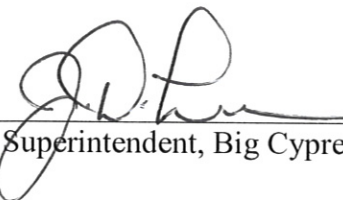



**Statement of Findings for
Executive Order 11990**

Protection of Wetlands

**Big Cypress National Preserve - Addition
General Management Plan**

Big Cypress National Preserve, Florida

Recommended:  3/19/14
Acting Superintendent, Big Cypress National Preserve Date

Concurred:  3/27/14
Chief, Water Resources Division Date

Approved:  5/1/14
Regional Director, Southeast Region Date

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INTRODUCTION

Big Cypress National Preserve (BCNP) was authorized by an act of Congress on October 11, 1974, (Public Law 93-440) with a boundary surrounding 582,000 acres. That act was amended on April 29, 1988, when Congress passed the Big Cypress National Preserve Addition Act (Public Law 100-301) to expand BCNP by 147,000 acres. The expansion area is referred to as the Addition and consists of two separate areas, the Northeast Addition and the Western Addition.

The National Park Service (NPS) finalized a General Management Plan for the original Preserve in 1991. That plan did not address the Addition, as those lands were in private ownership until most of them were transferred to the National Park Service in 1996. In 2010 the National Park Service completed a *General Management Plan/Wilderness Study/Off-Road Vehicle Management Plan/Environmental Impact Statement* (GMP) for the Addition, and a Record of Decision (ROD) was signed in 2011. The Addition is closed to motorized recreation.

The 1974 enabling act and the Addition Act provide for motorized recreational access to BCNP subject to regulation. The selected GMP alternative documented in the ROD will provide approximately 130 miles of primary off-road vehicle (ORV) trails in the Addition, and many of these trails are located in wetlands. The ROD stated that the NPS will analyze wetland functions and values affected by NPS actions in order to prepare a Wetlands Statement of Findings (WSOF), as required by NPS policy. The ROD further determined that ORV use associated with the GMP would likely be the primary focus of a WSOF for the Addition and that no ORV use, ORV trail development, or other actions with wetland impacts would be implemented or allowed until the appropriate wetland policy requirements were met.

The ORV trail network proposed in the Addition will only include existing trails in areas of previous wetland disturbance. All of the trails that will become part of the Addition network have been in place since before the NPS acquired the Addition, and many have been continuously used by the National Park Service, other governmental agencies, landowners, researchers, and tribal members. As such, ORV trail designation and use in the Addition will not result in new wetland impacts requiring a WSOF in order to meet NPS policy. BCNP recognizes, however, that concentrated use of the existing trail network will require stabilization in some locations in order to sustain use and that some of these areas may require deposition of fill in wetlands. In order to fulfill its commitment to protect wetlands and develop wetland impact avoidance, minimization, and compensation measures, BCNP has exceeded the NPS policy standard and prepared this WSOF for those areas to be stabilized within the proposed ORV trail network. In addition, any deposition of fill and wetlands mitigation will be done in accordance with permits issued by the responsible state and federal regulatory agencies.

Prior to design, permitting, and construction of any facility proposed in the GMP not related to the ORV trail system, BCNP will prepare the appropriate NEPA compliance documentation and WSOF, if applicable, in accordance with NPS policy.

PURPOSE AND NEED FOR THE ACTION

The GMP is needed to provide direction on how the National Park Service will manage visitor access, resources, and its operations within the Addition. The scope of the GMP is confined to the Addition only. The GMP is also needed to meet the requirements of the National Parks and Recreation Act of 1978 and NPS policy, which mandate development of a GMP for each unit in the national park system.

The GMP is the basic document for managing the Addition for the next 15 to 20 years. The purposes of the plan are to:

- Confirm the purpose, significance, and special mandates of the Addition.
- Clearly define resource conditions and visitor uses and experiences to be achieved in the Addition.
- Provide a framework for NPS managers to use when making decisions about how to best protect Addition resources, how to provide quality visitor uses and experiences, how to manage visitor use, and what kinds of facilities, if any, to develop in the Addition.
- Ensure that this foundation for decision making has been developed in consultation with interested stakeholders and adopted by the NPS leadership after an adequate analysis of the benefits, impacts, and economic costs of alternative courses of action is completed.

Justification for Use of Wetlands

The selected action described in the ROD will designate approximately 130 miles of primary trails and an undetermined amount of secondary trails for ORV use in the Addition. All but approximately one mile of primary trails will occur in the Northeast Addition. The trail designation takes into consideration the requirements of the Addition's enabling legislation; i.e., the Addition Act, which directed the National Park Service to provide for recreation opportunities while preserving the Addition's resource values. The selected action will result in the filling of 10.63 acres of wetlands, all in the Northeast Addition, as a result of primary trail stabilization; secondary trails will not require stabilization. The ROD contains a map of conceptual primary trails that were recommended based on field evaluations during the GMP development. The locations of these trails were determined taking into account the need to avoid wetlands to the maximum practicable extent while meeting the intent and direction of the

enabling legislation. Wetland impacts that cannot be avoided will be minimized. Compensation for unavoidable impacts to wetlands will be based on a functional analysis of the impacted wetlands and proposed mitigation, which is consistent with the NPS no-net-loss wetlands policy.

ALTERNATIVES

The GMP described four alternatives, including the National Park Service's preferred alternative, for future management of the Addition. The alternatives, which are based on BCNP's purpose, significance, and special mandates, presented different ways to manage resources and visitor use and improve facilities and infrastructure in the Addition. The four alternatives included the no-action alternative (alternative A), which described the continuation of current management direction, and three action alternatives (alternative B, the preferred alternative, and alternative F). Additional alternatives were considered but dismissed from further detailed analysis. These dismissed alternatives were presented, along with the rationale for dismissing them, in the "Alternatives, Including the Preferred Alternative" discussion in chapter 2 of the GMP.

Alternative A: No Action (Continue Current Management)

The no-action alternative described a continuation of existing management and trends in the Addition and provided a baseline for comparison in evaluating the changes and impacts of the other alternatives. The National Park Service would continue to manage the Addition as it is currently being managed. The Addition would remain closed to motorized recreation, and only minor new construction would be authorized to accommodate visitor access, primarily for hiking and biking. Existing operations and visitor facilities would remain in place. Natural ecological processes would be allowed to occur, and restoration programs would be initiated where necessary. No wilderness would be proposed for designation. Impacts on wetlands would be attributed primarily to the retention and maintenance of existing facilities, such as roads, grades, and trails. Impacts would include vegetation loss and alteration of soils, which would result in permanent effects on wetland size and integrity. Indirect impacts, such as increased runoff and sedimentation, would also occur. NPS efforts to reestablish natural ground contours and restore soil integrity would have positive effects on wetlands. Because there would be no motorized recreation, there would be no recreational ORV trails and hence no direct wetland impacts from trail stabilization.

Alternative B

The concept for management under alternative B would be to enable visitor participation in a wide variety of outdoor recreational experiences. It would maximize motorized access, provide the least amount of proposed wilderness of all the action alternatives, and develop limited, new, hiking-only trails. New visitor and operations facilities along the Interstate-75 (I-75) corridor would also be provided. Impacts on wetlands would be attributed primarily to the development

and maintenance of facilities. The development of new facilities, such as trails, trailheads, access points, and specific improvements to develop Deep Lake into a day use area, would result in permanent loss of wetlands. The designation and use of ORV trails would also adversely impact wetland function and integrity. Maintaining roads, grades, and trails could impact wetlands. Impacts from these activities would include vegetation loss and alteration of soils, which would result in permanent effects on wetland size and integrity. Indirect impacts, such as increased runoff and sedimentation, would also occur. The extent of direct wetland impacts resulting from trail stabilization would be similar to the preferred alternative, i.e., 10-11 acres.

Preferred Alternative

The preferred alternative would provide diverse frontcountry and backcountry recreational opportunities, enhance day use and interpretive opportunities along road corridors, and enhance recreational opportunities with new facilities and services. This alternative would maximize ORV access, provide a moderate amount of wilderness, provide nonmotorized trail opportunities and new camping opportunities, and develop a partnership approach to visitor orientation. New visitor and operations facilities along the I-75 corridor would also be provided. Impacts on wetlands would be attributed primarily to the development and maintenance of facilities. The development of new facilities, such as trails, trailheads, access points, and specific improvements to develop Deep Lake into a day use area, would result in permanent loss of wetlands. The designation and use of ORV trails could also adversely impact wetland function and integrity. Maintaining roads, grades, and trails could impact wetlands. Impacts from these activities would include vegetation loss and alteration of soils, which would result in permanent effects on wetland size and integrity. Indirect impacts, such as increased runoff and sedimentation, would also occur. Direct impacts to wetlands resulting from trail stabilization would total 10.63 acres.

Alternative F

Alternative F would emphasize resource preservation, restoration, and research while providing passive recreational opportunities with limited facilities and support. This alternative would provide the maximum amount of wilderness, no ORV use, and minimal new facilities for visitor contact along I-75. Impacts on wetlands would be attributed primarily to the retention and maintenance of existing facilities, as well as the removal of facilities. Maintaining roads, grades, and trails could impact wetlands. Impacts would include vegetation loss and alteration of soils, which would result in permanent effects on wetland size and integrity. Indirect impacts, such as increased runoff and sedimentation, would also occur. NPS efforts to reestablish natural ground contours and restore soil integrity would have beneficial effects on wetlands. Removing and restoring Nobles Grade would improve the hydrologic function and connectivity of wetlands in the Northeast Addition as well as create new wetlands where the road is removed and restored. Because there would be no motorized recreation, there would be no recreational ORV trails and hence no direct wetland impacts from trail stabilization.

The preferred alternative was developed through a process known as Choosing by Advantages. The relative advantages of each alternative were compared to four factors. These factors included provision for visitor opportunities, protection and restoration of resources, preservation of wilderness values, and provision for effective NPS operations and public safety. The highest ranking advantages were analyzed and considered for inclusion in the development of the preferred alternative. The preferred alternative, although not the alternative with the least wetland impacts, nevertheless incorporated the most advantages in view of the four factors.

After release of the draft GMP and following a public comment period, the preferred alternative was revised to include adjustments to eligible and proposed wilderness and a reduction in miles of ORV trails. The revised preferred alternative was published in the final GMP and selected for implementation as documented in the ROD. The National Park Service concluded that the preferred alternative met the Addition's and BCNP's enabling legislative requirements to preserve, conserve, and protect natural and cultural resources while providing for public enjoyment. Although the selected alternative is not the alternative with the least wetland impact, it nevertheless best balances the National Park Service's need to provide high-quality visitor experiences and protect Addition resources.

DESCRIPTION OF AFFECTED WETLANDS

Wetlands in the Northeast Addition have been mapped by the US Fish and Wildlife Service under the National Wetlands Inventory (NWI) program. The wetlands identified on the NWI maps are classified according to Cowardin et al. (1979), which separates wetland types primarily by hydrologic conditions, vegetation, and water chemistry.

To assess and quantify the wetlands and wetland functions that will be affected by the ORV trail stabilization associated with the National Park Service's selected alternative, a map of the proposed ORV trail system was overlaid onto NWI and vegetation cover maps of the Northeast Addition.

Figures 1 through 24 present the vegetative communities of the Northeast Addition as a whole as well as those for each of the 20 proposed stabilization sites. Figure 1 shows only the broad NWI wetland types, not the individual classifications. Because the NWI maps have been found to be 50 to 70% remiss in defining wetlands, this coverage was not used for analysis purposes. Instead, wetlands were delineated and classified by use of a vegetation classification system created for south Florida national parks (Welch and Madden 1999). Figure 2 shows the variety of vegetative habitats mapped in the Northeast Addition under this classification system. The Welch and Madden system was revised by BCNP staff in 2000 by reclassifying the data into 12 vegetative community types. This classification of vegetative communities, represented in Figure 3, uses

the information produced by Welch and Madden but combines many of the categories to depict areas of more general vegetative communities. Determination of wetlands in which proposed trail stabilization will occur was done by James N. Burch, PhD., PWS (Professional Wetland Scientist) 1748, Supervisory Botanist, Big Cypress National Preserve. The Welch and Madden geographic information system (GIS) coverage was matched with the proposed trail network and stabilization areas as well as 2009 Collier County aerial photographs to allow the wetland scientist to evaluate both the described vegetative community as well as the vegetation as photographed. The intersections of the 20 stabilization areas and vegetative communities were checked against aerial photographs to assure maximum accuracy in wetland determination. Multiple maps were produced to allow large-scale representation of the proposed stabilization areas. Figure 4 provides a view of the 20 areas in relation to the Northeast Addition as a whole. Large-scale maps of the individual areas can be found in figures 5 – 24, along with descriptions of the Welch and Madden (1999) and Cowardin et al. (1979) wetland types for each area. The wetland types are summarized in Table 1. Figure 25 is a cross-section of a typical stabilized trail.

Inventory and Condition of Wetlands Affected by Proposed ORV Trail Stabilization

Figures 1-24 illustrate the vegetation and wetland communities of the Northeast Addition for each of the 20 stabilization areas. It should be noted that many trails are indicated as uplands even though they appear to be in wetlands; this is because they will utilize elevated roads constructed before BCNP's establishment.

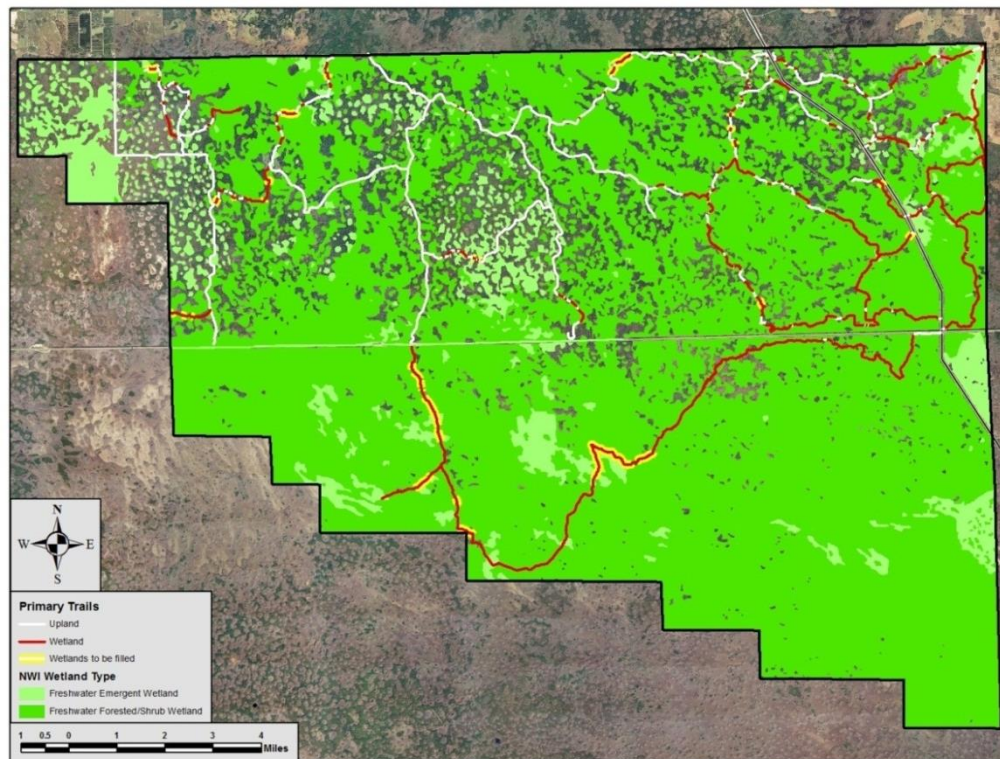


Figure 1. National Wetland Inventory vegetation types in the Northeast Addition.

