maintenance needs, they have divided the trail into 13 sections, most requiring approximately a day’s work. According to Chris, the crew is able to maintain the trail for an average cost of \$22.50/mile, including labor and materials. The levees and internal Refuge roads are regularly mowed throughout the year. The Refuge also has a consistent prescribed burning program that burns as much of the Refuge forest land as possible every 2-3 years.

The local FTA chapter is not presently involved in the routine maintenance of the FNST within St. Marks NWR. According to Weber, he and the Refuge volunteers prefer to do the work without outside assistance, because they have a well-organized, “structured” system in place that effectively accomplishes the required task (C. Weber, personal communication, February 6, 2012). He mentioned that a small section of the trail is designated wilderness area in which only hand tools are allowed. A prison work crew from the Wakulla Correctional Institution is utilized

annually to maintain this two-mile section of the trail just south of the town of St. Marks. In addition, contracted SCA crews were historically used for larger maintenance and infrastructure projects such as constructing and replacing boardwalks and bridges. Although the FTA is not directly involved in the routine maintenance of the FNST, they have provided Refuge staff with support in terms of replacing mowers and tools as they are needed. They also partner with the planning and construction of the larger infrastructure projects along the trail.

Infrastructure

Within the St. Marks NWR, the FNST includes many puncheons, boardwalks, bridges, and many varieties of each of these. Due to the location of the Refuge, a significant portion of the FNST is located on land that is covered in water at least part of the day due to tidal changes in the Gulf of Mexico. The average rainfall in the Refuge is around 55 inches per year (U.S. Fish & Wildlife Service, 1999). Even some of the higher ground contains standing water during many months of the year. Due to the wet ground and the increasing presence of saltwater intrusion onto trail tread, infrastructure on the Refuge must be a constantly re-evaluated and replaced.

Each year, in conjunction with their annual maintenance, the Refuge conducts a survey of all trail infrastructures. Chris Weber noted that any deficiencies beyond the Refuge's capability and/or budget to repair are forwarded to the FTA. This is an area where F-Troops and SCA crews have been utilized to complete large projects. The latest assessment by the Refuge estimates the trail's value at \$819,320 (C. Weber, personal communication, January 18, 2012).

In January, 2012, several long sections of boardwalk in the Spring Creek area were removed by a crew of Refuge, Forest Service, and FTA employees because of safety concerns. Now that the boardwalks are gone, the area is very difficult to cross because of the deep mud and water in this low-lying portion of trail. Currently, there is no scheduled replacement of these structures although the Refuge is working with engineers and the FTA has received grant money to use toward the replacement costs.

The Refuge has expressed that they are not in favor of "any new infrastructure" (C. Weber, personal communication, January 18, 2012), but they are committed to replacing, or helping replace, current structures that are unsafe and/or non-functional. The following six projects are known deficiencies and are pending projects for Chris and the Refuge:

1. Replace the buckled boardwalks at Spring Creek that were removed January, 2012.
2. Complete the railing system on the Pinhook Bridge.
3. Replace the decking on the box culverts east of the Pinhook River.
4. Rework the small boardwalk/bridge at the Deep Creek Levee.
5. Install furring strips/hatching on the first boardwalk west of Spring Creek Highway.
6. Replace the small, fire-damaged bridge south of SM 302.

Proposed Changes

In conjunction with the recognized deficiencies and pending projects for the St. Marks section of the Florida National Scenic Trail, several key issues, along with recommended solutions to these concerns, are briefly discussed below. The goal in providing this information is to help make the FNST, as intended by the Interagency National Trails System Task Force in 1969, a trail that really does provide the scenic, natural, cultural, and historic superiority over other trails in the country (United States Department of Agriculture, 1986).