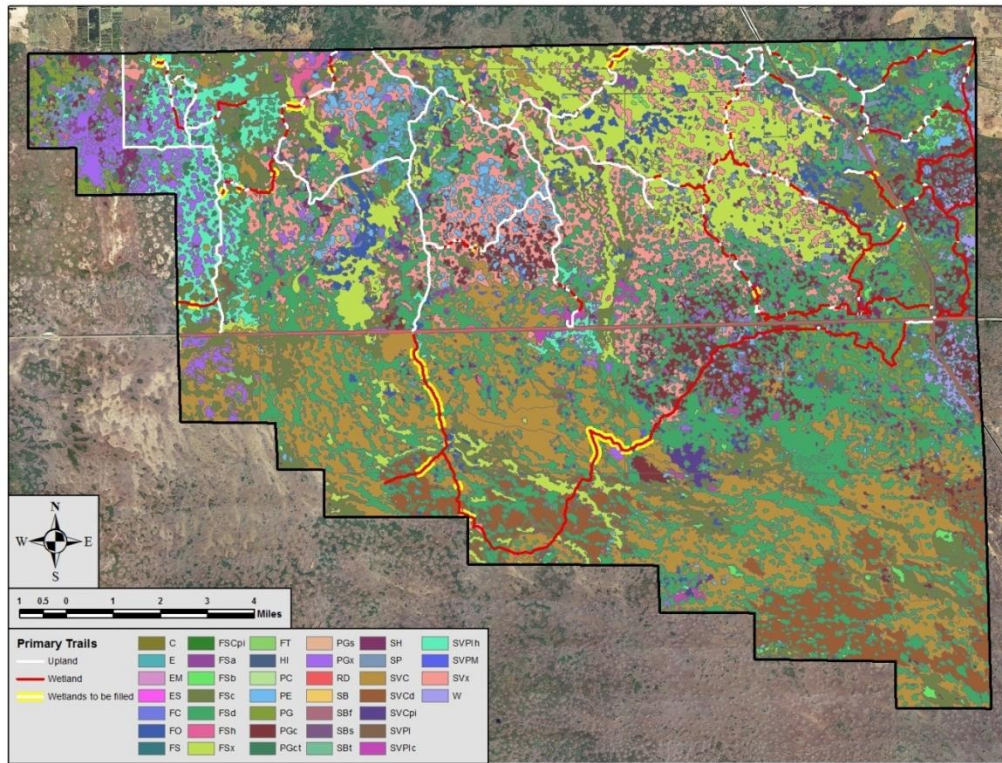


Figure 2. Vegetative communities in the Northeast Addition (Welch and Madden 1999).

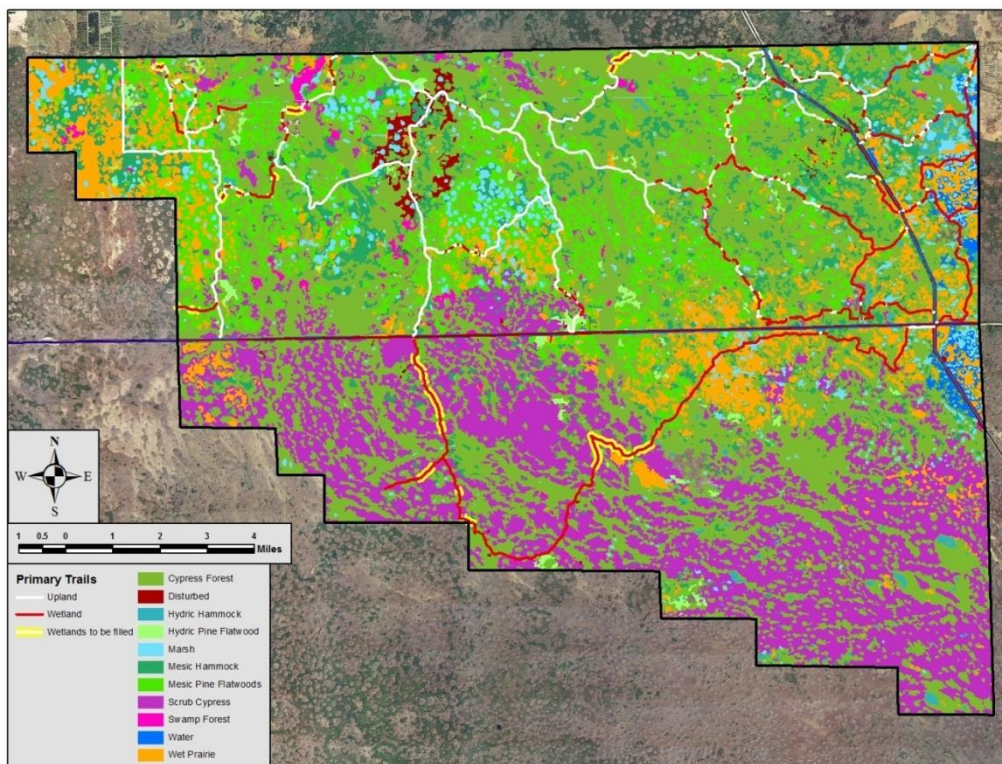


Figure 3. Reclassification of vegetative communities in the Northeast Addition. This classification uses the information produced by Welch and Madden (1999) but combines many of the categories to depict areas of more general vegetative communities.

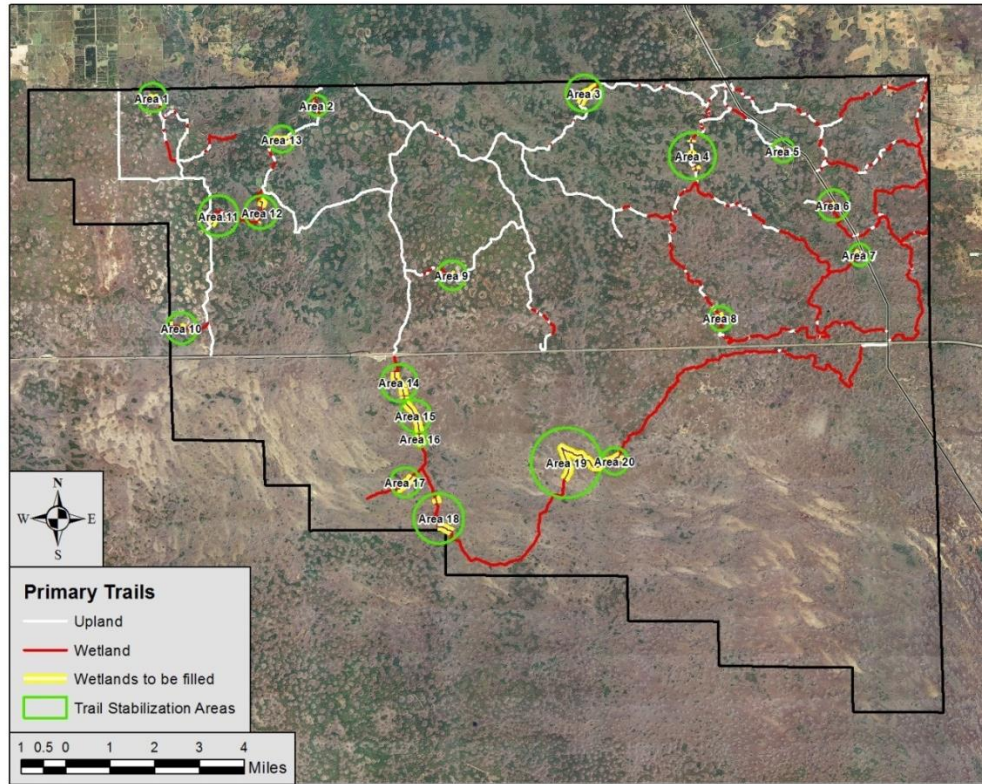


Figure 4. Areas in the Northeast Addition where wetland trail stabilization will be required.

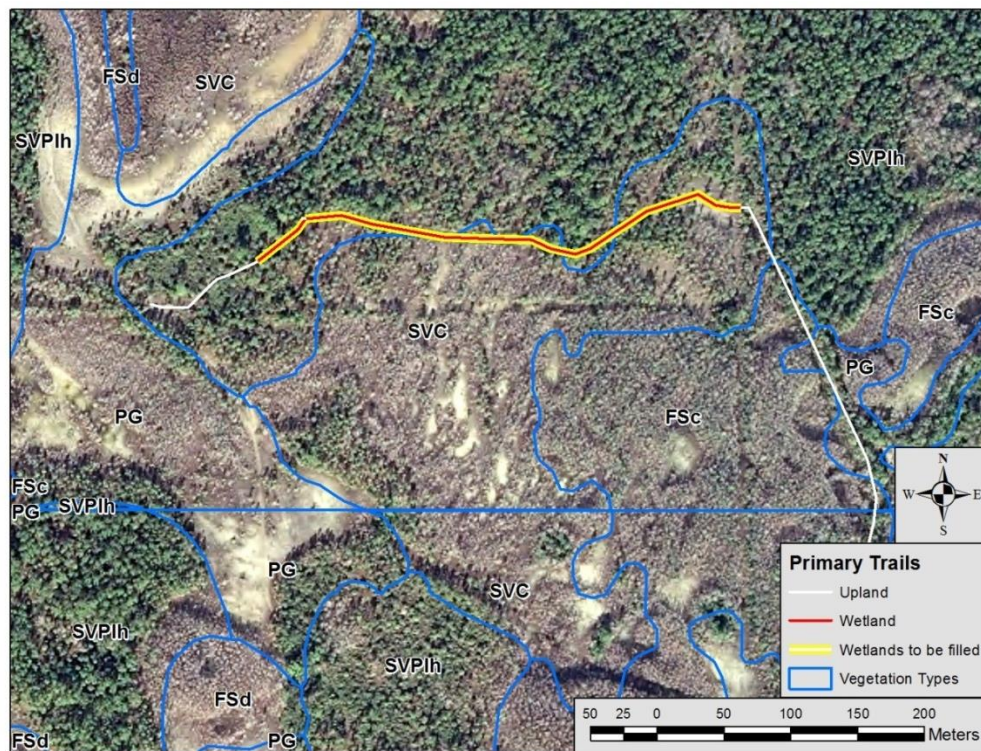


Figure 5. Trail Stabilization Area 1. Wetland communities are SVC: cypress savanna (PFO2C, palustrine bald cypress in graminoid prairie, seasonal inundation) and SVPIh: slash pine with hardwoods (PFO4A, palustrine slash pine).

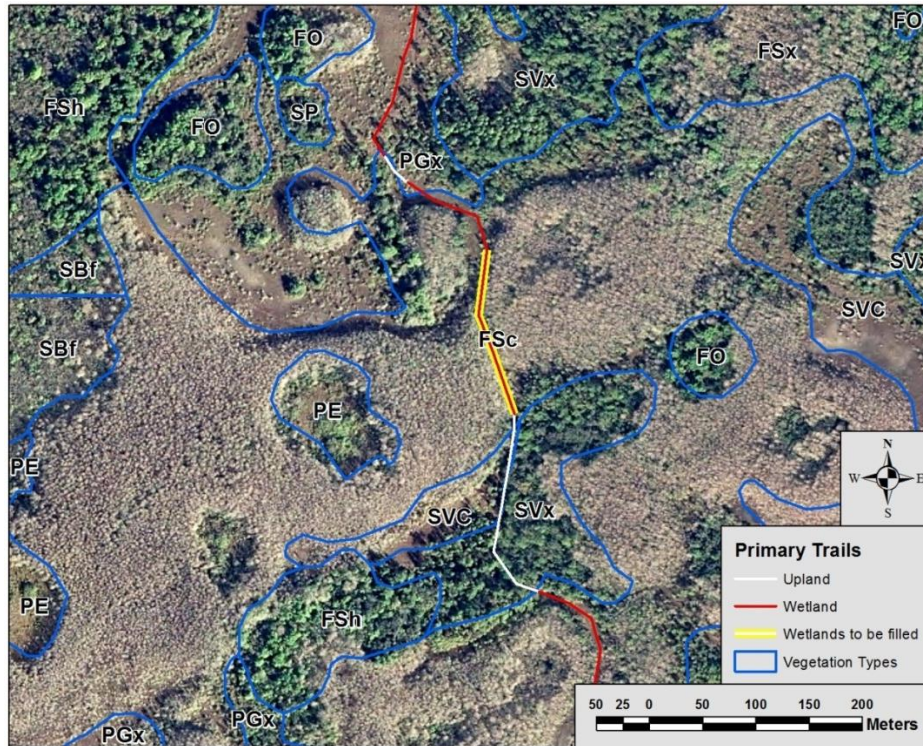


Figure 6. Trail Stabilization Area 2. Wetland community is FSc: cypress strand (PFO2C, palustrine bald cypress in graminoid prairie, seasonal inundation).

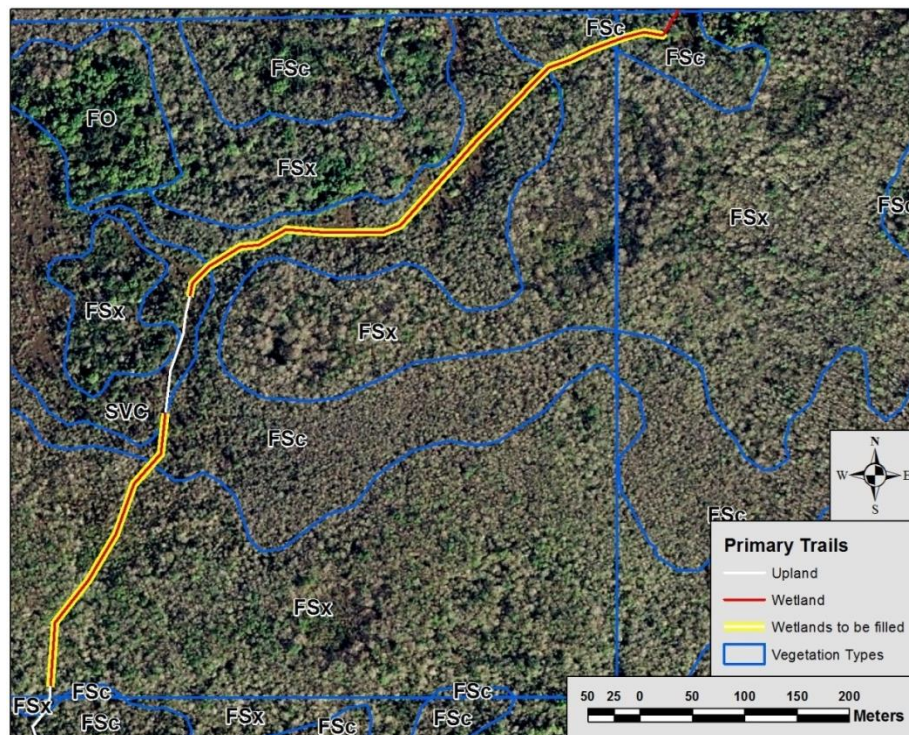


Figure 7. Trail Stabilization Area 3. Wetland communities are FSc: cypress strand (PFO2C, palustrine bald cypress in graminoid prairie, seasonal inundation), FSx: cypress mixed hardwoods (PFO2C, palustrine mixed forest, seasonal inundation), and SVC: cypress savanna (PFO2C, palustrine bald cypress in graminoid prairie, seasonal inundation).



Figure 8. Trail Stabilization Area 4. Wetland community is FSx: cypress mixed hardwoods (PFO2C, palustrine mixed forest, seasonal inundation).

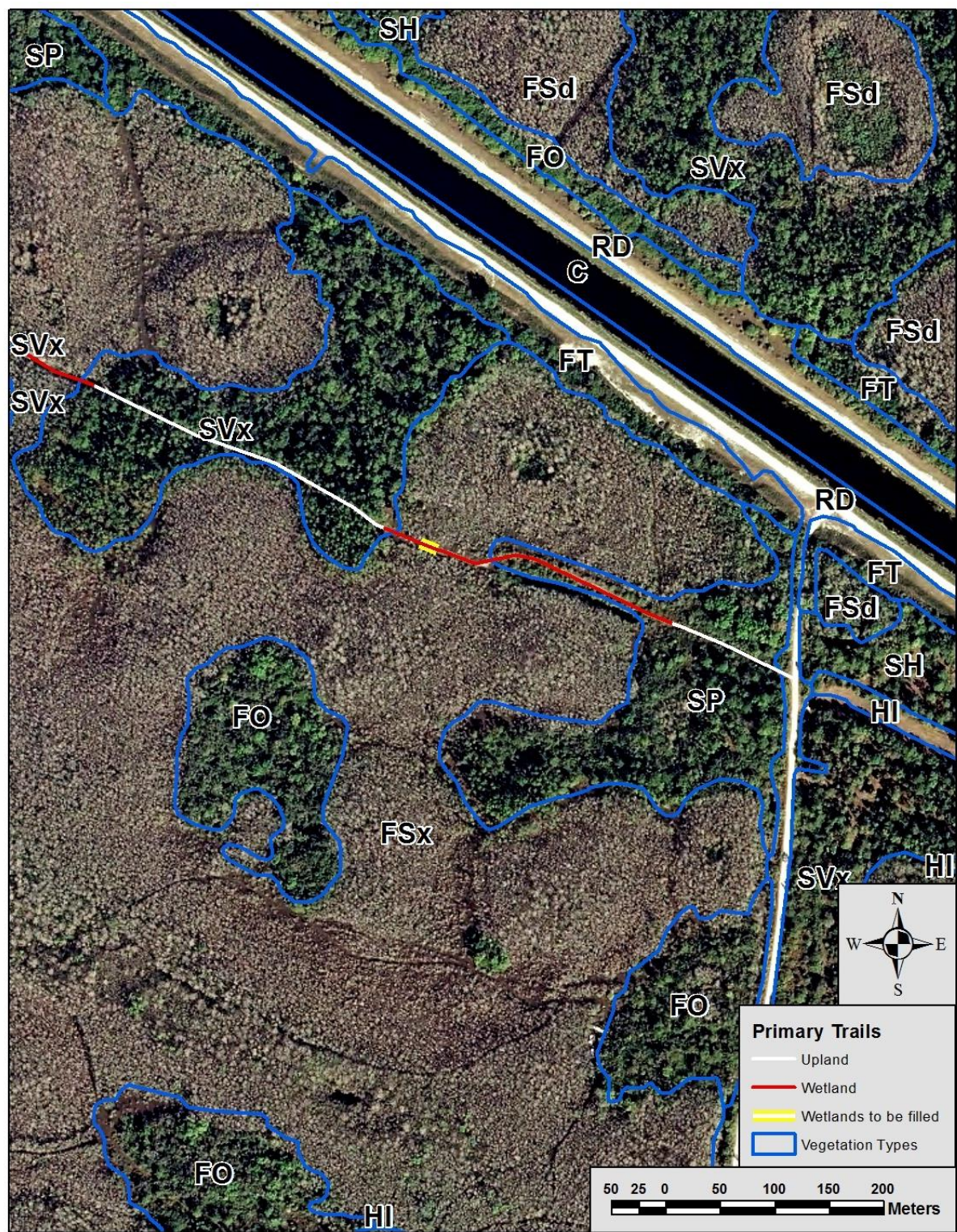


Figure 9. Trail Stabilization Area 5. Wetland community is FSx: cypress mixed hardwoods (PFO2C, palustrine mixed forest, seasonal inundation).

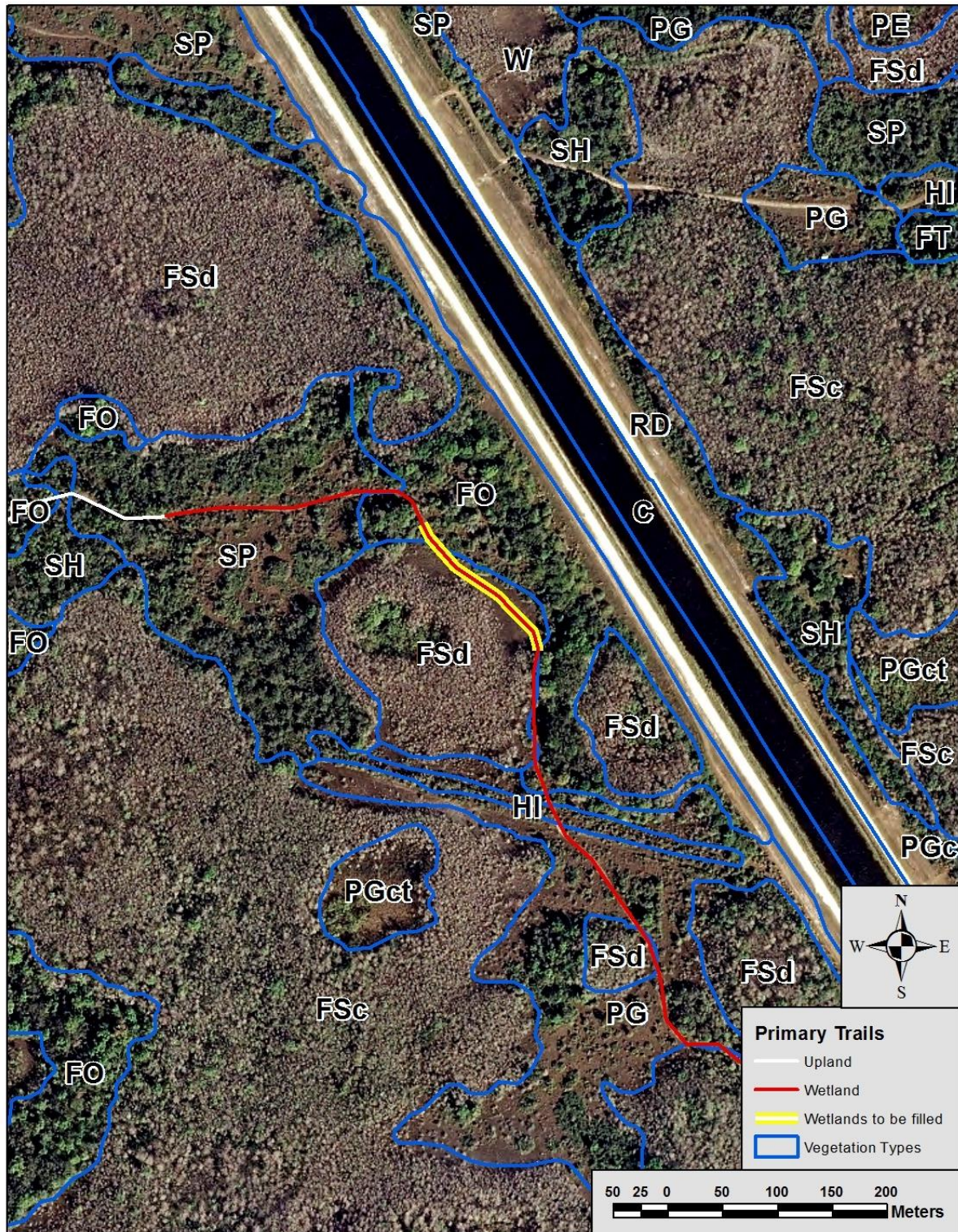


Figure 10. Trail Stabilization Area 6. Wetland communities are FSd: cypress domes/heads (PFO2C, palustrine bald cypress forest, seasonal inundation) and FO: oak sabal forest (PFO3A, palustrine mixed forest, temporary inundation).

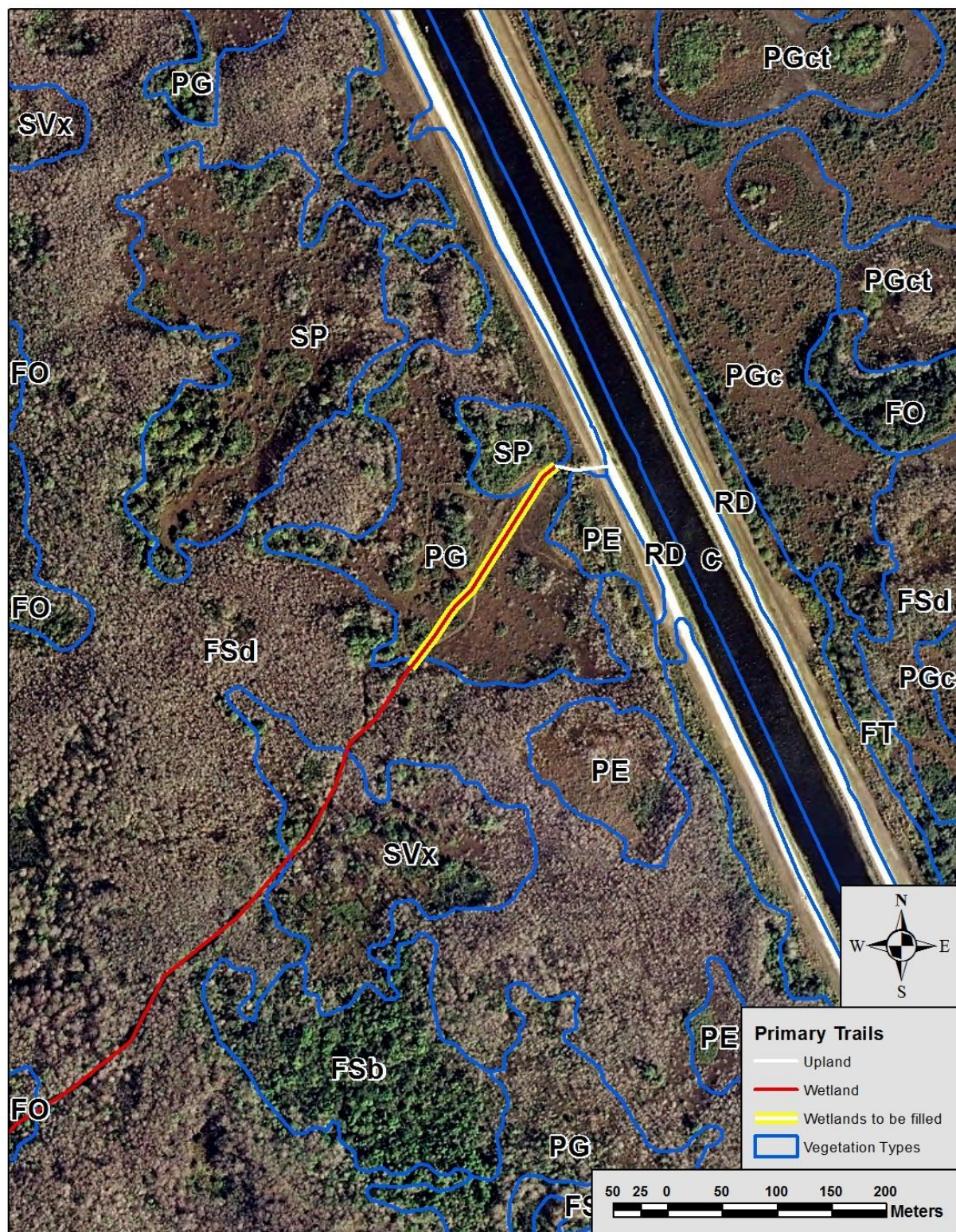


Figure 11. Trail Stabilization Area 7. Wetland community is PG: graminoid prairie/marsh (PEM1C, palustrine persistent emergent, seasonal inundation).

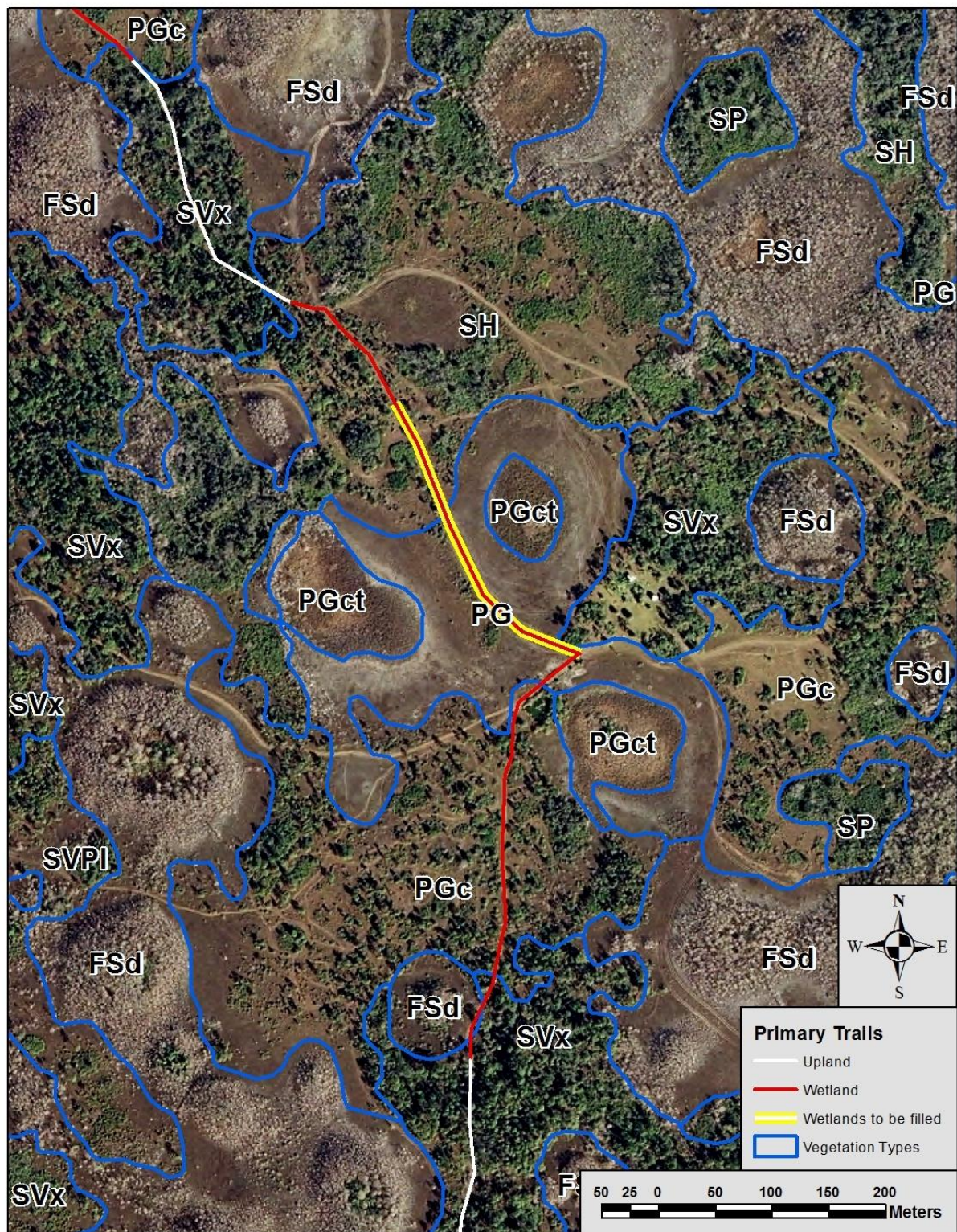


Figure 12. Trail Stabilization Area 8. Wetland communities are PG: graminoid prairie/marsh (PEM1C, palustrine persistent emergent, seasonal inundation) and SH: hardwood scrub (PSS3A, palustrine mixed scrub, temporary inundation).