The FNST is a public resource, but I argue that a majority of the public has no idea that it exists. Based on my, albeit limited, interactions with local residents, many have heard of the FNST, but they do not know where or what it actually is. However, before people are educated about and are encouraged to spend time on the trail, some very important infrastructure must be in place. Using input from multiple stakeholders of the trail, these are my recommendations for improving the St. Marks section of the FNST:

1. Improve FNST signage

Current issues:

- Trail is tailored to long-distance hikers, assumed to carry detailed route maps
- Signs are inconsistent, vague, outdated, and confusing at times
- Many of the signs are not helpful or encouraging (too much focus on restrictions)
- Signs not always bidirectional
- Little to no information relaying local scenic or cultural areas and side/loop trails
- No clear indication of allowable trail uses or what is or is not handicap accessible
- Boaters on the St. Marks River are unaware that hikers need help crossing

Safety concerns:

- Potential to get lost is high in certain areas and distances are deceiving
- Hunting season is not well defined or conveyed to trail users
- Users are scarcely informed, if at all (depending on where they start), about the Refuge rules and activities (exp. prescribed burns)

Recommendations:

One way to improve the communication of important information to users of the FNST is to have a kiosk at every major entry point onto the trail (increasing the number of trailheads will facilitate this – see #2 for recommended locations). Every kiosk should contain a large map with “you are here” locators and site specific information such as campground locations, scenic opportunities with loop/side trail details, and safety information. Day hikers/users likely will not have printed maps or previous knowledge of the area, and the trailhead signs should provide sufficient information to accommodate these people since they are the overwhelming majority

of visitors in St. Marks NWR. Refuge rules should also be posted, including details about camping regulations and “Leave No Trace” practices. Trail users should not reach a campsite inside the Refuge before being informed that camping is restricted for most users and that a specific permit is required. This information should be relayed at the trailhead.

Must be at trailheads, major intersections, and campsites (include Refuge phone number).

An appropriate, comprehensive, clear sign for all trailheads and major intersections.



Not an effective or aesthetically-pleasing campsite sign. It should contain campsite name, rules, and map.

Each campsite should be labeled with its name, the campsite rules, as well as directional information and mileage to the next available campsite (in both directions). Additionally, during hunting season, the Wakulla River campsite is closed, and this, as well as instructions for the alternate camping locations, should be noted at the trailheads as well as the campsites.



Inconsistent messages at the same campsite. Too many signs make it look cluttered. These messages could easily be consolidated into one sign.



The FNST on the interior of the Refuge included a variety of signs that should be streamlined and more informative. Most of the current signage is lacking important details, outdated, and/or unreadable. It also looks messy and is inconsistent at times. One sign with applicable FNST and Refuge rules would likely promote obedience of the rules. These signs should also clearly indicate the allowable uses on the specific sections of trail so visitors clearly know which trail they are using and what rules they are to follow.



Inconsistent, unreadable, and confusing sign located toward the east end of the Refuge.

Some of the uncertainty I experienced at road crossings and significant turns in the trail could have easily been mitigated by directional arrows and signage that relayed information such as mileage to campsites, landmarks, roads, trailheads, etc. (must include both directions). Land managers are responsible for providing “interpretation” of the scenic, historic, natural, and cultural features of their lands (United States Department of Agriculture, 1986, p. 52).

More frequent blazing, even on tram roads and levees, would also be helpful to more regularly reassure hikers that they are still on the correct trail. Identify blue-blazed side/loop trails with a sign and small map to indicate where they go. Again, assume that hikers do not have a map with them.



Scratched-out blazes and blue-blazes with no clear information as to where the loop/side trail leads or how long it is.

I recommend that, in ALL locations where the trail crosses/adjoins the major Highways skirting St. Marks (Highway 98 near the Aucilla River, Highway 98 at the St. Marks-Tallahassee Rail Trail, Highway 98 at the Thompson property, Highway 98 south of Medart, and Highway 319 southwest of Medart), large signs facing both directions are placed to indicate the trail's presence as well as the presence of (future) trailheads. Currently, the signs at these locations are too small and for the most part unreadable and/or unnoticeable to highway traffic. Certain crossings have no sign at all (exp. Highway 98 at the Aucilla River, below). This is a wasted promotional opportunity, and it's an unnecessary frustration for people trying to locate the trail. This is an example of how the trail is tailored to through hikers versus general/day users.