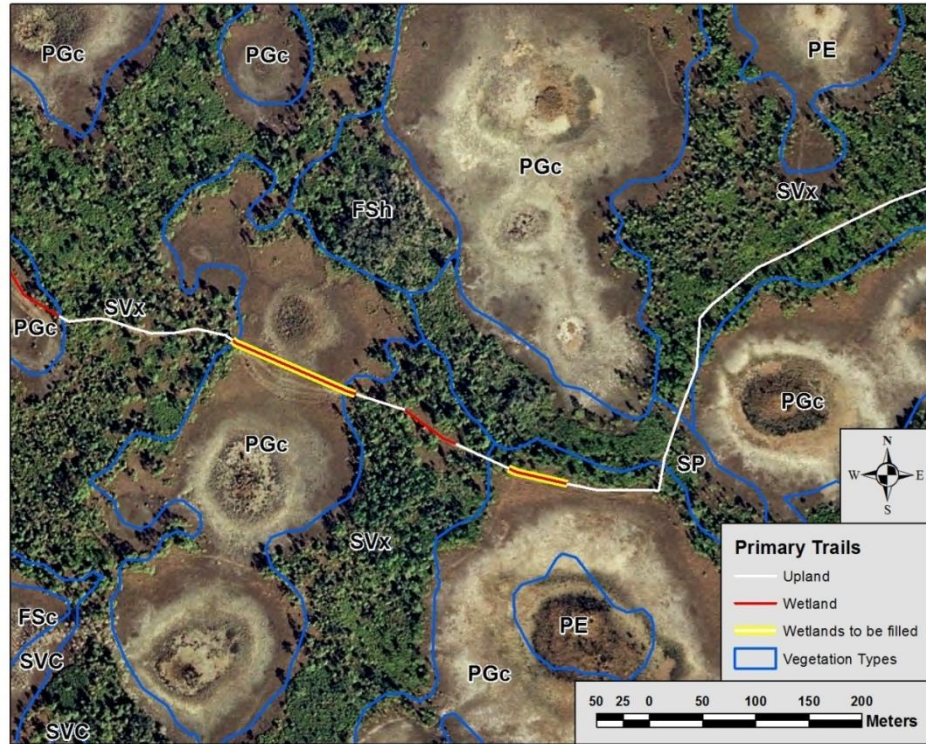


Figure 13. Trail Stabilization Area 9. Wetland community is PGc: sawgrass (PEM1C, palustrine persistent emergent, seasonal inundation).

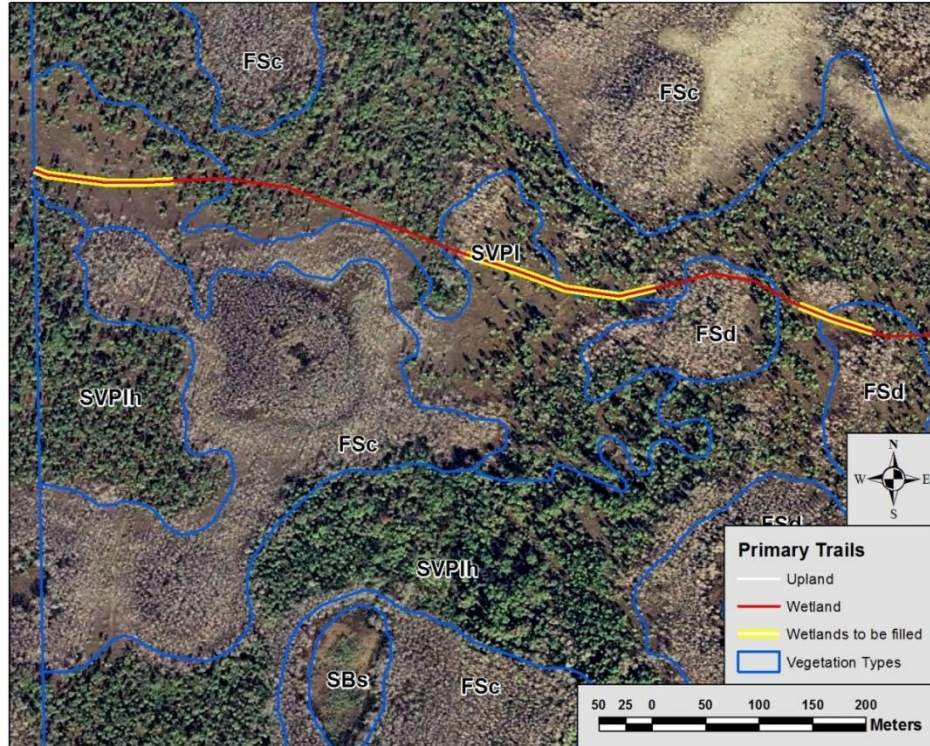


Figure 14. Trail Stabilization Area 10. Wetland communities are FSd: cypress domes/heads (PFO2C, palustrine bald cypress forest, seasonal inundation), SVPIh: slash pine with hardwoods (PFO4A, palustrine slash pine with hardwoods, temporary inundation), and SVPI: pine savanna (PFO4C, palustrine slash pine in graminoid prairie, seasonal inundation).

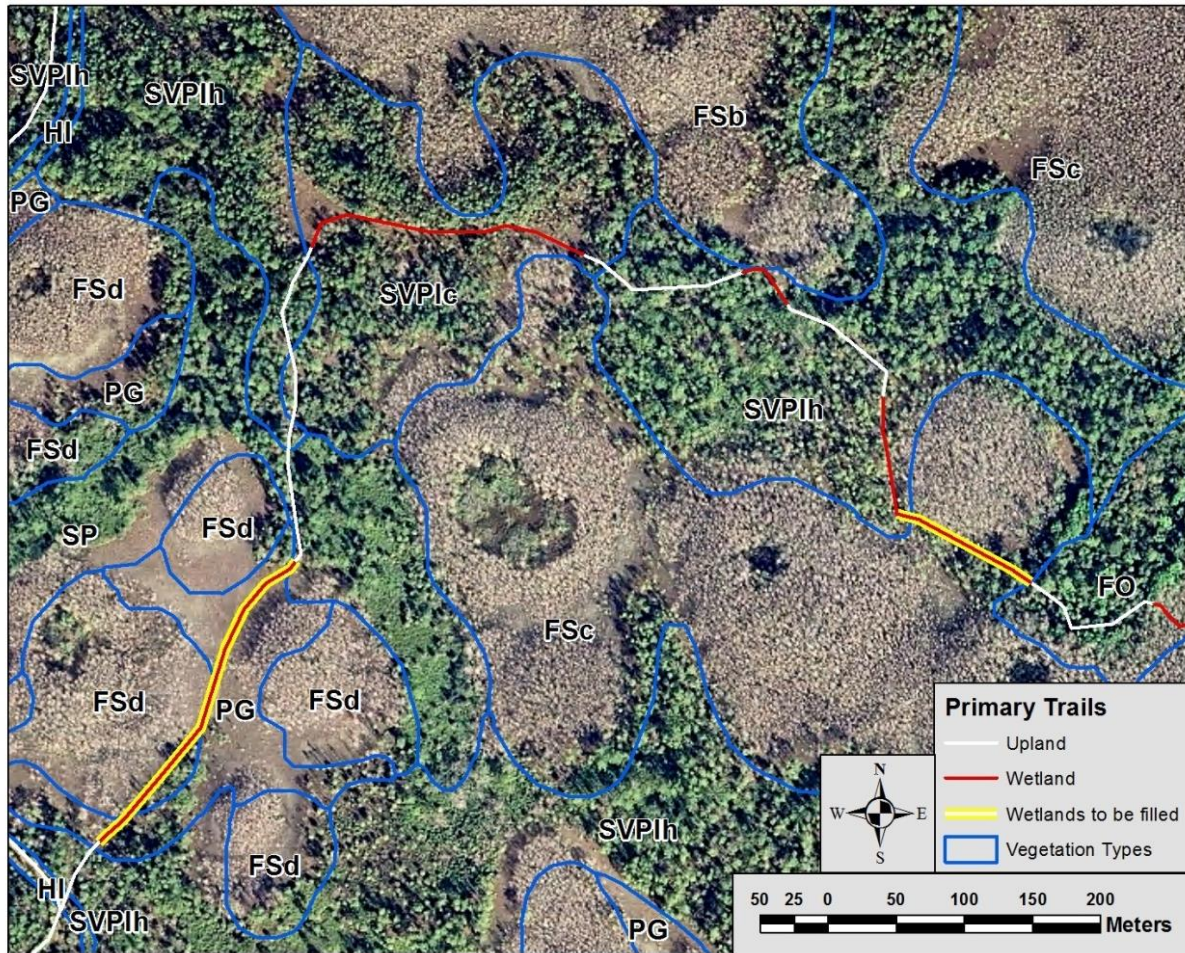


Figure 15. Trail Stabilization Area 11. Wetland communities are FSc: cypress strand (PFO2C, palustrine bald cypress forest, seasonal inundation), FSd: cypress domes/heads (PFO2C, palustrine bald cypress forest, seasonal inundation), and PG: graminoid prairie/marsh (PEM1C, palustrine persistent emergent, seasonal inundation).

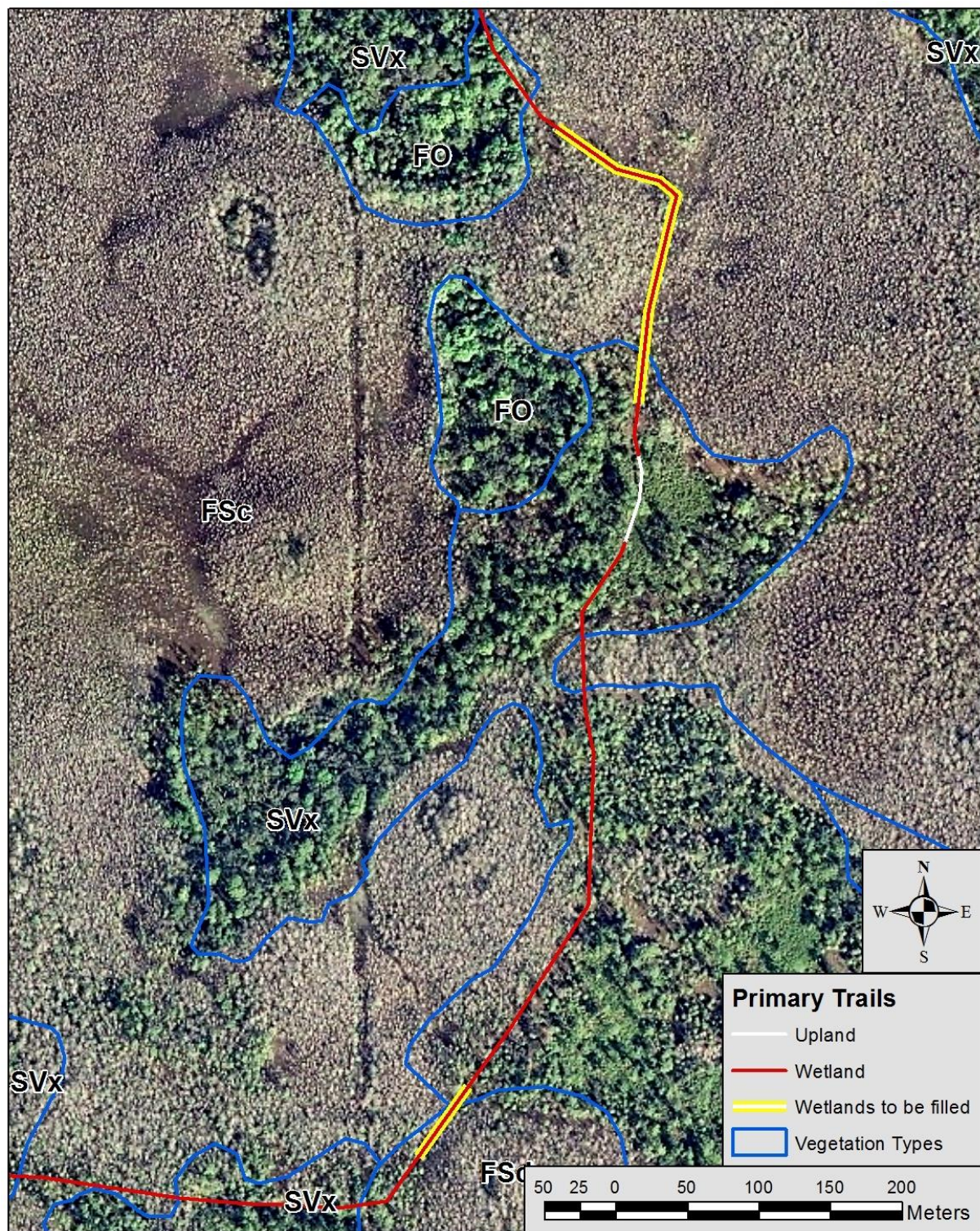


Figure 16. Trail Stabilization Area 12. Wetland communities are FSc: cypress strand (PFO2C, palustrine bald cypress forest, seasonal inundation), FSD: cypress domes/heads (PFO2C, palustrine bald cypress forest, seasonal inundation), and SVx: slash pine with palms (PFO4A, palustrine slash pine with palms, temporary inundation).

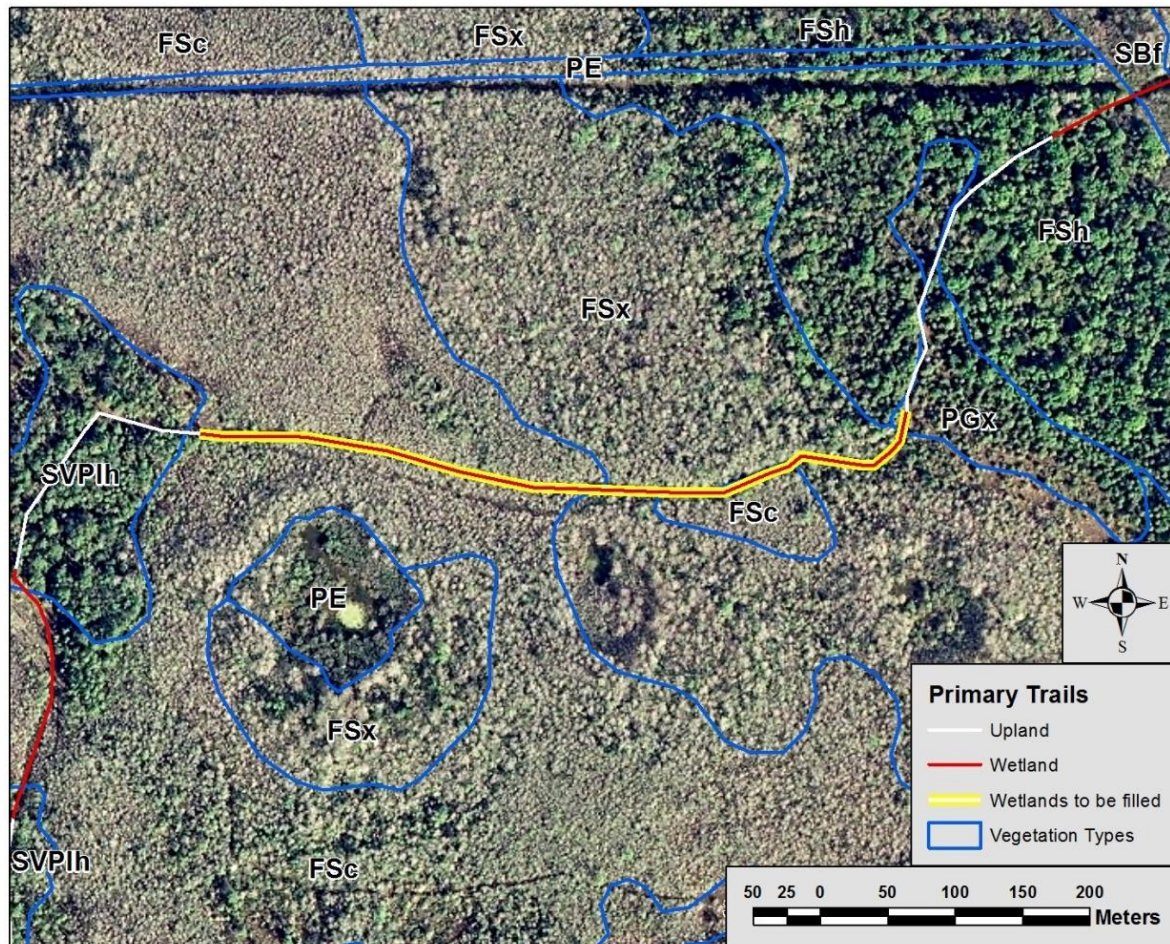


Figure 17. Trail Stabilization Area 13. Wetland communities are FSc: cypress strand (PFO2C, palustrine bald cypress forest, seasonal inundation) and FSx : cypress mixed hardwoods (PFO2C, palustrine mixed forest, seasonal inundation).

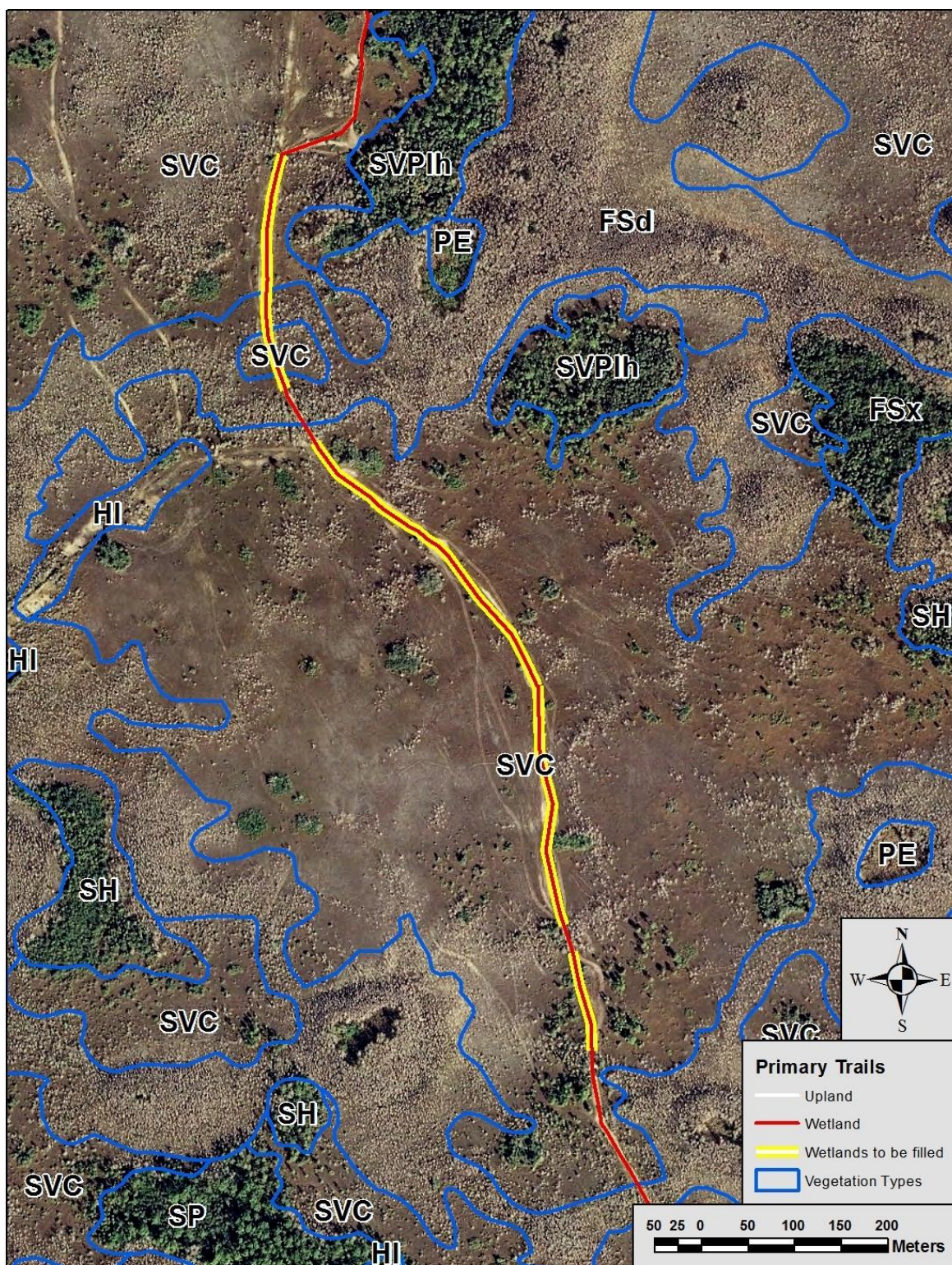


Figure 18. Trail Stabilization Area 14. Wetland communities are FSd: cypress domes/heads (PFO2C, palustrine bald cypress forest, seasonal inundation) and SVC: cypress savanna (PFO2C, palustrine bald cypress in graminoid prairie, seasonal inundation).

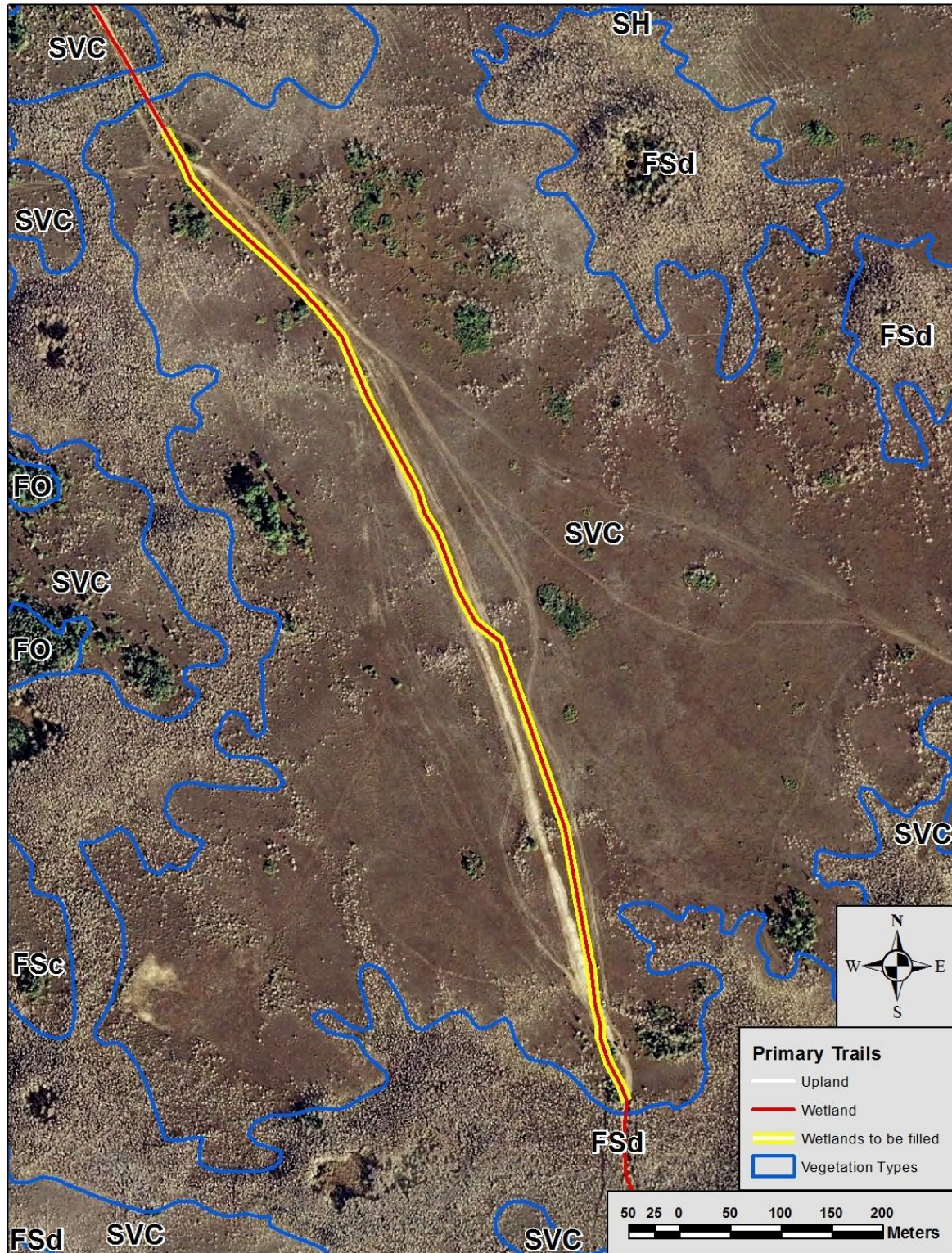


Figure 19. Trail Stabilization Area 15. Wetland community is SVC: cypress savanna (PFO2C, palustrine bald cypress in graminoid prairie, seasonal inundation).

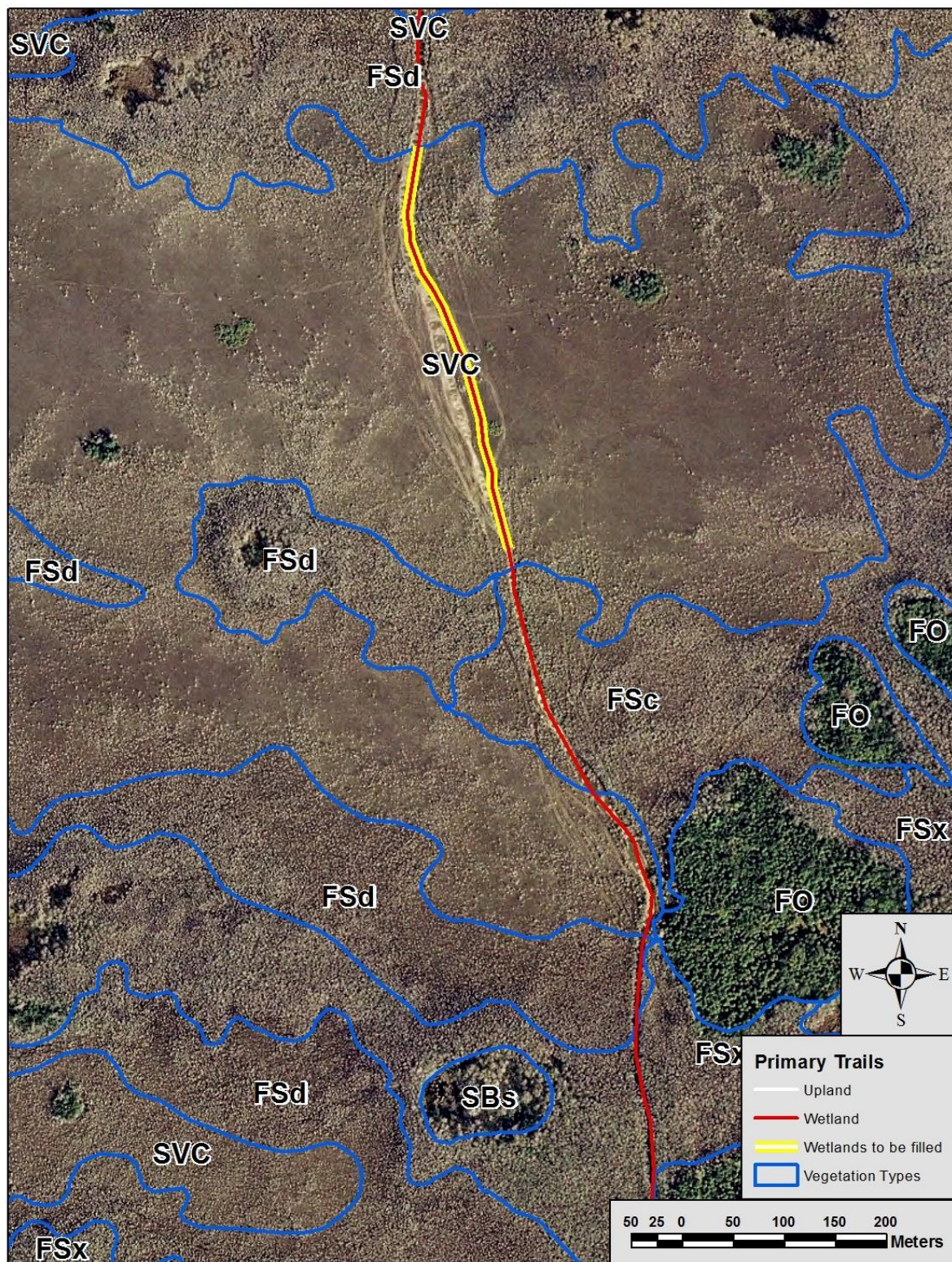


Figure 20. Trail Stabilization Area 16. Wetland community is SVC: cypress savanna (PFO2C, palustrine bald cypress in graminoid prairie, seasonal inundation).

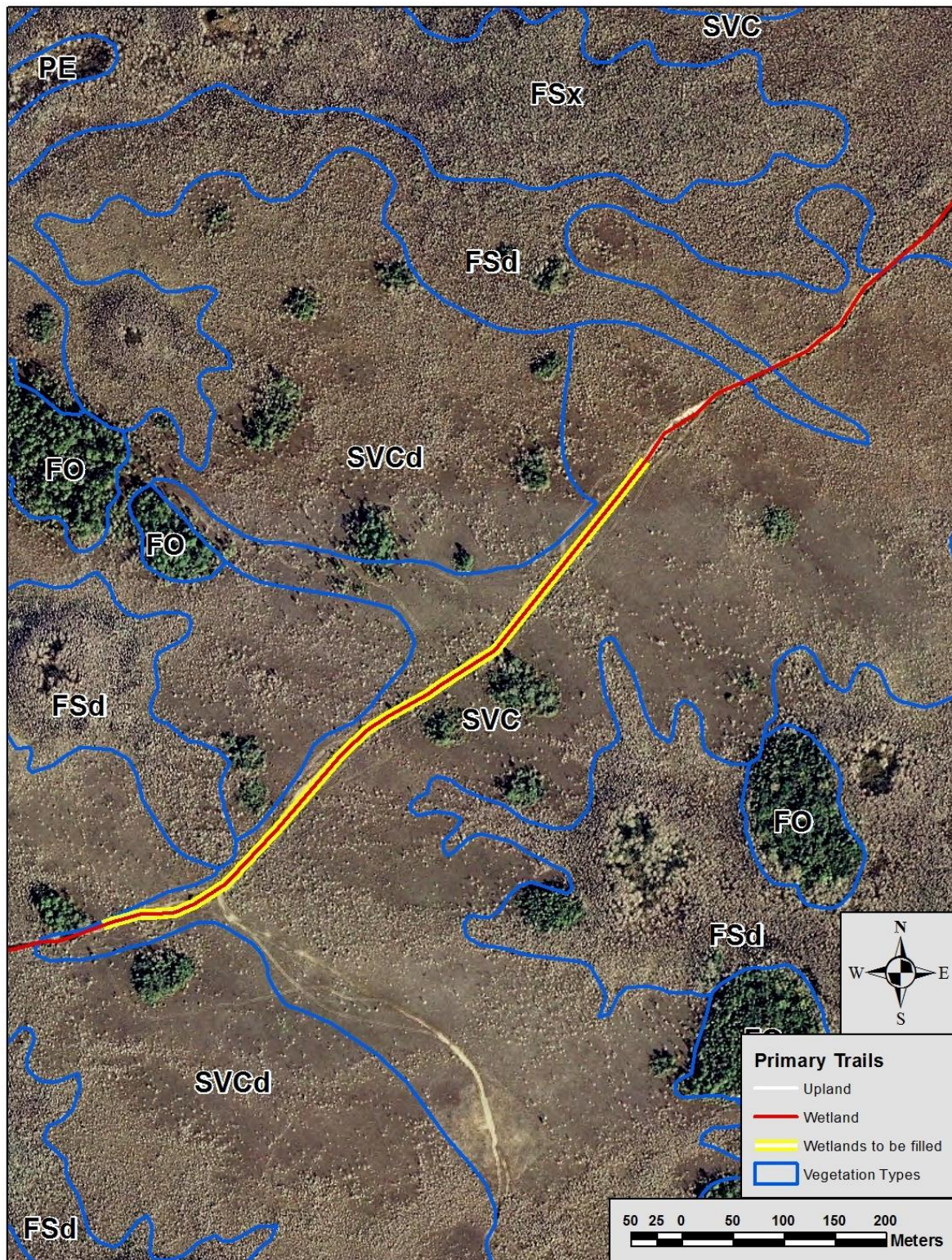


Figure 21. Trail Stabilization Area 17. Wetland community is SVC: cypress savanna (PFO2C, palustrine bald cypress in graminoid prairie, seasonal inundation).