Heading east on Highway 98 near the Aucilla River, no FNST sign is in place and no indication exists the trail is located here (right).



Traveling west on Highway 98 near the Aucilla River (at the end of a short road walk), a small FNST sign does mark the trail, but it is not overtly helpful without a trail map. There is no clear indication that the trail turns south onto the dirt road. An open area under some powerlines is located ~200 meters down the dirt road. The FTA instructs visitors to park under these powerlines, but the gate onto this private property is unpredictably locked at Highway 98. This should be an open, welcoming, and well-marked trailhead.

2. Increase the number of trailheads

Current issues:

- Trail is not well marked from highways and other major/minor roads (see #1)
- No definitive parking areas exist where the trail crosses most roadways
- The area between St. Marks NWR and Highway 98 (east end) is private land
- Trail is missing kiosks with up-to-date, pertinent trail information and maps
- The current trail layout (without critical trailheads) does not encourage or facilitate trail use. The FNST at both the east and west ends of St. Marks, as well as other important trail access points, does not have legitimate trailheads (exp. the “parking area” at Highway 98 on the east end is only periodically available, and no sign indicates that it exists or where it is)
- The FNST in St. Marks has potential to better accommodate handicap users

Safety concerns:

- Parking along the highways for trail access can be hazardous
- Without trailheads users are not immediately made aware of important Refuge and FNST rules and safety information

Recommendations:

A standard kiosk with **up-to-date**, **clear**, and **concise** information should be located at each of the highway and major road crossings to facilitate day hiking and promote general trail awareness and use:

1. US Highway 98 near the Aucilla River (east side of Refuge)
2. Lighthouse Road (two kiosks, one on each side of the road)
3. St. Marks River*
4. Thompson Property*
5. Wakulla Beach Road*
6. County Road 365/Abe Trull Field
7. County Road 367
8. County Road 365/Jack Crumm Road
9. Purify Bay Road (Greenhouse Road Trailhead)*
10. US Highway 98 south of Medart
11. US Highway 319 southwest of Medart*

*indicates kiosk already in place

The Refuge can build trailheads for \$700 (See example on the next page), and they have proposed constructing this style of trailhead at locations 6, 8, and 10 (C. Weber, personal communication, January 18, 2012). I propose that the Refuge also erects this trailhead at locations 1, 2, and 7. A consistent style of trailhead and uniform information displayed at each

one will only help create an important distinction between the FNST and the other Refuge trails. Bringing trailheads near the major road crossings will also promote trail use and provide inviting, easy access to the FNST, serving as vital anchor points for users and making the trail available for many users, not simply long-distance hikers. The trailhead at the St. Marks River should be improved, since it has such a high amount of traffic from Tallahassee, etc.



Standard Refuge trailhead built for \$700 (located at the Thompson property).

In addition to constructing new kiosks, they must be regularly maintained and updated. The kiosk (below) is located at Wakulla Beach Road. It also serves as a hunting check station, but there is only a slight mention of hunting areas on the map with no specific regulations or safety concerns for trail users. The map incorrectly lists the FNST as the “Florida National Recreation Trail,” and there is nothing that clearly indicates the allowable trail uses or handicap accessibility.



Only a small decal (top left) indicates this is a stop along the FNST. The map (right) incorrectly labels the trail, is difficult to read, and contains no mention of allowable trail uses, camping, or safety rules and regulations.