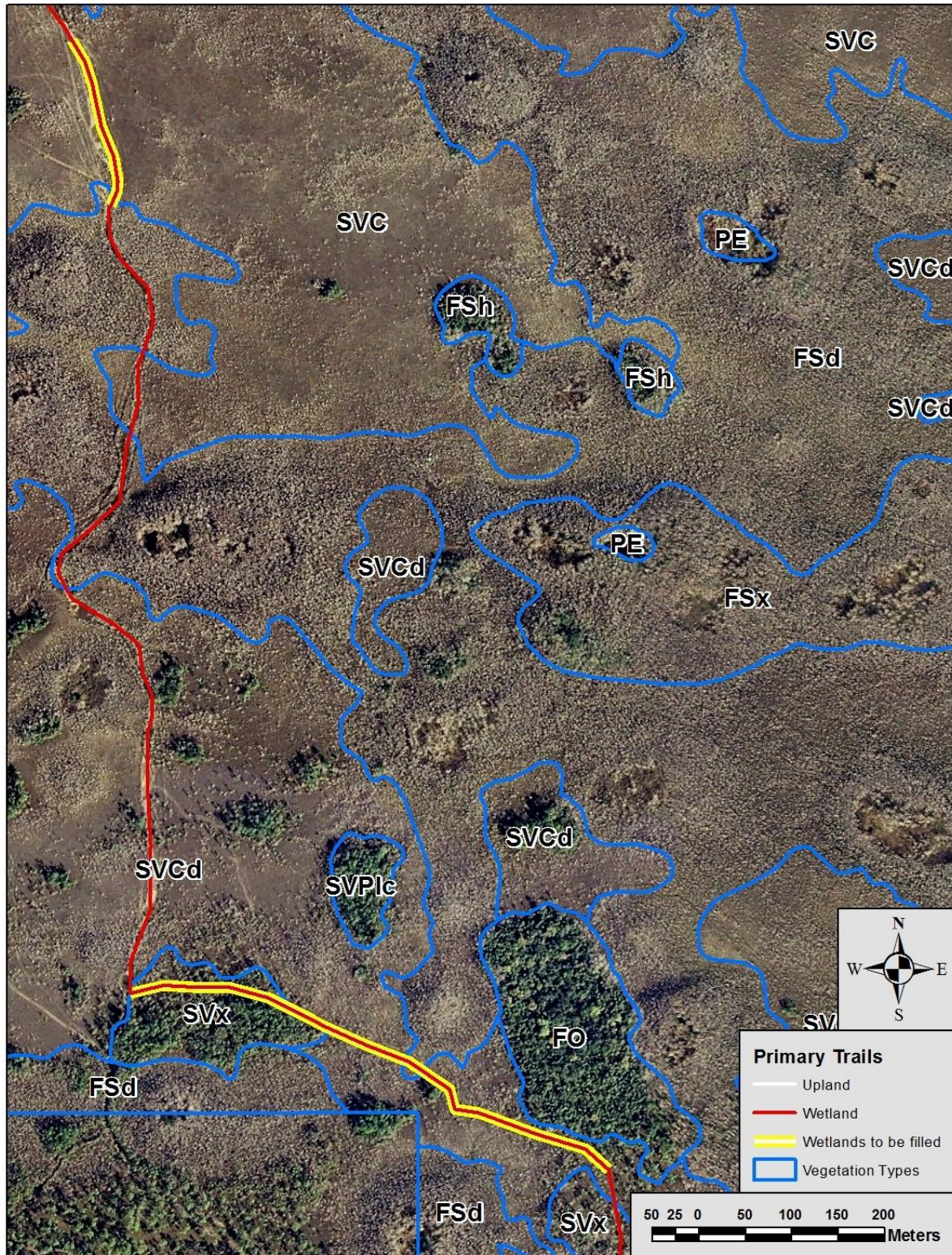


Figure 22. Trail Stabilization Area 18. Wetland communities are SVC: cypress savanna (PFO2C, palustrine bald cypress in graminoid prairie, seasonal inundation), SVCd: dwarf cypress (PSS2C, palustrine bald cypress scrub in graminoid prairie, seasonal inundation), and SVx: slash pine with palms (PFO4A, palustrine slash pine with palms, temporary inundation).

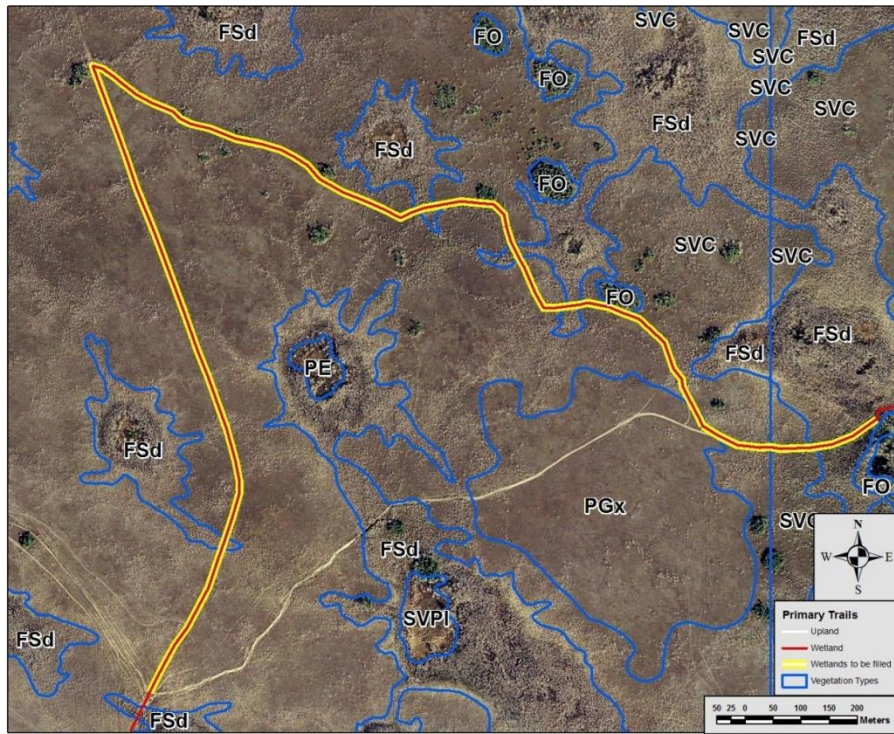


Figure 23. Trail Stabilization Area 19. Wetland communities are FSd: cypress domes/heads (PFO2C, palustrine bald cypress forest, seasonal inundation) and SVC: cypress savanna (PFO2C, palustrine bald cypress in graminoid prairie, seasonal inundation).

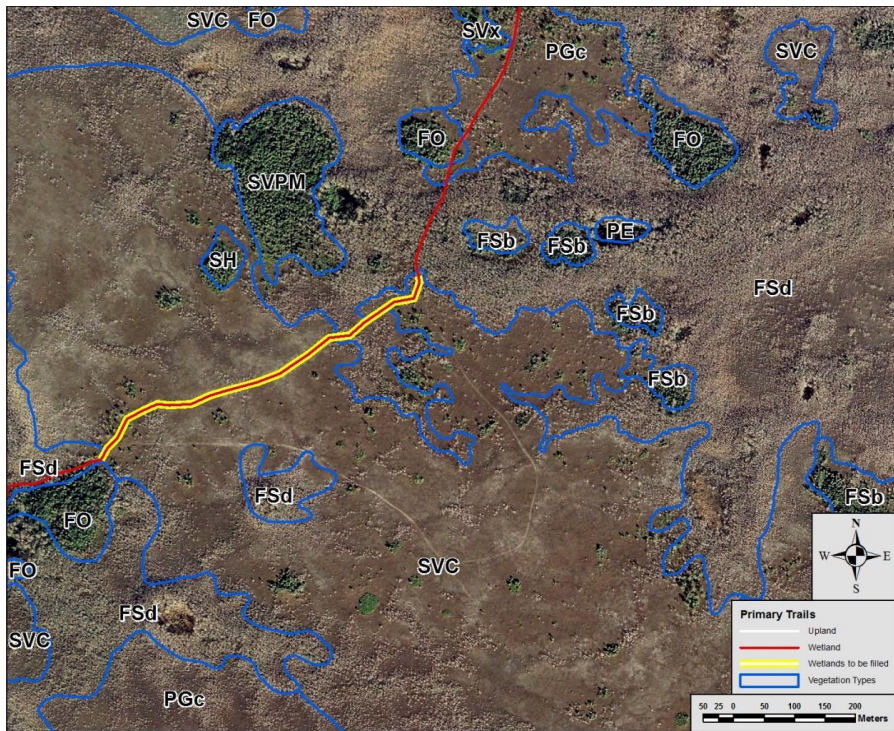


Figure 24. Trail Stabilization Area 20. Wetland communities are FSd: cypress domes/heads (PFO2C, palustrine bald cypress forest, seasonal inundation) and SVC: cypress savanna (PFO2C, palustrine bald cypress in graminoid prairie, seasonal inundation).

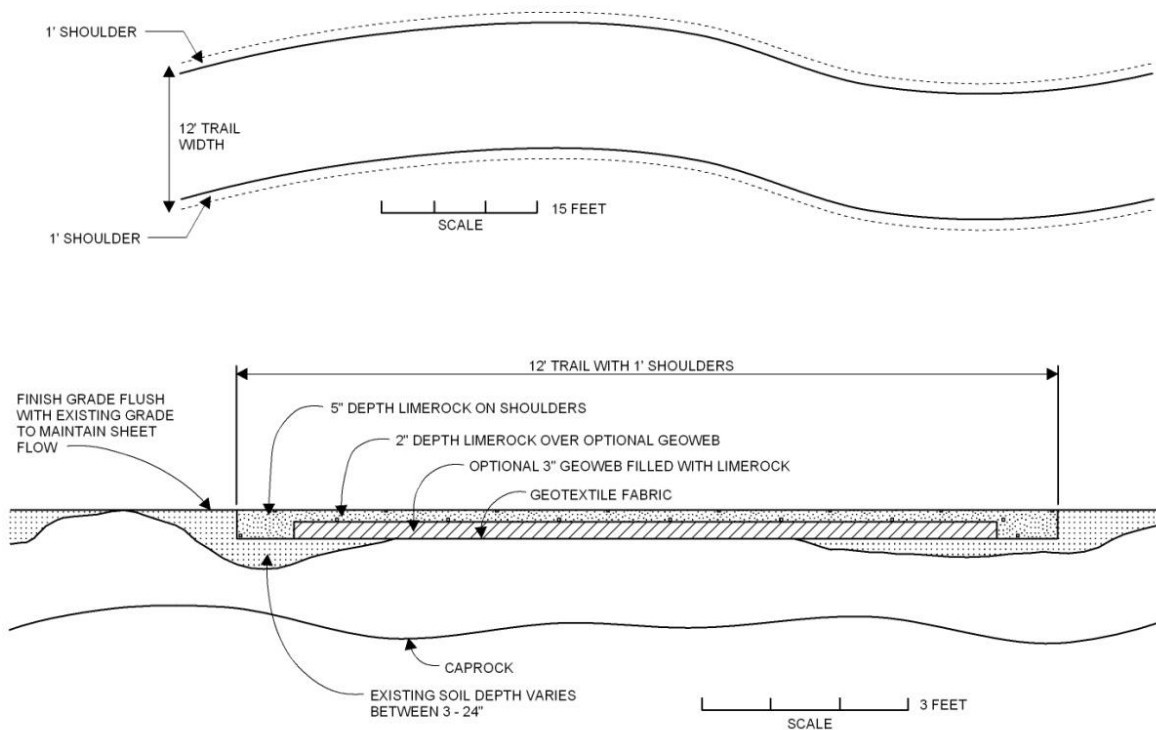


Figure 25. Typical stabilized trail plan and cross-sectional views.

Table 1. Wetland types (Cowardin et al. 1979) in and adjacent to ORV trail stabilization areas.