3. Implement hiker registration system

Current issues:

- Hikers and other users are generally unaware of current permit requirement
- It's difficult to register, especially with little or no cell phone or service along the trail and unpredictable dates of arrival/departure
- Inaccurate system as currently designed (~ 100 through-hikers per year cross St. Marks, according to hiking guide Chuck Norris, but only 27 are registered in the Refuge books, according to Refuge permit records)
- Because of the hassle of obtaining the permit and pinpointing anticipated days to be on the Refuge, long-distance hikers are "forced" to stealth-camp to not get caught on the Refuge without a permit. They feel guilty about it and would follow the rules if the rules were more feasible, Chuck Norris claims
- People camping outside designated areas can damage sensitive habitats/areas

Safety concerns:

- The Refuge performs prescribed burns frequently, and this significantly endangers trail users (Chris Weber explained that, prior to a burn, firefighters hike the section of trail to be affected and post signs at both ends of that section to inform anyone on the trail about the burn)
- Hikers who do not register are unaware of planned burns, hunting season, or other issues with the trail, such as boardwalk or bridge outages

Recommendations:

First, and foremost, it is imperative that trail users are made aware of the Refuge rules when they set foot on the property. Every trailhead and every major road intersection should have a comprehensive sign(s) listing the applicable Refuge and FNST rules, regulations, acceptable trail uses, and recognition that it is the FNST. Not only do the trail users need to be aware of the Refuge rules, the Refuge needs to be aware of trail users, especially ones camping on the property. The contemporary method of hiker preregistration, based on information obtained from Chuck Norris and the long distance hiking community, is ineffective, inefficient, and nowhere near captures the majority of hikers that traverse the Refuge each year.

A more user-friendly, capable system should be implemented to account for long distance hikers who plan to camp on the Refuge and to help discourage unauthorized hiking and stealth camping. One suggestion is to have a registration system at the kiosk at each end of the FNST (in the Refuge) that does not require advanced notice be given to the Refuge. It could work similar to the other self-registration boxes on the Refuge with envelopes and a locked box to collect the \$1.00/person/night fee along with the intentions of the hiker (number of nights, planned camping locations, and any side trips or excursions from refuge, etc.). A tear-off

portion of the envelope would be kept with each hiker to prove their valid registration while in the Refuge and then deposited at the opposite end to confirm departure from the Refuge. This would require daily monitoring of the two boxes and a simple reconciliation of trail users. In conjunction with the registration system, daily conditions of the trail and any forthcoming burns or trail maintenance must be posted at the same trailheads as well as other major entry points onto the FNST in the Refuge.

4. Reroute four sections of the trail

Current issues:

- Off-road trails are difficult time-consuming, and subsequently expensive to maintain. For example, some fast-growing flora requires semi-annual maintenance, and they become overgrown when trail work happens annually
- Cypress knees are frequently damaged by mowers and mowers are damaged by cypress knees more frequently along the off-road sections of the trail (exp. Swamp Hammock)
- The rows of dirt within the longleaf pine plantation next to Port Leon Road (created when trees were planted) make mowing, walking, and biking this section problematic and uncomfortable. Most users stay on Port Leon Road, according to the hikers with whom I spoke, which makes the off-road section unnecessary

Damaged Cypress knee from a mowing the FNST on the east end of St. Marks



Rows of dirt remaining from planting Longleaf Pines in the section of FNST routed next to Port Leon Road

- Specific off-road trail segments do not maximize the overall scenic experience of the Refuge because visibility is actually limited by the vegetation
- Off-road trail disrupts native habitat, flora, and fauna more so than the roads and levees that are already established
- Especially during warmer years, ticks and other insects make hiking on off-road sections of the trail unbearable, and people don't utilize the trail as a result
- Off-road trails unnecessarily limit/interrupt bicycle and other approved uses of the FNST
- Off-road trails are not handicap accessible (not meeting the needs of all approved users where feasible)

Safety concerns:

- Currently, sections of the FNST diverted from tram roads are not well blazed and potential to become disoriented on the trail is high
- Particularly on the new trail section paralleling Port Leon Road, the rows of when the longleaf pine trees were planted are trip hazards
- The cypress knees are serious trip hazards along the Swamp Hammock section
- Infrastructure on closed-in, canopy-covered sections of trail are mostly shaded and become incredibly slippery and/or rotten (and require more frequent replacement)
- When hiking on the trail sections moved off the tram road, contact with harmful plants and insects (especially ticks) are much more frequent

Recommendations:

Between the eastern end of the St. Marks NWR and Highway 98, the FNST crosses a small section of private property. Dale Allen, the FTA Section Leader for the St. Marks NWR, feels that acquiring this property is the number one priority for the USFS in regards to this section. Because this is private property and the longevity of the trail here is uncertain, no trailhead has been constructed at this location. Trail users are encouraged by the FTA to park a couple hundred meters off Highway 98, down the dirt road, and underneath the power lines (K. Wimmer, personal communication, January 18, 2012). Unfortunately, no sign is on location to relay this information and the swing gate located on the access road at Highway 98 is periodically locked, which leaves the only available parking alongside Highway 98 (See photos on page 14).

As per the trail location criteria in the Comprehensive Plan, one of the highest prioritized "wants" is to minimize private land ownership impacts. Since land acquisition is

becoming increasingly more difficult and unlikely for the Forest Service, in attempt to minimize the impact of the FNST on this landowner's property. However, because of the wet terrain, it is not possible to reroute the trail through the existing St. Marks NWR property, which extends to Highway 98 near the Aucilla River. Dale Allen has had multiple discussions with the landowner regarding the possibility of purchasing the property and rerouting the trail from its current entry onto Highway 98 to the east so that it can be located on the old tram road. See Map 1.

The Swamp Hammock section of FNST should be rerouted back onto the tram road (See Map 1). The off-road section is beautiful and could be added to the existing loop trails in the Refuge that to be maintained by the Refuge or the FTA, if they so desire. However, since the trail essentially parallels the road, it does not add to the scenic quality of the trail experience in this section. It is significantly more difficult to maintain. If the trail is pulled back onto the tram road, handicap accessibility and access for multiple user groups specifically on the FNST would be increased significantly, thereby promoting 'meeting the needs of users' and providing 'diversity' in recreation interests and opportunities, which was the intent of Comprehensive Plan (United States Department of Agriculture, 1986).

I also recommend routing back onto Port Leon Road the section of FNST recently diverted off-road, paralleling Port Leon Road (See Map 1). Because this section of the Refuge was an old Longleaf Pine plantation, the trail is very uneven and relatively uncomfortable for hikers. Rerouting the FNST onto Port Leon Road would have the same benefits as the Swamp Hammock section regarding trail accessibility, use capacity, and maintenance ease. The current Swamp Hammock and Port Leon Road diversions, according to several long distance hikers (personal communication, February 24, 2012), are generally bypassed for two reasons. First, the trail reroutes are not overtly evident and/or expected. Secondly, most hikers prefer the smooth, wide, and open paths of the grassy Refuge roads that offer greater visibility, easier walking, and less contact with chiggers, ticks, and mosquitos.

One suggestion from Dale Allen is to explore rerouting the west end of the trail from where it crosses Highway 98 south of Medart. He suggests taking the trail south from this point, staying within the Refuge, into Sopchoppy (See Map 1). Long distance hikers can then use Sopchoppy as a resupply point and a place to recharge before heading into the Apalachicola National Forest and Bradwell Bay Wilderness. Following the highest prioritized "want" in the Comprehensive Plan, this also would maximize opportunities to view and experience the unique physical and cultural environments this area of Florida has to offer, versus its current location of the forest. From there, the trail can go north along the beautiful Sopchoppy River. Dale also suggested this move would help diversify the trail (D. Allen, personal communication, February 24, 2012). I think it would help join the trail to a budding local community and increase general awareness of the trail and its accessibility.