ORV Trail Stabilization Area (see figs. 5-24)	Description of Wetlands in Trail Area to be Stabilized	Description of Adjacent Wetlands
Area #1 Baker	PEM1C; palustrine persistent emergent, seasonal inundation, disturbed	PFO2C; palustrine bald cypress in graminoid prairie, seasonal inundation
	PEM1C; palustrine persistent emergent, seasonal inundation, disturbed	PFO4A; palustrine slash pine with hardwoods, temporary inundation
Area #2 East Baker	PUB3C; palustrine unconsolidated bottom, mud, seasonally flooded, disturbed	PFO2C; palustrine bald cypress in graminoid prairie, seasonal inundation
Area #3 North Boundary	PEM1C; palustrine persistent emergent, seasonal inundation, disturbed	PFO2C; palustrine bald cypress forest, seasonal inundation
	PEM1C; palustrine persistent emergent, seasonal inundation, disturbed	PFO2C; palustrine mixed forest, seasonal inundation
Area #4 North Central	PUB3C; palustrine unconsolidated bottom, mud, seasonally flooded, disturbed	PFO2C; palustrine mixed forest, seasonal inundation
Area #5 North Levee	PUB3C; palustrine unconsolidated bottom, mud, seasonally flooded, disturbed	PFO2C; palustrine mixed forest, seasonal inundation
Area #6 Central Levee	PEM1C; palustrine persistent emergent, seasonal inundation, disturbed	PFO2C; palustrine bald cypress forest, seasonal inundation
	PEM1C; palustrine persistent emergent, seasonal inundation, disturbed	PFO3A; palustrine mixed forest, temporary inundation
Area #7 South Levee	PEM1C; palustrine persistent emergent, seasonal inundation, disturbed	PEM1C; palustrine persistent emergent, seasonal inundation

Area #8 South Central	PEM1C; palustrine persistent emergent, seasonal inundation, disturbed	PEM1C; palustrine persistent emergent, seasonal inundation
	PEM1C; palustrine persistent emergent, seasonal inundation, disturbed	PSS3A; palustrine mixed scrub, temporary inundation
Area #9 East Nobles	PEM1C; palustrine persistent emergent, seasonal inundation, disturbed	PEM1C; palustrine persistent emergent, seasonal inundation
Area #10 BI Connector	PEM1C; palustrine persistent emergent, seasonal inundation, disturbed	PFO4C; palustrine slash pine in graminoid prairie, seasonal inundation
	PEM1C; palustrine persistent emergent, seasonal inundation, disturbed	PFO4A; palustrine slash pine with hardwoods, temporary inundation
	PEM1C; palustrine persistent emergent, seasonal inundation, disturbed	PFO2C; palustrine bald cypress forest, seasonal inundation
Area #11 West Nobles 2	PEM1C; palustrine persistent emergent, seasonal inundation, disturbed	PFO2C; palustrine bald cypress forest, seasonal inundation
	PEM1C; palustrine persistent emergent, seasonal inundation, disturbed	PEM1C; palustrine persistent emergent, seasonal inundation
Area #12 West Nobles 1	PUB3C; palustrine unconsolidated bottom, mud, seasonally flooded, disturbed	PFO2C; palustrine bald cypress forest, seasonal inundation
	PUB3C; palustrine unconsolidated bottom, mud, seasonally flooded, disturbed	PFO4A; palustrine slash pine with palms, temporary inundation
Area #13 East Baker Pipeline	PUB3C; palustrine unconsolidated bottom, mud, seasonally flooded, disturbed	PFO2C; palustrine mixed forest, seasonal inundation
	PUB3C; palustrine unconsolidated bottom, mud, seasonally flooded, disturbed	PFO2C; palustrine bald cypress forest, seasonal inundation
Area #14 Add 1 North	PEM1C; palustrine persistent emergent, seasonal inundation, disturbed	PFO2C; palustrine mixed forest, seasonal inundation
	PEM1C; palustrine persistent emergent, seasonal inundation, disturbed	PFO2C; palustrine bald cypress forest, seasonal inundation
Area #15 Add 1 Central	PEM1C; palustrine persistent emergent, seasonal inundation, disturbed	PFO2C; palustrine bald cypress in graminoid prairie, seasonal inundation
Area #16 Add 1 South	PEM1C; palustrine persistent emergent, seasonal inundation, disturbed	PFO2C; palustrine bald cypress in graminoid prairie, seasonal inundation
Area #17 Add 2	PEM1C; palustrine persistent emergent, seasonal inundation, disturbed	PFO2C; palustrine bald cypress in graminoid prairie, seasonal inundation
Area #18 Add 1 Boundary	PEM1C; palustrine persistent emergent, seasonal inundation, disturbed	PFO2C; palustrine bald cypress in graminoid prairie, seasonal inundation
	PEM1C; palustrine persistent emergent, seasonal inundation, disturbed	PSS2C; palustrine bald cypress scrub in graminoid prairie, seasonal inundation
	PEM1C; palustrine persistent emergent, seasonal inundation, disturbed	PFO4A; palustrine slash pine with palms, temporary inundation
Area #19 Add 1 West	PEM1C; palustrine persistent emergent, seasonal inundation, disturbed	PFO2C; palustrine bald cypress forest, seasonal inundation
	PEM1C; palustrine persistent emergent, seasonal inundation, disturbed	PFO2C; palustrine bald cypress in graminoid prairie, seasonal inundation
Area #20 Add 1 East	PEM1C; palustrine persistent emergent, seasonal inundation, disturbed	PFO2C; palustrine bald cypress forest, seasonal inundation
	PEM1C; palustrine persistent emergent, seasonal inundation, disturbed	PFO2C; palustrine bald cypress in graminoid prairie, seasonal inundation

General Condition of the Areas Described

Virtually all naturally occurring wetlands in the Northeast Addition are palustrine, as they are nontidal wetlands dominated by trees, shrubs, persistent emergent and open with an area less than 8 hectares (20 acres), with most seasonally inundated. Some wetland areas are seldom without water and are not populated with emergent vegetation, but these are less than 8 hectares. There are several human-constructed water bodies, a few of which may be considered riverine (artificially created and periodically or continuously containing moving water). Much of the area and concomitant natural communities in the Addition are palustrine wetlands populated with wetland vegetative communities and wildlife that are adapted to these conditions. The topography of the area exhibits little relief, thus water depth in most places is less than one meter during the wet season. Hydroperiods vary from a few days per year to year-round, depending on topography and each year's rainfall; runoff of surface water is minimal, and most standing water exits the area by way of evapotranspiration.

The areas described in Table 1 are slightly to moderately disturbed from trail development and ORV use but nevertheless appear to function well as natural systems. All wetland areas that are described here and proposed for trail stabilization are ORV trails and are therefore compromised. Because of ORV use, trails are essentially devoid of woody and sometimes herbaceous vegetation, and thus the wetland classification usually differs from that of the adjacent, undisturbed wetlands. In many of the areas adjacent to the identified trails, other trails have been made over time; restricting travel to proposed stabilized trails will allow the adjacent areas that are compromised by additional trails to become naturally restored.

Exotic (invasive) plants are a problem throughout south Florida and have become established in much of BCNP. Many of these plants are associated with human activities, including ORV use. However, BCNP Resource Management has maintained an aggressive and successful program of exotic plant management for over two decades and will continue to control these plants with ongoing removal and habitat restoration programs. The following briefly describes activities for three priority exotics in the Addition.

Old World climbing fern (*Lygodium microphyllum*). This plant is rapidly becoming a significant problem exotic throughout south Florida. It apparently originated in the Palm Beach County area on the east coast of the state and has been spreading rapidly westward and southward. Another similar exotic climbing fern, *Lygodium japonicum*, causes similar problems with native communities but is more common to the north. It has been recorded in the Addition but is not common there. The first recorded treatment of Old World climbing fern in BCNP occurred in 1998. Since then this exotic plant has been found in about 150 sites in BCNP. Infestations have been found throughout BCNP, with the greatest concentration in the Northeast Addition. Most of these infestations are small (<0.5 acre), though some larger areas have been found. The goal of treatment is to prevent incipient infestations of Old World climbing fern from becoming major

eradication problems in BCNP. To date, all known infestations of this plant in the Addition have been treated at least three times. However, further establishment of this fern in the Addition is anticipated, and detailed reconnaissance to locate infestations occurs annually.

Melaleuca (*Melaleuca quinquenervia*). This plant is now under control. All of BCNP has been treated at least once, and treatments for this tree are now re-treatments of infested areas.

Treatment of melaleuca is by hand pulling, when plants are small enough, and cut-stump treatment. Stumps are treated with a mixture of glyphosate and imazapyr; these chemicals are sold under several different commercial names. Over 16 million melaleuca trees have been removed from BCNP, and in the Addition about 632,000 stems have been treated.

Brazilian pepper (*Schinus terebinthifolius*). In 2005 BCNP initiated large-scale treatment of Brazilian pepper in the Addition north of I-75 and west of Nobles Grade. This is an area with perhaps the greatest concentration of Brazilian pepper in BCNP. Much of this area was disturbed by small-scale agriculture and grazing, with several hunting camps and many swamp buggy trails; these changes to the landscape created significant areas for Brazilian pepper establishment. Since 2005 about 10,838 acres of moderate to dense infestation of Brazilian pepper have been treated in the Addition.

Wetland Functions and Values

This section describes the functions and values of typical palustrine wetlands (Figure 26) as well as unique features of the palustrine wetlands found in the Northeast Addition. The palustrine system includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 parts per thousand. The palustrine system was developed to group the vegetated wetlands traditionally called by such names as marsh, swamp, bog, fen, and wet prairie. It also includes the small, shallow, permanent or intermittent water bodies often called ponds. Palustrine wetlands may be situated shoreward of lakes, river channels, or estuaries; on river floodplains; in isolated catchments; or on slopes.

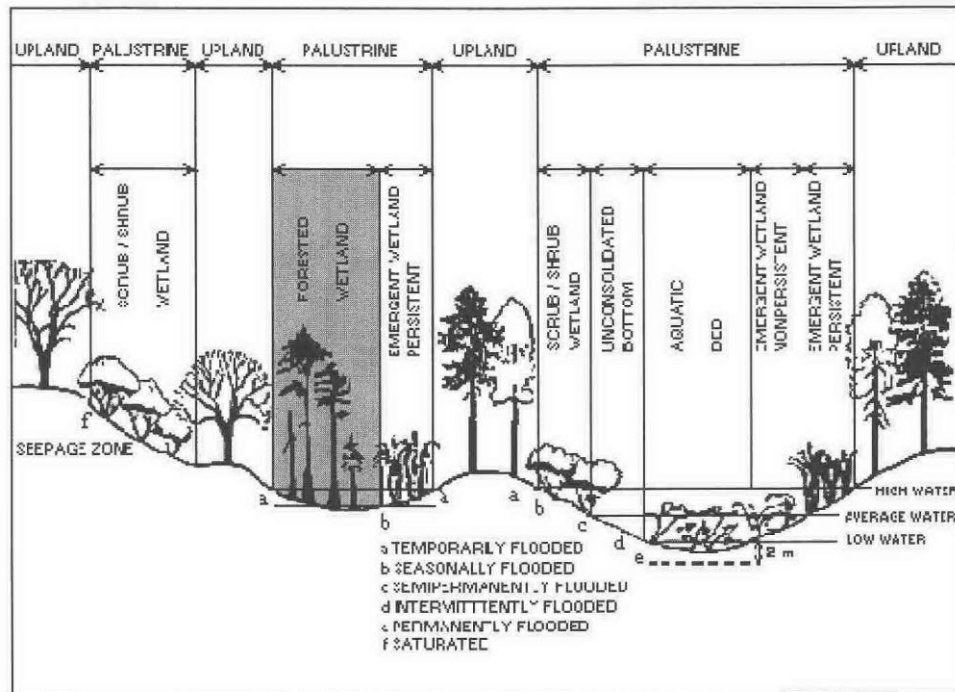


Figure 26. Profile of a palustrine wetland system.

Functions and values shared by the wetland types that will be impacted by trail stabilization include:

Biotic Functions. The Northeast Addition palustrine wetlands provide important habitat for mammals, birds, reptiles, amphibians, fishes, and invertebrates. Federally endangered or threatened species such as the Florida panther and the wood stork also use these wetlands at some point in their lives.

Hydrologic Functions. The wetlands attenuate downstream flooding. Rainwater and water flowing into the Northeast Addition is captured, stored, and slowly released, thereby reducing the impact of downstream flooding. The storage capability of wetlands in the Northeast Addition is critical to the quality and availability of groundwater in the shallow aquifer of southwest Florida, the major water source for the area. The high clarity of water in the Northeast Addition can be attributed to the ability of its wetlands to trap sediment, acting as sinks or basins, and these wetlands act as filters and sponges, removing nutrients such as nitrogen and phosphorus.

The Big Cypress Swamp is a recognized physiographic province in southwest Florida. It is a source of recharge for the shallow aquifers of south Florida and is important to the integrity of the water resources in western Everglades National Park. The hydrologic features of the swamp were recognized by Congress when it established BCNP and the Addition.

The original BCNP is essentially a rain-driven hydrologic unit and for the most part is not dependent on adjacent land for water flow. However, the Addition is more prominently

influenced by upstream inputs from external drainages. Like the original BCNP, the Addition is flooded with a shallow sheet of surface water starting shortly after the onset of the rainy season (usually in June) and ending in the winter dry season after surface waters recede. Rainfall averages 54 inches per year, but it has ranged from 35 inches to 80 inches per year. Summer rains are usually short, intense, and frequent. Winter rains are a result of frontal systems, and they last longer and have less intensity. Tropical systems, including hurricanes, occur most frequently in September and October and can sometimes bring significant and torrential rainfall.

During the rainy season, shallow depressions fill with water. Because of the poor drainage, water stands on the land until it evaporates, infiltrates to the underlying aquifer, or slowly drains off through sloughs or strands. Thus, at the peak of the rainy season, as much as 90% of the Addition is inundated to depths ranging from a few inches to more than 3 feet. When the dry season begins, the water level starts to recede. The recession normally continues into May, when perhaps only 10% of the Addition is covered by water in ponds, cypress domes, and sloughs. The water regimen of the area largely determines the patterns in which temperate and tropical vegetative communities and their related wildlife species occur.

Cultural Values. The palustrine wetlands provide value as areas utilized for fishing, birding, education, nature enjoyment, and wildlife photography. The nearness and accessibility of the Northeast Addition to metropolitan areas on both Florida coasts make its wetlands a prime destination for these activities. The wetlands have also long been utilized by American Indians and others for hunting and camping.

Research/Scientific Values. This area is available to researchers for study through the NPS permitting process. Because of its size and large areas eligible or proposed for wilderness designation, the wetlands of the Northeast Addition provide largely undisturbed areas for research.

Economic Values. The wetlands of south Florida are a major tourist attraction, feeding into the area's economy. Tourists have been traditionally attracted to the mostly nonforested wetlands typified by Everglades National Park, but forested wetlands common in the Big Cypress Swamp are gaining in popularity for visitors seeking to view the unique plants and animals found there.

Following are descriptions of the wetland types in and adjacent to the areas proposed for trail stabilization:

Palustrine forested, needle-leaved deciduous, seasonally flooded (PFO2C). This forest type is the most common in BCNP and is most often dominated by bald cypress (*Taxodium distichum*) with various tree, shrub, epiphyte, and ground cover components, depending on hydrologic or edaphic conditions. Cypress strands, cypress domes, mixed hardwood swamps, marshes, and sloughs are the wettest of all vegetated communities in the Addition. The interiors of these areas serve as important refuges and concentration points for water-dependent wildlife during the annual dry season. Generally, these communities are natural barriers to ORVs, as tree densities

limit ORV travel. Also, these wetlands are associated with topographic depressions, so that water depth increases substantially from their edges to the center. Because of these limits, ORV travel is constrained to the few trails that occur in these communities. A significant area also is co-dominated by slash pine (*Pinus elliottii*); these communities also vary in structure and composition with physical surroundings as those dominated by bald cypress.

Palustrine forested, needle-leaved evergreen, temporarily flooded (PFO4A). This community is most often a pine flatwoods habitat dominated by slash pine, commonly with a dense saw palmetto (*Serenoa repens*) understory. Pine forests occur in areas that are higher than most wetlands, such that their substrates are seldom inundated. However, during very high water some parts of these communities may flood, and thus they are considered wetlands.

Palustrine emergent, persistent, seasonally flooded (PEM1C). These areas are dominated by herbaceous, emergent ground cover, commonly blue maidencane (*Amphicarpum muhlenbergianum*) or muhly grass (*Muhlenbergia capillaris*). The community composition varies with hydrology and edaphic conditions and may support sparse bald cypress, slash pine, or other trees. Soil is usually calcareous marl (limestone) precipitated, at least in part, by green and blue-green algae and other microorganisms in the periphyton. Most of the stabilization areas fall into this category.

Palustrine scrub-shrub, broad-leaved evergreen, temporarily flooded (PSS3A). These are prairies that support shrubby hardwoods such as cocoplum (*Chrysobalanus icaco*) or wax myrtle (*Myrica cerifera*) and stunted trees such as live oak (*Quercus virginiana*) or dahoon holly (*Ilex cassine*). Frequent fires commonly inhibit robust tree development.

Palustrine forested, needle-leaved evergreen, seasonally flooded (PFO4C). This ecotonal community is dominated by slash pine and bald cypress, with graminoids that are commonly found in wet prairies. The resident trees of both hydric and mesic communities are able to tolerate the intermediate conditions between both communities, so that components of both communities are able to survive to form a significant transition community.

Palustrine scrub-shrub, needle-leaved deciduous, seasonally flooded (PSS2C). This community also covers much area in BCNP and is an ecotonal community with components commonly found in forests dominated by bald cypress and prairies dominated by herbaceous ground cover.

Palustrine forested, broad-leaved evergreen, temporarily flooded (PFO3A). These are insular communities that are usually dominated by hardwoods with sabal palms (*Sabal palmetto*); saw palmetto frequently occurs as part of the shrub layer. The communities occur on slightly elevated areas, and so the soils are generally drier than the surrounding wetlands. These areas are seldom inundated, but during very high water some parts of these communities may flood, and thus they are considered wetlands.

Palustrine unconsolidated bottom, mud, seasonally flooded (PUB3C). This wetland type is found mostly in a few stabilization areas and trails where repeated passages of ORVs have eliminated all vegetation.

ADVERSE IMPACTS TO WETLANDS FROM THE SELECTED ALTERNATIVE

Qualitative Impacts

The qualitative impacts of the preferred and ultimately selected alternative on wetland values and functional integrity from ORV use in the Addition are described in the GMP as long term, moderate, adverse, and localized. Specifically, these impacts include:

Loss of wetlands – Placement of fill in the areas where stabilization is required may result in loss of wetland habitat; however, because these areas are existing trails, the loss of habitat may not be as great as would be the case if the wetlands were undisturbed.

Vegetation displacement – Trails where wetland vegetation is present may experience loss of vegetation due to placement of fill and ORV use.

Rutting – Trails crossing areas with soft substrate may experience rutting from ORVs. Placement of fill in such areas will eliminate the ruts.

Altered wetland hydrology – Ruts and ridges from ORV use may alter wetland hydrology by blocking natural sheet flow or channelizing. However, areas to be stabilized may actually benefit hydrologically by leveling of the trail surface to approximate the adjacent natural wetland grade (Figure 25). All placement of fill will be at adjacent natural wetlands grade.

Soil compaction – Passage of ORVs may compact the soil, thereby altering vegetation reestablishment and species composition and increasing the risk of invasive exotic plant establishment.

Diminished wetland habitat value – ORV use may lower habitat value through altered vegetation, wildlife habitat, and noise. Placement of fill will eliminate wetland vegetation and associated functions and values.

Water quality – Trail stabilization, use, and maintenance may result in erosion, sedimentation, and increased turbidity. Such impacts will be temporary.

Quantitative Impacts

The areas indicated in Figs. 4-24 as wetlands to be filled total 10.63 acres, based on a 12-foot trail width. Quantitative impacts to wetland community types are presented in Table 2.

Table 2. Wetland acres to be filled from ORV trail stabilization.

Location	Wetland Type to be Filled		Total
	PEM1C	PUB3C	
Area #1	0.36		0.36
Area #2		0.14	0.14
Area #3	0.77		0.77
Area #4		0.29	0.29
Area #5		0.02	0.02
Area #6	0.15		0.15
Area #7	0.21		0.21
Area #8	0.26		0.26
Area #9	0.17		0.17
Area #10	0.35		0.35
Area #11	0.33		0.33
Area #12	0.28		0.28
Area #13		0.51	0.51
Area #14	0.89		0.89
Area #15	0.98		0.98
Area #16	0.37		0.37
Area #17	0.65		0.65
Area #18	0.69		0.69
Area #19	2.63		2.63
Area #20	0.58		0.58
Total	9.67	0.96	10.63

The vast majority (91%) of the fill acreage is PEM1C, with the remainder (9%) being PUB3C.

Functional loss due to wetland impacts was assessed by the Uniform Mitigation Assessment Method (UMAM), used by the South Florida Water Management District to quantify wetland function. A preliminary UMAM assessment was conducted for the anticipated wetland impacts from trail stabilization to generally assess wetland function and estimate mitigation needs. A final UMAM will be performed in connection with agency permitting. Results of the initial UMAM analysis by wetland type are shown in Table 3. For projected wetland impacts totaling 10.63 acres, there is an anticipated functional loss of 1.80 units.

Table 3. Preliminary UMAM functional assessment of wetland impacts.

Wetland Type	Acres	Location and Landscape Support		Water Environment		Community Structure		Delta	Functional Units
		Pre	Post	Pre	Post	Pre	Post		
PEM1C	9.67	9	9	10	10	7	2	-0.17	-1.64
PUB3C	0.96	9	9	10	10	5	0	-0.17	-0.16
Total	10.63	-	-	-	-	-	-	-	-1.80

WETLAND IMPACT AVOIDANCE, MINIMIZATION, AND COMPENSATION

Efforts to Avoid and Minimize Impact

The conceptual ORV primary trail system described in the GMP for the preferred alternative was developed to avoid or minimize wetland impacts by taking advantage of existing roads, trails, levees, and other disturbed areas. Although the Addition has been closed to public ORV use since its acquisition, there are numerous roads and trails that have historically been used by motorized vehicles for hunting, logging, oil/gas operations, cattle grazing, agriculture, and landowner, tribal, and administrative access. Most of the proposed ORV trails north of I-75 will utilize elevated roads and will require few if any improvements to make them sustainable for ORV use. Other trails, though not elevated roads, are located either in uplands or in wetlands with underlying cap rock close to the surface and will similarly require little improvement other than marking and signage prior to designation. No trails are proposed in undisturbed or pristine wetlands.

As part of the GMP process, in 2006 BCNP staff completed a field evaluation of the existing roads and trails in the Addition. Each trail was assessed for sustainability, and data such as trail length, width, presence of ruts, vegetation type, level of use, and exotics were collected. Trails not determined to be sustainable for ORV use were dismissed from further consideration. The remaining sustainable trails formed the basis for the conceptual primary trail systems included in the preferred alternative and alternative B.

The GMP preferred alternative was developed through a process of seeking public input and refinement through the Choosing by Advantages process, described in the “Alternatives” section above. After release of the draft GMP in 2009 for public comment, the preferred alternative was modified to reduce the total mileage of primary trails to further minimize impacts. Additionally, impacts will be minimized by use of best management practices, including:

Use of screened rock material. All rock fill used for stabilization will be screened to remove fine particles, ensuring minimum turbidity during stabilization and vehicle passage.

Dry season restriction. Stabilization will only be performed during the dry season to minimize impacts to wetlands, soils, and water quality.

The approach to stabilization will be similar to that employed in the original BCNP in that spot treatment, i.e., only treating those areas that truly need it, will be used. Excessive stabilization results in unnecessary impacts, diminished user experience, and increased construction time and cost.

Proposed Compensatory Mitigation Measures

To compensate for wetland functions and values lost as a result of trail stabilization, BCNP will enhance a 42-acre area of degraded wetlands in the northwest corner of BCNP (Figure 27). This area was originally a cypress prairie that was ditched and diked in the mid-twentieth century to convert the land to agricultural use. The changes resulted in altered hydrology and an increase in exotic vegetation. Enhancement will consist of removal of exotic vegetation, removal of dikes and other artificial features, and filling in the ditches to restore the original hydrology. It is expected that restoring the hydrology to its pre-disturbance condition will cause a change in vegetation to a wetland community similar to that which existed prior to disturbance, thereby increasing the wetland functional value. A preliminary UMAM analysis indicated enhancement of this area would result in a gain of 7.03 functional units, more than compensating for the 1.80 units lost from trail stabilization.

Mitigation Success Criteria

The mitigation will be considered successful if, at the end of a five-year monitoring program,

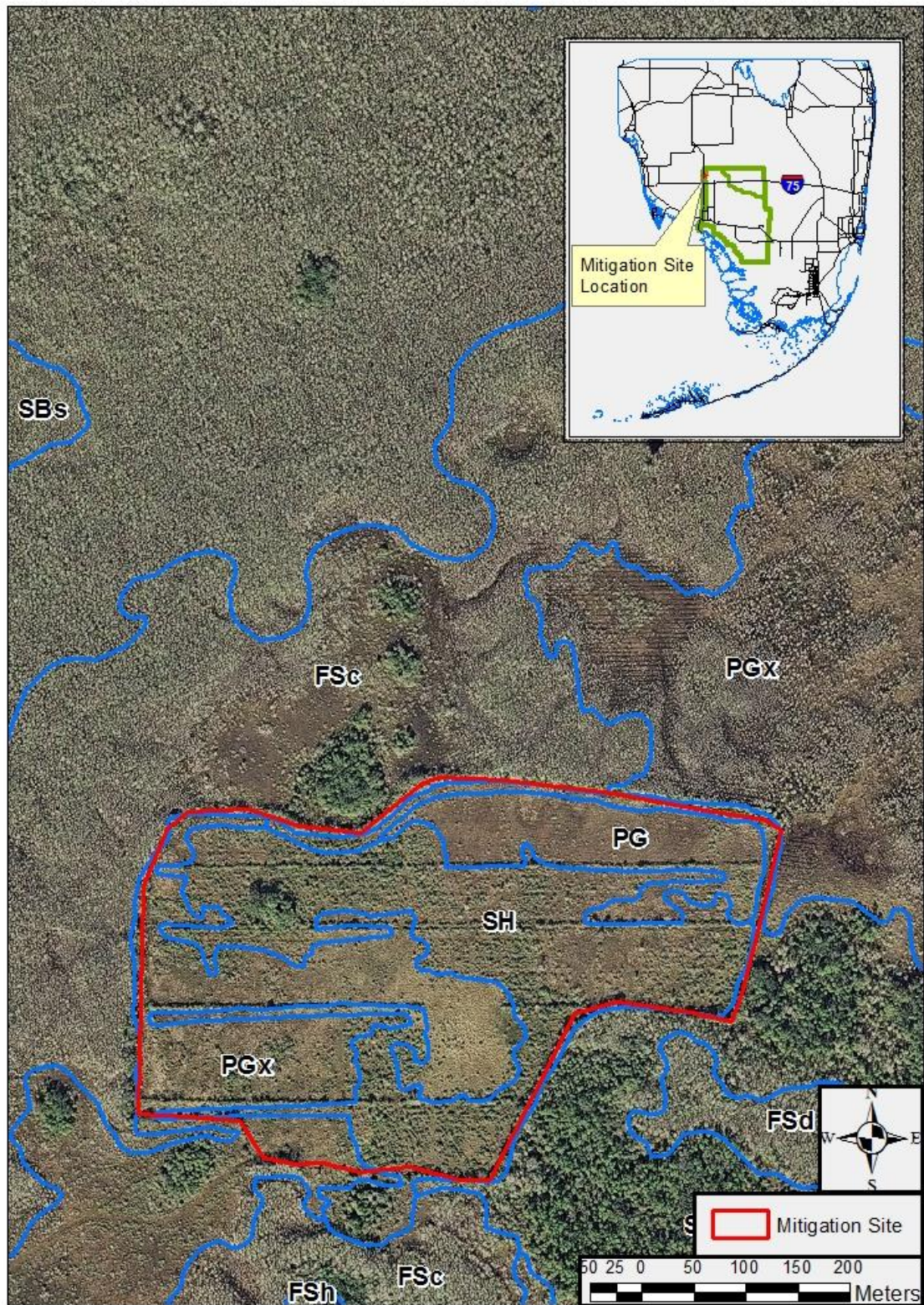


Figure 27. Proposed mitigation site for ORV trail stabilization impacts. Wetland communities are PGx: mixed graminoids (PEM1C, palustrine persistent emergent, seasonal inundation), SH: hardwood scrub (PSS2C, palustrine scrub-shrub, needle-leaved evergreen, seasonal inundation), and PG: graminoid prairie/marsh (PEM1C, palustrine persistent emergent, seasonal inundation).

the mitigation area contains no more than 5 percent cover by exotic invasive plants, and hydrophytic vegetation has become established at a percent cover within 20 percent of the cover of a similar type of nearby, naturally occurring wetlands.

ON-SITE MONITORING

Monitoring Methodology

Monitoring will be conducted at the mitigation site by a qualified wetland scientist. The monitoring process will commence immediately after the restoration, which will be designated as time zero, and at one-year intervals thereafter for five years.

The monitoring survey for the restoration site will document the status of vegetation, presence of invasive plants, wildlife activity observations, general weather conditions, and site photographs. An “as-built” report, to include a description of baseline or preconstruction conditions, will be prepared immediately after construction (i.e., at time zero) to document plant densities and describe the conditions of the restoration area. The annual monitoring reports will document the progress of the restoration efforts and monitor the success of natural species recruitment. All reports will be forwarded to appropriate state and federal regulatory agencies according to permit requirements, and copies will be maintained at BCNP headquarters. Any issues that arise or corrective action that needs to be taken will also be included in the monitoring reports. Observations of vegetation will be made along fixed transects at the restoration site to ensure identical sampling procedures throughout the time zero and the subsequent reporting cycles.

Wildlife Monitoring

During the monitoring program, observations of wildlife will be made in the restoration area via both visual means and inspection of physical evidence.

Photographic Documentation

Photograph stations will be identified in the restoration area. These locations will be used to document the physical condition of the restoration area during the five-year monitoring program.

MONITORING REPORTS

Monitoring reports will be prepared by BCNP staff to provide documentation of the wetland mitigation success and the general condition of the enhanced area. Monitoring reports will consist of the following information:

- Narrative description of the enhancement activities performed since the last report

- Explanation of maintenance work to be conducted over the next year
- List of wildlife species observed
- Results of vegetative monitoring
- Identification of non-native, invasive vegetation
- Photographs taken at photo station locations
- General weather description
- Description of any remedial action recommendations (if necessary)

These reports will be forwarded to appropriate state and federal regulatory agencies according to permit requirements, and copies will be maintained at BCNP headquarters.

LONG-TERM MAINTENANCE

Annual inspections of the mitigation restoration site will occur for the five years of the monitoring program. The inspections will be performed by a qualified wetland scientist. The mitigation site will be inspected and locations of exotic and/or nuisance species identified to be treated and removed. Notations will be made of any potential problems identified during the inspection. The site will be maintained continually to ensure exotics and nuisance species do not become the dominant vegetation in the mitigation areas. If necessary, BCNP will actively revegetate with native wetland species.

WORK SCHEDULE PLAN

The work schedule at Table 4 outlines activities and dates for monitoring program execution.

Table 4. Wetland mitigation restoration and monitoring schedule.

Task or Document	Anticipated Completion Date
Mitigation restoration work	January-March 2015
Time Zero monitoring report (i.e., as-built report)	April 2015
First monitoring report (after first year)	April 2016
Second monitoring report (after second year)	April 2017
Third monitoring report (after third year)	April 2018
Fourth monitoring report (after fourth year)	April 2019
Final monitoring report (after fifth year)	April 2020

COMPLIANCE

Clean Water Act – Section 404

The proposed actions impact waters of the United States as defined by the Clean Water Act and are therefore subject to review by the US Army Corps of Engineers. Section 401 of the Clean Water Act is a certification by the state that the project impacts to water quality will not exceed the state's water quality standards. Section 404 of the Act requires a permit for any activity which may result in the discharge of dredged or fill material into navigable waters. Therefore, Section 401 and Section 404 permits will be required for this project.

State of Florida Requirements

The proposed action will also require an Environmental Resource Permit from the South Florida Water Management District as required by Chapter 40E-4, Florida Administrative Code.

National Environmental Policy Act

The 2010 Final EIS and ROD for the *Addition General Management Plan/Wilderness Study/ Off-Road Vehicle Management Plan* and related NHPA Section 106 compliance review, ESA Section 7 consultation, Statement of Findings for Executive Order 11988 (Floodplain Management), and this WSOE for Executive Order 11990 will complete the requirements for the National Environmental Policy Act for this project.

CONCLUSION

The National Park Service finds that there is no practical alternative to impacting 10.63 acres of wetlands in order to stabilize ORV trails in the Northeast Addition of BCNP. A total of 42 acres of similar, degraded wetlands will be enhanced as compensation for these impacts. Wetlands have been avoided to the maximum practical extent, and the wetland impacts that cannot be avoided will be minimized. This project is consistent with the NPS no-net-loss of wetlands policy. The National Park Service, therefore, finds that this project is in compliance with Executive Order 11990, "Protection of Wetlands."

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