5. Standardize and repair infrastructure

Current issues:

- Mowers can't cross certain boardwalks and bridges, thereby complicating maintenance of specific trail sections (exp. Spring Creek and
- Certain existing structures do not meet Refuge or FNST regulations
- It's not aesthetically pleasing nor does it appear official/legitimate to have multiple different styles and types of boardwalks, puncheon, and bridges
- Maintenance and construction crews with clear guidelines would be more inclined to build appropriate, long-lasting structures that accommodate both Refuge and FNST standards

Safety concerns:

- Shaded puncheon and boardwalks are very slippery during wet periods (many people walk around them, which defeats the purpose)



When algae cover wooden structures such as boardwalks and puncheon, they become dangerously slick without hatching or furring strips (although these trap leaves and debris, which can also be slick and can cause the wood to rot prematurely).

- Some structures (as seen below) were not built to any specific standard and, therefore, do not comply with regulations



This bridge, located between Port Leon and St. Marks, is high, narrow, and does not conform to handrail requirement standards.



- The wooden box culverts on the east side of the Refuge are in need of deck repairs. The holes on the surface are dangerous, and driving mowers across the bridges is difficult because of grade differences with the road



An historic box culvert in need of deck replacement and the edges made ground-level to facilitate equipment passage.

Recommendations:

Implement consistent standards that incorporate the requirements of the Refuge and those of the FNST. Chris Weber suggests that “closer coordination with all parties concerned” is required to devise a set of acceptable standards. For example, he proposed that all boardwalks should be 4’ wide and contain bumpers. These photos show how the Refuge constructs their boardwalks, and he would like to use a similar standard for those necessary along the FNST.



Consistently constructed infrastructure helps make the trail look more professional, utilize the best available design methods, and most importantly create a safe environment for trail users. Structures should be managed within a regular replacement schedule, so at any given time a general idea of what does and does not need replaced can be formulated **and** future planning efforts, such as F-Troops, can be more strategically focused and proactively arranged. The current construction/replacement system, which seems rather haphazard and reactive, is not an efficient or economical use of contemporary or future resources.

The Refuge's current list of "known deficiencies and pending projects" includes:

1. Replace the [removed] boardwalks at Spring Creek (the Refuge has applied for funding and has consulted engineers)
2. Complete the railing system on the Pinhook Bridge
3. Replace decking on the two wooden box culverts east of the Pinhook River
4. Rework the small boardwalk/bridge at Deep Creek Levee
5. Install furring strips/cross-hatching on ramps on the first boardwalk west of Spring Creek Highway
6. Replace the small [fire-damaged] bridge south of St. Marks road 302

Although these are important and necessary projects, the Comprehensive Plan states that the Refuge (and all federal agencies) must "coordinate with USDA-FS and FTA in planning" regarding the FNST (United States Department of Agriculture, 1986, p. 56). My recommendation is to cooperatively implement a system of standards prior to planning, designing, and building new structures. Based on my understanding of the 'typical' trail maintenance and development in St. Marks, Chris and the other Refuge staff and volunteers are essentially the main and only driving force. Only when major projects and/or equipment are required, do they contact the FTA or Forest Service for assistance. Even though this is likely a more convenient (and less bureaucratic) operative method, it detracts from the "cooperative philosophy" outlined in the Comprehensive Plan as intended by Congress in the National Trails System Act (United States Department of Agriculture, 1986, p. 3).

On a more positive note, communication and coordination between the agencies and the FTA is healthy, having already had two planning meetings this year that included members of the Forest Service, the Refuge, and the Florida Trail Association. One of the items discussed was converting the (2) box culvert platforms to concrete. I agree that it would be a worthwhile, long-lasting solution, as opposed to replacing the wooden planks.

6. Implement a cooperative maintenance schedule

Current issues:

- Maintaining the trail once per year is not sufficient for fast-growing sections
- There is a lack of communication between the FTA and the Refuge
- The SCA, prison work crews, and Refuge volunteers are not guaranteed from year to year
- Maintaining the FNST to ‘through hiker’ standards is not appropriate for the majority of trail users in St. Marks NWR, nor does it conform to the currently approved trail uses of the roads and levees in the Refuge

Recommendations:

Having discussed the detailed maintenance routine with Chris Weber, there is no doubt that the FNST within the St. Marks NWR is (commendably) very well maintained. However, upkeep once per year is not sufficient for many sections of this trail. Depending on the vegetation, terrain, precipitation, and trail use, the FNST can have a variety of maintenance requirements and the frequency in which they are necessary.

Dale Allen suggests that the Refuge continue its regular maintenance schedule and the FTA provide supplemental maintenance in the areas that require more frequent attention. He also feels that a “mow hard in the fall then maintain in the spring” philosophy would be more appropriate for this portion of the trail. As it stands, the Refuge’s maintenance program finishes well after the first of the year. This means for the first couple months of Florida’s prime hiking and outdoor recreation season, trail users are not experiencing a fully-maintained trail. A stronger push to maintain the trail to standards toward the beginning of the season coupled with at least one maintenance hike toward the middle to late part of the season, in necessary areas, would serve the trail and its users more effectively. Maintaining the trail (at least) twice per year would also reduce the workload of each individual session.

With a renewed commitment toward interagency and inter-organizational dialog via the FNST Coalition as well as meetings between Refuge staff, the FTA, and the Forest Service; the planning, development, and management of the FNST within St. Marks should continue to evolve into a more cooperative effort, incorporating the thoughts and ideas of a multitude of stakeholders and interest groups.

7. Improve community outreach

Current issues:

- Very little communication takes place with the local communities (exp. the Wakulla County Tourism Development Council)
- Most people have never heard of, or know very little about, the FNST
- Available local resources are not being utilized to advertise or promote the trail

Recommendations:

At a recent meeting with Pam Portwood from the Wakulla County Tourism Development Council, Kevin Vaughn from the Wakulla County Economic Development Council, and the President of the Wakulla County Chamber of Commerce, Amy Geiger, I asked how much, if any, communication they had with the FNST administrators, managers, or the FTA regarding the Florida National Scenic Trail. The only response was that they had participated in the designation of the cities of St. Marks and Sopchoppy as “Gateway Communities” nearly two years ago. This is another wasted marketing opportunity.

Many of the Wakulla County websites and online tourism information mentions the St. Marks NWR, but very little is displayed about the Florida National Scenic Trail. I recommend that the Forest Service, the Refuge, and the FTA work together to better publicize the trail. The Comprehensive Plan does task land management agencies with providing interpretation of scenic, historic, natural, and cultural qualities of their lands where the FNST passes. It also describes how, in coordination with the Forest Service, land management agencies and the FTA should assist in providing trail information to users as well as attracting publicity (United States Department of Agriculture, 1986, p. 52-53). One suggestion is to contact the Wakulla County agencies noted above to establish a consistent, working relationship with them, to find out how to become part of their advertising campaigns that are currently in place, and to discuss future events and opportunities to educate and involve the local public in trail matters. The Apalachee Ambles program, as discussed above, is a great example of successfully promoting the trail. More events like this should be happening, highlighting this incredible natural resource in people’s backyard.

Another outreach suggestion is for the Apalachee Chapter of the FTA to become more involved in the local trail and outdoor recreation community. Recruiting younger members/volunteers is crucial to the longevity of the trail and the survival of the organization. I believe the FTA, with assistance from the Forest Service and the Refuge, needs to change how and where they market the trail. The interests of young people have changed, and it no longer serves the organization well to operate under its historic, long-distance-hiker-focused business model. For example, sponsoring a St. Marks FNST marathon, a smaller fun-run or walk, or even teaming with the St. Marks Rail Trail or local pet organizations to host outdoor events are

possibilities to grab people's attention. Concerts and music festivals are also popular with young people. Among other things, partnering with St. Marks NWR and their family-friendly weekend events is another opportunity to reach new trail users and volunteers.

The community is not going to utilize and advocate for the FNST if they are not invested in it and, especially, if they don't even know it exists. This is a great time to participate in the movement to get people outdoors and active in the community. The greenways and trails around Tallahassee are immensely popular, and St. Marks is only a few miles south. A lot of time and effort is required on the part of all FNST stakeholders to spread the word about the trail, but there is a market for it and St. Marks has a lot to offer outdoor enthusiasts.

Executive Summary

As one long-distance hiker described having just come from Big Cypress National Preserve, St. Marks was his favorite section of the trail. "It's beautiful," he said. Some version of this sentiment is shared by everyone I spoke with regarding the FNST within the St. Marks National Wildlife Refuge. It contains a nice balance of smooth, open, high-ground paths along the grassy Refuge roads and levees; which also accommodate bikes, horses, and (to some degree) wheelchairs; as well as an incredible off-road, more primitive, user experience. To top it off, the trail highlights the most prominent and scenic features the Refuge has to offer.

The highest priority (10/10) for determining optimal Trail locations, as outlined in the Comprehensive Plan, is to "Maximize opportunities to view and experience the unique physical and cultural environments of Florida" (United States Department of Agriculture, 1986). This was the intent Dale Allen and Joe White had when they originally blazed trail in the Refuge. The FNST is located near the major scenic natural resources on St. Marks NWR: expansive marsh views, crystal clear springs, old growth forests, and two Wilderness areas. In addition to the distinct, stunning physical characteristics of the Refuge, St Marks NWR contains a multitude of unique cultural environments including, but not limited to, the historic tram roadway and box culverts on the east side, the intricate levee system, the St. Marks Visitor Center and classroom, the ruins of Port Leon, and the San Marcos de Apalache Historic State Park (just across the St. Marks River from the Refuge). The combination of these special features helps make the St. Marks NWR an excellent Trail location. My only recommendation is to better advertise and these special features and inform Trail users about them along the Trail. More discussion follows regarding the need for comprehensive signage.

Listed below is a summary of the suggestions to help build on a fine foundation of years of hard work and dedication by many people from a variety of organizations, agencies, and

backgrounds. In order to make this section of trail reach its full potential for the most inclusive (authorized) user groups, I recommend the following adjustments be made to business as usual:

1. Streamline and customize/personalize FNST (bidirectional) signage across the board. Information regarding the FNST and trailhead locations **must** be displayed on the major roadways. The signs should be welcoming, consistent, educational, and concise.
2. Increase the number and quality of trailheads with kiosks to incorporate more informative rules/regulation signage, up-to-date trail and safety information, authorized trail uses, and clear maps that highlight each specific location as well as the entire St. Marks section of trail.
3. Implement a more efficient, safe, and accountable through-hiker registration system
4. Reroute four sections of trail: a) Move the east end of the St. Marks section completely onto the tram road leading to Highway 98 and continue discussions to either purchase the property or an easement to build a trailhead, b) Move the “Swamp Hammock” portion of FNST back onto the tram road, c) Move the FNST back onto Port Leon Road, and d) Consider continuing the FNST on Refuge property to Sopchoppy.
5. Standardize trail standards and repair infrastructure accordingly.
6. Implement a cooperative maintenance schedule that utilizes **definitive** resources from the Refuge, FTA, and Forest Service at least twice per year to provide all trail users with the best experience possible for the longest portion of the peak hiking season.
7. Advertise and market the trail more aggressively.

Many of these recommendations are currently being addressed by transitioning to a Trail Class Matrix, representing intended design and management standards for the FNST. With a Trail Class system from 1-5, infrastructure and trail maintenance can be uniformly tailored toward the current trail conditions and allowable uses. Incorporating some version of these recommendations, a Trail Class Matrix, and the cooperative teamwork of the Forest Service, the Refuge, and the FTA, paints a very optimistic picture that the FNST within the St. Marks NWR is the best public resource it can be.

***The information contained in this Assessment is a compilation of valuable insight and trail information from a multitude of sources, including: Dale Allen, Chuck Norris, Jim Schmid, Chris Weber, Joe White, and an incredibly inspiring cohort of FNST through-hikers. I am truly grateful for everyone’s assistance.

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Map 1: 2012 Assessment of the FNST within the St. Marks National Wildlife Refuge

